



## A checklist of the hoverflies (Diptera: Syrphidae) of Austria

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### Abstract

Hoverflies are a conspicuous and popular family within the Diptera. The larvae as well as the adults are able to colonize a wide range of habitats, and many species play important roles as pollinators, in pest management and nowadays in applied nature conservation issues. Despite of this, the state of knowledge on the hoverflies of Austria is deficient: Available literature is outdated in systematics and the species inventory is obviously incomplete. These facts led us to study the Austrian hoverfly fauna in more detail. Syrphidae records from an extensive literature search, additional unpublished data from museum collections and data from own fieldwork were compiled to build a comprehensive checklist of Austrian hoverflies. The species distributions are given by federal state in order to retain a precise overview of this Diptera group. The framework of this research is based on 20520 records and in total, 271957 individuals. The checklist includes 430 confirmed species. An additional 25 hoverfly species are discussed but not included in the list. These are species for which it is unclear if the locality lies within the present borders of Austria, or whose voucher specimens were not available for re-examination. In total 17 hoverfly species are new to Austria: *Anasimyia contracta* Claussen & Torp, 1980; *Brachyopa grunewaldensis* Kassebeer 2000; *Brachyopa obscura* Thompson & Torp, 1982; *Brachyopa silviae* Doczkal & Dzioc, 2004; *Cheilosia orthotricha* Vujić & Claussen, 1994; *Eristalis picea* (Fallén, 1817); *Melangyna ericarum* (Collin, 1946); *Melangyna lucifera* Nielsen, 1980; *Melangyna pavlovskyi* Violovitsh, 1956; *Melanogaster curvistylus* Vujić & Stuke, 1998; *Merodon moenium* (Wiedemann, 1822); *Paragus absidatus* Goeldlin, 1971; *Paragus bradescui* Stanescu, 1981; *Platycheirus laskai* (Nielsen, 1999); *Sphagina verecunda* Collin, 1937; *Temnostoma angustistriatum* Krivosheina, 2002 and *Temnostoma meridionale* Krivosheina & Mamayev, 1962. In addition, 278 first records for several Austrian federal states are published. With 331 species, Styria currently hosts the largest number of documented species per federal state, followed by Lower Austria (307 spp.), Upper Austria (269 spp.), Carinthia (259 spp.), Vorarlberg (234 spp.), Burgenland (201 spp.), North Tyrol (172 spp.), Vienna (169 spp.), Salzburg (155 spp.) and Eastern Tyrol (154 spp.).

**Key words:** Austrian fauna, Styria, new records, Palearctic Region, species list, syrphids

### Zusammenfassung

Schwebfliegen sind eine auffällige und beliebte Familie innerhalb der Diptera. Sowohl die Larven als auch die erwachsenen Tiere besiedeln ein weites Spektrum an Lebensräumen, und viele Arten spielen bedeutende Rollen bei der Bestäubung, in der Landwirtschaft und aktuell auch im angewandten Naturschutz. Dennoch ist der Wissensstand über die Schwebfliegen Österreichs nicht zufriedenstellend: Die verfügbare Literatur ist bezüglich Systematik und Nomenklatur veraltet und vorhandene Artenlisten haben offensichtlich große Lücken. Dies veranlasste uns, die Schwebfliegenfauna Österreichs genauer zu untersuchen. Daten aus einer umfassenden Literaturrecherche, aus der Überprüfung von Belegen verschiedener Museen und aus aktuellen eigenen Freilandhebungen werden zu einer ersten detaillierten Checkliste der Schwebfliegen Österreichs zusammengestellt. Um einen möglichst guten Überblick zu bieten, wird die Verbreitung der Arten nach den jeweiligen Bundesländern differenziert angegeben. 20520 Datensätze und 271957 Individuen als Einzelnachweise bilden das Fundament dieser Arbeit. Die Liste umfasst 430 bestätigte Arten. Weitere 25 Schwebfliegenarten werden diskutiert, sind aber in der Liste nicht enthalten. Dabei handelt es sich um Artnachweise bei denen unklar ist ob der Fundort innerhalb der heutigen Grenzen Österreichs liegt, oder deren Belegexemplare für eine Überprüfung nicht verfügbar waren. Insgesamt sind 17 Schwebfliegen neu für Österreich: *Anasimyia contracta* Claussen & Torp, 1980; *Brachyopa grunewaldensis* Kassebeer 2000; *Brachyopa obscura* Thompson & Torp, 1982; *Brachyopa silviae* Doczkal & Dzioc,

2004; *Cheilosia orthotricha* Vujić & Claussen, 1994; *Eristalis picea* (Fallén, 1817); *Melangyna ericarum* (Collin, 1946); *Melangyna lucifera* Nielsen, 1980; *Melangyna pavlovskyi* Violovitsh, 1956; *Melanogaster curvistylus* Vujić & Stuke, 1998; *Merodon moenium* (Wiedemann, 1822); *Paragus absidatus* Goeldlin, 1971; *Paragus bradescui* Stanescu, 1981; *Platycheirus laskai* (Nielsen, 1999); *Sphegina verecunda* Collin, 1937; *Temnostoma angustistriatum* Krivosheina, 2002 und *Temnostoma meridionale* Krivosheina & Mamayev, 1962. Zudem konnten 278 Bundesländer-Erstnachweise erbracht werden. Die höchste Zahl nachgewiesener Arten liegt gegenwärtig für die Steiermark vor: Hier sind 331 Arten bekannt. Danach folgen Niederösterreich mit 307 Arten, Oberösterreich mit 269 Arten, Kärnten mit 259 Arten, Vorarlberg mit 234 Arten, Burgenland mit 201 Arten, Nordtirol mit 172, Wien mit 169 Arten, Arten, Salzburg mit 155 Arten und Osttirol mit 154 Arten.

## Introduction

Hoverflies (Diptera: Syrphidae) are important pollinators, biocontrol agents and bioindicators (Sommaggio 1999; Speight & Castella 2001). In general, the European fauna is well known compared to the Austrian fauna; checklists have been published for several countries (e.g., Nielsen 1999; van Steenis & Barendregt 2002; de Groot & Govedic 2008; van Eck 2011; Ssymank *et al.* 2011; Haarto & Kerppola 2014; Ricarte & Marcos-García 2017; Vujić *et al.* 2018; Speight 2020). Here we give a brief overview on Syrphidae research history in Austria and present the first annotated checklist of Austrian hoverflies.

The first records of hoverflies from Austria were published by Nikolaus Poda von Neuhaus (1723–1798). In his book “*Insecta Musei Graecensis*” (Poda 1761) he published records of five species. Johann Anton Scopoli (1723–1788) included more than 20 species in his publication “*Entomologia Carniolica*” (Scopoli 1763).

Friedrich Wilhelm Rossi (1817–1848) worked on a first checklist of the Diptera of Austria. After his early death, W. Haidinger finished the work of Rossi and the catalogue was published posthumously (Rossi 1848).

The most important contribution to the knowledge of Diptera of Austria in the 19<sup>th</sup> century was the two-volume book “*Fauna Austriaca—Die Fliegen (Diptera)*” by Ignaz J. Rudolph Schiner (1813–1873) (Schiner 1862, 1864). Schiner and his colleagues, e.g., Johann Georg Egger (1804–1866) described several Syrphidae new to science. Further important contemporary researchers were Georg Ritter von Frauenfeld (1807–1873), Friedrich Moritz Brauer (1832–1904), Josef Mik (1839–1900), Adam Handlirsch (1864–1890), Eduard Becher (1856–1886) and Julius Edler von Bergenstamm (1837–1896).

At the turn of the 19<sup>th</sup> and the 20<sup>th</sup> centuries, Pater Gabriel Strobl (1846–1925) was charged with the reconstruction and management of the Natural History Museum in Admont monastery (Styria). During his work as a curator, he collected about 50000 Diptera (among other various insects and plants) and described more than 900 species. The fundamental work of Gabriel Strobl was the 5-part enumeration of Styrian Diptera, published as “*Die Dipteren der Steiermark*” (Strobl 1893, 1894, 1895, 1898 and 1910; see also Chvála 2008).

Karl Ferdinand Frauscher (1852–1914) published a checklist of the hoverflies of Carinthia based on material collected by Wilhelm Tief (1846–1896). He published records of 171 species (Frauscher 1898). Alexander Bau published the first Syrphidae checklist of the westernmost Austrian federal state, Vorarlberg, based on the collection of Emil Kern. He published records of 145 species (Bau 1909).

Herbert Franz (1908–2002) published the next contributions to the knowledge of the Austrian Syrphidae fauna. In the publications “*Die Landtierwelt der Mittleren Hohen Tauern*” and “*Die Nordost-Alpen im Spiegel ihrer Landtierwelt*”, he lists records of 389 hoverfly species for Austria (Franz 1943, 1989).

After Franz’ monograph, John Richard Haslett published records of 56 hoverfly species from Salzburg (Haslett 1986). Several data were published from Carinthia (28 species in Werner 1915; 53 species in Haacks 1990; 96 species in Röder 2001; and from Carinthia and Salzburg 57 species in Menzel & Ziegler 2001). Thomas Mörtelmaier documented mass migrations in the Alps (Styria) and collected 123 species (Mörtelmaier 2001). Franziska Anderle published 111 species from the “*Bisamberg*”, a location site near Vienna (Anderle 2011). Theo Kust published records of 118 species from the the primary forest “*Rothwald*” in Lower Austria (Kust 2016) and Denise Ivenz studied alpine taxa in the Gesäuse National Park and published records of 102 species (Ivenz & Krenn 2017). A checklist for the easternmost federal state, Burgenland, was published by Heimo Metz, including 148 species (Metz 2012). An update of the checklist for the westernmost federal state Vorarlberg, including 238 species, was printed recently (Aistleitner *et al.* 2020). Some interesting records of Syrphidae (mostly from Upper Austria) can be found in the publication by Schlüsslmayr (2021).

The most comprehensive dataset on the Austrian fauna is available as part of the checklist of the Syrphidae of Europe, published by Speight (2020). It contains 365 species for Austria, but does not give references or sources.

This paper provides an updated checklist of the Austrian hoverflies, based on an exhaustive literature review, data from museum collections and own field work.

## Material and methods

The present checklist is based on an extensive literature search, on data and material from three important Austrian museum collections and on fieldwork campaigns. In total 20520 records of 271957 individuals were compiled in this study. All specimens, which were collected at private field trips from the authors, are deposited in the authors' collections, unless otherwise stated for a certain species. The data of the final checklist are grouped by federal state and presented in Figure 1. A "record" is a species collected or observed at a specific location on a specific day. The number of individuals is the sum of specimens (adults), which are recorded in the database.

Published data were gained from following sources: Poda (1761); Scopoli (1763); (Schiner, 1857); Schiner (*partim*: 1862); Schleicher (1859); Egger (1860); Palm (1869, 1871); Koch (1872); Strobl (1880); Tief (1886); Frauscher (1898); Bau (1909); Werner (1915); Szilády (1942); Franz (1943, 1948, 1989); Moucha (1957); Lindner (1973); Dušek & Láska (1973, 1976); Morge (1974); Burmann (1978); Thompson (1980, 1981); Claussen (1988, 1998); Claussen & Speight (1988); Peck (1988); Haacks (1990); Haslett (1986, 1991); Barkalov & Ståhls (1997); Goeldlin (1997); Schmid (1999, 2000); van Steenis (2000); Doczkal (2000); Menzel & Ziegler (2001); Mörtelmaier (2001); Röder (2001); Sommaggio (2001); Waitzbauer (2001); Nielsen (2004); Reemer *et al.* (2005); Aistleitner *et al.* (2008, 2020); Smit & Vujić (2008); Anderle (2011); van Steenis & Lucas (2011); Metz (2012); Vujić *et al.* (2012, 2013, 2020a); Kust & Ressler (2015); Šašić *et al.* (2016); Kust (2016), Wagner *et al.* (2016, 2018, 2019); Denner (2017); Ivenz (2017); Hussain *et al.* (2017, 2018); Schlüsslmayr (2017, 2018, 2021); Ståhls & Barkalov (2017); Likov *et al.* (2019).

Herbert Franz transferred almost all data of Strobl (1893, 1894, 1895, 1898, 1910) into his publications (Franz 1943, 1948, 1989). Thus, Franz's publications were taken as data sources in the present checklist. However, he was not an expert on the hoverfly family and did not revise all the data of Strobl. Thus, we did not automatically include every single species name of Franz's publication to our checklist without critical evaluation.

Data from the Syrphidae collections of the "inatura" (Dornbirn) and the "Haus der Natur" (Salzburg) were fully included; those of the "Tiroler Landesmuseum" (Innsbruck) were partly included. In addition, unpublished material was provided mainly by Claus Claussen (Flensburg, Germany), Patrick Gros ("Haus der Natur", Salzburg), Renate & Hubert Rausch (Scheibbs), Alois Kofler (Lienz), Andreas Link, Martin Schwarz and Esther Ockermüller ("Biologiezentrum Linz", Upper Austria), Thomas Romig (Hohenheim University, Germany), Ante Vujić (University of Novi Sad, Serbia) and Herbert Zettel (Natural History Museum, Vienna). A complete survey of the Syrphidae in Austrian museum collections was beyond the scope of this project and is still desirable.

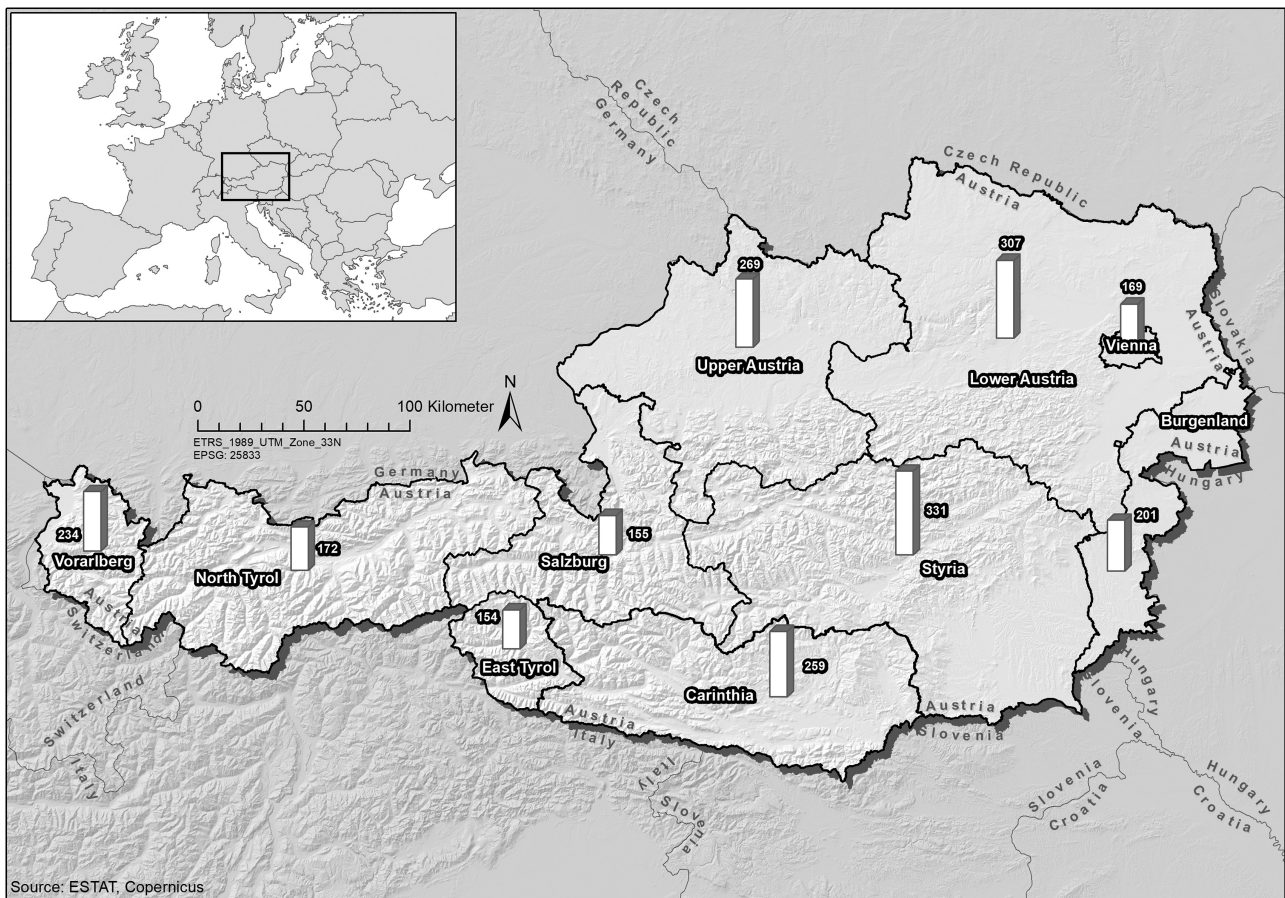
Identifications were generally based on the keys by van der Goot (1981), Stubbs & Falk (2002), Bartsch *et al.* (2009 a, b), Bot & van de Meutter (2019) and some other descriptions published mainly in the journal "Volucella". Taxonomy and nomenclature follow, with a few exceptions, Speight (2020). The checklist is presented alphabetically by genus and species name. The abbreviation "BZ" means "Bezirk" (= district of a federal state).

In the first part of the results section, 17 first records for Austria are documented, then the Checklist of the hoverflies of Austria (in alphabetical order, including lists for all federal states; Table 1) is presented. After the checklist, notes on nomenclature, taxonomy and zoogeography of several species' records are given, followed by a list of doubtful species records from Austria. First records of Austrian federal states are presented in Appendix 1. Species names in the checklist follow Speight (2020), which can be consulted together with Peck (1988) for authority and year of each taxon, as well as for full reference of the original publications where names were proposed.

## Results

The checklist of Austrian hoverflies now comprises 430 species confirmed from Austria (Table 1). The species numbers by the Austrian federal states are presented at the end of the checklist. An overview of the current state of knowledge of the hoverfly fauna of the individual federal states, in terms of species numbers, is given in figure 1.

In cases of uncertain identification or collection site, records were omitted from the checklist, but discussed in the chapter “Doubtful species records”.



**FIGURE 1.** Map of Austria with the names, the borders and the species richness of each federal state. Note: Due to zoogeographical reasons, Tyrol is divided into North Tyrol and East Tyrol.

### Hoverfly species new to Austria

In total 17 species are new to the fauna of Austria; details are presented below.

#### *Anasimyia contracta* Claussen & Torp, 1980

**Examined material.** Vienna: Lobau, Mühlwasser 150 m, 48°11'58" N, 16°29'34" E, 5.6.2016 (5♂ 2♀), leg. H. Heimburg, det. D. Doczkal; Styria: Straden, Biotop Neusetz 253 m, 48°47'48" N, 15°53'55" E, 7.5.2020 (1♂), leg. & det. H. Heimburg; Carinthia: Klagenfurt, Lendspitz-Maiernigg, SW Klagenfurt am Wörthersee 443 m, 46°36'38" N, 14°15'6" E, 7.7.2021 (1♀), leg. & det. H. Heimburg.

**Notes.** The specimens collected in Vienna were found at the edge of a dense reed stand beside an oxbow lake of the Danube. The specimens collected in Styria and Carinthia were found beside of artificially created ponds. The shore zones were densely overgrown with reeds.

#### *Brachyopa grunewaldensis* Kassebeer, 2000

**Examined material.** Vienna: Lainzer Tiergarten, Johannser Kogel 250 m, 48°11'26" N, 16°13'51" E, 30.4.2016 (1♂), leg. H. Heimburg & P. Richter, det. D. Doczkal; Lower Austria: Gänserndorf, NP Donau-Auen, Stopfenreuther Au 400 m, 48°08'43" N, 16°53'28" E, 6.5.2017 (1♀), leg. H. Heimburg & P. Richter, det. D. Doczkal.

**Notes.** Generally, this species is very rare and difficult to find most of the available material stems from Malaise traps (Doczkal & Dziock 2004). One specimen was found in a former hunting ground of Kaiser Joseph II, which is used today as a recreation area, called the “Lainzer Tiergarten”. The area is about 2500 hectares in size and mostly covered by a mixed deciduous forest. Its core zone is covered with very old *Fagus* spp. and *Quercus* spp. trees, the paths are bordered with *Aesculus hippocastanum* L. trees. One of the flies was found hovering near an external sap run of an old *Fagus sylvatica* L. tree. The second specimen was found in an alluvial forest dominated by *Populus* spp. trees. For more information on this species, see van Steenis *et al.* (2020).

### ***Brachyopa obscura* Thompson & Torp, 1982**

**Examined material.** Lower Austria: Baumgarten an der March 145 m, 48°18'11" N, 16°53'8" E, 1.6.2020 (1♂), leg. & det. H. Heimburg, vid. D. Doczkal.

**Notes.** A single male was collected in an alluvial forest, dominated by *Populus nigra* (L.), while sunbathing on a standing dead tree of *Populus* spp. Only a few scattered records from central and south-eastern Europe are known, while this species is more frequent in Scandinavia (van Steenis *et al.* 2020).

### ***Brachyopa silviae* Doczkal & Dziock, 2004**

**Examined material.** Styria: Graz, Pfanghofweg, Malaise trap 460 m, 47°06'54" N, 15°26'11" E, 3.4.–9.4.2019 (1♂), leg. & det. H. Heimburg.

**Notes.** A single male of this rare species was collected in a Malaise trap set in a garden at the edge of a row of some older trees (thereunder *P. sylvestris* (L.), *P. abies* (L.) and *Populus* spp.). A thermophilous pine-dominated mixed forest was situated nearby. So far, only nine other records of this endemic species for Europe are known from Germany, France and Serbia (van Steenis *et al.* 2020).

### ***Cheilosia orthotricha* Vujčić & Claussen, 1994**

**Examined material.** Styria: Graz, Kalsdorf 300 m, 46°58'49" N, 15°28'17" E, 6.3.2016 (1♂), leg. H. Heimburg, det. D. Doczkal; Graz, Gratwein-Straßengel, Mühlbachgraben 535 m, 47°08'25" N, 15°16'36" E, 10.4.2016 (1♂), leg. H. Heimburg, det. D. Doczkal; Bruck-Mürzzuschlag, Hinteralm 1500 m, 47°43'31" N, 15°30'59" E, 16.4.2016 (1♂), leg. H. Heimburg, det. D. Doczkal; Graz, Gratwein-Straßengel, Mühlbachgraben 535 m, 47°08'25" N, 15°16'36" E, 7.4.2018 (1♂ 1♀), leg. & det. H. Heimburg; Lower Austria: Scheibbs, Leckermoor 880 m, 47°46'07" N, 14°57'38" E, 14.4.2018 (1♂), leg. & det. H. Heimburg; North Tyrol: Sintersbachtal S Kitzbühel, 8.5.1996 (1♂), leg. & det. B. & G. Degen.

**Notes.** *Cheilosia orthotricha*, an early spring species, belongs to the *Cheilosia canicularis* group. The larvae of all three species of this group can be found in *Petasites* spp. Mill. Records from Austria were found between March and May. At higher altitudes, it might be found also in June and July (Stuke & Claussen 2000). The habitats in which *C. orthotricha* has been found are diverse, but each of them provides good conditions of the larvae's forage plants. These habitats range from moist coniferous forests (along gravelled, moisty forest roads) to swamp mixed forests and wet meadows at the edge of raised bogs.

### ***Eristalis picea* (Fallén, 1817)**

**Examined material.** Upper Austria: Rohrbach, Pfaffetschlag, N Ulrichsberg 600 m, 48°42' N, 13°53' E, 14.6.2017 (1♀), leg. M. Schwarz, det. D. Doczkal; Carinthia: NW Mallnitz NP Hohe Tauern 1200 m, 46°59'31" N, 13°09'32" E, 4.6.2021 (1♂), leg. & det. H. Heimburg.

**Notes.** This species from Upper Austria was found in a wet forest meadow with populations of *Dactylorhiza maculata* (L.) In the immediate vicinity was a small stream with loose riparian woodland (thereunder *Salix* spp.). The surrounding area was dominated by a *P. abies* forest intermixed with individual deciduous trees (pers. comm. of M. Schwarz to H. Heimburg).

### *Melangyna ericarum* (Collin, 1946)

**Examined material.** North Tyrol: Landeck, Paznauntal, Umgebung Falgenar [sic] 1200–1300 m, 47°06'41" N, 10°28'58" E, 26.7.1986 (1♂), leg. C. Claussen; det. T. Nielsen.

**Notes.** Claus Claussen recorded one single male for North Tyrol more than 30 years ago. Tore Nielsen compared this specimen with the type material of *M. ericarum*. He verified the specimen identification (pers. comm. of C. Claussen to H. Heimburg). The correct name of the collection site is "Falgenair". There is no further information about its habitat in Austria. The occurrence of *M. ericarum* extends from northern Europe (Scottish Highlands and Denmark) through the Czech Republic, Germany, Switzerland and parts of France to northern Italy. The preferred habitat is assumed to be (humid) coniferous forests along the tree line up to the subalpine Krummholz zone, e.g., *Pinus mugo* T. (Speight 2020). The specimen is deposited in the private collection of Claus Claussen.

### *Melangyna lucifera* Nielsen, 1980

**Examined material.** Styria: Mühlbachgraben 500 m, 47°08'25" N, 15°16'36" E, 23.3.2019 (1♀), leg. & det. H. Heimburg.

**Notes.** *Melangyna lucifera* was collected on blossoms of *Salix* spp. (it was found in flight, together with *M. pavlovskyi*). The surrounding area was dominated by humid coniferous forests (mostly trees of *P. abies*). Its distribution ranges from the northern Europe (southern Norway, Finland, and Denmark) to central Europe (e.g., Germany) to the Czech Republic and parts of European Russia and Siberia (Speight 2020).

### *Melangyna pavlovskyi* Violovitsh, 1956

**Examined material.** Styria: Graz, Pfanghofweg, Malaise trap 460 m, 47°06'54" N, 15°26'11" E, 22.2.–25.3.2019 (1♂), leg. H. Heimburg, det. D. Doczkal; Mühlbachgraben 500 m, 47°08'25" N, 15°16'36" E, 23.3.2019 (1♀), leg. H. Heimburg, det. D. Doczkal; Carinthia: Dobeinitz, Keutschach, E Keutschacher See 508 m, 46°35'13" N, 14°10'48" E, 4.6.2021 (1♂), leg. & det. H. Heimburg.

**Notes.** In Styria one individual of this early spring species was collected on blossoms of *Salix* spp. (see *M. lucifera*), the other individual was caught in a Malaise trap set in a garden at the edge of a row of some older trees (thereunder *P. sylvestris* (L.), *P. abies* (L.), *Populus* spp.). A thermophilous pine-dominated mixed forest was situated nearby. So far, just a few other recent records of this species are known from Austria (Carinthia). About 10 years ago, *M. pavlovskyi* was reported new to the European syrphid fauna (Bygbjerg 2011). In the same year, Mielczarek (2011) published some records from Poland. Since then, this species has been reported from some other European countries (e.g., Belgium, Netherlands, Slovakia). Previously, this species was only known from the Russia Far East (van de Meutter *et al.* 2015). The records from Austria confirm the range shift of this species.

### *Melanogaster curvistylus* Vujić & Stuke, 1998

**Examined material.** Styria: Graz, Mariatrost 448 m, 47°06'30" N, 15°29'57" E, 27.4.2018 (1♂), leg. H. Heimburg, det. D. Doczkal.

**Notes.** The specimen was found close to an artificial flood retention basin. In the immediate vicinity is a small meandering stream with a narrow strip of riparian woodland (thereunder *Alnus* spp., *Salix* spp., *Rhamnus* spp.). Vujić & Stuke (1998) described *M. curvistylus* on the basis of two males from Serbia and Germany. So far, only a handful of records of this species are known from Europe (see Mielczarek 2010; Speight 2020). The specimen is deposited in the collection of the Zoologische Staatssammlung München.

### *Merodon moenium* (Wiedemann, 1822)

**Examined material.** Vienna: Stammersdorf, Alte Schanze XII 212 m, 48°18'59" N, 16°25'08" E, 24.7.2019 (1♂), leg. H. Heimbürg, det. A. Vujić.

**Notes.** The species was found in a small area in the immediate vicinity of a wine-growing region. The warmth-favoured site was characterized by small bushes and dry, unimproved grassland. *M. moenium* is one of the three cryptic species within the *Merodon avidus* complex, which can be found in Europe (Popović *et al.* 2015). Only *M. avidus* and *M. moenium* occur in Austria, respectively in Central Europe. The third species, *M. ibericus*, is only recorded from Spain, Portugal and Morocco (Speight 2020). Due to the similarity of external morphological characteristics, it must be assumed that most of the older records of *M. avidus* in the published literature probably refer to *M. moenium*. Therefore, previous records need to be re-examined.

### *Paragus absidatus* Goeldlin, 1971

**Examined material.** East-Tyrol: Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 47°00'21" N, 12°19'24" E, 7.7.1991 (1♀), leg. & det. C. Claussen.

**Notes.** There is no further information about the habitat of the collecting site in Austria. *P. absidatus* can be found in subalpine to alpine grassland, but occasionally also in montane grasslands down to the *Picea* zone. In Central Europe, this species is known from the France Alps and Switzerland (Speight 2020). The specimen is deposited in the private collection of Claus Claussen.

### *Paragus bradescui* Stanescu, 1981

**Examined material.** Lower Austria: Gänserndorf, Sandberge bei Oberweiden 155 m, 48°17' N, 16°50' E, 27.6.2018 (1♂), leg. H. Zettel, det. D. Doczkal.

**Notes.** The collection site in Austria was characterized by Pannonian sand dunes and open pioneer grassland. The plant community of this area is described as *Astragalo austriaci-Festucetum sulcatae* (Rabitsch, 2002). By now, *P. bradescui* was recorded from southern France, former Yugoslavia, Romania and some regions of the Middle East (Speight 2020).

### *Platycheirus laskai* (Nielsen, 1999)

**Examined material.** Styria: Graz-Umgebung, Übelbachgraben 900 m, 47°15'40" N, 15°10' E, 3.6.2015 (1♂), leg. & det. H. Heimbürg, vid. D. Doczkal.

**Notes.** Few is known about the preferred habitat of *Platycheirus laskai*. A single male was collected in Styria in a submontane, humid coniferous forest near a small stream. In Germany, several specimens have been collected on *Geranium sylvaticum* (Nielsen 1999). The species occurs scattered from northern Europe (e.g., Norway) to southern Europe (North Italy) (Speight 2020). The specimen is deposited in the collection of the Zoologische Staatssammlung München.

### *Sphegina verecunda* Collin, 1937

**Examined material.** Styria: Graz-Umgebung, Übelbachgraben 860 m, 47°13'36" N, 15°07' E, 28.6.2016 (1♂), leg. & det. H. Heimbürg; Carinthia: Klagenfurt, Lendspitz-Maiernigg, SW Klagenfurt am Wörthersee 443 m, 46°36'38" N, 14°15'6" E, 11.6.2021 (1♂), leg. & det. H. Heimbürg.

**Notes.** The specimen collected in Styria was found in a submontane humid *Picea* spp. forest, near a small shaded stream. The fly was hovering in between dense tall-herb vegetation. Another male was collected in Carinthia in a shady forest. The distribution area in Europe ranges from Great Britain and Denmark to Central Europe to the north of France and Italy (Speight 2020).

***Temnostoma angustistriatum* Krivosheina, 2002**

**Examined material.** Styria: Liezen, Admont, NP Gesäuse, 18.4.2014 (1♂), leg. D. Ivenz, det. D. Doczkal; Liezen, Admont, NP Gesäuse 570 m, 47°35'25" N, 14°38'02" E, 24.6.2016 (1♂), leg. H. Heimbürg, det. D. Doczkal.

**Notes.** Two specimens are currently known from Austria. Both specimens were collected at the Gesäuse National Park (Styria) within a humid mixed forest dominated by *Picea* spp. Little is known about its preferred habitat and distribution. Until recently, it was considered as a boreal species with a range that extends from Norway and Finland to Siberia and the Pacific coast region (Speight 2020). Individual records from more southern areas of Europe indicate that small populations of *T. angustistriatum* have remained at glacial relict sites (Dieter Doczkal unpublished data). In terms of morphological characters, *T. angustistriatum* looks very similar to *T. bombylans* (Fabricius, 1805). A way to distinguish these two species properly is to compare the male terminalia, figured by Krivosheina (2002).

***Temnostoma meridionale* Krivosheina & Mamayev, 1962**

**Examined material.** Styria: Deutschlandsberg, Klause 417 m, 46°49'53" N, 15°10'24" E, 24.5.2019 (2♂), leg. H. Heimbürg & P. Richter, det. H. Heimbürg; Lower Austria: Gänserndorf, NP Donau-Auen, Stopfenreuther Au 400 m, 48°08'43" N, 16°53'28" E, 6.5.2017 (1♀), leg. H. Heimbürg & P. Richter, det. H. Heimbürg; Carinthia: Magdalensberg, Lassendorf 450 m, 46°40'23" N, 14°25'05" E, 2.6.2021 (1♂), leg. C. Wieser, det. H. Heimbürg.

**Notes.** Two males were collected in a humid *Picea* spp. forest while sunbathing on a *Picea abies* tree. They seemed to be defending their territory as they showed some territorial behaviour. Another specimen was collected in an alluvial forest sitting on an old deciduous tree.

**TABLE 1.** Number of hoverfly species recorded in the Austrian federal states. Due to zoogeographical reasons, Tyrol is divided into North and East Tyrol. Abbreviations: VB = Vorarlberg; NT = North Tyrol; OT = East Tyrol; KÄ = Carinthia; ST = Styria; SA = Salzburg; OÖ = Upper Austria; NÖ = Lower Austria; WI = Vienna; BU = Burgenland; AT = Austria.

	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
Species number	234	172	154	259	331	155	269	307	169	201	3
First records	-	64	95	18	35	8	12	10	30	6	17

**TABLE 2.** Checklist of the hoverflies of Austria. 1 = confirmed record; U = uncertain record; X = confirmed record without precise information on collecting site (e.g., "Leithagebirge" = border Burgenland and Lower Austria) and thus not assignable to a federal state. The record is counted, as the species is very likely to occur in both federal states. Abbreviations: VB = Vorarlberg; NT = North Tyrol; OT = East Tyrol; KÄ = Carinthia; ST = Styria; SA = Salzburg; OÖ = Upper Austria; NÖ = Lower Austria; WI = Vienna; BU = Burgenland; AT = Austria. The species are listed in alphabetic order. Note: Uncertain records [U] are not included in the total species sum, but confirmed records without precise information on collection site [X] are included in the total species sum.

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Anasimyia contracta</i> Claussen & Torp, 1980				1	1				1		
<i>Anasimyia interpuncta</i> (Harris, 1776)	1							1		1	
<i>Anasimyia lineata</i> (Fabricius, 1787)		1		1			U	1			
<i>Anasimyia lunulata</i> (Meigen, 1822)					U			1	U		
<i>Anasimyia transfuga</i> (Linnaeus, 1758)	1			U	U		U	1		U	
<i>Baccha elongata</i> (Fabricius, 1775) <i>s.l.</i>	1	1	1	1	1	1	1	1	1	1	
<i>Blera fallax</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1			
<i>Brachyopa bicolor</i> (Fallén, 1817)				1	1		1	1	1		
<i>Brachyopa dorsata</i> Zetterstedt, 1837	1		1	U	1		1	1	1		
<i>Brachyopa grunewaldensis</i> Kassebeer, 2000								1	1		

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**TABLE 2. (Continued)**

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Brachyopa insensilis</i> Collin, 1939					1			1	1		
<i>Brachyopa maculipennis</i> Thompson, 1980								1	1		
<i>Brachyopa obscura</i> Thompson & Torp, 1982								1			
<i>Brachyopa panzeri</i> Goffe, 1945				U	1	1	1	1			
<i>Brachyopa pilosa</i> Collin, 1939	1				1			1	1	1	
<i>Brachyopa plena</i> Collin, 1939					1			1	1		
<i>Brachyopa scutellaris</i> Robineau-Desvoidy, 1844	1										
<i>Brachyopa silviae</i> Doczkal & Dziock, 2004					1						
<i>Brachyopa testacea</i> (Fallén, 1817)			1	1	1	1	1	1			
<i>Brachyopa vittata</i> Zetterstedt, 1843	1			1	1	1	1	1			
<i>Brachypalpoides lentus</i> (Meigen, 1822)	1	1		1	1	1	1	1	1	1	
<i>Brachypalpus chrysites</i> Egger, 1859		1		1	1		1	1			X
<i>Brachypalpus laphriformis</i> (Fallén, 1816)	1	1		1	1		1	1	1		
<i>Brachypalpus valgus</i> (Panzer, 1798)	1	1		1	1	1	1	1	1	1	
<i>Caliprobola speciosa</i> (Rossi, 1790)	1				1	1	1	1	1	1	
<i>Callicera aenea</i> (Fabricius, 1777)	1			1	1		1	1	1	1	
<i>Ceriana conopsoides</i> (Linnaeus, 1758)				1			1	1	1	1	
<i>Chalcosyrphus eunotus</i> (Loew, 1873)					1				1	1	
<i>Chalcosyrphus femoratus</i> (Linnaeus, 1758)				1	1	1	1	1			
<i>Chalcosyrphus nemorum</i> (Fabricius, 1805)	1			1	1		1	1	1	1	
<i>Chalcosyrphus piger</i> (Fabricius, 1794)			1	U			1	1	1		
<i>Chalcosyrphus valgus</i> (Gmelin, 1790)					1	1					
<i>Cheilosia aerea</i> Dufour, 1848				1	1	1	1	1	1	1	
<i>Cheilosia ahenea</i> (von Roser, 1840)					1		1	1			
<i>Cheilosia albipila</i> Meigen, 1838	1				1		1	1	1	1	
<i>Cheilosia albitarsis</i> (Meigen, 1822)	1	1	1	1	1	1	1	1		1	
<i>Cheilosia alpestris</i> Becker, 1894		1			1						
<i>Cheilosia antiqua</i> (Meigen, 1822)	1	1		1	1	1	1	1	1		
<i>Cheilosia barbata</i> Loew, 1857	1	1	1	1	1	1	1	1		1	
<i>Cheilosia beckeri</i> Strobl, 1909					1						
<i>Cheilosia bergenstammi</i> Becker, 1894	1				1			1	1	1	
<i>Cheilosia brachysoma</i> Egger, 1860							1	1		1	
<i>Cheilosia caerulescens</i> (Meigen, 1822)	1	1	1	1	1		1		1		
<i>Cheilosia canicularis</i> (Panzer, 1801)	1	1	1	1	1	1	1	1		1	
<i>Cheilosia carbonaria</i> Egger, 1860	1		1	1	1	1	1	1	1	1	
<i>Cheilosia chloris</i> (Meigen, 1822)	1	1	1	1	1		1	1		1	
<i>Cheilosia chrysocoma</i> (Meigen, 1822)	1			1	1		1	1			
<i>Cheilosia claussemi</i> Barkalov & Stähls, 1997		1	1								
<i>Cheilosia crassisetula</i> Loew, 1859	1			1	1	1					
<i>Cheilosia cynocephala</i> Loew, 1840					U			U	U	1	
<i>Cheilosia derasa</i> Loew, 1857	1	1	1		1		1	1			
<i>Cheilosia fasciata</i> Schiner & Egger, 1853	1	1		1	1		1	1	1	1	
<i>Cheilosia faucis</i> Becker, 1894					1						

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**TABLE 2. (Continued)**

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Cheilosia flavipes</i> (Panzer, 1798)				1	1		1	1	1	1	
<i>Cheilosia fraterna</i> (Meigen, 1822)					1		1	1			
<i>Cheilosia frontalis</i> Loew, 1857	1	U	1	1	1		1	1		1	
<i>Cheilosia gagatea</i> Loew, 1857		1		1	1		1				
<i>Cheilosia gigantea</i> (Zetterstedt, 1838)		1	1	1	1	1	1	1		1	
<i>Cheilosia grisella</i> Becker, 1894	1	1	1	1	1	1	1	1			
<i>Cheilosia grossa</i> (Fallén, 1817)			1					1	1	1	
<i>Cheilosia hercyniae</i> Loew, 1857				1	1		1	1			
<i>Cheilosia himantopa</i> (Panzer, 1798)	1	1	1	1	1	1	1	1	1		
<i>Cheilosia hypena</i> Becker, 1894		1	1								
<i>Cheilosia illustrata</i> (Harris, 1780)	1	1	1	1	1	1	1	1		1	
<i>Cheilosia impressa</i> Loew in Schiner, 1857	1	1	1	1	1	1	1	1		1	
<i>Cheilosia impudens</i> Becker, 1894	1	1	1	1	1		1				
<i>Cheilosia insignis</i> Loew, 1857					1		1	1	X		
<i>Cheilosia laeviseta</i> Claussen, 1987		1		1	1						
<i>Cheilosia laeviventris</i> Loew, 1857		1			1		1	1			
<i>Cheilosia lasiopa</i> Kowarz, 1885				1	1						
<i>Cheilosia laticornis</i> Rondani, 1857			1	1	1		1	1		1	
<i>Cheilosia latifrons</i> (Zetterstedt, 1843)	1		1		1		1	1	1	1	
<i>Cheilosia lenis</i> Becker, 1894	1		1	1	1		1	1			
<i>Cheilosia loewi</i> Becker, 1894	1		1	X	1	1	1	1			
<i>Cheilosia longula</i> (Zetterstedt, 1838)	1	1	1	1	1	1	1	1		1	
<i>Cheilosia marginata</i> Becker, 1894		1	1	1	1			1			
<i>Cheilosia melanopa</i> (Zetterstedt, 1838)		1	1	1	1	1	1	1			
<i>Cheilosia melanura</i> Becker, 1894	1	1	1	1	1	1	1	1			
<i>Cheilosia montana</i> Egger, 1860	1	1	1	X	1	1		1			
<i>Cheilosia morio</i> sensu Becker, 1894					1			1			
<i>Cheilosia mutabilis</i> (Fallén, 1817)	1	1	1	X	1	1	1	1	1	1	
<i>Cheilosia nebulosa</i> Verrall, 1871				1	1		1	1		1	
<i>Cheilosia nigripes</i> (Meigen, 1822)	1		1	1	1	1	1	1		1	
<i>Cheilosia nivalis</i> Becker, 1894		1	1	1	1			1			
<i>Cheilosia orthotricha</i> Vujić & Claussen, 1994		1			1			1			
<i>Cheilosia pagana</i> (Meigen, 1822)	1	1	1	1	1	1	1	1	1	1	
<i>Cheilosia pascuorum</i> Becker, 1894		X	X	U	U		U	1	1		
<i>Cheilosia pedemontana</i> Rondani, 1857		1	1	1	1		1				
<i>Cheilosia personata</i> Loew, 1857	1	1	1	1	1		1	1			
<i>Cheilosia pictipennis</i> Egger, 1860		1	1		1		1	1			
<i>Cheilosia pilifer</i> Becker, 1894		1	1		1						
<i>Cheilosia pini</i> Becker, 1894					1			1			
<i>Cheilosia proxima</i> (Zetterstedt, 1843)	1	1	1	1	1		1	1	X	1	
<i>Cheilosia psilophthalma</i> Becker, 1894	1										
<i>Cheilosia pubera</i> (Zetterstedt, 1838)	1		1	X	1	X	1	1			
<i>Cheilosia rhodiolae</i> Schmid, 2000							1				

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**TABLE 2. (Continued)**

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Cheilosia rhynchops</i> Egger, 1860	1	1	1	1	1		1	1			
<i>Cheilosia rufimana</i> Becker, 1894					1		1	1			
<i>Cheilosia sahlbergi</i> Becker, 1894			1	1	1	1	1			U	
<i>Cheilosia scanica</i> Ringdahl, 1937					1			1		1	
<i>Cheilosia scutellata</i> (Fallén, 1817)	1	1		1	1	1	1	1		1	
<i>Cheilosia semifasciata</i> Becker, 1894	1	1		U	1		1			1	
<i>Cheilosia soror</i> (Zetterstedt, 1843)	1	1		1	1		1	1	1	1	
<i>Cheilosia subpictipennis</i> Claussen, 1998					1			1		1	
<i>Cheilosia tonsa</i> Sack, 1938	1										
<i>Cheilosia urbana</i> (Meigen, 1822)	1	1	1	1	1		1	1	1	1	
<i>Cheilosia vangaveri</i> Timon-David, 1937		1	1	U							
<i>Cheilosia variabilis</i> (Panzer, 1798)	1	1	1	1	1	1	1	1	1	1	
<i>Cheilosia velutina</i> Loew, 1840			1		1				1		
<i>Cheilosia venosa</i> Loew, 1857		1		1	1			1			
<i>Cheilosia vernalis</i> (Fallén, 1817)	1	1	1	1	1		1	1	1		
<i>Cheilosia vicina</i> (Zetterstedt, 1849)	1	1	1	1	1		1	1	1		
<i>Cheilosia vulpina</i> (Meigen, 1822)		1		1	1	1	1	1	1	1	
<i>Chrysogaster coemiteriorum</i> (Linnaeus, 1758)		U		1	U		1	U			
<i>Chrysogaster solstitialis</i> (Fallén, 1817)	1			1	1	1	1	1		1	
<i>Chrysotoxum bicinctum</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Chrysotoxum cautum</i> (Harris, 1776)	1			1	1		1	1	1	1	
<i>Chrysotoxum elegans</i> Loew, 1841		U		1	1		1	1	1	1	
<i>Chrysotoxum fasciatum</i> (Muller, 1764)	1	1	1	1	1	1	1	1	1	1	
<i>Chrysotoxum fasciolatum</i> (De Geer, 1776)	1	1	1	1	1	1	1	1		1	
<i>Chrysotoxum festivum</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Chrysotoxum intermedium</i> (Meigen, 1822)	1			1	1		1	1		1	
<i>Chrysotoxum montanum</i> Nedeljković & Vujić, 2015								1			
<i>Chrysotoxum vernale</i> Loew, 1841	1	1	1	1	1		1	1	1	1	
<i>Chrysotoxum verralli</i> Collin, 1940	1			1	1		1	1	1	1	
<i>Criorhina asilica</i> (Fallén, 1816)				1	1	1	1	1	1		
<i>Criorhina berberina</i> (Fabricius, 1805)	1	1		1	1	1	1	1	1	1	
<i>Criorhina floccosa</i> (Meigen, 1822)	1			1	1				1	1	
<i>Criorhina pachymera</i> Egger, 1858								1			
<i>Criorhina ranunculi</i> (Panzer, 1804)	1			1	1		1	1	1	1	
<i>Dasysyrphus albostrigatus</i> (Fallén, 1817)	1	1		1	1	1	1	1	1	1	
<i>Dasysyrphus eggeri</i> (Schiner, 1862)								1			
<i>Dasysyrphus friuliensis</i> (van der Goot, 1960)	1	1	1	1	1		1				
<i>Dasysyrphus hilaris</i> (Zetterstedt, 1843)					1		1	1	1	1	
<i>Dasysyrphus lenensis</i> Bagatshanova, 1980		1		1	1						
<i>Dasysyrphus pauxillus</i> (Williston, 1887)			1		1						
<i>Dasysyrphus pinastris</i> (De Geer, 1776)	1	1	1	1	1	1	1	1		1	
<i>Dasysyrphus tricinctus</i> (Fallén, 1817)				1	1		1	1	1	1	

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**TABLE 2. (Continued)**

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Dasysyrphus venustus</i> (Meigen, 1822)	1	U		1	1	U	U	1	1	1	
<i>Didea alneti</i> (Fallén, 1817)		1	1	1	1		1	1	1	1	
<i>Didea fasciata</i> Macquart, 1834	1			1	1		1	1	1	1	
<i>Didea intermedia</i> Loew, 1854				1	1		1	1	X	1	
<i>Doros profuges</i> (Harris, 1780)	1			1	1	1	1	1	1	1	
<i>Epistrophe cryptica</i> Doczkal & Schmid, 1994									1		
<i>Epistrophe diaphana</i> (Zetterstedt, 1843)	1	1	1	1	1		1	1	1	1	
<i>Epistrophe eligans</i> (Harris, 1780)	1	1		1	1	1	1	1	1	1	
<i>Epistrophe flava</i> Doczkal & Schmid, 1994	1							U			
<i>Epistrophe grossulariae</i> (Meigen, 1822)	1	1		1	1		1	1		1	
<i>Epistrophe leiophthalma</i> (Schiner & Egger, 1853)	1	1			1		1	1			
<i>Epistrophe melanostoma</i> (Zetterstedt, 1843)	1			1	1	1	1	1	1	1	
<i>Epistrophe nitidicollis</i> (Meigen, 1822)	1	1	1	1	1		1	1	1	1	
<i>Epistrophe obscuripes</i> (Strobl, 1910)					1						
<i>Epistrophella euchroma</i> (Kowarz, 1885)	1		1	1	1		1	1			
<i>Episyrrhus balteatus</i> (De Geer, 1776)	1	1	1	1	1	1	1	1	1	1	
<i>Eriozona syrphoides</i> (Fallén, 1817)	1	1	1	1	1	1	1	1		1	
<i>Eristalinus aeneus</i> (Scopoli, 1763)		1		1	1		1	1	1	1	
<i>Eristalinus sepulchralis</i> (Linnaeus, 1758)	1	1		1	1		1	1	1	1	
<i>Eristalis alpina</i> (Panzer, 1798)	1			1	1	1	1	1			
<i>Eristalis arbustorum</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Eristalis cryptarum</i> (Fabricius, 1794)		1		1	1	1	1	1		1	
<i>Eristalis horticola</i> (De Geer, 1776)	1	1		1	1		1	1		1	
<i>Eristalis intricaria</i> (Linnaeus, 1758)	1	1		1	1		1	1			
<i>Eristalis jugorum</i> Egger, 1858	1	1	1	1	1	1	1	1	1		
<i>Eristalis nemorum</i> (Linnaeus, 1758)	1	1		1	1	1	1	1		1	
<i>Eristalis pertinax</i> (Scopoli, 1763)	1	1	1	1	1	1	1	1	1	1	
<i>Eristalis picea</i> (Fallén, 1817)				1			1				
<i>Eristalis rupium</i> Fabricius, 1805	1	1	1	1	1	1	1	1			
<i>Eristalis similis</i> (Fallén, 1817)	1	1	1	1	1		1	1		1	
<i>Eristalis tenax</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Eumerus amoenus</i> Loew, 1848							1				
<i>Eumerus flavitarsis</i> Zetterstedt, 1843	1			1	1	1	1	1			
<i>Eumerus funeralis</i> Meigen, 1822	1			1				1		1	
<i>Eumerus grandis</i> Meigen, 1822					1			1	1		
<i>Eumerus ornatus</i> Meigen, 1822	1				1		1	1	1	1	
<i>Eumerus ovatus</i> Loew, 1848				1	1		1				
<i>Eumerus ruficornis</i> Meigen, 1822	1						1	1			
<i>Eumerus sabulonum</i> (Fallén, 1817)				U				1			
<i>Eumerus sinuatus</i> Loew, 1855								1	1		
<i>Eumerus sogdianus</i> Stackelberg, 1952					U					1	
<i>Eumerus strigatus</i> (Fallén, 1817)				U	1		1	1	1	1	
<i>Eumerus tarsalis</i> Loew, 1848	1			1	1	1	1	1			

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**TABLE 2. (Continued)**

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Eumerus tricolor</i> (Fabricius, 1798)		U		U	1	1	1	1	1		
<i>Eupeodes corollae</i> (Fabricius, 1794)	1	1	1	1	1	1	1	1	1	1	
<i>Eupeodes flaviceps</i> (Rondani, 1857)				1	1			1			
<i>Eupeodes latifasciatus</i> (Macquart, 1829)	1	1	1	1	1	1	1	1	1	1	
<i>Eupeodes luniger</i> (Meigen, 1822)	1	1	1	1	1	1	1	1	1	1	
<i>Eupeodes nielsenii</i> (Dušek & Láska, 1976)		1		1	1			1		1	
<i>Eupeodes nitens</i> (Zetterstedt, 1843)				1	1	1	1	1		1	
<i>Eupeodes tirolensis</i> (Dušek & Láska, 1973)		1					1				
<i>Ferdinandea cuprea</i> (Scopoli, 1763)	1			1	1	1	1	1	1	1	
<i>Ferdinandea ruficornis</i> (Fabricius, 1775)					1		1	1	1	1	
<i>Hammerschmidia ferruginea</i> (Fallén, 1817)					1	1		1			
<i>Helophilus hybridus</i> Loew, 1846	1			1	1		1	X	X	U	
<i>Helophilus pendulus</i> (Linnaeus, 1758)	1	1	1	1	1		1	1	1	1	
<i>Helophilus trivittatus</i> (Fabricius, 1805)	1	1	1	1	1	1	1	1	1	1	
<i>Heringia heringi</i> (Zetterstedt, 1843)	1				1	1	1	1	1	1	
<i>Ischyroptera bipilosa</i> Pokorný, 1887				1							
<i>Lapposyrphus lapponicus</i> (Zetterstedt, 1838)	1	1	1	1	1	1	1	1		1	
<i>Lejogaster metallina</i> (Fabricius, 1777)	1			1	1	1	1	1		1	
<i>Lejogaster tarsata</i> (Megerle in Meigen, 1822)	1	U			1			1	1	1	
<i>Lejops vittatus</i> (Meigen, 1822)								1	1	1	
<i>Lejota ruficornis</i> (Zetterstedt, 1843)				1	1		1	1			
<i>Leucozona glaucia</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1			
<i>Leucozona inopinata</i> Doczkal, 2000	1			1		1	1				
<i>Leucozona laternaria</i> (Müller, 1776)	1	1	1		1	1	1	1			
<i>Leucozona lucorum</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1			
<i>Mallota cimbiciformis</i> (Fallén, 1817)								1	1		
<i>Mallota fuciformis</i> (Fabricius, 1794)							U	1			
<i>Megasyrphus erraticus</i> (Linnaeus, 1758)	1	1		1	1	1	1	1		1	
<i>Melangyna arctica</i> (Zetterstedt, 1838)	1	1	1	1	1						
<i>Melangyna barbifrons</i> (Fallén, 1817)		1		1	1		1	1		1	
<i>Melangyna compositarum</i> (Verrall, 1873)	1	1	1	1	1		1	1			
<i>Melangyna ericarum</i> (Collin, 1946)		1									
<i>Melangyna labiatarum</i> (Verrall, 1901)		1	1		1		U	U	U	U	
<i>Melangyna lasiophthalma</i> (Zetterstedt, 1843)	1	X	X	1	1	1	1	1	1	1	
<i>Melangyna lucifera</i> Nielsen, 1980					1						
<i>Melangyna pavlovskii</i> Violovitsh, 1956				1	1						
<i>Melangyna quadrimaculata</i> (Verrall, 1873)			1	1	1		1	1	1	X	
<i>Melangyna umbellatarum</i> (Fabricius, 1794)	1		1	1	1	1	1	1		1	
<i>Melanogaster aerea</i> (Loew, 1843)	1				U		U	U		1	
<i>Melanogaster curvistylus</i> Vujić & Stuke, 1998					1						
<i>Melanogaster hirtella</i> (Loew, 1843)	1			1	1	1	1	1		1	
<i>Melanogaster nuda</i> (Macquart, 1829)	1	1		1	1	1	1			1	
<i>Melanogaster parumplicata</i> (Loew, 1840)				U	U		U	U	U	1	

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**TABLE 2. (Continued)**

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Melanostoma mellarium</i> (Meigen, 1822)			1	1	1						
<i>Melanostoma mellinum</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Melanostoma scalare</i> (Linnaeus, 1794)	1	1	1	1	1	1	1	1	1	1	
<i>Meligramma cincta</i> (Fallén, 1817)	1			1	1	1	1	1	1	1	
<i>Meligramma cingulata</i> (Egger, 1860)				1	1		1	1	X		
<i>Meligramma guttata</i> (Fallén, 1817)			1		1	1	1	1			
<i>Meligramma triangulifera</i> (Zetterstedt, 1843)	1			1	1		1	1			
<i>Meliscaeva auricollis</i> (Meigen, 1822)	1	1	1	1	1	1	1	1	1	1	
<i>Meliscaeva cinctella</i> (Zetterstedt, 1843)	1	1	1	1	1	1	1	1	1		
<i>Merodon aberrans</i> Egger, 1860								1		1	
<i>Merodon albifrons</i> Meigen, 1822					U			1	1	1	
<i>Merodon analis</i> Meigen, 1822	1	1		1	1	1	1	1	1	1	
<i>Merodon armipes</i> Rondani, 1843								1	1	1	
<i>Merodon atratus</i> (Oldenberg, 1919)						1					
<i>Merodon aureus</i> Fabricius, 1805				1	1		1				
<i>Merodon auripes</i> Sack, 1913								1			
<i>Merodon avidus</i> (Rossi, 1790)		U		U	1		1	1	1	1	
<i>Merodon cinereus</i> (Fabricius, 1794)		1	1	1	1	1	1				
<i>Merodon clavipes</i> (Fabricius, 1781)								1			
<i>Merodon equestris</i> (Fabricius, 1794)	1	1		1	1	1	1	1		1	
<i>Merodon moenium</i> (Wiedemann, 1822)									1		
<i>Merodon nigratarsis</i> (Rondani, 1845)								U		U	1
<i>Merodon ruficornis</i> Meigen, 1822						1					
<i>Merodon rufus</i> Meigen, 1838	1			1	1		1	1	1	1	
<i>Merodon trebevicensis</i> Strobl, 1900		1		1		1					
<i>Merodon triangulum</i> Vujić, Radenković & Hurkmans, 2020								1			
<i>Mesembrius peregrinus</i> (Loew, 1846)								1	1	1	
<i>Microdon analis</i> (Macquart, 1842) / <i>M. major</i> Andries, 1912	1		1	1	1	1	1	1		1	
<i>Microdon devius</i> (Linnaeus, 1761)	1	U		U	1	1	1	1	1		
<i>Microdon miki</i> Doczkal & Schmid, 1999		1						1			
<i>Microdon mutabilis</i> (Linnaeus, 1758) / <i>M. myrmicae</i> Schönrogge <i>et al.</i> 2002				1	1	1	1	1	1	1	
<i>Myathropa florea</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Myolepta dubia</i> (Fabricius, 1805)				U				1	1		
<i>Myolepta nigratarsis</i> Coe, 1957											1
<i>Myolepta obscura</i> (Becher, 1882)									1		
<i>Myolepta vara</i> (Panzer, 1798)					1			1		1	
<i>Neoascia annexa</i> (Müller, 1776)	1	1	1	1	1		1	1			
<i>Neoascia interrupta</i> (Meigen, 1822)								1		1	
<i>Neoascia meticulosa</i> (Scopoli, 1763)	1			1	1	1	1		1	1	
<i>Neoascia obliqua</i> Coe, 1940				1	1		1	1			
<i>Neoascia podagrica</i> (Fabricius, 1775)	1	1	1	1	1	1	1	1		1	

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**TABLE 2. (Continued)**

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Neoscia tenur</i> (Harris, 1780)	1	1	1	1	1		1	1	1	1	
<i>Neoscia unifasciata</i> (Strobl, 1898)	1				1			1			
<i>Neocnemodon fulvimanus</i> (Zetterstedt, 1843)		1			U		U	U			
<i>Neocnemodon latitarsis</i> (Egger, 1865)					1	1		1	1		
<i>Neocnemodon pubescens</i> (Delucchi & Pschorn-Walcher, 1955)	1			1	1		1				
<i>Neocnemodon vitripennis</i> (Meigen, 1822)					1	U	U	U			
<i>Orthonevra brevicornis</i> (Loew, 1843)				1	1	1			1		
<i>Orthonevra elegans</i> (Wiedemann in Meigen, 1822)				1	1		1	1			
<i>Orthonevra geniculata</i> (Meigen, 1830)				1	U		U			1	
<i>Orthonevra nobilis</i> (Fallén, 1817)	1	1	1	1	1		1	1		1	
<i>Orthonevra tristis</i> (Loew, 1871)	1	1	1		1	1					
<i>Paragus absidatus</i> Goeldlin, 1971			1								
<i>Paragus albifrons</i> (Fallén, 1817)		U		U	1		1	1	1	1	
<i>Paragus bicolor</i> (Fabricius, 1794)				U	1		1	1	1	1	
<i>Paragus bradescui</i> Stanescu, 1981								1			
<i>Paragus cinctus</i> Schiner & Egger, 1853								1			
<i>Paragus constrictus</i> Šimić, 1986	1			1			1	1			
<i>Paragus haemorrhous</i> Meigen, 1822	1	1		1	1		1	1	1	1	
<i>Paragus majoranae</i> Rondani, 1857				1	1			1			
<i>Paragus pecchiolii</i> Rondani, 1857	1			1	1		1	1	1	1	
<i>Paragus punctulatus</i> Zetterstedt, 1842	1	1	1	1	1						
<i>Paragus quadrifasciatus</i> Meigen, 1822								1	1	1	
<i>Paragus tibialis</i> (Fallén, 1817)				1	1	1	1	1	1	1	
<i>Parasyrphus annulatus</i> (Zetterstedt, 1838)	1	1	1	1	1	1	1	1		1	
<i>Parasyrphus kirgizorum</i> (Peck, 1969)		1	1								
<i>Parasyrphus lineolus</i> (Zetterstedt, 1843)	1	1	1	1	1	1	1	1	1	1	
<i>Parasyrphus macularis</i> (Zetterstedt, 1843)	1				1	X	1	1		1	
<i>Parasyrphus malinellus</i> (Collin, 1952)				1	1					1	
<i>Parasyrphus nigratarsis</i> (Zetterstedt, 1843)					1			1		1	
<i>Parasyrphus punctulatus</i> (Verrall, 1873)	1	1	1	1	1		1	1		1	
<i>Parhelophilus vittiger</i> (Zetterstedt, 1843)	1	1	1	1	1	1	1	1		1	
<i>Parhelophilus frutetorum</i> (Fabricius, 1775)	1			1			1	1	1	1	
<i>Parhelophilus versicolor</i> (Fabricius, 1794)					1		1	1	1	1	
<i>Pelecocera scaevoides</i> (Fallén, 1817)		1		1	1	1	1	1			
<i>Pelecocera tricincta</i> Meigen, 1822	1			1	1			1	1		
<i>Pipiza accola</i> Violovitsh, 1985					1		1		1		
<i>Pipiza austriaca</i> Meigen, 1822	1	1	1	1	1	1	1	1			
<i>Pipiza carbonaria</i> Meigen, 1822					U		U	1			
<i>Pipiza fasciata</i> Meigen, 1822	1				U		U	U		1	
<i>Pipiza festiva</i> Meigen, 1822				U	1		U	U	U	U	
<i>Pipiza lugubris</i> (Fabricius, 1775)		U		U	U		1	U	U	U	
<i>Pipiza luteitarsis</i> Zetterstedt, 1843	1							U	1		

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TABLE 2. (Continued)

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Pipiza noctiluca</i> (Linnaeus, 1758)	1	1		1	1	1	1	1	1	1	
<i>Pipiza notata</i> Meigen, 1822	U	1	1		U		U	U	U		
<i>Pipiza quadrimaculata</i> (Panzer, 1804)	1	1	1	1	1	1	1	1		1	
<i>Pipizella annulata</i> (Macquart, 1829)	1			1	1		1	1		1	
<i>Pipizella bispina</i> Šimić, 1987				1			1				
<i>Pipizella divicoi</i> (Goeldlin, 1974)			1	1	1		1	1	1		
<i>Pipizella nigriana</i> (Séguy, 1961)	1	1	1	1	1	1	1				
<i>Pipizella pennina</i> (Goeldlin, 1974)		1			1		1		1		
<i>Pipizella viduata</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Pipizella virens</i> (Fabricius, 1805)	1	U		U	U		U	1		U	
<i>Platycheirus albimanus</i> (Fabricius, 1781)	1	1	1	1	1	1	1	1	1	1	
<i>Platycheirus ambiguus</i> (Fallén, 1817)	1			1	U			U	U		
<i>Platycheirus angustatus</i> (Zetterstedt, 1843)	1		1	1	1	1	1	1			X
<i>Platycheirus angustipes</i> Goeldlin, 1974	1				1						
<i>Platycheirus aurolateralis</i> Stubbs, 2002	1				1						
<i>Platycheirus brunnifrons</i> Nielsen, 2004			1								
<i>Platycheirus clauseni</i> Nielsen, 2004		1									
<i>Platycheirus clypeatus</i> (Meigen, 1822)	1	1	1	1	1	1	1	1	1	1	
<i>Platycheirus discimanus</i> Loew, 1871				1	1		1	1			X
<i>Platycheirus europaeus</i> Goeldlin, Maibach & Speight, 1990	1			1	1			1			
<i>Platycheirus fasciculatus</i> Loew, 1856				1	1		1	1			
<i>Platycheirus fulviventris</i> (Macquart, 1829)				1	1		1	1	1	1	
<i>Platycheirus laskai</i> Nielsen, 1999					1						
<i>Platycheirus manicatus</i> (Meigen, 1822)	1	1	1	1	1	1	1	1			
<i>Platycheirus melanopsis</i> Loew, 1856	1	1	1	1	1	1	1	1			
<i>Platycheirus nielseni</i> Vockeroth, 1990	1		1								
<i>Platycheirus occultus</i> Goeldlin, Maibach & Speight, 1990	1				1					1	
<i>Platycheirus parmatus</i> Rondani, 1857	1				1						
<i>Platycheirus peltatus</i> (Meigen, 1822)	1	1		1	1	1	1	1	1	1	
<i>Platycheirus podagratus</i> (Zetterstedt, 1838)		1	1	1	1		U	U			
<i>Platycheirus scambus</i> (Staeger, 1843)					1		1			1	
<i>Platycheirus scutatus</i> (Meigen, 1822)	1	1	1	1	1	1	1	1	1	1	
<i>Platycheirus speighti</i> Doczkal, Stuke & Goeldlin, 2002			1								
<i>Platycheirus splendidus</i> Rotheray, 1998	1	1			1						
<i>Platycheirus tarsalis</i> (Schummel, 1837)	1				1	1		1		1	
<i>Platycheirus tatricus</i> Dušek & Láška, 1982	1		1	1	1						
<i>Pocota personata</i> (Harris, 1780)	1							1	1		
<i>Portevinia maculata</i> (Fallén, 1817)	1					1	1	1			
<i>Psarus abdominalis</i> (Fabricius, 1794)							1	1	1		X
<i>Pseudopelecocera latifrons</i> (Loew, 1856)								1	1	1	
<i>Psilota anthracina</i> Meigen, 1822	1			1							

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**TABLE 2. (Continued)**

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Psilota atra</i> (Fallén, 1817)	1			1	U		U	U	U		
<i>Psilota exilistyla</i> Smit & Vujić, 2008					1						
<i>Psilota innupta</i> Rondani, 1857					1						
<i>Pyrophaena granditarsa</i> (Forster, 1771)					1	1	1				
<i>Pyrophaena rosarum</i> (Fabricius, 1787)	1			1	1		1	1		1	
<i>Rhingia borealis</i> Ringdahl, 1928	1	1	1	1	1	1	1	1			
<i>Rhingia campestris</i> Meigen, 1822	1	1	1	1	1	1	1	1		1	
<i>Rhingia rostrata</i> (Linnaeus, 1758)	1	1		1	1	1	1	1	1		
<i>Rohdendorfia alpina</i> Sack, 1938	1	1	1								
<i>Scaeva dignota</i> (Rondani, 1857)				1	1						1
<i>Scaeva pyrastris</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Scaeva selenitica</i> (Meigen, 1822)	1	1	1	1	1	1	1	1	1	1	
<i>Sericomyia bombiforme</i> (Fallén, 1810)	1		1	1	1	1	1	1			
<i>Sericomyia lappona</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1			
<i>Sericomyia silentis</i> (Harris, 1776)	1	1		1	1	1	1	1	1	1	
<i>Sericomyia superbiens</i> (Müller, 1776)	1	1		1	1	1	1	1			
<i>Spazigaster ambulans</i> (Fabricius, 1798)	1		1	1	1	1	1	1			
<i>Sphaerophoria bankowskiae</i> Goeldlin, 1989	1	1	1	1	1						
<i>Sphaerophoria batava</i> Goeldlin, 1974				1				1			
<i>Sphaerophoria fatarum</i> Goeldlin, 1989		1	1	1	1						
<i>Sphaerophoria infuscata</i> Goeldlin, 1974	1	1	1		1	1					
<i>Sphaerophoria interrupta</i> (Fabricius, 1805)	1	1	1	1	1	1	1	1		1	
<i>Sphaerophoria laurae</i> Goeldlin, 1989			1								
<i>Sphaerophoria loewi</i> Zetterstedt, 1843							1	1			
<i>Sphaerophoria philanthus</i> (Meigen, 1822)					1		1				
<i>Sphaerophoria rueppellii</i> (Wiedemann, 1830)		1		1	1		1		1	1	
<i>Sphaerophoria scripta</i> (Linnaeus, 1858)	1	1	1	1	1	1	1	1	1	1	
<i>Sphaerophoria shirchan</i> Violovitsh, 1957	1										
<i>Sphaerophoria taeniata</i> (Meigen, 1822)	1	1	1	1	1		1	1	1	1	
<i>Sphaerophoria virgata</i> Goeldlin, 1974	1				U	1		1			
<i>Sphegina clavata</i> (Scopoli, 1763)					1		1	1		1	
<i>Sphegina clunipes</i> (Fallén, 1816)	1	1	1	1	1	1	1	1	1	1	
<i>Sphegina cornifera</i> Becker, 1921					1		1				
<i>Sphegina elegans</i> Schummel, 1843	1				1		1	1	1		
<i>Sphegina latifrons</i> Egger, 1865	1				1		1	1		1	
<i>Sphegina montana</i> Becker, 1921	1			1	1		1	1		1	
<i>Sphegina platychira</i> Szilády, 1937	1			1	1						
<i>Sphegina sibirica</i> Stackelberg, 1953	1	1		1	1		1	1		1	
<i>Sphegina sphegina</i> (Zetterstedt, 1838)			1		1						
<i>Sphegina verecunda</i> Collin, 1937				1	1						
<i>Sphiximorpha subsessilis</i> (Illiger in Rossi, 1807)					1			1	1		
<i>Spilomyia digitata</i> (Rondani, 1865)											1
<i>Spilomyia diophthalma</i> (Linnaeus, 1758)		1	1	1	1	1		1		1	

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**TABLE 2. (Continued)**

Species	VB	NT	OT	KÄ	ST	SA	OÖ	NÖ	WI	BU	AT
<i>Spilomyia manicata</i> (Rondani, 1865)							1	1	X		
<i>Spilomyia saltuum</i> (Fabricius, 1794)					1		1		1	1	
<i>Syrpitta pipiens</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Syrphocheilosia claviventris</i> (Strobl, 1910)	X	1	1		1	1					
<i>Syrphus auberti</i> Goeldlin, 1996	1						1				
<i>Syrphus nitidifrons</i> Becker, 1921	1										
<i>Syrphus ribesii</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Syrphus torvus</i> Osten-Sacken, 1875	1		1	1	1	1	1	1	1	1	
<i>Syrphus vitripennis</i> Meigen, 1822	1	1	1	1	1	1	1	1	1	1	
<i>Temnostoma angustistriatum</i> Krivosheina, 2002					1						
<i>Temnostoma apiforme</i> (Fabricius, 1794)				1	1	1	1	1			
<i>Temnostoma bombylans</i> (Fabricius, 1805)	1			1	1	1	1	1		1	
<i>Temnostoma meridionale</i> Krivosheina & Mamayev, 1962				1	1			1			
<i>Temnostoma vespiforme</i> (Linnaeus, 1758)	1			1	1	1	1	1		1	
<i>Trichopsomyia flavitarsis</i> (Meigen, 1822)	1			1	1						
<i>Trichopsomyia joratensis</i> (Goeldlin, 1997)		1	1	1	1						
<i>Triglyphus primus</i> Loew, 1840								1			
<i>Tropidia fasciata</i> Meigen, 1822							1	1	1		
<i>Tropidia scita</i> (Harris, 1780)	1			1			1	1	1	1	
<i>Volucella bombylans</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Volucella inanis</i> (Linnaeus, 1758)	1		1	1	1	1	1	1	X	1	
<i>Volucella inflata</i> (Fabricius, 1794)	1				1		1	1		1	
<i>Volucella pellucens</i> (Linnaeus, 1758)	1	1	1	1	1		1	1	1	1	
<i>Volucella zonaria</i> (Poda, 1761)	1			1	1		1	1	1	1	
<i>Xanthandrus comtus</i> (Harris, 1780)	1		1	1	1	1	1	1	1	1	
<i>Xanthogramma citrofasciatum</i> (De Geer, 1776)		1		1	1		1	1	1	1	
<i>Xanthogramma dives</i> (Rondani, 1857)	1				1		1	1	1	1	
<i>Xanthogramma laetum</i> (Fabricius, 1794)	1				1			1	1	1	
<i>Xanthogramma pedissequum</i> (Harris, 1776)	1			1	1	1	1	1	1	1	
<i>Xanthogramma stackelbergi</i> Violovitsh, 1975	1				1						
<i>Xylota abiens</i> Meigen, 1822				U	1		1	1	1	1	
<i>Xylota florum</i> (Fabricius, 1805)				1	1	1	1	1		1	
<i>Xylota ignava</i> (Panzer, 1798)	1	1		1	1	1	1	1	1		
<i>Xylota jakutorum</i> Bagatshanova, 1980	1	1	1	1	1		1				
<i>Xylota segnis</i> (Linnaeus, 1758)	1	1	1	1	1	1	1	1	1	1	
<i>Xylota sylvarum</i> (Linnaeus, 1758)	1			1	1	1	1	1	X	1	
<i>Xylota tarda</i> Meigen, 1822				1	1		1	1	1		
<i>Xylota triangularis</i> Zetterstedt, 1838			1	1	1	1	1	1			
<i>Xylota xanthocnema</i> Collin, 1939	1			1	1						
Total number of species	<b>234</b>	<b>172</b>	<b>154</b>	<b>259</b>	<b>331</b>	<b>155</b>	<b>269</b>	<b>307</b>	<b>169</b>	<b>201</b>	<b>3</b>

## Further remarks on some species records

### *Anasimyia lunulata* (Meigen, 1822) and *Anasimyia transfuga* (Linnaeus, 1758)

Records published before Claussen & Torp (1980) should be verified. Therefore, data from Franz (1989) and Morge (1974) were symbolised as “U” (= uncertain) in the checklist. We verified specimens collected in Lower Austria, Manhartsherg. Aistleitner *et al.* (2020) published another recent record for Vorarlberg.

### *Baccha elongata* (Fabricius, 1775)

The name is used here *sensu lato*, i.e., including *Baccha obscuripennis* Meigen, 1822. The synonymy has been proposed (Speight 2020), but not yet formally published. We regard the taxonomy of European *Baccha* as unresolved (see also Ssymank & Doczkal 2017).

### *Brachyopa plena* Collin, 1939

The problem of the taxonomic status of *B. plena* has been summarised by Speight (2020). All specimens from Austria we have seen were identical with *B. scutellaris* except for the differently shaped sensory pit on the third antennal segment. We compared the male terminalia of specimens of *B. plena* from Austria with specimens of *B. scutellaris* from southern Germany and could not see any differences. Further investigations, including DNA studies, are needed to elucidate the relationship between these names or taxa (see also van Steenis *et al.* 2020).

### *Cheilosia cynocephala* Loew, 1840

We examined some recently found specimens from Burgenland. Voucher specimens of older records published by Franz (1989) should be re-examined.

### *Cheilosia pascuorum* Becker, 1894

Becker (1894) described this species from Lower Austria and Tyrol. We verified recent material from Vienna. Records published by Strobl (1898: 225) and Franz (1989: 59) are doubtful.

### *Cheilosia scanica* Ringdahl, 1937 and *Cheilosia morio* auct.

Two different species are mixed under the name *C. morio* (Zetterstedt). The correct names of both remain to be established (Speight 2020). Here we use the name *C. scanica* Ringdahl for the species with a hairy face and the name *C. morio* *sensu* Becker for the species with a bare face. In some cases, it was impossible to access old material and literature on *C. morio*. Therefore, we included data from verified material and recent records only.

### *Cheilosia vernalis* (Fallén, 1817)

Ståhls *et al.* (2008) found three different clades in the COI sequences of specimens of the *C. vernalis* complex from various parts of Europe. However, these clades mismatched with morphological characters. While it is possible that different species are involved, the available identification keys do not allow separating different species. All records of specimens identified as *C. rotundiventris* Becker or *C. ruficollis* Becker, both synonymised with *C. vernalis* by Ståhls *et al.* (2008), have been lumped with *C. vernalis*.

### ***Dasysyrphus venustus* (Meigen, 1822)**

The current concept of *D. venustus* as reflected in identification guides (e.g., Bot & van de Meutter 2019; Speight & Sarthou 2017; Bartsch *et al.* 2009a) comprises a species complex (Dieter Doczkal, unpublished). Here we adopt the names used by Speight (2020) as taxonomic changes are beyond the scope of the present paper.

### ***Epistrophella euchroma* (Kowarz, 1885)**

Some authors (e.g., Aistleitner *et al.* 2020; Speight 2020) list this species under the name *Meligramma euchroma*. In this paper, we follow Doczkal & Vujić (1998) and consider the combination *Epistrophella euchroma* as valid.

### ***Eumerus amoenus* Loew, 1848**

The current and only record of this species is from Upper Austria. It was found by Schlüsslmayr (2018) and confirmed by Dieter Doczkal. Further information about this species can be found in Speight *et al.* (2021).

### ***Eumerus ruficornis* Meigen, 1822**

Schiner (1862: 362) documented this species as “pretty mean and widespread; in wet meadows (...)”. The only “recent” records dates back to 1990 (Lower Austria, Scheibbs, Schlagerboden; (1♂) leg. Franz Ressler). The host plant of the larvae is the highly-local Asteraceae *Scorzonera humilis* L. (Johansson 2011). Due to the extreme loss of its habitat, *Eumerus ruficornis* is close to extinction in Central and northern Europe (Ssymank *et al.* 2011; Johansson 2011).

### ***Eumerus sogdianus* Stackelberg, 1952**

This species can be easily confused with *E. consimilis* Šimić & Vujić, 1996, *E. montanum* Grković, Radenković & Vujić 2017 and another undescribed species found in the Black Forest (Schwarzwald, Germany). *Eumerus sogdianus* was recorded by Schlüsslmayr (2018) from Austria, the specimen identification was verified by Dieter Doczkal. Further information about this species can be found in Speight *et al.* (2021).

### ***Mallota cimbiciformis* (Fallén, 1817)**

The first Austrian record was published by Ignaz J. Rudolf Schiner (1862). The species was recorded again on the north western outskirts of Vienna, close to the Schiner’s historic locality by Konrad Zobel and identified by Gerard Pennards. (Photo proof: [https://diptera.info/forum/viewthread.php?forum\\_id=7&thread\\_id=88560](https://diptera.info/forum/viewthread.php?forum_id=7&thread_id=88560)). Most recently, a single specimen was recorded during a field excursion at the National Park Thayatal (Lower Austria) in the year 2021. Another record from Lower Austria were published by Schlüsslmayr (2021).

### ***Mallota fuciformis* (Fabricius, 1794)**

The species was recently recorded by Michael Knapp and confirmed by Gerard Pennards. (Photo proof: [https://diptera.info/forum/viewthread.php?forum\\_id=7&thread\\_id=94308](https://diptera.info/forum/viewthread.php?forum_id=7&thread_id=94308)). by Ignaz J. Rudolf Schiner published one record from Purkersdorf (Schiner 1862).

### ***Melangyna labiatarum* (Verall, 1901) / *compositarum* (Verall, 1873)**

Recent authors (e.g., Bot & van de Meutter 2019; Speight 2020) regard *M. labiatarum* as a synonym of *M. compositarum*. We agree that it is difficult to distinguish these taxa using existing keys (e.g., Stubbs & Falk 2002; van der Goot 1981; Coe 1953), but as neither a revision nor a formal synonymisation has been published, we keep both names in the list.

### ***Melanogaster parumplicata* (Loew, 1840)**

This species can be easily confused with *M. aerosa* (Loew, 1843) (Speight 2020). Therefore, careful examination is needed. Genitalia of both species were dissected and compared with drawings by Maibach *et al.* (1994).

### ***Melanostoma mellinum* (Linnaeus, 1758)**

The long-standing concept of three species of *Melanostoma* in Europe has been challenged by Haarto & Ståhls (2014) who used an integrated approach (morphology of adults in combination with ITS2 sequences) to revise the North-European species. The morphologically highly variable *M. mellinum* turned out to contain two species, *M. mellinum* and *M. mellarium* (Meigen, 1822). We identify our material from Central Europe using the key in Haarto & Ståhls (2014) as well as the keys in Speight & Sarthou (2017) and in Bot & van de Meutter (2019). In accordance with Speight & Sarthou (2017) we found specimens which completely fit the diagnosis of *M. mellarium*. However, the range of morphological variation within the *M. mellinum* complex in Central European populations is apparently much wider than in the material studied by Haarto & Ståhls (2014), as a large part of our material does not fit unambiguously to any of these taxa. In particular, populations from the Alps and adjacent regions display confusing variation indicating that additional species could be involved. A detailed investigation of multiple characters including DNA markers are required to disentangle the complicated taxonomy of central European *Melanostoma*. At present, we regard the species of the *M. mellinum* complex as unidentifiable, at least as far as populations from the Central European Alps are concerned. Consequently, we refrain from listing taxa other than those known prior to Haarto & Ståhls (2014).

### ***Merodon aeneus* (Megerle in Meigen, 1822) & *Merodon cinereus* (Fabricius, 1794)**

Aistleitner *et al.* (2020) include these species under the name “*Merodon aeneus* agg.” and “*M. cinereus* agg.”; but without further comments. However, we have confirmed the presence of *Merodon cinereus* (Fabricius, 1794) and *Merodon aureus* Fabricius, 1805 from Vorarlberg (Ante Vujić pers. comm.). Both species are in the species group *Merodon aureus* sensu Radenković (Šašić *et al.* 2016). Further information about *Merodon aureus* (ex *M. aeneus*) can be found in Vujić *et al.* (2020b). To avoid confusion, we have not included these species names given by Aistleitner *et al.* in our present checklist. Most recently *M. cinereus* was reported by Schlüsslmayr (2021) from Upper Austria.

### ***Merodon analis* Meigen, 1822**

Some authors (e.g., Aistleitner *et al.* 2020; Franz 1989; Röder 2001) report *Merodon constans* (Rossi, 1794) from Austria. Vujić *et al.* (2020a) showed that two species in Central and south-eastern Europe have been referred to by authors under this name. Distribution and morphological characters give clear evidence to separate these two species. *Merodon analis* (former *M. haemorrhoidalis* Sack, 1913) occurs in Central Europe and northern Italy, *Merodon constans* occurs in the Mediterranean part of south-eastern Europe. Therefore, we assume that all records of *M. constans* formerly published for Austria refer to *M. analis*. Our thesis is supported by Ante Vujić, who studied many specimens from Austria but could not find any *M. constans* until now (Ante Vujić pers. comm.).

### ***Merodon clavipes* (Fabricius, 1781)**

Franz (1989) published two records found 1912 and 1988 in Lower Austria. Furthermore Anderle (211) published one record from 1886, deposited in the collection of the Natural History Museum Vienna. The examination of this specimens is pending. Elisabeth Papenberg recently found a male specimen in the Donau-Auen National Park (Lower Austria). Ante Vujić confirmed the record and considered the species as rare in Austria (A. Vujić in lit.).

### ***Microdon analis* (Macquart, 1842) / *M. major* Andries, 1912**

*Microdon major* was regarded as a synonym of *M. analis* (= *M. eggeri* Mik), until Schmid (2004) demonstrated its status as a valid species. The diagnostic morphological characters refer only to the puparia. The sparse data indicate that these taxa are associated with different ant hosts (Witek *et al.* 2011). Apart from the size (*M. major* is on average slightly larger than *M. analis*) adults are indistinguishable morphologically. The records from Austria examined by us were exclusively based on adults. While it can be assumed that both species are involved, further investigations based on puparia and/or DNA data are needed to corroborate their presence in Austria.

### ***Microdon mutabilis* (Linnaeus, 1758) / *M. myrmicae* Schönrogge *et al.* 2002**

*Microdon myrmicae* has been split from *M. mutabilis* based on characters of the larvae and puparia by Schönrogge *et al.* (2002). The adults are morphologically indistinguishable. While *M. myrmicae* is associated with various ant hosts of the genus *Myrmica* Latreille, 1804, occurring in open wet habitat, larvae or puparia of *M. mutabilis* have been found in nests of *Formica lemani*, *F. cunicularia*, and *F. cinerea*. These ants prefer dry grassland. Therefore, *M. mutabilis* is found more frequently in dry habitats. The records from Austria examined by us were exclusively based on adults. While it can be assumed that both species were involved, further investigations based on puparia and/or DNA data are needed to corroborate their presence in Austria.

### ***Myolepta nigratarsis* Coe, 1957**

So far only one record for Austria was published (Reemer *et al.* 2005). The specimen is deposited in the collection of the Natural History Museum Leiden (Netherlands). *Myolepta nigratarsis* occurs preferentially in old oak forests. It can occur syntopic with other species of the genus *Myolepta*, e.g., *M. obscura* (Becher, 1882) or *M. vara* (Panzer, 1788).

### ***Neocnemodon fulvimanus* (Zetterstedt, 1843)**

One record was reported by C. Claussen from North Tyrol (pers. comm. C. Claussen). Records published by Franz (1989) are considered as dubious and marked in the list with “U” (= uncertain).

### ***Neocnemodon vitripennis* (Meigen, 1822)**

One recent record from Styria was verified (Styria, Eisental; (1♂) leg. H. Heimburg, det. D. Doczkal) whilst records by Franz (1989) and Morge (1974) are considered as dubious and marked in the list with “U” (= uncertain).

### ***Pipizella bispina* Šimić, 1987**

Little is known about *P. bispina*. It is considered as a rare mountain species. Isolated records are known from Austria (Carinthia; van Steenis & Lucas 2011), Poland, Montenegro, Serbia, Slovenia and Switzerland (Trzcinski, 2011).

Further records are reported from Belgium and the French Alps (Ssymank & Lair 2015; Speight 2020).

### ***Psilota exilistyla* Smit & Vujić, 2008**

In the year 2017, a single male was caught on *Caltha palustris* L. in a humid *Picea abies* forest in Styria. Smit & Vujić (2008) examined two voucher specimens of *P. exilistyla* deposited in the collection of the Natural History Museum Vienna. The label reads: “Unknown locality, 26.IV.1869 and 12.V.1869, 2♀ (leg. Prater col. NMW)”. We did an extensive literature research, but could not find a dipterologist with the surname “Prater”. It is reasonable to assume that “leg. Prater” refers to the locality (a well-known place in the centre of Vienna, where many entomologists collected insects in the 18<sup>th</sup> century)—but not to the collector of the specimens. The current record from the year 2017 is thus the second single record from Austria, almost 150 years after the species was collected in Vienna by an unknown collector. The species was previously only known from Greece and France (Smit & Vujić 2008).

### ***Sphaerophoria loewi* Zetterstedt, 1843**

Schiner (1862) published records from Lower Austria (Vöslau) under its synonym *Melithreptus formosus* Egger, 1859. He stated that Johann Georg Egger had observed this species specifically on *Butomus umbellatus* (L.). Franz (1989) published records from Lower Austria and Upper Austria. We have not seen any recently collected specimen.

### ***Spilomyia saltuum* (Fabricius, 1794)**

In the revision of the genus *Spilomyia* Meigen, 1803 by Jeroen van Steenis, a few species of the genus *Spilomyia* were listed for Austria. One recent record, collected by E. Ockermüller, could be confirmed from Burgenland. From older references, this species was also reported for Styria, Upper Austria and Vienna. However, these data should be viewed critically, since a confusion with *Spilomyia manicata* (Rondani, 1865) is possible.

### ***Syrphus auberti* Goeldlin, 1996**

So far, three records of *Syrphus auberti* were published from Austria. Ulrich Schmid found this species in the Allgäuer Alpen (Hoher Häderich) on the border between Germany and Austria (Schmid 1999). A second record is reported from Upper Austria (Schlüsslmayr 2018) and the most recent record was published from Vorarlberg (Aistleitner *et al.* 2020).

### ***Orthonevra tristis* (Loew, 1871)**

Aistleitner *et al.* (2020) reported this species under the name *O. onytes* (Séguy, 1961). Speight (2020) mentioned the confusion about the taxonomic status of this species. We keep the name *O. tristis* until the identity of the type material of both *O. onytes* and *O. tristis* is clarified.

### **Doubtful species records**

In total 25 species, which we consider as doubtful, were previously published from Austria. We did not include these species in the checklist (Table 1), because it was either unclear whether the locality is within the present borders of Austria; the species identification was doubtful; or the specimens were not available for re-examination. These species are discussed below.

### ***Callicera rufa* Schummel, 1842**

**Notes.** Reported from: Lower Austria (NÖ). Franz (1989) published one single record from Austria. We think it is very likely that *C. rufa* occurs in Austria. However, due to confusion with other species within the genus *Callicera* Panzer 1809 in the past, it is necessary to re-examine voucher specimens before *C. rufa* can be included in the list.

### ***Cheilosia acutilabris* Becker, 1894**

**Notes.** Reported from: Styria (ST). Records from Austria published by Becker (1894) and Mörtelmaier (1999). Omitted because the taxonomic status is unclear (Claussen & Speight 2007).

### ***Cheilosia alpina* (Zetterstedt, 1838)**

**Notes.** Reported from: Carinthia (KÄ). Records published by Franz (1989) from Carinthia are considered as dubious, as this taxon is only known from northern Europe and the eastern Palearctic (Claussen 1998).

### ***Cheilosia gerstaeckeri* Becker, 1894**

**Notes.** Reported from: Upper Austria (OÖ) and Burgenland (BU). Records published by Franz (1989) and Metz (2012). Omitted because the taxonomic status is unclear (Claussen & Speight 2007).

### ***Cheilosia griseiventris* Loew, 1857**

**Notes.** Reported from: Upper Austria (OÖ) and Lower Austria (NÖ). This species is only reported with certainty from Sicily (Italy). Data from Western Europe (e.g., England, the Netherlands) are based on misidentifications (pers. comm. of Claus Claussen to H. Heimburg). Thus, records from Austria published by Franz (1989); Lindner (1944) and Waitzbauer (2001) should be re-examined.

### ***Cheilosia lenta* Becker, 1894**

**Notes.** Reported from: Upper Austria (OÖ). Published by Franz (1989) from Upper Austria. This species is very difficult to distinguish from *C. rhynchops* (Speight 2020), therefore voucher specimens need to be re-examined before the species can be added to the list. We consider it very likely that this species occurs in Austria, as it is reported from the neighbouring countries Switzerland and Hungary.

### ***Cheilosia longicornis* Michl, 1911**

**Notes.** Reported from: Austria. In the original description of *C. longicornis*, Michl stated that the distribution area of the species is unknown. On the voucher specimen only “old collection” is noted (Michl 1911: 291). This record was later transmitted by Franz (1989). The voucher specimen is kept in the Natural History Museum Wien and was re-examined by Claus Claussen some years ago. He found out that the specimen belongs to the genus *Hiatomyia* Shannon, 1922. Omitted because, to date, *Hiatomyia* is so far only known from North America.



### ***Cheilosia longifila* Becker, 1894**

**Notes.** Reported from: Styria (ST). Records published by Franz (1989). Omitted because the identity of this taxon is unclear (Claussen & Speight 2007).

### ***Chrysogaster basalis* Loew, 1857**

**Notes.** Reported from: Styria (ST) and Lower Austria (NÖ). Records published by Franz (1989) and Anderle (2011). Voucher specimens must be re-examined before the species can be added to the list. Still, we consider it very likely that this species occurs in Austria, as it is reported from the neighbouring countries Switzerland and southern Germany (Speight 2020).

### ***Chrysotoxum octomaculatum* Curtis, 1837**

**Notes.** Reported from: Styria (ST), Upper Austria (OÖ), Lower Austria (NÖ) and Burgenland (BU). Records published by Franz (1989), Morge (1974) and Metz (2012) are considered as dubious. Voucher specimens must be re-examined before the species can be added to the list. We consider it very likely that this species occurs in Austria, as it is reported from Central through southern Europe (Speight 2020).

### ***Eupeodes bucculatus* (Rondani, 1857)**

**Notes.** Reported from: Styria (ST), Burgenland (BU) and Vorarlberg (VB). Data published by Metz (2012) and Waitzbauer (2001) are considered doubtful. Voucher specimens must be re-examined. Recently, Aistleitner *et al.* (2020) published a single record from Vorarlberg. However, the species identification is uncertain (Stefan Pruner pers. comm.). Therefore, we do not include the species in the main list, until the species identification is proven with certainty. In general, it is very difficult to separate *E. bucculatus* from other species of the genus (Speight 2020). We consider it likely that this species occurs in Austria, as it is reported from Central Europe (e.g., Switzerland) (Speight 2020).

### ***Melanostoma alpinum* Szilády, 1942**

**Notes.** Reported from: North Tyrol (NT) and Vorarlberg (VB). Szilády (1942: 624) described this species and published records from North Tyrol and Vorarlberg. Aistleitner *et al.* (2020) recently reported this species for Vorarlberg. Nevertheless, *M. alpinum* is excluded from the checklist, as this species identity remains unresolved.

### ***Melanostoma certum* Haarto & Ståhls, 2014**

**Notes.** Reported from: Vorarlberg (VB). *M. certum* belongs to the *Melanostoma mellinum* species complex and was reported recently by Aistleitner *et al.* (2020) for Austria. Older records of this complex were published by Franz (1989) presumably under the name *M. dubium*. Probably several cryptic species are hidden within the *M. mellinum* complex (Dieter Doczkal unpublished data). We delete this species from the checklist, as we believe that the species concept of Haarto & Ståhls (2014) cannot be applied to the entire European region, especially not for the Alpine region (see the section ‘Further remarks on species records: *Melanostoma mellinum*’). Further molecular studies are necessary to clarify this species complex (see also Speight (2020)).

### ***Merodon funestus* (Fabricius, 1794)**

**Notes.** Reported from: Austria. Records published by Franz (1989) are considered as dubious (Ante Vujić pers. comm.). According to the distribution range (Speight 2020), it is very unlikely that this species occurs in Austria.

### ***Merodon obscuritarsis* Strobl, 1909**

**Notes.** Reported from: North (?) Tyrol (NT). Formerly known as *M. tricinctus* Sack, 1913. Not included in the list, because it is unclear whether this species is recorded from the Austrian part of Tyrol or not (Denner 2017). However, it is very likely that this species occurs in Austria (Ante Vujić pers. comm.).

### ***Neoscia geniculata* (Meigen, 1822)**

**Notes.** Reported from: Styria (ST), Salzburg (SA), Upper Austria (OÖ), Lower Austria (NÖ) and Burgenland (BU). Records published by Franz (1989) are considered as dubious. Voucher specimens should be re-examined before the species can be added to the list. We consider it very likely that this species occurs in Austria, as this species is (also) distributed over the mountains of Central Europe (Speight 2020).

### ***Orthonevra frontalis* (Loew, 1843)**

**Notes.** Reported from: Burgenland (BU). Records by Franz (1989) are considered doubtful. Voucher specimens should be checked before the species can be added to the list. We consider it very likely that this species occurs in Austria. However, we have not seen any recently collected specimens.

### ***Orthonevra plumbago* (Loew, 1840)**

**Notes.** Reported from: Styria (ST) and Lower Austria (NÖ). Records published by Franz (1989) are considered as dubious. Voucher specimens should be re-examined before the species can be added to the list. We consider it very likely that this species occurs in Austria, as it is reported from neighbouring countries (e.g., Switzerland, Germany, Hungary) (Speight 2020).

### ***Pipiza luteibarba* Vujić, Radenković & Polić, 2008**

**Notes.** Reported from: Austria (?). This species was reported for Austria by Vujić *et al.* (2008). Vujić studied one old specimen from the collection of the Natural History Museum Vienna without precise information about the collecting site (Ante Vujić pers. comm.). Therefore, it is unclear whether the species was found within the present borders of Austria. For this reason, the species is not included in the list. Reported only from Serbia, Greece and (erroneously?) from Austria (Speight 2020).

### ***Pipizella maculipennis* (Meigen, 1822)**

**Notes.** Reported from: Carinthia (KÄ), Styria (ST), Lower Austria (NÖ) and Burgenland (BU). The records published by Franz (1989) and Metz (2012) are considered as dubious. Voucher specimens should be re-examined before the species can be added to the list. We consider it very likely that this species occurs in Austria. However, we have not seen any recently collected specimens.

### *Platycheirus immarginatus* (Zetterstedt, 1849)

**Notes.** Reported from: Upper Austria (OÖ). Records published by Franz (1989) are considered as dubious. Voucher specimens should be re-examined before the species can be added to the list. Due to confusion with other species in the past, the range of this species remains unclear (Speight 2020).

### *Platycheirus perpallidus* Verrall, 1901

**Notes.** Reported from: Styria (ST), Upper Austria (OÖ), Lower Austria (NÖ), Burgenland (BU) and Vorarlberg (VB). Published by Franz (1989); Waitzbauer (2001); Metz (2012) and most recently by Aistleitner *et al.* (2020). Due to confusion with other species (Speight 2020), we considered these records as doubtful. Voucher specimens should be re-examined. However, it is very likely that *P. perpallidus* occurs in Austria.

### *Platycheirus sticticus* (Meigen, 1822)

**Notes.** Reported from: Burgenland (BU) and Vorarlberg (VB). Metz (2012) gives a record from Burgenland: “Güns-er Gebirge, Rechnitz—Markt Neuhodis, 4.5.1995; leg. H. Metz”. The specimen, a single female (coll. Natural History Museum Vienna), was re-examined by us and it turned out to be a *P. albimanus*. In general, we consider the identification of *P. sticticus* females to be very difficult. Nevertheless, we think it is very likely that *P. sticticus* occurs in Austria, but we have not seen any material yet.

### *Riponnensia splendens* (Meigen, 1822)

**Notes.** Reported from: Styria (ST). Mörtelmaier (1999) published some records from Styria. Voucher specimens (coll. “Haus der Natur Salzburg”) should be re-examined before the species can be added to the list. We consider it likely that this highly localised species (Speight 2020) occurs in Austria.

### *Xylota caeruleiventris* Zetterstedt, 1838

**Notes.** Reported from: Styria (ST), Lower Austria (NÖ) and Vorarlberg (VB). Waitzbauer (2001) published several records for Styria and Lower Austria (Wildnisgebiet Dürrenstein). Mörtelmaier (1999) and Aistleitner (2008) published records of *X. caeruleiventris* Zetterstedt, 1838 for Styria and Vorarlberg. There was a lot of confusion about these species in the past. *Xylota jakutorum* Bagatshanova, 1980 was frequently referred to as *X. caeruleiventris* (auct.) (= an incorrect spelling of the name *X. caeruleiventris*; see Speight 2020). Furthermore, dark specimens of *X. jakutorum* can be easily misidentified as *X. caeruleiventris*. Therefore, careful examination is needed (Doczkal 2004). Voucher specimens should be checked before the species can be added to the list. We consider it as very likely that this species occurs in Austria, as it is reported from the neighbouring countries Czech Republic, Germany and Slovenia (Speight 2020).

### First records from federal states of Austria

In total, 278 unpublished species' records for individual federal states are listed in Appendix. With 95 species, East Tyrol hosts the largest amount of first species records per federal state. North Tyrol comes in second place with 64 species. These records mostly stem from Claus Claussen. Another 119 first species records are presented for the remaining federal states. As Aistleitner *et al.* (2020) recently published a checklist of Vorarlberg's hoverflies with new species records, we do not present any additional unpublished records for this federal state.

## Discussion

The knowledge on the hoverfly fauna of Austria is moderately good (Speight 2020). Compared to neighbouring countries, higher species numbers are known from Germany (463 species; Ssymank *et al.* 2011), Switzerland (462 species; Speight 2020) and from Italy (495 species; Speight 2020). In the Czech Republic (368 species), Hungary (365 species), Slovakia (360 species), Slovenia (289 species) and of course Liechtenstein (199 species), a lower number of species was reported (Speight 2020). Based on Austria's geographical location and habitat diversity (e.g., the Alps, submediterranean and pannonian influence), we expect slightly more than 500 hoverfly species in total.

Data on seven additional species are available, but were not considered because the material could not (yet) be determined to species level. These are cryptic species whose species status is either not clear, or need to be re-described.

The evaluation of the faunistic data showed clear differences concerning the state of knowledge between the federal states. Styria, Lower Austria and Upper Austria are relatively well studied, as past and more recent entomologists focused on this Diptera group (e.g., Pater Gabriel Strobl in Styria). In the other federal states, due to a lack of hoverfly experts, Syrphidae were sampled only as "by-catch" by entomologists, leading to lower numbers of species recorded.

The checklist of Burgenland Metz (2012) and the recently published checklist of Vorarlberg by Aistleitner *et al.* (2020) were critically revised. Species that are doubtful from our point of view were not included in the present checklist. This leads to a slight discrepancy in the number of recorded hoverfly species from these federal states in the present publication. A final review of the voucher specimens from Vorarlberg is still pending.

Further important steps towards a comprehensive knowledge on the hoverflies of Austria include the review of hoverfly collections of various museums (e.g., the Natural History Museum Vienna), more field work in many parts of the country, and the comparison of historical data with recently collected material. The latter could provide important information on trends such as the increase or decrease of populations of individual species within the Austrian borders.

Hoverflies are an attractive family within the morphologically and ecologically diverse order of Diptera. They are considered as beneficial insects in agriculture (e.g., pollinators, predators of aphids) and are considered as bio-indicators in nature conservation (Sommaggio 1999; Speight & Castella 2001). However, morphological identification is difficult and time-consuming, as a general and complete identification key of Austrian hoverflies is missing so far. In order to facilitate the processing of the group for experts in future, it would therefore be very helpful to summarise existing literature and to create an identification guide for Austria, respectively the Central European fauna.

For the future, a standardised, systematic and long-term monitoring of hoverflies within the borders of Austria (and Europe) would be very desirable. This could significantly improve the incomplete knowledge about the occurrence and distribution of the single species.

The authors still expect a large number of new and interesting hoverfly records from Austria hidden in private and foreign collections.

## Acknowledgements

We are very grateful to Claus Claussen for providing many interesting data, identification help and his general support concerning this list and beyond. We kindly thank Sandra Aurenhammer, Elisabeth Bauchhenß, Franziska Denner, Johanna Gunczy, Lorenz W. Gunczy, Martin Hasewend, Elisabeth Huber, Ernst Hüttinger, Denise Ivenz, Matthias Jentzsch, Michael Knapp, Alois Kofler, Christian Komposch, Rachel Korn, Gernot Kunz, Andreas Link, Heimo Metz, Thomas Mörtelmaier, Johannes Neumayer, Thomas Nisch, Esther Ockermüller, Tanja Panzi, Elisabeth Papenberg, Sandra Preiml, Hubert Rausch, Renate Rausch, Thomas Romig, Gerhard Schlüsslmayr, Martin Schwarz, Katharina Spiß, Jens-Hermann Stuke, Julia Techt, Lorin Timaeus, Herbert C. Wagner, Wolfgang Waitzbauer, Herbert Zettel, Konrad Zobel and other colleagues for specimens and data of Syrphidae from Austria.

We are grateful to the museums "inatura Dornbirn" (Vorarlberg), "Haus der Natur" (Salzburg) and "Tiroler Landesmuseum" (Innsbruck) and their curators Georg Friebe, Patrick Gros and Benjamin Wiesmaier for the possibility to study their collections. We are grateful to Eyjolf Aistleitner, Christian F. Kassebeer, Stefan Pruner, André

Reimann, Axel Ssymank and Ante Vujić for fruitful discussions, sharing unpublished data, providing literature etc. The first author would like to express his special thanks to Petra Richter for her tireless efforts and her joy in collecting hoverflies, especially in the Alps. We also thank Dr. Rachel Korn for the linguistic revision of the manuscript. We are very thankful to Mag. Philipp Zimmermann for his assistance in the map elaboration. Finally, we would like to thank Axel Ssymank, the anonymous reviewer and the editor for their useful comments and corrections.

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## APPENDIX. First records from Austrian federal states

Federal states are listed from west to east, species are listed in alphabetical order. Data are given as written on the species labels. Abbreviations: CC = C. Claussen, DD = D. Doczkal, HH = H. Heimbürg

### North Tyrol (NT)

*Anasimyia lineata* (Fabricius, 1787)

Kitzbühel, NE Kitzbühel, Schwarzsee, 6.5.1996 (1♂) leg. B. & G. Degen.

*Blera fallax* (Linnaeus, 1758)

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder, 1400–1500 m, 14.–16.7. 1986 (2♂ 1♀) leg. & det. CC.

*Brachypalpoidea lentus* (Meigen, 1822)

Nordtirol, Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7. 1986 (2♂ 2♀) leg. & det. CC.

*Brachypalpus laphriformis* (Fallén, 1816)

Nordtirol, Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7. 1986 (1♂); 23.7.–28.7. 1986 (1♂) leg. & det. CC.

*Cheilosia alpestris* Becker, 1894

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (2♀); Paznauntal, S Galtür, oberes Jamtal 1800–2200 m, 15.7.1986 (3♂) leg. & det. CC.

*Cheilosia caerulea* (Meigen, 1822)

Landeck, Paznauntal, S Galtür, oberes Jamtal, oberhalb Jamtalhütte 2200 m, 15.7.1986 (2♀), leg. & det. CC.

*Cheilosia canicularis* (Panzer, 1801)

Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (7♂ 6♀); Landeck, Paznauntal, N See, Umgebung Fal-

genar 1200–1300 m, 26.7.1986 (3♂ 1♀); Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (1♂), all leg. & det. CC.

*Cheilosia derasa* Loew, 1857

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♂ 23♀).

*Cheilosia gigantea* (Zetterstedt, 1838)

Landeck, Paznauntal, N See, Umgebung Falgenar 1200–1300 m, 26.7.1986 (1♂), leg. & det. CC.

*Cheilosia himantopa* (Panzer, 1798)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♂); Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (1♂ 1♀), all leg. & det. CC.

*Cheilosia hypena* Becker, 1894

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder, 12.–14.7.1986 (1♀); 20.–23.7.1986 (1♀), all leg. & det. CC.

*Cheilosia impressa* Loew in Schiner, 1857

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (2♂ 20♀), 20.–23.7.1986 (5♂ 1♀); Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna 1400–1500 m, Wegränder, 14.–16.7.1986 (2♀); Landeck, Paznauntal, N See, Umgebung Falgenar 1200–1300 m, 26.7.1986 (1♂ 1♀), all leg. & det. CC.

*Cheilosia longula* (Zetterstedt, 1838)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♂), 20.–23.7.1986 (1♂); Landeck, Paznauntal, N See, Umgebung Falgenar 1200–1300 m, 26.7.1986 (2♂); Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (1♂ 1♀), all leg. & det. CC.

*Cheilosia melanura* Becker, 1894

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (3♀); Landeck, oberhalb Ischgl, Madleinsee 2400–2450 m, 13.7.1986 (1♀); Landeck, Paznauntal, S Galtür, oberes Jamtal 1800–2200 m, 15.7.1986 (1♂ 10♀); Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (3♀), 23.–28.7.1986 (1♂); Landeck, Paznauntal, S Mathon, oberes Laraintal 2100–2200 m, 18.7.1986 (1♀), 25.7.1986 (1♀); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (4♂ 18♀); Landeck, Paznauntal, N See, Umgebung Falgenar 1200–1300 m, 26.7.1986 (1♂ 1♀); Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (5♀), all leg. & det. CC.

*Cheilosia montana* Egger, 1860

Landeck, oberhalb Ischgl, Madleinsee 2400–2450 m, 13.7.1986 (1♂ 1♀); Landeck, Paznauntal, S Galtür, oberes Jamtal 1800–2200 m, 15.7.1986 (1♂ 2♀); Landeck, Paznauntal, S Mathon, oberes Laraintal 2100–2450 m, 18.7.1986 (2♂ 1♀), 25.7.1986 (3♂), all leg. & det. CC.

*Cheilosia pagana* (Meigen, 1822)

Landeck, Paznauntal, N See, Umgebung Falgenar 1200–1300 m, 26.7.1986 (1♂); Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (1♂), all leg. & det. CC.

*Cheilosia pictipennis* Egger, 1860

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (1♂), leg. & det. CC.

*Cheilosia rhynchops* Egger, 1860

Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (1♀), leg. & det. CC.

*Cheilosia vangaveri* Timon-David, 1937

Landeck, Paznauntal, S Galtür, oberes Jamtal, oberhalb Jamtalhütte 2200 m, 15.7.1986 (2♀); Landeck, Paznauntal, S Mathon, oberes Laraintal 2100–2450 m, 18.7.1986 (1♀), 25.7.1986 (1♂); all leg. & det. CC.

*Cheilosia vernalis* (Fallén, 1817)

Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (1♂); Landeck, Paznauntal, N See, Umgebung Falgenar 1200–1300 m, 26.7.1986 (1♀); Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (2♀), all leg. & det. CC.

*Cheilosia vicina* (Zetterstedt, 1849)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♂ 2♀); Landeck, oberhalb Ischgl, Madleinsee 2400–2450 m, 13.7.1986 (1♂); Landeck, Paznauntal, S Galtür, oberes Jamtal 1800–2200 m, 15.7.1986 (5♂); Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (4♂ 1♀); Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (3♀); Landeck, Paznauntal, S Mathon, oberes Laraintal 2100–2450 m, 25.7.1986 (1♂); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (10♂ 1♀), all leg. & det. CC.

*Chrysotoxum fasciatum* (Müller, 1764)

Landeck, Paznauntal, Madleintal oberhalb Ischgl, Wegränder 1500–2000 m, 12.–13.7.1986 (1♂ 1♀); Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (1♀); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (2♀); Landeck, Paznauntal, N See, Umgebung Falgenar 1200–1300 m, 26.7.1986 (1♀), all leg. & det. CC.

*Dasysyrphus albostrigatus* (Fallén, 1817)

Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (1♂), leg. & det. CC.

*Dasysyrphus pinastri* (De Geer, 1776)

Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (1♀), leg. & det. CC.

*Epistrophe diaphana* (Zetterstedt, 1843)

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 23.–28.7.1986 (1♂), leg. & det. CC.

*Epistrophe leiophthalma* (Schiner & Egger, 1853)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♀); Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (1♂), all leg. & det. CC.

*Eupeodes latifasciatus* (Macquart, 1829)

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (1♀), leg. & det. CC.

*Eupeodes nielsenii* (Dušek & Láska, 1976)

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 23.–28.7.1986 (1♀), leg. & det. CC.

*Leucozona laternaria* (Müller, 1776)

Landeck, Paznauntal, N See, Umgebung Falgenar 1200–1300 m, 26.7.1986 (2♀), leg. & det. CC.

*Leucozona lucorum* (Linnaeus, 1758)

Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (1♂); Landeck, Paznauntal, S Mathon, oberes Laraintal 2100–2450 m, 25.7.1986 (1♀); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (1♀), all leg. & det. CC.

*Melangyna arctica* (Zetterstedt, 1838)

Landeck, Paznauntal, S Galtür, oberes Jamtal, oberhalb Jamtalhütte 2200 m, 15.7.1986 (1♀); Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (1♀); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (2♀), all leg. & det. CC.

*Melangyna compositarum* (Verrall, 1873)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♂), 20.–23.7.1986 (2♂1♀); Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (1♂), all leg. & det. CC.

*Melangyna labiatarum* (Verrall, 1901)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♂), 20.–23.7.1986 (1♂); Landeck, Paznauntal, N See, Umgebung Falgenar 1200–1300 m, 26.7.1986 (1♂), all leg. & det. CC.

*Melanogaster nuda* (Macquart, 1829)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (3♀), leg. & det. CC.

*Meliscaeva auricollis* (Meigen, 1822)

Landeck, Paznauntal, S Galtür, oberes Jamtal 1800–2200 m, 15.7.1986 (1♀), leg. & det. CC.

*Neoscia annexa* (Müller, 1776)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (3♂); Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 23.–28.7.1986 (1♀) leg. & det. CC.

*Neoscia podagrica* (Fabricius, 1775)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♂); Landeck, Paznauntal, circa 2

km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (3♂ 2♀), 23.–28.7.1986 (2♀); Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (1♀), all leg. & det. CC.

*Neoscia tenur* (Harris, 1780)

Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (2♂), leg. & det. CC.

*Neocnemodon fulvimanus* (Zetterstedt, 1843)

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (1♂ 4♀), leg. & det. CC.

*Orthonevra nobilis* (Fallén, 1817)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♂); Landeck, Paznauntal, Madleintal oberhalb Ischgl, Wegränder 1500–2000 m, 12.–13.7.1986 (1♂), all leg. & det. CC.

*Orthonevra tristis* (Loew, 1871)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♂ 1♀); Landeck, Paznauntal, Madleintal oberhalb Ischgl, Wegränder 1500–2000 m, 12.–13.7.1986 (1♀); Landeck, oberhalb Ischgl, Madleinsee 2400–2450 m, 13.7.1986 (1♂); Landeck, Paznauntal, S Galtür, oberes Jamtal, oberhalb Jamtalhütte 2200 m, 15.7.1986 (1♂), all leg. & det. CC.

*Paragus haemorrhous* Meigen, 1822

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (1♂), leg. & det. CC.

*Parasyrphus annulatus* (Zetterstedt, 1838)

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (1♂), 23.–28.7.1986 (1♀); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (2♀), all leg. & det. CC.

*Parasyrphus kirgizorum* (Peck, 1969)

Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (1♀); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (1♀), all leg. & det. CC.

*Parasyrphus punctulatus* (Verrall, 1873)

Landeck, Paznauntal, S Galtür, oberes Jamtal, oberhalb Jamtalhütte 2200–2200 m, 15.7.1986 (2♂ 1♀); Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (1♂ 1♀), all leg. & det. CC.

*Parasyrphus vittiger* (Zetterstedt, 1843)

Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (1♀), leg. & det. CC.

*Pipiza austriaca* Meigen, 1822

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 23.–28.7.1986 (2♂); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (2♀), all leg. & det. CC.

*Pipiza noctiluca* (Linnaeus, 1758)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 20.–23.7.1986 (1♂); Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (1♂), 23.–28.7.1986 (1♂); Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (1♀); Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (1♀), all leg. & det. CC.

*Pipiza quadrimaculata* (Panzer, 1804)

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (1♂ 5♀), 23.–28.7.1986 (1♀); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (1♀), all leg. & det. CC.

*Pipizella nigriana* (Séguy, 1961)

Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (3♂ 2♀), leg. & det. CC.

*Pipizella pennina* (Goeldlin, 1974)

Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (2♂), leg. & det. CC.

*Platycheirus clypeatus* (Meigen, 1822)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (5♂ 3♀), 20.–23.7.1986 (2♂); Landeck, Paznauntal, Madleintal oberhalb Ischgl, Wegränder 1500–2000 m, 12.–13.7.1986 (1♂); Landeck, Paznauntal, S Galtür, oberes Jamtal, oberhalb Jamtalhütte 2200 m, 15.7.1986 (2♀); Landeck, Paznauntal, S Mathon, oberes Laraintal 2100–2450 m, 25.7.1986 (2♀); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (2♀), all leg. & det. CC.

*Platycheirus melanopsis* Loew, 1856

Landeck, oberhalb Ischgl, Madleinsee 2400–2450 m, 13.7.1986 (2♀); Landeck, Paznauntal, S Galtür, oberes Jamtal 1800–2200 m, 15.7.1986 (1♂); Landeck, Paznauntal, S Mathon, oberes Laraintal 2100–2200 m, 18.7.1986 (2♀); Landeck, Paznauntal, S Mathon, oberes Laraintal 2100–2450 m, 25.7.1986 (1♀), all leg. & det. CC.

*Platycheirus splendidus* Rotheray, 1998

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 20.–23.7.1986 (1♂), leg. & det. CC.

*Rhingia borealis* Ringdahl, 1928

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 23.–28.7.1986 (1♂); Landeck, Paznauntal, Trisanna Brücke bei Schloss Wiesberg 1000 m, 26.7.1986 (1♀), all leg. & det. CC.

*Rohdendorfia alpina* Sack, 1938

Landeck, Paznauntal, S Mathon, oberes Laraintal 2100–2450 m, 25.7.1986 (1♂), leg. & det. CC.

*Sericomyia silentis* (Harris, 1776)

Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (1♂), leg. & det. CC.

*Sphaerophoria bankowskiae* Goeldlin, 1989

Landeck, Paznauntal, E Kappl, Talweg an der Trisanna 1300 m, 27.7.1986 (1♂), leg. & det. CC.

*Sphaerophoria fatarum* Goeldlin, 1989

Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (2♂), leg. & det. CC.

*Sphaerophoria infuscata* Goeldlin, 1974

Landeck, Paznauntal, Madleintal oberhalb Ischgl, Wegränder 1500–2000 m, 12.–13.7.1986 (2♀); Landeck, Paznauntal, W Galtür, Kops-Stausee 1800–1900 m, 17.7.1986 (1♂ 1♀); Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (2♂ 1♀), all leg. & det. CC.

*Sphegina sibirica* Stackelberg, 1953

Landeck, Paznauntal, Madleintal oberhalb Ischgl, Wegränder 1500–2000 m, 12.–13.7.1986 (1♂); Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.7.1986 (1♂), 23.–28.7.1986 (1♀); Landeck, Paznauntal, Trisanna Brücke bei Schloss Wiesberg 1000 m, 26.7.1986 (1♀), all leg. & det. CC.

*Syrphus torvus* Osten Sacken, 1875

Imst, Ötztal, Hochgurgl 2200 m, 16.7.1994 (1♀), leg. T. Romig.

*Xylota ignava* (Panzer, 1798)

Landeck, Paznauntal, Ischgl, Talweg an der Trisanna, Wegränder 1400 m, 12.–14.7.1986 (1♂); Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.1986 (1♂ 1♀), all leg. & det. CC.

*Xylota jakutorum* Bagatshanova, 1980

Landeck, Paznauntal, circa 2 km NE Mathon, Talweg an der Trisanna, Wegränder 1400–1500 m, 14.–16.1986 (3♂ 1♀), Landeck, Paznauntal, S Labebene, Grübletal 1800–2000 m, 21.7.1986 (1♂ 2♀); Landeck, Paznauntal, N See, Umgebung Falgenar 1200–1300 m, 26.7.1986 (2♀), all leg. & det. CC.

## East Tyrol (OT)

*Blera fallax* (Linnaeus, 1758)

Lienz, Virgental, Umgebung Hinterbichl 1400 m, 9.7.1991 (1♂), leg. & det. CC.

*Brachyopa dorsata* Zetterstedt, 1837

Lienz, Strassen, rechtes Draufer, 7.5.2006 (1♀), leg. A. Kofler, det. B. Merz, vid. DD.

*Brachyopa testacea* (Fallén, 1817)

Lienz, Tristach, 20.5.2005 (1♂), leg. A. Kofler, det. B. Merz, vid. DD.

*Chalcosyrphus piger* (Fabricius, 1794)

Lienz, Heinfels, 28.7.2005 (1♂), leg. & det. A. Kofler, vid. DD; coll A. Kofler.



*Cheilosia albitarsis* (Meigen, 1822)

Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♂ 9♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♂ 3♀); Lienz, Virgental, Umgebung Hinterbichl 1400 m, 9.7.1991 (3♂ 16♀), all leg. & det. CC.

*Cheilosia barbata* Loew, 1857

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (1♂); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♀); Lienz, Virgental, Umgebung Bobojach 1300 m, 10.7.1991 (8♂ 9♀); Lienz, Virgental, W Matri 1000–1150 m, 15.7.1991 (9♂ 7♀), all leg. & det. CC.

*Cheilosia caerulescens* (Meigen, 1822)

Lienz, Virgental, oberes Maurertal 1800–2300 m, 30.7.1988 (1♂); Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♂); Lienz, Virgental, Maurertal, oberhalb Rostocker Hütte (Essener–Rostocker Hütte) 2200 m, 4.7.1991 (2♂), all leg. & det. CC.

*Cheilosia chloris* (Meigen, 1822)

Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♀), leg. & det. CC.

*Cheilosia derasa* Loew, 1857

Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (8♀); Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (15♂ 53♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (3♂); Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7.1991 (1♂); Lienz, Virgental, Umgebung Bobojach 1300 m, 10.7.1991 (1♂ 3♀), all leg. & det. CC.

*Cheilosia frontalis* Loew, 1857

Lienz, Umgebung, Leisach, 4.8.1994 (1♀), leg. A. Kofler, det. M. Hauser, vid. DD.

*Cheilosia gigantea* (Zetterstedt, 1838)

Lienz, Umgebung, Sattel, Stronach, 1400 m, 21. 6 1988 (1♂), leg. A. Kofler, det. S. Tóth, vid. DD.

*Cheilosia grisella* Becker, 1894

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (3♀); Lienz, Virgental, Maurertal, oberhalb Rostocker Hütte (Essener–Rostocker Hütte) 2200–2200 m, 4.7.1991 (1♂); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (3♀); Lienz, Virgental, N Prägraten, Sajathütte bis Bodenalm 2600–2960 m, 15.7.1991 (2♂), all leg. & det. CC.

*Cheilosia himantopa* (Panzer, 1798)

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (3♀); Lienz, Virgental, Umgebung Hinterbichl 1400 m, 9.7.1991 (2♀), all leg. & det. CC.

*Cheilosia hypena* Becker, 1894

Lienz, Umgebung Lavent [sic] = Lavant, 15.4.1995 (1♀), leg. A. Kofler, det. S. Toth, vid. DD.

*Cheilosia illustrata* (Harris, 1780)

Lienz, Hinterbichl, Wegränder 1300 m, 4.8.1989 (1♀), leg. & det. CC.

*Cheilosia impressa* Loew in Schiner, 1857

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♂); Lienz, Hinterbichl, Wegränder 1300 m, 4.8.1989 (1♂);  
Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (1♀), all leg. & det. CC.

*Cheilosia laticornis* Rondani, 1857

Lienz, Iseltal, Ainet, Ranach 1210 m, 29.5.1996 (1♂), leg. A. Kofler, det. S. Tóth, vid. DD.

*Cheilosia latifrons* (Zetterstedt, 1843)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (2♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000  
m, 7.7.1991 (1♀), all leg. & det. CC.

*Cheilosia loewi* Becker, 1894

Lienz, Virgental, N Prägraten, Sajathütte bis Bodenalm 2600–2960 m, 15.7.1991 (1♀); Lienz, Virgental, Mauertal 1600–1800  
m, 4.7.1991 (3♀); Lienz, Virgental, Umbaltal (AU9101) 1850–2038 m, 6.7.1991 (1♀), all leg. & det. CC.

*Cheilosia longula* (Zetterstedt, 1838)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (7♂), leg. & det. CC.

*Cheilosia melanopa* (Zetterstedt, 1838)

Lienz, Virgental, Mauertal 1600–1800 m, 4.7.1991 (1♂ 1♀), leg. & det. CC.

*Cheilosia melanura* Becker, 1894

Lienz, Virgental, oberes Maurertal 1800–2300 m, 30.7.1988 (4♂ 2♀); Lienz, Virgental, Virgen bis Bobojach 1200–1500 m,  
31.7.1988 (2♀); Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (6♂ 2♀); Lienz, oberes Maurertal, Maurerkees 2350–2350  
m, 7.8.1989 (1♂ 1♀); Lienz, Virgental, Maurertal 1600–1800 m, 4.7.1991 (1♂ 2♀); Lienz, Virgental, Maurertal, oberhalb  
Rostocker Hütte (Essener-Rostocker Hütte) 2200–2200 m, 4.7.1991 (2♀); Lienz, Virgental, S Prägraten, Zopadnitzental  
1800–2000 m, 8.7.1991 (3♀); Lienz, Virgental, N Prägraten, Sajathütte bis Bodenalm 2600–2960 m, 15.7.1991 (3♂ 1♀);  
Lienz, Virgental, Maurertal 1600–1800 m, 17.7.1991 (2♂ 5♀), all leg. & det. CC.

*Cheilosia montana* Egger, 1860

Lienz, Virgental, Maurertal 1600–1800 m, 4.7.1991 (1♀), leg. & det. CC.

*Cheilosia mutabilis* (Fallén, 1817)

Ostirol, Lienz, Virgental, Umbaltal 2047 m, 19.7.2020 (1♂ 1♀), leg. HH, det. DD.

*Cheilosia nigripes* (Meigen, 1822)

Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♀), leg. & det. CC.

*Cheilosia nivalis* Becker, 1894

Lienz, Virgental, Maurertal 1600–1800 m, 4.7.1991 (1♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♀), all leg. & det. CC.

*Cheilosia pedemontana* Rondani, 1857

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♂); Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 6.7.1991 (1♂); Lienz, Virgental, Maurertal 1600–1800 m, 4.7.1991 (1♀), all leg. & det. CC.

*Cheilosia personata* Loew, 1857

Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (2♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♀); Lienz, Virgental, Maurertal 1600–1800 m, 17.7.1991 (1♂ 2♀), all leg. & det. CC.

*Cheilosia proxima* (Zetterstedt, 1843)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (2♂ 1♀); Lienz, Hinterbichl, Wegränder 1300 m, 4.8.1989 (18♂ 16♀); Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (1♂ 2♀), Lienz, Virgental, Umgebung Bobojach 1300–1300 m, 10.7.1991 (1♀); Lienz, Virgental, N Prägraten, Sajathütte bis Bodenalm 2600–2960 m, 15.7.1991 (1♂ 1♀), all leg. & det. CC.

*Cheilosia pubera* (Zetterstedt, 1838)

Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7.1991 (7♀); Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (1♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♀), all leg. & det. CC.

*Cheilosia rhynchops* Egger, 1860

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (21♀); Lienz, Virgental, Maurertal 1600–1800 m, 4.7.1991 (6♀); Lienz, Virgental, Umbaltal (AU9101) 1850–2038 m, 6.7.1991 (1♀ 10♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♂ 24♀); Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7.1991 (4♂ 1♀), all leg. & det. CC.

*Cheilosia vangaveri* Timon-David, 1937

Lienz, Virgental, oberes Maurertal 1800–2300 m, 30.7.1988 (1♂); Lienz, Virgental, oberes Maurertal, Simonykees 2300–2300 m, 30.7.1988 (1♂ 1♀); Lienz, Virgental, N Prägraten, Sajathütte bis Bodenalm 2600–2960 m, 15.7.1991 (7♂ 6♀), all leg. & det. CC.

*Cheilosia variabilis* (Panzer, 1798)

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (3♂); Lienz, Virgental, Umgebung Bobojach 1300 m, 10.7.1991 (2♂), all leg. & det. CC.

*Cheilosia velutina* Loew, 1840

Lienz, Hinterbichl, Wegränder 1300 m, 4.8.1989 (1♂), leg. & det. CC.

*Cheilosia vernalis* (Fallén, 1817)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (40♂ 17♀); Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (1♀), all leg. & det. CC.

*Cheilosia vicina* (Zetterstedt, 1849)

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (10♂ 9♀); Lienz, Virgental, Maurertal 1600–1800 m, 4.7.1991 (2♂); Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (5♀); Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7.1991 (2♂ 1♀); Lienz, Virgental, N Prägraten, Sajathütte bis Bodenalm 2600–2960 m, 15.7.1991 (2♀); Lienz, Virgental, Maurertal, Ochsenhütte 1950–1950 m, 16.7.1991 (1♂), all leg. & det. CC.

*Chrysotoxum bicinctum* (Linnaeus, 1758)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.19800 (1♂), leg. & det. CC.

*Chrysotoxum fasciolatum* (De Geer, 1776)

Lienz, Kals am Großglockner, Ködnitztal, Lucknerhütte 2100 m, 47°1'53'' N, 12°41'26'' E, 30.7.2016 (1♂), leg. & det. HH.

*Chrysotoxum vernale* Loew, 1841

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (1♂), leg. & det. CC.

*Dasysyrphus pinastri* (De Geer, 1776)

Lienz, Virgental, Hinterbichl, Wegränder 1400–1400 m, 5.7.1991 (1♂ 2♀), leg. & det. CC.

*Epistrophe diaphana* (Zetterstedt, 1843)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♀), leg. & det. CC.

*Epistrophe nitidicollis* (Meigen, 1822)

Lienz, Iseltal, Unter-Peischlach, Rundweg, 27.5.2004 (1♀), leg. A. Kofler, det. DD.

*Eriozona syrphoides* (Fallén, 1817)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♂), leg. & det. CC.

*Eristalis arbustorum* (Linnaeus, 1758)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♂); Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (1♀); Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♀ 2♀); Lienz, Virgental, W Matrei 1000–1150 m, 15.7.1991 (2♂), all leg. & det. CC.

*Eristalis jugorum* Egger, 1858

Lienz, Weißensteinalm 1900 m, 46°46'59'' N, 12°47'45'' E, 28.7.2016 (1♂); Lienz, Dolomitenhütte 1658 m, 46°47'06'' N, 12°47'41'' E, 28.7.2016 (1♂ 1♀), all leg. & det. HH.

*Eristalis pertinax* (Scopoli, 1763)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♂); Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (1♂); Lienz, Virgental, W Matrei 1000–1150 m, 15.7.1991 (1♂), all leg. & det. CC.

*Eristalis rupium* Fabricius, 1805

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (3♂ 2♀); Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (1♀); Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♂ 1♀); Lienz, Virgental, Umgebung Bobojach 1300 m, 10.7.1991 (1♀); Lienz, Virgental, Maurertal 1600–1800 m, 17.7.1991 (1♀), all leg. & det. CC.

*Eristalis similis* (Fallén, 1817)

Lienz, Kals am Großglockner, Stüdlhütte 2800 m, 47°03'17" N, 12°40'52" E, 29.7.2016 (2♂), leg. & det. HH.

*Eupeodes latifasciatus* (Macquart, 1829)

Lienz, Zwischenberger Lacke 1478 m, 46°50'11" N, 12°53'21" E, 15.7.2017 (1♀), leg. & det. HH.

*Helophilus trivittatus* (Fabricius, 1805)

Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (1♀), leg. & det. CC.

*Leucozona glaucia* (Linnaeus, 1758)

Lienz, Iselsberg 1134 m, 46°49'45" N, 12°51'38" E, 15.7.2017 (2♂), leg. & det. HH.

*Leucozona laternaria* (Müller, 1776)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♂ 1♀); Lienz, Virgental, Umgebung Bobojach 1300 m, 10.7.1991 (1♂), all leg. & det. CC.

*Melangyna arctica* (Zetterstedt, 1838)

Lienz, Hinterbichl, Wegränder 1300 m, 4.8.1989 (1♂), leg. & det. CC.

*Melangyna compositarum* (Verrall, 1873)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (3♂ 1♀); Lienz, Virgental, Umgebung Bobojach 1300 m, 10.7.1991 (1♀); Lienz, Virgental, Mitteldorf 1100 m, 15.7.1991 (1♂ 2♀), all leg. & det. CC.

*Melangyna labiatarum* (Verrall, 1901)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♀), leg. & det. CC.

*Melangyna umbellatarum* (Fabricius, 1794)

Lienz, Hinterbichl, Wegränder 1300 m, 4.8.1989 (1♀), leg. & det. CC.

*Melanostoma mellarium* (Meigen, 1822)

Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (1♀); Lienz, Virgental, Maurertal, oberhalb Rostocker Hütte (Essener-Rostocker Hütte) 2200–2200 m, 4.7.1991 (1♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (2♀); Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7.1991 (2♂); Lienz, Virgental, Umgebung Hinterbichl 1400 m, 9.7.1991 (1♀); Lienz, Virgental, Maurertal, Ochsenhütte 1950 m, 16.7.1991 (1♀); Lienz, Virgental, Maurertal 1600–1800 m, 17.7.1991 (1♀), all leg. & det. CC.

*Melanostoma scalare* (Linnaeus, 1794)

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (1♂ 1♀); Lienz, Virgental, Umgebung Hinterbichl 1400 m, 9.7.1991 (1♀); Lienz, Virgental, W Matrei 1000–1150 m, 15.7.1991 (1♀), all leg. & det. CC.

*Meligramma guttata* (Fallén, 1817)

Lienz, Virgental, Umgebung Bobojach 1300 m, 10.7.1991 (2♀), leg. & det. CC.

*Meliscaeva auricollis* (Meigen, 1822)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♀); Lienz, Virgental, oberes Maurertal, Simonykees 2400–2400 m, 5.8.1989 (1♀); Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7.1991 (1♀); Lienz, Virgental, Umgebung Hinterbichl 1400 m, 9.7.1991 (2♂); Lienz, Virgental, Umgebung Bobojach 1300 m, 10.7.1991 (1♀), all leg. & det. CC.

*Merodon cinereus* (Fabricius, 1794)

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (2♂), leg. & det. CC.

*Microdon analis* (Macquart, 1842) / *major* Andries, 1912

Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♀), leg. & det. CC.

*Neoscia podagrica* (Fabricius, 1775)

Lienz, Virgental, Umgebung Bobojach 1300 m, 10.7.1991 (1♂), leg. & det. CC.

*Neoscia tenur* (Harris, 1780)

Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (4♂), leg. & det. CC.

*Orthonevra nobilis* (Fallén, 1817)

Lienz, Hinterbichl, Wegränder 1300 m, 4.8.1989 (1♀); Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♂); Lienz, Virgental, W Matrei 1000–1150 m, 15.7.1991 (1♀), all leg. & det. CC.

*Orthonevra tristis* (Loew, 1871)

Lienz, Hinterbichl, Wegränder 1300 m, 4.8.1989 (1♀); Lienz, Virgental, oberes Maurertal, Simonykees 2400 m, 5.8.1989 (1♂); Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (1♂ 1♀); Lienz, oberes Maurertal, Maurerkees 2350–2350 m, 7.8.1989 (1♀), all leg. & det. CC.

*Parasyrphus annulatus* (Zetterstedt, 1838)

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (4♂ 7♀); Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (10♂ 26♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♂ 1♀); Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7.1991 (1♂), all leg. & det. CC.

*Parasyrphus kirgizorum* (Peck, 1969)

Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7.1991 (1♀), leg. & det. CC.

*Parasyrphus punctulatus* (Verrall, 1873)

Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (3♀), leg. & det. CC.

*Parasyrphus vittiger* (Zetterstedt, 1843)

Lienz, Virgental, Umgebung Hinterbichl 1400 m, 9.7.1991 (2♀), leg. & det. CC.

*Pipiza austriaca* Meigen, 1822

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♀), leg. & det. CC.

*Pipiza notata* Meigen, 1822

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♂), leg. & det. CC.

*Pipiza quadrimaculata* (Panzer, 1804)

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (5♀); Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♀), leg. & det. CC.

*Pipizella viduata* (Linnaeus, 1758)

Lienz, Hinterbichl, Wegränder 1300 m, 4.8.1989 (1♂); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (3♂ 2♀); Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♂), all leg. & det. CC.

*Platycheirus angustatus* (Zetterstedt, 1843)

Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♂); Lienz, Virgental, W Matrei 1000–1150 m, 15.7.1991 (1♂), all leg. & det. CC.

*Platycheirus melanopsis* Loew, 1856

Lienz, Virgental, Umbaltal (AU9101) 1850–2038 m, 6.7.1991 (4♂ 1♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (1♀); Lienz, Virgental, Maurertal, oberhalb Rostocker Hütte (Essener-Rostocker Hütte) 2400 m, 12.7.1991 (1♀); Lienz, Virgental, N Prägraten, Sajathütte bis Bodenalm 2600–2960 m, 15.7.1991 (1♂), all leg. & det. CC.

*Platycheirus nielseni* Vockeroth, 1990

Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♂), leg. & det. CC.

*Platycheirus podagratus* (Zetterstedt, 1838)

Lienz, Virgental, Umbaltal 2154 m, 47°01'35" N, 12°14'01" E, 19.7.202 (4♂), leg. & det. HH.

*Platycheirus scutatus* (Meigen, 1822)

Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7.1991 (1♂), leg. & det. CC.

*Platycheirus speighti* Doczkal, Stuke & Goeldlin, 2002

Lienz, Virgental, Maurertal 1600–1800 m, 4.7.1991 (1♂), 17.7.1991 (1♂ 1♀), all leg. & det. CC (Determination of ♀ uncertain).

*Platycheirus tatricus* (Schummel, 1837)

Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (2♀), leg. & det. CC.

*Rhingia borealis* (Dušek & Láska, 1973)

Lienz, Virgental, Umgebung Hinterbichl 1400 m, 9.7.1991 (2♂), leg. & det. CC.

*Rohdendorfia alpina* Sack, 1938

Lienz, Virgental, oberes Maurertal, Simonykees 2400–2400 m, 5.8.1989 (1♂); Lienz, oberes Maurertal, Maurerkees 2350–2350 m, 7.8.1989 (1♀), all leg. & det. CC.

*Sericomyia bombiforme* (Fallén, 1810)

Lienz, Hinterbichl, Wegränder 1300 m, 4.8.1989 (1♂); Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (1♀), all leg. & det. CC.

*Sphaerophoria bankowskiae* Goeldlin, 1989

Lienz, Zwischenberger Lacke 1478 m, 46°50'11" N, 12°53'21" E, 15.7.2017 (1♂), leg. & det. HH.

*Sphaerophoria fatarum* Goeldlin, 1989

Lienz, Virgental, Umgebung Hinterbichl 1400 m, 9.7.1991 (1♂); Lienz, Virgental, N Prägraten, Sajathütte bis Bodenalm 2600–2960 m, 15.7.1991 (1♂); Lienz, Virgental, Maurertal, Ochsenhütte 1950 m, 16.7.1991 (1♂), all leg. det. CC.

*Sphaerophoria infuscata* Goeldlin, 1974

Lienz, Virgental, Umbaltal (AU9101) 1850–2038 m, 6.7.1991 (6♂ 1♀); Lienz, Virgental, Hinterbichl, Kohlröserlwiesen 1700–2000 m, 7.7.1991 (9♂ 2♀); Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7. 1991 (2♂); Lienz, Virgental, Maurertal, Ochsenhütte 1950 m, 16.7.1991 (1♀), all leg. & det. CC.

*Sphaerophoria laurae* Goeldlin, 1989

Lienz, Virgental, Maurertal 1600–1800 m, 4.7.1991 (1♂), leg. & det. CC.

*Sphaerophoria taeniata* (Meigen, 1822)

Lienz, Virgental, Maurertal, Ochsenhütte 1950 m, 16.7.1991 (1♂), leg. & det. CC.

*Sphegina clunipes* (Fallén, 1816)

Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991 (1♂); Lienz, Virgental, S Prägraten, Zopadnitzental 1800–2000 m, 8.7.1991 (2♂); Lienz, Virgental, Umgebung Hinterbichl 1400 m, 9.7.1991 (6♂), all leg. & det. CC.

*Sphegina sphegina* (Zetterstedt, 1838)

Lienz, Virgental, Umbaltal (AU9101) 1700–1800 m, 3.7.1991 (1♂), leg. & det. CC.



*Syrphocheilosia claviventris* (Strobl, 1910)

Lienz, Virgental, oberes Maurertal 1800–2300 m, 30.7.1988 (1♀); Lienz, Maurertal, Almen 1500–1800 m, 7.8.1989 (1♂ 2♀);  
Lienz, Virgental, Maurertal, Ochsenhütte 1950 m, 16.7.1991 (1♂ 2♀), all leg. & det. CC.

*Syrphus torvus* Osten-Sacken, 1875

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♂), leg. & det. CC.

*Xylota jakutorum* Bagatshanova, 1980

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (2♂); Lienz, Virgental, Hinterbichl, Wegränder 1400 m, 5.7.1991  
(2♂), all leg. & det. CC.

*Xylota triangularis* Zetterstedt, 1838

Lienz, Virgental, Virgen bis Bobojach 1200–1500 m, 31.7.1988 (1♀), leg. & det. CC.

### **Carinthia (KA)**

*Brachyopa testacea* (Fallén, 1817)

Steinfeld, Stagor-Süd, Gaberbodenhütte 1520 m, 46°46'30" N, 13°15'57" E, 12.6.2021 (1♂), leg. C. Wieser, det. HH.

*Brachyopa vittata* Zetterstedt, 1843

St. Jakob im Rosental, Rosenbach, Uferbereich 500 m, 46°32'24" N, 14°03'43" E, 8.5.2021 (1♂), leg. & det. HH.

*Brachypalpus chrysites* Egger, 1859

Dobeinitz, Keutschach, E Keutschacher See 508 m, 46°35'13" N, 14°10'48" E, 27.3.2021 (1♂), leg. & det. HH.

*Callicera aenea* (Fabricius, 1777)

Steinfeld, Stagor-Süd, Gaberbodenhütte 1520 m, 46°46'30" N, 13°15'57" E, 12.6.2021 (1♂), leg. C. Wieser, det. HH.

*Cheilosia aerea* Dufour, 1848

Villach, Spitzeckweg 540 m, 46°37'52" N, 13°52'47" E, 1.6.2020 (1♀), leg. C. Holzschuh, det. HH.

*Cheilosia hercyniae* Loew, 1857

Villach-Land, Maria am Stein, Dobratsch Gipfelregion 920 m, 46°36'8" N, 13°40'21" E, 28.6.2021 (1♂ 1♀), leg. & det. HH.

*Cheilosia lenis* Becker, 1894

Villacher Alpe, SW Villach 1500 m, 46°35'34" N, 13°43'55" E, 1.6.2020 (1♂), leg. & det. HH.

*Cheilosia nebulosa* Verrall, 1871

Loiblbach, NE Ferlach 440 m, 46°32'15" N, 14°18'07" E, 21.4.2021 (1♂), leg. & det. HH.

*Cheilosia rhynchops* Egger, 1860

Villacher Alpe, SW Villach 1500 m, 46°35'34" N, 13°43'55" E, 1.6.2020 (1♂), leg. HH, det. DD.

*Criorhina ranunculi* (Panzer, 1804)

Duel, 1 km NE Frög, E Rosegg 467 m, 46°35'24" N, 14°02'09" E, 8.5.2021 (1♂), leg. & det. HH.

*Microdon analis* (Macquart, 1842) / *major* Andries, 1912

Villacher Alpe, SW Villach 1500 m, 46°35'34" N, 13°43'55" E, 1.6.2020 (1♀), leg. & det. HH.

*Neocnemodon pubescens* (Delucchi & Pschorn-Walcher, 1955)

Villacher Alpe, SW Villach 1500 m, 46°35'34" N, 13°43'55" E, 1.6.2020 (1♂), leg. & det. HH.

*Orthonevra geniculata* (Meigen, 1830)

Klagenfurt, Lendspitz-Maiernigg, SW Klagenfurt am Wörthersee 443 m, 46°36'38" N, 14°15'6" E, 14.5.2021 (1♂), leg. & det. HH.

*Platycheirus angustatus* (Zetterstedt, 1843)

Klagenfurt, Lendspitz-Maiernigg, SW Klagenfurt am Wörthersee 443 m, 46°36'38" N, 14°15'6" E, 14.5.2021 (2♀), leg. & det. HH.

*Platycheirus discimanus* Loew, 1871

Dobeinitz, Keutschach, E Keutschacher See 508 m, 46°35'13" N, 14°10'48" E, 27.3.2021 (1♂), leg. T. Panzi, det. HH.

*Sphaerophoria fatarum* Goeldlin, 1989

Villacher Alpe, SW Villach 1500 m, 46°35'34" N, 13°43'55" E, 1.6.2020 (1♂), leg. & det. HH.

*Sphegina montana* Becker, 1921

St. Jakob im Rosental, Rosenbach, Uferbereich 500 m, 46°32'24" N, 14°03'43" E, 28.5.2021 (1♂), leg. & det. HH.

*Trichopsomyia flavitarsis* (Meigen, 1822)

Klagenfurt, Lendspitz-Maiernigg, SW Klagenfurt am Wörthersee 443 m, 46°36'38" N, 14°15'6" E, 7.7.2021 (2♀), leg. & det. HH.

## **Styria (ST)**

*Criorhina floccosa* (Meigen, 1822)

Graz-Umgebung, Mellach, Enzelsdorf 300 m, 46°56'54" N, 15°30'20" E, 29.4.2017 (1♀), leg. & det. HH.

*Brachyopa dorsata* Zetterstedt, 1837

Deutschlandsberg, Klause 417 m, 46°49'53" N, 15°10'24" E, 8.4.2017 (1♂), leg. HH & det. DD.

*Brachyopa insensilis* Collin, 1939

Graz, Stadtpark 360 m, 47°04'33" N, 15°26'42" E, 21.5.2016 (1♂); 23.5.2016 (1♂), all leg. HH, all det. DD.

*Brachyopa plena* Collin, 1939

Leibnitz, Glanz a. d. Weinstraße 383 m, 46°39'23" N, 15°31'21" E, 16.4.–23.4.2016 (1♂), leg. G. Kunz, det. DD.

*Brachypalpus valgus* (Panzer, 1798)

Leibnitz, Glanz a. d. Weinstraße 426 m, 46°39'24" N, 15°31'23" E, 20.4.–12.5.2015 (1♀); Leibnitz, Glanz a. d. Weinstraße 383 m, 46°39'23" N, 15°31'21" E, 16.4.–23.4.2016 (1♂), all leg. G. Kunz, all det. HH.

*Caliprobola speciosa* (Rossi, 1790)

Deutschlandsberg, Gr. St. Florian, Wasserschloß Dornegg 328 m, 46°50'21" N, 15°20'17" E, 27.5.2016 (1♂), leg. & det. HH.

*Cheilosia himantopa* (Panzer, 1798)

Liezen, Admont, NP Gesäuse, Hartelsgraben 1100 m, 47°34'05" N, 14°42'14" E, 16.7.2015 (1♀), leg. HH, det. DD; Liezen, Admont, NP Gesäuse, Kainzenriegel 950–1100 m, 47°32'47" N, 15°35'59" E, 14.7.2015 (1♂), leg. & det. HH; Stmk Bz Liezen, Admont, NP Gesäuse, Kölblalm 1200 m, 47°31'59" N, 14°38'28" E, 16.7.2015 (1♂ 2♀), leg. & det. HH.

*Cheilosia lasiopa* Kowarz, 1885

Graz-Umgebung, Tyrnauer Alm, Teichalm 1300 m, 47°36'10" N, 15°11'10" E, 17.5.2015 (1♂), leg. HH, det. DD.

*Cheilosia subpictipennis* Claussen, 1998

Graz, Andritz, Admonter Kogel 450 m, 47°06'44" N, 15°23'46" E, 21.4.2016 (1♀), leg. HH, det. DD.

*Cheilosia urbana* (Meigen, 1822)

Leoben, Kraubath a. d. Mur, Gulsen 800 m, 47°17'01" N, 14°55'16" E, 13.5.2015 (1♂); Deutschlandsberg, Klause 417 m, 46°49'53" N, 15°10'24" E, 8.4.2017 (3♂ 1♀), all leg. HH, all det. DD.

*Criorhina ranunculi* (Panzer, 1804)

Graz, Andritz, Rielteich 400 m, 47°07'05" N, 15°25'04" E, 2.4.2016 (2♂ 1♀), leg. & det. HH.

*Dasysyrphus pauxillus* (Williston, 1887)

Graz-Umgebung, Gratwein-Straßengel, Mühlbachgraben 535 m, 47°08'25" N, 15°16'36" E, 10.4.2016 (2♂), leg. & det. HH.

*Doros profuges* (Harris, 1780)

Leibnitz, Glanz a. d. Weinstraße 388 m, 46°39'20" N, 15°31'18" E, 3.6.2016 (1♀), leg. J. Gunczy, det. HH.

*Eumerus grandis* Meigen, 1822

Graz, Umgebung Gösting, 47°05' N, 15°23' E, 27.8.1930 (1♂ 1♀), leg. E. Irmischer det. (?); Graz, Andritz, Admonter Kogel 450 m, 47°06'44" N, 15°23'46" E, 2.5.2016 (1♂), leg. HH, det. DD.

*Eumerus ovatus* Loew, 1848

St. Anna am Aigen, Sinnersdorfweg 304 m, 46°48'12" N, 15°58'53" E, August 2016 (1♀), leg. J. Gunczy, det. DD.

*Helophilus hybridus* Loew, 1846

Deutschlandsberg, Gr. St. Florian, Wasserschloß Dornegg 328 m, 46°50'21" N, 15°20'17" E, 9.4.2017 (1♂), leg. & det. HH.

*Merodon avidus* (Rossi, 1790)

Graz-Umgebung, Gratwein-Straßengel, Hörgas, Kleinplescherweg 480 m, 47°08'40" N, 15°17'59" E, 18.5.2016 (1♀), leg. & det. HH.

*Myolepta vara* (Panzer, 1798)

Deutschlandsberg, Gr. St. Florian, Wasserschloß Dornegg 328 m, 46°50'21" N, 15°20'17" E, 9.4.2017 (1♂ 1♀), leg. & det. HH.

*Orthonevra tristis* (Loew, 1871)

Deutschlandsberg, Bärenal Alm 1600 m, 46°49' N, 14°59'50" E, 5.6.2015 (3♂), 28.6.2017 (6♂), all leg. HH, all det. DD.

*Paragus majoranae* Rondani, 1857

Leibnitz, Glanz a. d. Weinstraße 383 m, 46°39'23" N, 15°31'21" E, 10.4.–16.4.2016 (1♂), 11.5.–22.5.2016 (1♂), leg. G. Kunz, det. HH.

*Pelecocera tricincta* Meigen, 1822

Liezen, Admont, NP Gesäuse, Langgriesgraben 650–940 m, 46°39'23" N, 15°31'21" E, 13.7.2015 (2♀), leg. HH, det. DD.

*Platycheirus angustipes* Goeldlin, 1974

Deutschlandsberg, Koralpe, Nähe Speiksee, "Schnittlauchwiese" 1716 m, 46°47'23" N, 14°59'30" E, 10.7.2016 (1♂); Deutschlandsberg, Bärenal Alm 1600 m, 46°49' N, 14°59'50" E, 10.7.2016 (1♂), all leg. HH, all det. DD.

*Platycheirus aurolateralis* Stubbs, 2002

Murau/Judenburg, Zirbitzkogel, Ochserboden, Seeufer 2000 m, 47°04'54" N, 14°33'14" E, 29.8.2015 (1♂), leg. HH, det. DD.

*Platycheirus fasciculatus* Loew, 1856

Liezen, Admont, NP Gesäuse, Kainzenriegel 1200–1450 m, 47°32'46" N, 14°36'11" E, 14.7.2015 (1♂ 1♀), leg. HH, det. DD.

*Platycheirus occultus* Goeldlin, Maibach & Speight, 1990

Graz-Umgebung, Kalsdorf 350 m, 46°59' N, 15°28'24" E, 30.3.2017 (1♂), leg. HH, det. DD.

*Platycheirus splendidus* Rotheray, 1998

Liezen, Admont, NP Gesäuse, Kölblalm 1200 m, 47°31'52" N, 14°38'24" E, 16.7.2015 (1♂), leg. HH, det. DD.

*Platycheirus tatricus* (Schummel, 1837)

Liezen, Admont, NP Gesäuse, Kainzenriegel 1200–1450 m, 47°32'46" N, 14°36'11" E, 14.7.2015 (1♀); Bruck a. d. Mur, Hochschwabgebiet, Fözlalm 1500 m, 47°36'05" N, 15°11'03" E, 17.6.2015 (1♂); Bruck a. d. Mur, Hochschwabgebiet, Fözl, Voisthalergasse 1380 m, 47°37'02" N, 15°11'23" E, 18.6.2015 (1♂), all leg. HH, all det. DD.

*Sphaerophoria bankowskiae* Goeldlin, 1989

Liezen, Admont, NP Gesäuse, Kainzenriegel 950–1100 m, 47°32'47" N, 15°35'59" E, 14.7.2015 (1♂); Liezen, Admont, NP Gesäuse, Untere Koderalm 1177 m, 47°32'43" N, 14°38'04" E, 9.9.2015 (1♂), all leg. HH, all det. DD.

*Sphaerophoria fatarum* Goeldlin, 1989

Deutschlandsberg, Bärental Alm 1600 m, 46°49' N, 14°59'50" E, 28.6.2017 (3♂), leg. HH, det. DD.

*Sphaerophoria infuscata* Goeldlin, 1974

Bruck a. d. Mur, Hochschwabgebiet, Fözlalm 1500 m, 47°36'05" N, 15°11'03" E, 17.6.2015 (2♂), leg. HH, det. DD.

*Sphiximorpha subsessilis* (Illiger in Rossi, 1807)

Graz, Stadtpark 360 m, 46°04'33" N, 15°26'42" E, 27.5.2016 (1♂), leg. & det. HH.

*Sphegina platychira* Szilady, 1937

Liezen, NP Gesäuse, Untere Goferquelle 718 m, 47°34'24" N 14°33'36" E, 25.6.2019 (1♂), leg. D. Remschak, det. HH.

*Trichopsomyia flavitarsis* (Meigen, 1822)

Liezen, Trautenfelser Naturschutzflächen, Lilienwiese 600 m, 47°30'50" N, 14°00'50" E, 18.5.2015 (1♂), leg. HH, det. DD.

*Volucella inflata* (Fabricius, 1794)

Leibnitz, Glanz a. d. Weinstraße 426 m, 46°39'24" N, 15°31'21" E, 18.5.–4.6.2015 (1♀), leg. G. Kunz, det. HH; Leibnitz, Glanz a. d. Weinstraße 388 m, 46°39'20" N, 15°31'18" E, 8.7.2016 (1♀), leg. & det. HH.

*Xanthogramma dives* (Rondani, 1857)

Graz, Andritz, Admonter Kogel 450 m, 47°06'44" N, 15°23'46" E, 21.4.2016 (1♂), leg. HH, det. DD.

## Salzburg (SA)

*Brachyopa vittata* Zetterstedt, 1843

Salzburg-Umgebung, Großmain, Hacklwald 580 m, 47°44' N, 12°57' E, 15.5.1998 (1♂ 1♀), leg. P. Gros, det. T. Mörtelmaier.

*Brachypalpoides lentus* (Meigen, 1822)

Salzburg-Umgebung, Großmain, Hacklwald 580 m, 47°44' N, 12°57' E, 20.6.1998 (1♂); Salzburg-Umgebung, Großmain, Latschenwirt 570 m, 47°44' N, 12°57' E, 5.6.1999 (1♂), all leg. P. Gros, all det. T. Mörtelmaier.

*Caliprobola speciosa* (Rossi, 1790)

Salzburg-Umgebung, Großmain, Hacklwald 580 m, 47°44' N, 12°57' E, 15.5.1998 (2♂), 20.5.1998 (1♀), leg. P. Gros, det. T. Mörtelmaier.

*Chrysotoxum bicinctum* (Linnaeus, 1758)

Salzburg-Umgebung, Gaisberg, Glasbach 660 m, 47°46' N, 13°06' E, 13.6.1997 (1♂), leg. P. Gros, det. T. Mörtelmaier.

*Epistrophe melanostoma* (Zetterstedt, 1843)

Salzburg-Umgebung, Strobl am Wolfgangsee 800 m, 47°44' N, 13°25' E, 21.5.2016 (1♂), leg. R. Korn, det. HH.

*Ferdinanda cuprea* (Scopoli, 1763)

Salzburg-Umgebung, Großmain, Hacklwald 580 m, 47°44' N, 12°57' E, 20.5.1998 (1♀), leg. P. Gros, det. T. Mörtelmaier.

*Melanogaster nuda* (Macquart, 1829)

Zell am See, Weißbach bei Lofer, NE Hintertal 1050 m 47°32'33" N, 12°47'31" E, 21.5.2017 (1♂), leg. J. Neumayer, det. HH.

*Sphaerophoria virgata* Goeldlin, 1974

Salzburg-Umgebung, Strobl am Wolfgangsee 800 m, 47°44' N, 13°25' E, 21.5.2016 (1♂), leg. R. Korn, det. HH.

## Upper Austria (OÖ)

*Brachyopa panzeri* Goffe, 1945

Eferding, Steinwänd, NW Eferding, 48°23' N, 13°57' E, 8.5.2015 (1♂), leg. M. Schwarz, det. HH; Rohrbach, Pfaffetschlag, N Ulrichsberg, 48°42' N, 13°53' E, 14.6.2017 (1♀), leg. M. Schwarz, det. DD.

*Brachyopa testacea* (Fallén, 1817)

Eferding, Aschachtal, NW Eferding, 48°23' N, 13°55' E, 27.6.2017 (1♂), leg. M. Schwarz, det. DD.

*Brachyopa vittata* Zetterstedt, 1843

Schärding im Innviertel, St. Aegidi, Hundorf, SW Wesenufer (Köfelbachtal), 48°27' N, 13°46' E, 9.6.2004 (1♀), 8.5.2015 (1♂), all leg. M. Schwarz, all det. HH.

*Cheilosia insignis* Loew, 1857

Kirchdorf a. d. Krems, Pfefferleiten, SE Molln 550–700 m, 47°51' N, 14°21' E, 12.4.2016 (1♀), leg. M. Schwarz, det. HH.

*Chrysotoxum verralli* Collin, 1940

Kirchdorf a. d. Krems, Thurnham 500 m, 47°52' N, 14°06' E, 9.7.2015 (2♀); Kirchdorf a. d. Krems, Pfefferleiten, SE Molln 550–700 m, 47°51' N, 14°21' E, 22.6.2016 (1♂), all leg. M. Schwarz, all det. HH.

*Eumerus ovatus* Loew, 1848

Steyr-Land, Steyr, Hausleiten, 48°03' N, 14°26' E, 5.6.2013 (1♂ 1♀); Kirchdorf a. d. Krems, Wienerweg, SE Micheldorf 460 m, 47°52' N, 14°10' E, 16.6.2016 (2♂ 1♀), all leg. M. Schwarz, all det. HH.

*Melanogaster nuda* (Macquart, 1829)

Schärding, Kindling, N Sigharting, 48°24' N, 13°35' E, 16.5.2017 (1♀); Urfahr-Umgebung, Oberneukirchen, 48°28' N, 14°14' E, 2.6.2017 (1♀), all leg. M. Schwarz, all det. HH.

*Neoscia tenur* (Harris, 1780)

Freistadt, Stumberg bei Weitersfelden, NSG Rote Auen 900 m, 48°31' N, 14°44' E, 3.7.2001 (1♂), 22.6.2007 (1♂); Schärding, Thal, W Sigharting, 48°23' N, 13°35' E, 15.7.2013 (1♀), all leg. M. Schwarz, all det. HH.

*Pipiza accola* Virolvitsh, 1985

Grieskirchen im Hausruckviertel, Laab, N Pauerbach (Koaserin), 48°21' N, 13°47' E, 23.4.2004 (1♂), leg. M. Schwarz, det. HH.

*Spazigaster ambulans* (Fabricius, 1798)

Kirchdorf a. d. Krems, Wurzeralm, SW Spital am Pyhrn 1360–1400 m, 47°38' N, 14°17' E, 2.7.2016 (1♀); Freistadt, Leopoldschlag, N Freistadt, 47°37' N, 14°29' E, 1.7.2017 (1♀), all leg. M. Schwarz, all det. HH.

*Sphegina montana* Becker, 1921

Schärding, Ahörndl E St. Roman 500 m, 48°28' N, 13°39' E, 8.5.2013 (1♀); Freistadt, Stumberg bei Weitersfelden, NSG Rote Auen 900 m, 48°31' N, 14°44' E, 28.5.2013 (1♂); Schärding im Innviertel, St. Aegidi, Hundorf, SW Wesenufer (Köbelbachtal), 48°27' N, 13°46' E, 24.4.2014 (1♂); Kirchdorf a. d. Krems, Wienerweg, SE Micheldorf 460 m, 47°52' N, 14°10' E, 16.6.2016 (1♀), all leg. M. Schwarz, all det. HH.

*Xanthogramma dives* (Rondani, 1857)

Linz, Urfahr-Umgebung, Ottensheim, Donauauwald, 48°19' N, 14°09' E, 19.5.2018 (1♂), leg. M. Schwarz, det. DD.

## Lower Austria (NÖ)

*Chrysotoxum verralli* Collin, 1940

Scheibbs, Lastenstraße 300 m, 48°00'25'' N, 15°09'50'' E, 12.7.2008 (1♀), leg. I. & G. Handl, det. HH.

*Eumerus funeralis* Meigen, 1822

Scheibbs, Purgstall a. d. Erlaf, Am Anger 300 m, 48°03'36'' N, 15°07'51'' E, 15.6.1991 (1♀), 10.6.1994 (1♂), 24.6.1996 (1♂) all leg. F. Ressler, all det. DD; Mödling, Breitenfurt, Biosphärentag Wienerwald 350 m, 48°08'44'' N, 16°10'15'' E, 7.6.2015 (1♀), leg. HH, det. DD.

*Neoscia interrupta* (Meigen, 1822)

Gänserndorf, NW Schloß Marchegg, March-Auen 110 m, 48°17' N, 16°35'56'' E, 17.07.2019 (1♂), leg. & det. HH.

*Neoscia obliqua* Coe, 1940

Scheibbs, Purgstall a. d. Erlaf, Am Anger 300 m, 48°03'36" N, 15°07'51" E, 30.8.1993 (1♂), leg. F. Ressler, det. HH.

*Paragus majoranae* Rondani, 1857

Scheibbs, Purgstall a. d. Erlaf, Am Anger 300 m, 48°03'36" N, 15°07'51" E, 30.8.1993 (1♂), leg. F. Ressler, det. J. Stuke.

*Paragus quadrifasciatus* Meigen, 1822

Scheibbs, Purgstall a. d. Erlaf, Am Anger 300 m, 48°03'36" N, 15°07'51" E, 1.6.1999 (1♂), leg. F. Ressler, det. J. Stuke; Gänserndorf, E Stopfenreuth, Donauufer und Umgebung 140 m, 12.5.2012 (1♂), leg. H. Zettel, det. HH.

*Platycheirus europaeus* Goeldlin, Maibach & Speight, 1990

Scheibbs, Purgstall a. d. Erlaf, Am Anger 300 m, 48°03'36" N, 15°07'51" E, 3.5.1998 (1♀), leg. F. Ressler, det. J. Stuke.

*Sphaerophoria virgata* Goeldlin, 1974

Scheibbs, Purgstall a. d. Erlaf, Am Anger 300 m, 48°03'36" N, 15°07'51" E, 24.4.1999 (1♂), leg. F. Ressler, det. HH.

*Sphegina latifrons* Egger, 1865

Scheibbs, Gaming, Neuhaus, Höllerbachtal 1030 m, 47°47'11" N, 15°10'40" E, 21.7.1991 (1♂), leg. F. Ressler, det. DD.

*Xanthogramma dives* (Rondani, 1857)

Bruck a. d. Leitha, Spitzerberg 300 m, 48°05'43" N, 16°58'33" E, 22.5.2016 (1♂), leg. HH, det. DD.

## **Vienna (WI)**

*Callicera aenea* (Fabricius, 1722)

18. BZ, Pötzleinsdorf, Schafberg 400 m, 48°14'24" N, 16°17'41" E 26.4.2020 (1♂), leg. Mike P., det. HH.

*Criorhina floccosa* (Meigen, 1822)

13. BZ, Lainzer Tiergarten, Johannser Kogel 250 m, 48°11'31" N, 16°13'57" E, 30.4.2016 (1♂ 1♀), leg. HH & P. Richter, det. HH.

*Brachyopa insensilis* Collin, 1939

13. BZ, Lainzer Tiergarten 267 m, 48°10'07" N, 16°15'19" E, 11.6.2016 (1♂), leg. S. Preiml & HH, det. DD.

*Brachyopa pilosa* Collin, 1939

13. BZ, Lainzer Tiergarten, Johannser Kogel 250 m, 48°11'26" N, 16°13'51" E, 30.4.2016 (1♂), leg. P. Richter & HH, det. DD.

*Brachyopa plena* Collin, 1939

13. BZ, Lainzer Tiergarten 267 m, 48°11'50" N, 16°14'24" E, 25.4.2017 (2♂), leg. P. Richter & HH, det. DD.



*Chalcosyrphus nemorum* (Fabricius, 1805)

13. BZ, Lainzer Tiergarten 250 m, 48°11'29" N, 16°13'57" E, 30.4.2016 (1♂), leg. P. Richter & HH, det. HH.

*Cheiloscia caerulescens* (Meigen, 1822)

18. BZ, Währing 250 m, 48°13'20" N, 16°20'30" E, 3.6.2021 (1♀); 19.8.2021 (1♂), leg. L. Timaeus, det. HH.

*Cheiloscia himantopa* (Panzer, 1798)

22. BZ, Donaustadt, NP Donau-Auen, Lobau 160 m, N, 16°20'09", 16°20'09" E, 20.3.2014 (1♂), leg. H. Zettel, det. DD.

*Cheiloscia pascuorum* Becker, 1894

13. BZ, Lainzer Tiergarten 250 m, 48°11'31" N, 16°13'57" E, 25.4.2017 (2♂), leg. P. Richter & HH, det. DD.

*Cheiloscia urbana* (Meigen, 1822)

13. BZ, Lainzer Tiergarten 250 m, 48°11'31" N, 16°13'57" E, 30.4.2016 (2♂), leg. P. Richter & HH, det. DD.

*Cheiloscia variabilis* (Panzer, 1798)

13. BZ, Lainzer Tiergarten 250 m, 48°11'29" N, 16°13'57" E, 30.4.2016 (1♂), leg. P. Richter & HH, det. DD.

*Cheiloscia vicina* (Zetterstedt, 1849)

13. BZ, Lainzer Tiergarten 250 m, 48°11'37" N, 16°14'01" E, 30.4.2016 (1♂), leg. P. Richter & HH, det. DD.

*Chrysotoxum verralli* Collin, 1940

13. BZ, Lainzer Tiergarten 250 m, 48°10'45" N, 16°12'26" E, 11.6.2016 (1♀), leg. P. Richter & HH, det. HH.

*Dasysyrphus venustus* (Meigen, 1822)

13. BZ, Lainzer Tiergarten 250 m, 48°11'50" N, 16°14'24" E, 25.4.2017 (1♀), leg. P. Richter & HH, det. HH.

*Eristalis jugorum* Egger, 1858

13. BZ, Lainzer Tiergarten, Johannser Kogel 250 m, 48°11'26" N, 16°13'51" E, 30.4.2016 (1♂), leg. P. Richter & HH, det. DD.

*Meliscaeva auricollis* (Meigen, 1822)

13. BZ, Lainzer Tiergarten 250 m, 48°11'37" N, 16°14'01" E, 30.4.2016 (1♀), leg. P. Richter & HH, det. HH.

*Merodon albifrons* Meigen, 1822

Stammersdorf, Alte Schanze XII 212 m, 48°18'59" N, 16°25'08" E, 24.7.2019 (1♂), leg. HH, det. A. Vujić

*Mesembrius peregrinus* (Loew, 1846)

Lobau, Mühlwasser 150 m, 48°11'58" N, 16°29'34" E, 5.6.2016 (1♂), leg. P. Richter & HH, det. HH.

*Neoascia meticulosa* (Scopoli, 1763)

Lainzer Tiergarten 250 m, 48°11'31" N, 16°13'57" E, 25.4.2017 (1♂), leg. & det. HH.

*Orthonevra brevicornis* (Loew, 1843)

Gänserndorf, Nationalpark Donau-Auen, Lobau 150 m, 48°11'35" N, 16°29'05" E, 30.4.2018 (1♂), leg. HH, det. DD.

*Paragus haemorrhous* Meigen, 1822

17. BZ, St. Bartholomäusplatz 1, 48°13'02" N, 16°19'53" E, 8.8.2014 (1♂), leg. H. Zettel, det. HH.

*Paragus tibialis* (Fallén, 1817)

19. BZ, Döbling, Kuchelau 170 m, 48°16'28" N, 16°21'27" E, 5.7.2020 (1♂), leg. L. Timaeus, det. HH.

*Parhelophilus frutetorum* (Fabricius, 1775)

22. BZ, Donaupark 152 m, 48°14' N, 16°24' E, 26.9.2017 (1♂), leg. H. Zettel, det. HH.

*Parhelophilus versicolor* (Fabricius, 1794)

Lobau, Mühlwasser 150 m, 48°11'58" N, 16°29'34" E, 5.6.2016 (4♂ 1♀), leg. HH & det. HH.

*Pipiza accola* Virolvitsh, 1985

13. BZ, Lainzer Tiergarten 250 m, 48°11'37" N, 16°14'01" E, 30.4.2016 (1♀), leg. P. Richter & HH, det. HH.

*Pipiza luteitarsis* Zetterstedt, 1843

13. BZ, Lainzer Tiergarten 250 m, 48°11'50" N, 16°14'24" E, 25.4.2017 (1♂), leg. P. Richter & HH, det. DD.

*Pseudopelecocera latifrons* (Loew, 1856)

19. BZ, Döbling, Leopoldsberg Nase 350–400 m, 48°16'06" N, 16°20'09" E, 2.4.2016 (3♂), leg. H. Zettel, det. HH.

*Volucella bombylans* (Linnaeus, 1758)

23. BZ, Mauer, Himmelwiese, 12.5.2010 (1♀), leg. H. Zettel, det. HH.

*Volucella pellucens* (Linnaeus, 1758)

13. BZ, Lainzer Tiergarten 250 m, 48°10'45" N, 16°12'26" E, 11.6.2016 (1♂), leg. P. Richter & HH, det. HH.

*Xanthogramma laetum* (Fabricius, 1794)

17. BZ, Hernals, Neuwaldegg, Schwarzenbergpark 320 m, 48°14'51" N, 16°15'59" E, 25.4.2020 (1♀), leg. M. Knapp, det. N. Szucsich.

## Burgenland (BU)

*Eristalis nemorum* (Linnaeus, 1758)

Oberwart, Rechnitz 401 m, 47°18'30" N, 16°25'41" E, 30.8.2014 (1♂), leg. E. Ockermüller, det. HH.

*Neosascia interrupta* (Meigen, 1822)

Güssing, Zickenbachtal, 250 m, 47°06'46" N, 16°11'02" E (1♂), leg. & det. HH.

*Orthonevra geniculata* (Meigen 1830)

Güssing, Zickenbachtal, 250 m, 47°06'46" N, 16°11'02" E (1♂), leg. HH, det. DD.

*Platycheirus occultus* Goeldlin, Maibach & Speight, 1990

Neusiedler See, Hanság 100 m, 47°43'55" N, 17°03'11" E, 10.6.2015 (1♂ 2♀), leg. HH, det. DD.

*Spilomyia saltuum* (Fabricius, 1794)

Oberwart, Rechnitz 401 m, 47°18'30" N, 16°25'41" E, 30.8.2014 (1♀), leg. E. Ockermüller, det. HH.

*Xanthogramma dives* (Rondani, 1857)

Neusiedl a. See, Weiden a. See, Bienenfresserkolonie 150 m, 47°55'10" N, 16°50'10" E, 10.6.2015 (2♂), leg. HH, det. DD.