

## AN OVERVIEW OF THE CURRENT KNOWLEDGE OF JUMPING PLANT-LICE OF SLOVENIA (HEMIPTERA: PSYLLOIDEA)

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**Abstract** - A list of the jumping plant-lice (Psylloidea) species recorded in Slovenia is given: 100 species have been found of which 44 are new to the Slovenian fauna. The records of *Trioza kiefferi* Giard were based on misidentification, and the species is considered as absent from Slovenia.

KEY WORDS: Hemiptera, Psylloidea, fauna, Slovenia

### **Izveček** - PREGLED TRENUTNEGA POZNAVANJA BOLŠIC SLOVENIJE (HEMIPTERA: PSYLLOIDEA)

Predstavljen je pregleden seznam bolšic (Psylloidea), ki so bile doslej ugotovljene na ozemlju Slovenije. Seznam vsebuje stare zapise in nove podatke za 100 vrst. Od teh je 44 novih za favno Slovenije. Stari podatki za vrsto *Trioza kiefferi* Giard temeljijo na napačni določitvi, zato je vrsta izločena iz seznama.

KLJUČNE BESEDE: Hemiptera, Psylloidea, favna, Slovenija

### **Introduction**

Psyllids or jumping plant-lice are very small insects whose size in European species usually varies from 1,5 to 4,5 mm in length. They are exclusively phytophagous sap-sucking insects (Ossiannilsson, 1992). In general, they are highly host specific and are mostly associated with only one single plant species or with a very restricted number of closely related host plants. There are very few European species which can be characterized as polyphagous (e.g. *Bactericera nigricornis*). From this point of view, it is possible to predict the occurrence of the associated psyllid species based on the distribution data of their host plants. Some psyllids are also known as serious pests of cultivated plants - e.g. *Cacopsylla pyri* (Pollini, 1998;

Vrabl & Matis, 1977), *C. pyrisuga* (Pollini, 1998, Janežič, 1951), *Cacopsylla mali* (Janežič, 1951), *Acizzia jamatonica* (Alma & al., 2002, Seljak & al., 2004), *Euphyllura olivina* (Pollini; 1998, Chermiti, 1992). Some of them are known to be important vectors of harmful phytoplasma diseases of crop plants - e.g. *Cacopsylla pyri* (Lemoine, 1991, Carraro & al. 1998a), *C. pyricola* (Jensen & al., 1964), *C. pruni* (Carraro & al., 1998b, Jarausch, 2001), *C. melanoneura* (Tedeschi & Alma, 2004), *C. picta* (Frisinghelli & al., 2000; Jarausch & al. 2003).

As long ago as 1888 Franz Löw made the most comprehensive overview of psyllids occurring in the territory of the former Austrian-Hungarian monarchy, which includes also the territory of the present Slovenia (Löw, 1888). This remains until now the only specialized work dealing with psyllids in the territory of Slovenia. In that work, 37 species belonging to the family Psyllidae and 14 species of Triozidae, collected within the Slovene territory are recorded. Most of the data Löw included were provided by Franz Then, who collected psyllids in the surroundings of Lesce (Less) and Bled (Valdes) and by Andor Hensch, who worked and collected in the surroundings of Gorica (Görz, Gorizia). The type material of at least three species originates from these two collecting areas. The type material



**Fig. 1:** *Camarotoscena subrubescens* – adult.



**Fig. 2:** *Acizzia jamatonica* - two adults and a nymph sucking on leaf of *Albizia julbrissin*.



**Fig. 3:** *Cacopsylla pyrisuga* - nymphs visited by ants.



**Fig. 4:** *Trioza alacris* – gall on *Laurus nobilis* leaf caused by nymphs.

of *Psyllopsis meliphila* Löw, 1881 originate unambiguously from the territory of Slovenia (Lesce, Bled), while the type locality “Görz” for *Baeopelma colorata* (Löw, 1888) and *Cacopsylla intermedia* (Löw, 1888) is problematic, because the region is divided between Slovenia and Italy at present. Officially, Italy is “terra typica”, but the type material was quite probably collected on the Slovene side as well.

Gräffe (1911) also contributed some faunistic records, which mostly refer to the area round Tolmin.

Almost exactly hundred years later Franc Janežič summarized his seventeen years’ investigations on plant galls of Slovenia, also providing a large amount of distribution data concerning 25 species of Psylloidea (Janežič, 1989). Some of his records require a confirmation or even revision according to the modern taxonomic view. However, as his identifications were based mainly on the host plant and the gall form only and as far as I know, no documentary collection is available, it is almost impossible to confirm his records with reference to the more critical species.

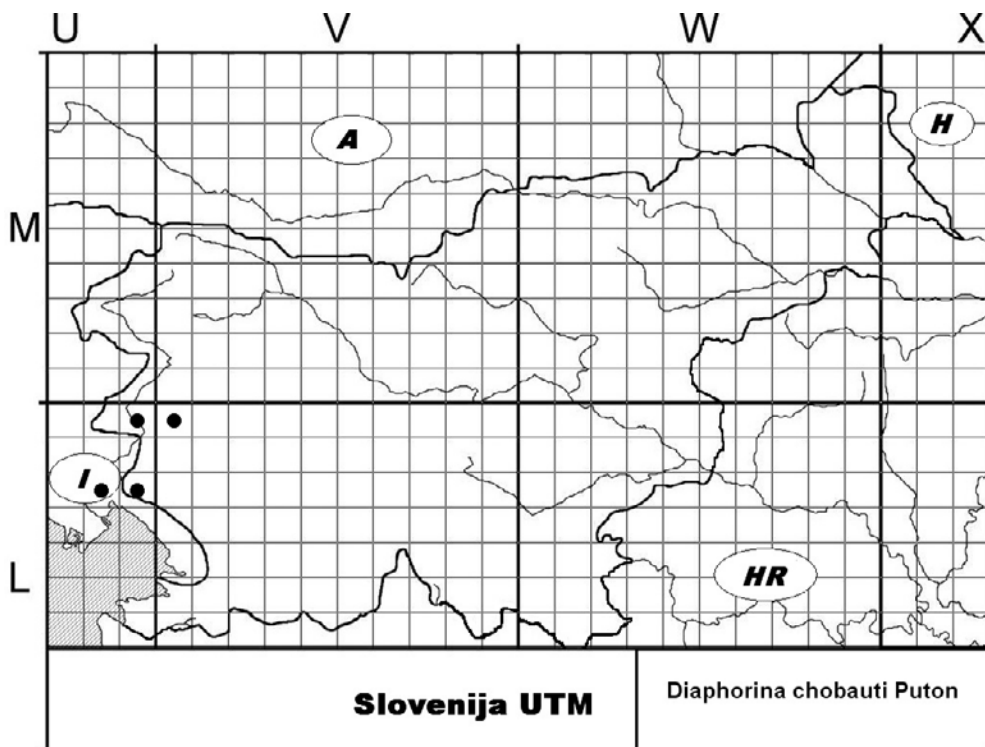
There are also some other reports dealing with pear psyllids (e.g. *Cacopsylla pyri*, *C. pyrisuga*) in Slovenia, but mainly only from the agricultural point of view (Vrabl & Matis, 1977). Knowledge of the diversity of psyllids and their distribution in Slovenia is still incomplete and in general poorly investigated. The intention of this overview is to summarize and confirm records of psyllids previously known to occur in Slovenia. In addition, my own data gathered in the last few years have been included.

## Methods

Faunistic investigations by the author on the psyllids of Slovenia have been carried out in the past five years. Material has mainly been collected intentionally, by looking for adults and the fifth instar nymphs on their host or shelter plants, but partly also unintentionally during collecting trips of plant- and leafhoppers. Sweep-netting and beating methods were mainly used to obtain adults from the host or shelter plants. Nymphs were collected together with their host plants in small plastic bags or picked up and preserved in 70 % ethanol in plastic tubes.

For the identification following work were mostly used: Ossiannilsson, 1992; Hodkinson & White, 1979; White & Hodkinson, 1982; Hodkinson & Hollis, 1987; Loginova, 1964; Klimaszewski, 1975; Haupt, 1935. Adults were dry mounted on specimen cards and are included in the author’s collection. Fifth instar nymphs and sometimes younger nymphs were slide-mounted in Canada balsam as described by Hodkinson & White (1979). For an accurate identification, a stereomicroscope (Nikon SMZ-2B) and a compound microscope (Nikon Labophot-2) were applied.

In the table below data on Psylloidea hitherto known to occur in Slovenia are summarized. For each species the earlier records and their authors (Scopoli, 1763; Löw, 1888; Gräffe, 1911; Janežič, 1989) are given. New distribution data provided by myself are given separately. For each species, the larval host plant(s) are listed as



**Fig. 5:** UTM grid of Slovenia and distribution of *Diaphorina chobauti* Puton as an example.

well. As it has been impossible to examine the original material of earlier collectors (e. g. Then, Hensch, Löw), the older published data have been interpreted in the modern taxonomic view only when they have already been clarified by modern authors. When the locality was defined well enough, the corresponding 10x10-kilometre UTM quadrant has also been added (fig. 5). As the whole territory of Slovenia goes into the grid zone 33T, the zone designation of UTM quadrants is omitted.

Records referring to Görz (Gorica or Gorizia, Italy) by Löw (1888) are also included, because a considerable part of Hensch's collecting area around this border town belongs to the present Western Slovenia. This area includes at least the following UTM quadrants: UL89, UL98, UL99, VL08, and VL09.

The taxonomy and nomenclature of Psylloidea follows Burckhardt (2002). The nomenclature source for the names of vascular host plants was "Mala flora Slovenije" (Martinčič & al., 1999). The host plant range for individual psyllid species were mostly taken from Ossiannilsson (1992), White & Hodkinson (1982), Conci, Rapisarda & Tamanini, 1992 and 1997 or Burckhardt (2002), but also some data based on my own observations were used.

## Abbreviations

**GS:** previously unpublished data; material collected and examined by the author.

**HP:** larval host plant

\* - Species discussed more in detail later in the text are marked with an asterisk.

## Results

### HOMOTOMIDAE Heslop-Harrison, 1958

#### *Homotoma ficus* (Linnaeus, 1767)

**Gräffe, 1911:** Tolmin

**GS:** Kozana (UL89), 17.05.2003; Strunjan (UL94), 12.09.2003; Nova Gorica (UL99), 10.06.1999 and 18.07.2001; Kromberk (UL99), Kanal (UM90), 05.06.2005; 02.09.2004; Brje pri Komnu (VL07), 07.06.2003; Most na Soči (VM01), 16.08.2003; widespread and common in SW Slovenia.

**HP:** *Ficus carica* (Moraceae)

### CALOPHYIDAE Vondráček, 1957

#### *Calophya rhois* (Löw, 1878)

**Janežič, 1989:** in 48 localities, a large majority of them belong to the SW submediterranean part of Slovenia;

**GS:** Krkavče (UL93), 02.04.2005; Strunjan (UL94), 22.06.2001; Lokvica - 215 m (UL97), 08.05.2005; Vale pri Brestovici (UL97), 08.05.2005; Opatje selo (UL98), 01.09.2001; Fojana (UL89), 10.06.2005; Sabotin (UL99), 23.05.1999; Podsabotin (UL99), 25.04.2004; Ravnica (UL99), 03.10.2004; Slejki - 450 m (VL08), 29.04.2005; Šmihel - 450 m (VL08), 31.03.2002; Lokev (VL15), 22.09.200; Dolga poljana - 350 m (VL18), 22.04.2005.

**HP:** *Cotinus coggygia* (Anacardiaceae)

### PSYLLIDAE Latreille, 1807

#### LIVIINAE Löw, 1878

#### *Livia junci* (Schrank, 1789)

**Löw, 1888:** Lesce; Ljubljana; Gorica

**Janežič, 1989:** Podsabotin (UL99)

**GS:** Panovec (UL98), 10.09.2000; Nova Gorica (UL98), 18.06.2005; Podsabotin (UL99); Podčela (UM83), 16.09.2002; Šmihel (VL08), 08.04.2005; Planinsko polje (VL47), 28.06.2001; Tolmin (VM01), 12.10.2002; Pokljuka - Šijec (VM23), 2.9.2005; Ledine - Jelovica (VM32), 3.9.2005; Volovjek - 1040 m (VM72), 30.07.2005.

**HP:** *Juncus* spp. (Juncaceae)

### EUPHYLLURINAE Crawford, 1914

#### *Euphyllura olivina* (O. G. Costa, 1839)

**GS:** Fjesa (UL84), 16.06.1997; Seča (UL93), 16.08.2004; Dragonja (UL93), 10.8.2005; Gažon (UL94), 25.06.1994; Rtič Ronek (UL94), 10.8.2005; otherwise quite common on olive trees in the coastal area; sometimes it may appear as a minor pest.

**HP:** *Olea europaea* (Oleaceae)

#### RHINOCOLINAE Vondráček, 1957

*Agonoscena succincta* (Heeger, 1856)

**GS:** Ravnica (UL99), 12.10.2003; Grgar - 300 m (UL99), 18.07.2004 on *Ruta divaricata* Ten.

**HP:** *Ruta graveolens* *R. divaricata* (Rutaceae)

*Agonoscena targionii* (Lichtenstein, 1874)

**Janežič, 1989:** Vipava (VL17); Branik (VL07); Kostanjevica na Krasu (UL97); Osp (VL14); on curled leaves of *Pistacia terebinthus*.

**GS:** Brestovica na Krasu -140m (UL97), 08.05.2005 on *Pistacia terebinthus*.

**HP:** *Pistacia terebinthus*, *Pistacia lentiscus*

*Rhinocola aceris* (Linnaeus, 1758)

**GS:** Kromberk (UL99), 02.08.2002 – on *Acer campestre*; Banjšice - Kuk (VL09), 18.07.2004; Krn - 1100 m (UM92), 05.07.2003 – on *Acer platanoides*.

**HP:** *Acer* spp. (Aceraceae)

#### PAUROCEPHALINAE Vondráček, 1963

\**Camarotoscena speciosa* (Flor, 1861)

**Janežič, 1989:** Dragonja? (UL93); Šmarje pri Kopru? (VL04); Bertoki (VL04) (?); Dekani (VL04) (?); Prešnica (VL14); Neblo (UL89) (?); Skalnica (UL99) (?); Solkan (UL99) (?); Grgar (UL99) (?); Slovenj Gradec (WM05); Vojnik (WM52); Pragersko (WM53); Poljčane (WM54); Kidričevo (WM63); Videm ob Ščavnici (WM75); Ivanjkovci (WM84); Lendava (XM15).

**GS:** Ajba (UM90), 05.06.2005

**HP:** *Populus nigra* (Salicaceae)

\**Camarotoscena subrubescens* (Flor, 1861)

**Löw, 1888:** Gorica (Görz)

**GS:** Solkan (UL99), 07.07.2005; Panovec (UL98), 09.07.2005; Kanal (UM90), 05.07.2003; Dolga poljana - 350 m (VL18), 20.06.2003.

**HP:** *Populus nigra*, *P. alba* (Salicaceae)

#### STROPHINGIINAE White & Hodkinson, 1985

*Strophingia ericae* (Curtis, 1835)

**Löw, 1888:** Gorica

**GS:** Smrečje (VL39), 12.06.2002 on *Erica carnea*; Smrekovec - 1500 m (VM94), 22.06.2002 on *Calluna vulgaris*

**HP:** *Calluna vulgaris* (Ericaceae)

#### APHALARINAE Löw, 1878

*Aphalara avicularis* Ossiannilsson, 1981



**GS:** Leskovec (WL38), 10.07.2004; Velika vas pri Krškem (WL38), 10.07.2004;

**HP:** *Polygonum aviculare* (Polygonaceae)

*\*Aphalara calthae* (Linnaeus, 1761)

**Löw 1888:** Ljubljana

**Gräffe, 1911:** Tolmin

**GS:** Pokljuka – Šijec -1250 m (VM23), 02.09.2005

**HP:** *Caltha palustris* (Ranunculaceae)

*Aphalara crispicola* Ossiannilsson, 1987

**GS:** Vipava (VL17), 03.10.2002.

**HP:** *Rumex crispus*, *R. obtusifolius*, *R. aquaticus*, *R. conglomeratus* (Polygonaceae)

*Aphalara freji* Burckhardt & Lauterer, 1997

**GS:** Lukini (VL13), 24.9.2005 on *Polygonum lapathifolium*; Panovec (UL98), 14.8.2005; Ajševica (UL98), 01.08.2004; Juršinci (WM74), 16.09.2004; Žadovinek (WL38), 10.7.2004.

**HP:** *Polygonum persicaria*, *P. lapathifolium*, *P. hydropiper*, *P. amphibium*

*Aphalara longicaudata* Wagner & Franz, 1961

**GS:** Vršič - 1400 m (VM04), 23.07.2002

**HP:** *Polygonum bistorta* (Polygonaceae).

*Aphalara sauteri* Burckhardt, 1983

**GS:** Lepena - 600 m (UM93), 26.08.2001; Vogel - Žagarjev graben (VM02), 05.08.1999 (swept from *Oxyria digyna*).

**HP:** *Rumex scutatus*, *Oxyria digyna* (?) (Polygonaceae)

*Craspedolepta conspersa* (Löw, 1888)

**GS:** Izola (UL94), 10.8.2005; Panovec (UL98), 14.8.2005; Kromberk (UL99), 29.08.2003; Breginj - 550 m (UM72), 22.08.2003; Lepena - 700 m (UM92), 22.08.2003; Ajševica (VL08), 02.08.2003 and 19.08.2004; Nanos - 900 m (VL27), 20.08.2004; Grgar (UL99), 18.06.2005.

**HP:** *Artemisia vulgaris* (Asteraceae)

*Craspedolepta flavipennis* (Foerster, 1848)

**GS:** Sinji vrh - 980 m (VL18), 12.08.2001; Komna - 1520 m (VM02), 02.08.1999; Zadnja Trenta (VM03), 24.07.2005; Vršič - 1400 m (VM04), 23.07.2002; Labinje - 670 m (VM21), 20.07.2003; Labinje - 800 m (VM21), 22.08.2004; Blegoš - 1500 m (VM31), 29.07.2001; Smrekovec - 1350 m (VM94), 22.06.2002.

**HP:** *Leontodon hispidus* (Lauterer & Burckhardt, 2004) (Asteraceae)

*Craspedolepta nervosa* (Foerster, 1848)

**GS:** Krn - 1100 m (UM92), 05.07.2003; Planina Razor (VM02), 07.07.2005.

**HP:** *Achillea millefolium* s.l. (Asteraceae)

*\*Rhodochlanis bicolor* (Scott, 1880)

**GS:** Strunjan (UL94), 12.09.2003; Škocjanski zatok (VL04), 24.9.2005

**HP:** *Suaeda maritima* (Chenopodiaceae)

#### DIAPHORININAE Vondráček, 1951

*\*Diaphorina chobauti* Puton, 1898

**GS:** Lokvica (UL97), 29.05.2004; Izvir Lijaka (VL09), 1.10.2005; Solkan (UL99), 21.05.2006; also Doberdob (UL87) - Italy, 9.6.2005, always swept from *Convolvulus cantabrica* L.

**HP:** *Convolvulus cantabrica* L., *Convolvulus* spp. (Convolvulaceae)

*Psyllopsis distinguenda* Edwards, 1913

**GS:** Bled (VM33), 19.08.2002.

**HP:** *Fraxinus excelsior* (Oleaceae)

\**Psyllopsis fraxini* (Linnaeus, 1758)

**Löw, 1888:** Lesce

**Gräffe, 1911:** Tolmin

**Janežič, 1989:** on *Fraxinus excelsior* and *F. oxycarpa* in 90 localities all over the country.

**GS:** Panovec (UL98), 21.08.2001 and 29.08.2003; Planina na Klinu - 900 m (UM72), 22.08.2003; Log čezsoški (UM83), 16.09.2002; Ajba (UM90), 05.06.2005; Kanal (UM90), 05.06.2005; Vojsko - 1050 m (VL19), 22.08.2003; Studeno (VL37), 06.06.1999; Bohinjska Bistrica (VM12), 19.08.2002; Nemški rovt - 750 m (VM22), 14.08.2003; Senožeče (VL26), 19.06.2005.

**HP:** *Fraxinus excelsior*, *F. oxycarpa* (Oleaceae)

*Psyllopsis fraxinicola* (Foerster, 1848)

**Löw, 1888:** Kranjsko

**GS:** Ajba (UM90), 05.06.2005; Kanal (UM90), 05.06.2005; Banjšice - Humarji (UL99), 18.07.2004; Krn - 1100 m (UM92), 05.07.2003; Ljubljana (VL69), 22.05.2003; Spodnje Bukovo (VM11), 13.07.2002; Dolenji Novaki (VM21), 20.07.2003; Senožeče (VL26), 19.06.2005.

**HP:** *Fraxinus excelsior* (Oleaceae)

\**Psyllopsis meliphila* Löw, 1881

**Löw, 1888:** Lesce; type locality

**GS:** Gornje Cerovo (UL89), 10.07.2005; Sabotin - 600 m (UL99), 10.09.2002; Grgar - 300 m (UL99), 16.07.2004; Kromberk (UL99), 11.06.2005; Vrsno (UM91), 05.07.2003; Rabotnica (VL07), 30.06.2002; Železna vrata (VL07), 27.06.2003; Nanos - Rebernice 600 m (VL27), 06.07.2002; Matenja vas (VL36), 05.10.2004.

**HP:** *Fraxinus ornus* (Oleaceae)

#### ARYTAININAE Crawford, 1914

*Arytaina genistae* (Latreille, 1805)

**GS:** Počehova (WM55), 10.08.2004; captured on yellow sticky trap.

**HP:** *Cytisus scoparius*, *Genista tinctoria* (Fabaceae)

*Livilla horvathi* (Scott, 1879)

**Löw, 1888:** Hrašče pri Postojni (VL37);

**HP:** *Chamaecytisus austriacus* (Fabaceae) (Hodkinson & Hollis, 1987), *Genista tinctoria* (Fabaceae)

*Livilla spectabilis* (Flor, 1861)

**GS:** Šmarje pri Kopru (VL04), 22.05.2002 and 11.09.2002; Šeki (VL13), 11.05.2000 [S. Brelih leg.]; Sokoliči (VL13), 24.9.2005.

**HP:** *Spartium junceum* (Fabaceae)



*Livilla ulicis* Curtis, 1836

**Löw, 1888:** Gorica

**GS:** Orehek (VM11), 25.04.1999

**HP:** *Genista tinctoria*, *Ulex europaeus* (Fabaceae)

*Livilla variegata* (Löw, 1881)

**GS:** Sabotin - 400 m (UL99), 01.05.2001; Krn - 1100 m (UM92), 05.07.2003; Planina Stador - 1040 m (VM01), 07.07.2005; Črni vrh - 1000 m (VM21), 20.07.2003; Labinje - 800 m (VM21), 22.08.2004.

**HP:** *Laburnum alpinum*, *L. anagyroides* (Fabaceae)

*Livilla vicina* (Löw, 1886)

**GS:** Lepena - 700 m (UM92), 22.08.2003

**HP:** *Genista radiata* (Fabaceae)

*Livilla vittipennella* (Reuter, 1875)

**Löw, 1888:** Triglav (VM13); J. A. Palmén leg.

**GS:** Lepena - 700 m (UM92), 22.08.2003; Planina Razor - 1400 m (VM02), 07.07.2005; Izvir Soče (VM04), 23.07.2002; Kojca - 1000 m (VM11), 09.07.2000; Labinje - 800 m (VM21), 22.08.2004.

**HP:** *Genista radiata* (Fabaceae)

ACIZZIIINAE White & Hodkinson, 1985

*Acizzia acaciaebaileyanae* (Froggatt, 1901)

**Seljak, 2004:** Vrtojba (UL98), 06.05.2002 on *Acacia baileyana* in a glasshouse; accidentally introduced with the planting material, probably from Italy, but has not established.

**HP:** *Acacia baileyana* (Mimosaceae)

\**Acizzia jamatonica* (Kuwayama, 1908)

**Seljak, 2003:** east Palearctic species spread from Italy into SW Slovenia in 2001 or 2002.

**GS:** Vipolže (UL89), 25.04.2004; Strunjan (UL94), 12.09.2003; Nova Gorica (UL99), 27.07.2002, 02.08.2002; Solkan (UL99), 09.09.2002; Sabotin (UL99), 10.09.2002; Paljevo (UL99), 20.09.2003; Koper (VL04), 11.09.2002; Lucija (VL04), 11.07.2003; Vrtovče (VL17), 24.07.2003; Slap pri Vipavi (VL17), 12.07.2004.

**HP:** *Albizia julbrissin* (Mimosaceae)

PSYLLINAE Latreille, 1807

*Baeopelma colorata* (Löw, 1888)

**Löw, 1888:** Gorica, type locality and type record.

**GS:** Lijak (UL99), 02.05.2002; Kromberk (UL99), 11.06.2005; Solkan (UL99), 05.05.2002; Nova Gorica (UL99), 02.08.2002 and 18.05.2003; Ravnica (UL99), 25.07.2003; Orlek - 345 m (VL05), 19.06.2005; Železna vrata (VL07), 27.06.2003; Črniške Ravne (VL08), 03.07.2004; Ajdovščina - Hubelj (VL18), 01.06.2002; Nanos - 950 m (VL27), 06.07.2002 and 16.07.2004; Col - 720 m (VL28),

14.07.2001; Spodnje Bukovo (VM11), 13.07.2002; Labinje - 700 m (VM21), 20.07.2003 and 22.08.2004.

**HP:** *Ostrya carpinifolia* (Betulaceae)

*Baeopelma foersteri* (Flor, 1861)

**Löw, 1888:** Gorica; Hrašče pri Postojni (VL37); Lesce

**Gräffe, 1911:** Tolmin

**GS:** Rožna dolina pri Novi Gorici (UL98), 12.07.2003 ; Kromberk (UL99), 11.06.2005; Banjšice - Kuk (VL09), 18.07.2004; Postojna (VL37), 06.06.1999; Labinje - 800 m (VM21), 22.08.2004; Muriša (XM24), 26.07.2004.

**HP:** *Alnus glutinosa* (Betulaceae)

*Chamaepsylla hartigii* (Flor, 1861)

**GS:** Nova Gorica (UL99), 17.05.2003; Čadrg (VM01), 26.06.2004.

**HP:** *Betula* spp. (Betulaceae)

*Cacopsylla affinis* (Löw, 1880)

**GS:** Hoče pri Mariboru (WM45), 10.04.2002 [M. Lešnik leg.]

**HP:** *Crataegus* spp. (Rosaceae)

*Cacopsylla albipes* (Flor, 1861)

**Löw, 1888:** Trnovski gozd

**GS:** Kromberk (UL99), 21.03.2002 and 04.04.2004 on *Sorbus domestica*.

**HP:** *Sorbus aucuparia*, *S. domestica* (Rosaceae)

*Cacopsylla ambigua* (Foerster, 1848)

**Löw, 1888:** Gorica

**GS:** Kromberk (UL99), 28.04.2002; Panovec (UL98), 09.07.2005 on *Salix cinerea*; Zadnja Trenta (VM03), 24.7.2005 on *Salix eleagnos*.

**HP:** *Salix* spp. (Salicaceae)

*Cacopsylla bidens* (Šulc, 1907)

**GS:** Vedrijan (UL89), 26.05.2003; Nova Gorica (UL99), 09.05.2002.

**HP:** *Pyrus* spp. (Rosaceae)

*Cacopsylla brevantennata* (Flor, 1861)

**GS:** Dravograd, 04.05.2004; Kromberk (UL99), 10.12.2000 and 08.02.2001; Šmihel - 600 m (VL08), 31.03.2002; Kopitnik - 940 m (VL08), 31.12.2004; Lijak - 500 m (VL09), 02.05.2002; Pri Peči (VL09), 02.05.2004; Trnovo (VL09), 31.12.2004; Nanos - 900 m (VL26), 16.10.2001; Podkraj (VL28), 12.05.2002 and 30.05.2002; Strmica - Zaplana (VL48), 12.05.2002; Hudournik (VM10), 20.05.2001; Orehek (VM11), 25.04.1999; Spodnje Bukovo (VM11), 11.03.2001 and 29.04.2001; Labinje (VM21), 13.10.2002.

**HP:** *Sorbus aria*, *Amelanchier ovalis* (Rosaceae)

*Cacopsylla brunneipennis* (Edwards, 1896)

**GS:** Panovec (UL98), 12.05.2005; Črni vrh nad Cerknim - 1230 m (VM21), 20.07.2003; Pohorski dvor (WM45), 12.05.2002 [M. Lešnik leg.]

**HP:** *Salix* spp. (Salicaceae)

*Cacopsylla crataegi* (Schrank, 1801)

**Löw, 1888:** Gorica; Nanos (VL27); Lesce

**GS:** Skalnica - 320 m (UL99), 13.06.1999; Ravnica (UL99), 17.06.200; Škabrijel (UL99), 21.03.2004; Kromberk (UL99), 04.04.2004; Lijak (VL09), 15.04.2001, 01.12.2002 and 09.11.2003; Šmihel (VL08), 31.03.2002; Gozd - 800 m (VL18), 25.05.1999; Vojsko - 1050 m (VL19), 23.08.2003; Podkraj - 850 m (VL28), 05.07.1999; Sanabor (VL28), 10.05.2002; common and widespread.

**HP:** *Crataegus* spp. (Rosaceae)

*Cacopsylla intermedia* (Löw, 1888)

**Löw, 1888:** Gorica; type locality and type record.

**HP:** *Salix purpurea* (Salicaceae)

*Cacopsylla iteophila* (Löw, 1876)

**GS:** Tolmin (VM01), 11.04.2004 and 03.04.2005; Kanal ob Soči (UM90), 03.04.2005 and 05.06.2005 – always on *Salix elaeagnos*.

**HP:** *Salix elaeagnos*, *S. fragilis* (Salicaceae)

*Cacopsylla mali* (Schmidberg, 1836)

**Löw, 1888:** Lesce; Bela peč.

**GS:** common and widespread throughout the whole territory, e. g.: Lepena - 700 m (UM92), 22.08.2003; Vojsko - 1050 m (VL19), 23.08.2003; Strmica pri Zaplani (VL48), 12.05.2002; Ljubljana (VL69), 22.05.2003; Rakitnica (VL85), 25.08.2003; Ušnik (VM01), 13.07.2002; Čadrg (VM01), 26.06.2004; Spodnje Bukovo (VM11), 13.07.2002; Črni vrh nad Cerknim - 1230 m (VM21), 20.07.2003;

**HP:** *Malus* spp. (Rosaceae)

*Cacopsylla melanoneura* (Foerster, 1848)

**Löw, 1888:** Gorica; Ljubljana.

**GS:** one of the most common species, widespread throughout the country, e. g.: Škodelin (UL93), 15.5.2005; Kastelec (VL14), 30.5.2004; Socerb (VL14), 30.5.2004; Senadole (VL26), 19.6.2005; Panovec (UL98), 16.4.2000; Kromberk (UL99), 10.4.1999; Loke (UL99), 11.4.1999; Sabotin - 300 m (UL99), 1.5.2001; Šmihel - 450 m (VL08), 31.3.2002; Lijak (VL09), 9.11.2003; Volče - 175 m (VM01), 3.4.2005; Jesenica (VM11), 25.4.1999; Labinje - 670 m (VM21), 20.7.2003; Črni vrh - 1230 m (VM21), 20.7.2003; Soriška planina - 1300 m (VM22), 19.8.2002 and 19.9.2004; Dolga poljana - 350 m (VL18), 22.4.2005; Hotedrščica (VL38), 11.6.2003; Smrekovec - 1350 m (VM94), 22.6.2002; Pohorski dvor (WM45), 22.3.2001; Hoče pri Mariboru (WM45), 10.4.2002.

**HP:** *Crataegus* spp., *Malus* spp., *Pyrus* spp., *Mespilus germanica* (Rosaceae)

*Cacopsylla peregrina* (Foerster, 1848)

**GS:** Kromberk (UL99), 26.08.2002; Banjšice - Humarji (UL99), 18.07.2004; Col - 750 m (VL28), 16.06.2004; Smrečje (VL39), 12.06.2002; Most na Soči (VM01), 16.08.2003; Labinje - 670 m (VM21), 20.07.2003 and 22.08.2004; Škofja Loka - Puštal (VM41), 02.06.2003.

**HP:** *Crataegus* spp. (Rosaceae)

*Cacopsylla picta* (Foerster, 1848) [= *Psylla costalis* Flor, 1861]

**Löw, 1888:** Ljubljana

**GS:** Kromberk (UL99), 07.04.2002 and 04.04.2004; Podkraj (VL28), 12.05.2002; Jesenica (VM11), 25.04.1999; Golubinjek - 200 m (WM40), 27.04.2005; probably wider spread, but not common.

**HP:** *Malus* spp. (Rosaceae)

*Cacopsylla pruni* (Scopoli, 1763)

**Scopoli, 1763:** Idrija; type record.

**Löw, 1888:** Gorica; Ljubljana; Lesce

**GS:** very common and widespread, e. g.: Krkavče (UL93), 02.04.2005; Stara Gora (UL98), 15.07.2000; Skalnica - 320 m (UL99), 13.06.1999; Škabrijel (UL99), 21.03.2002 and 07.04.2002; Kromberk (UL99), 04.04.2004; Nova Gorica (UL99), 11.04.2004; Krn - 1100 m (UM92), 05.07.2003; Škocjan (VL04), 01.06.2001; Ajševica (VL08), 03.05.2003; Ajševica (VL08), 22.04.2004; Črnotiče (VL14), 30.05.2004 and 19.06.2004; Sinji vrh - 980 m (VL18), 12.08.2001; Vremska dolina (VL35), 07.07.2000; Postojna (VL37), 06.06.1999; Hotedrščica (VL38), 25.05.1999 and 10.05.2002; Spodnje Bukovo (VM11), 29.04.2001; Poče (VM21), 25.04.1999; Hoče pri Mariboru (WM45), 10.04.2002 [M. Lešnik leg.];

**HP:** *Prunus armeniaca*, *P. cerasifera*, *P. domestica*, *P. instititia*, *P. persica*, *P. salicina*, *P. spinosa* (Rosaceae)

*Cacopsylla pulchella* (Löw, 1877)

**GS:** Snežatno (UL89), 01.06.2005; Kromberk (UL99), 13.05.1999; Škabrijel (UL99), 08.02.2001; Nova Gorica (UL99), 28.04.2001 and 04.05.2002; Lijak (UL99), 01.12.2002; Zemono (VL17), 04.05.1999; adults often drifted very far away from the larval host plant and found on conifers even above 1000 m a.s.l. [e.g. Soriška planina 1270 m (VM22), 19.09.2004; Planina Razor - 1300 m (VM02), 08.07.2005]

**HP:** *Cercis siliquastrum* (Cesalpiniaceae)

*Cacopsylla pulchra* (Zetterstedt, 1838)

**GS:** Dragonja (UL93), 02.04.2005; Loke (UL99), 03.05.2003; Nova Gorica (UL99), 17.04.2004; Kanal ob Soči (UM90), 03.04.2005; Ajševica (VL08), 06.05.2001 and 14.03.2004; Trnovo (VL09), 31.12.2004; Tolmin (VM01), 11.04.2004, 03.04.2005; probably widespread all over the territory.

**HP:** *Salix* spp. (Salicaceae)

*Cacopsylla pyri* (Linnaeus, 1761)

**Löw, 1888:** Gorica; Kranjsko.

**Vrabl et al. 1976:** widespread throughout the territory; sometimes a very harmful pest in pear orchards;

**GS:** common in pear orchards and widespread throughout the whole territory.

**HP:** *Pyrus* spp. (Rosaceae)

*Cacopsylla pyricola* (Foerster, 1848)

**Löw, 1888:** Lesce

**Janežič, 1989:** widespread throughout the whole territory;

**GS:** Nova Gorica (UL99), 09.03.2003; Tolmin (VM01), 12.10.2002 and 25.05.2003; Čadrg (VM01), 26.06.2004; Spodnje Bukovo (VM11), 11.03.2001 and

13.07.2002; Labinje - 700 m (VM21), 20.07.2003; widespread, but not very common, mainly in weakly cultivated orchards without any insecticide use.

**HP:** *Pyrus* spp. (Rosaceae)

*Cacopsylla pyrisuga* (Foerster, 1848)

**Löw, 1888:** Gorica; Ljubljana

**Janežič, 1989:** on leaves and shoots of pears throughout the whole territory;

**Vrabl et al. 1976:** widespread, but less common than *Cacopsylla pyri*.

**GS:** Škodelin (UL93), 15.05.2005; Bilje (UL98), 03.05.1999; Nova Gorica (UL99), 02.05.2001; Kromberk (UL99), 04.04.2004; Kanal (UM90), 05.06.2005; Podkraj (VL28), 12.05.2002; Tolmin (VM01), 25.05.2003; Čadrg (VM01), 26.06.2004; Želin (VM10), 25.06.2003; Spodnje Bukovo (VM11), 29.04.2001; Labinje (VM21), 25.04.1999; widespread and common.

**HP:** *Pyrus* spp. (Rosaceae)

*Cacopsylla rhamnicola* (Scott, 1876)

**GS:** Krn - 1100 m (UM92), 05.07.2003; Planina Razor (VM02), 07.07.2005; Nanos - 900 m (VL27), 26.07.2002; Matenja vas (VL36), 05.10.2004; Črni vrh nad Cerknim - 1240 m (VM21), 20.07.2003.

**HP:** *Rhamnus cathartica*, *Rhamnus fallax* (Rhamnaceae)

*Cacopsylla saliceti* (Förster, 1848)

**Löw, 1888:** Gorica (UL98)

**GS:** Soriška planina - 1300 m (VM22), 19.09.2004 (on *Picea excelsa*); Črno jezero - 1200 m (WM34), 25.07.2004.

**HP:** *Salix* spp. (Salicaceae)

*Cacopsylla sorbi* (Linnaeus, 1767)

**GS:** Zadnja Trenta (VM03), 24.07.2005; Cimprovka - 1200 m (VM21), 30.06.2000 and 23.08.2004; Soriška planina - 1300 m (VM22), 19.08.2002; Gorjuše - 1000 m (VM22), 14.08.2003.

**HP:** *Sorbus aucuparia* (Rosaceae)

*Cacopsylla ulmi* (Foerster, 1848)

**GS:** Kromberk (UL99), 02.08.2002; Nova Gorica (UL99), 26.08.2002; Smrekovec - 1350 m (VM94), 22.06.2002.

**HP:** *Ulmus* spp. (Ulmaceae)

*Cacopsylla viburni* (Löw, 1876)

**GS:** Kromberk (UL99), 02.08.2002; Lijak (VL09), 06.04.2003; Pri peči (VL09), 12.07.2002; Godovič (VL38), 16.06.2004.

**HP:** *Viburnum lantana* (Sambucaceae)

*Cacopsylla visci* (Curtis, 1835)

**GS:** Golubinjek - 200 m (WM40), 27.04.2005; Poklek - 350 m (WL49), 27.04.2005; Ptujška Gora (WM53), 05.05.2001 [M. Lešnik leg.]; in East-Slovenia may be rather common.

**HP:** *Viscum album* (Viscaceae)

*Psylla alni* (Linnaeus, 1758)

**Löw, 1888:** Postojna (VL37); Prebold (WM02)

**Gräffe, 1911:** Tolmin

**GS:** common and widespread throughout the whole territory; e. g. Vodice (UL99), 20.09.2003; Banjšice (VL09), 18.07.2004; Podnanos (VL27), 15.05.2002; Postojna (VL37); 06.06.1999; Planinsko polje (VL47), 28.06.2001; Bistra (VL48), 16.06.2004; Jesenica - 800 m (VM11), 10.07.2000; Spodnje Bukovo (VM11), 13.07.2002; Bohinjska Bistrica (VM12), 19.08.2002; Dolenji Novaki (VM21), 28.05.2000; Labinje (VM21), 13.10.2002 and 22.08.2004; Nemški rovt - 750 m (VM22), 14.08.2003.

**HP:** *Alnus glutinosa*, *A. incana* (Betulaceae)

*Psylla alpina* Foerster, 1848

**GS:** Planina Razor - 1310 m (VM02), 07.07.2005; Planina Stador - 1040 m (VM01), 07.07.2005; Porezen - 1600 m (VM21), 18.08.1999; Cimprovka - 1200 m (VM21), 28.05.2000 and 23.08.2004; Smrekovec - 1370 m (VM94), 22.06.2002.

**HP:** *Alnus viridis* (Betulaceae)

*Psylla fusca* (Zetterstedt, 1828)

**Löw, 1888:** Stol (VM34)

**GS:** Črni vrh nad Cerknim - 1200 m (VM21), 20.07.2003; Košutnik (Karavanke) (VM54) [S. Breljih leg.]; Logarska dolina - 790 m (VM73), 30.07.2005.

**HP:** *Alnus incana* (Betulaceae)

*Psylla buxi* (Linnaeus, 1758)

**Janežič, 1989:** recorded from 67 localities throughout the whole territory.

**GS:** Gorjansko - 197 m (UL97), 06.08.2005; Nova Gorica (UL99), 27.04.1998, and 03.07.2003; Zemono (VL17), 07.08.2005; Bled (VM33), 19.08.2002.

**HP:** *Buxus sempervirens* (Buxaceae)

*Spanioneura fonscolombii* Foerster, 1848

**GS:** Gorjansko - 200 m (UL97), 06.08.2005

**HP:** *Buxus sempervirens* (Buxaceae)

#### TRIOZIDAE Löw, 1878

*Trichohermes walkeri* (Foerster, 1848)

**Löw, 1888:** Gorica; Postojna; Lesce

**Janežič, 1989:** in 134 localities throughout the whole territory;

**GS:** Log Čezsoški (UM83), 16.09.2002; Lepena - 700 m (UM92), 22.08.2003; Vojsko - 1050 m (VL19), 23.08.2003; Nanos (VL27), 10.08.2000; Bohinjsko jezero (VM12), 03.08.1999

**HP:** *Rhamnus cathartica* (Rhamnaceae)

\**Phylloplecta trisignata* (Löw, 1886)

**GS:** Parecag (UL93), 18.10.2004, captured on yellow sticky trap.

**HP:** *Rubus* spp. (Rosaceae)

*Bactericera albiventris* (Foerster, 1848)

**Löw, 1888:** Gorica

**GS:** Dragonja (UL93), 02.04.2005; Krkavče (UL93), 02.04.2005; Škabrijel (UL99), 08.02.2001; Nova Gorica (UL99), 19.01.2003 and 13.03.2005; Kromberk - 300 m (UL99), 04.04.2004; Kopitnik - 940 m (VL08), 31.12.2004; Trnovo (VL09), 31.12.2004; Tolmin (VM01), 03.04.2005; Podčetrtek - 205 m (WM41), 27.04.2005.



**HP:** *Salix alba*, *S. fragilis*, *S. pentandra*, *S. triandra*, *S. purpurea* (Salicaceae)

*Bactericera curvatineris* (Foerster, 1848)

**Löw, 1888:** Lesce (?)

**GS:** Ajševica (VL08), 28.4.2006 on *Salix cinerea*.

**HP:** *Salix* spp. (Salicaceae)

*Bactericera femoralis* (Foerster, 1848)

**Löw, 1888:** Trnovski gozd; Lesce (as *Trioza acutipennis*)

**GS:** Planina Razor - 1310 m (VM02), 07.07.2005; Zadnja Trenta - 970 m (VM03), 24.07.2005; Vršič - 1400 m (VM04), 23.07.2002; Vojsko - 1040 m (VL19), 18.08.2001 and 23.08.2003; Nemški rovt - 750 m (VM22), 14.08.2003; Grajska planina (VM23), 2.9.2005; Velika Planina - 1260 m (VM72), 30.07.2005; Smrekovec (VM93), 22.06.2002; Pesek - 1380 m (WM24), 25.07.2004; Kisovec - 1260 m (VM72), 30.07.2005.

**HP:** *Alchemilla* spp. (Rosaceae)

*Bactericera harrisoni* (Wagner, 1955)

**GS:** Zadnja Trenta (VM03), 24.07.2005; Pokljuka - Šijec (VM23), 2.9.2005; Ledine - Jelovica (VM32), 3.9.2005.

**HP:** ?

*Bactericera kratochvili* Vondracek, 1957

**GS:** Črni kal (VL14), 24.9.2005; Sabotin (UL99), 10.09.2002; Skalnica (UL99), 21.05.2005; Črniške Ravne (VL08), 03.07.2004; Nanos - 950 m (VL27), 06.07.2002; Col - 720 m (VL28), 14.07.2001; Lepena - 700 m (UM92), 22.08.2003; Škrljeвица (VL26), 20.06.2005.

**HP:** *Allium senescens* (Liliaceae)

*Bactericera modesta* (Foerster, 1848)

**Löw, 1888:** Gorica, as *Trioza recondita* Flor, 1861

**GS:** Nanos - 900 m, 26.07.2002; Grgar (UL99), 31.08.2002

**HP:** *Sanguisorba officinalis*, *S. minor* (Rosaceae).

*Bactericera nigricornis* (Foerster, 1848)

**Löw, 1888:** Gorica; Hrašče (VL36)

**GS:** Vrtojba (UL98), 19.11.2003 and 20.11.2003, nymphs on *Cichorium intybus*; Nova Gorica (UL99), 05.10.2002, nymphs on *Cichorium intybus*; Kanal (UM90), 05.07.2003; Lokve (VL09), 25.07.2003; Banjšice - Kuk (VL09), 18.07.2004; Slap pri Vipavi (VL17), 03.10.2002 on *Cichorium endivia*; Vojsko - 1050 m (VL19), 23.08.2003; Nanos - 950 m (VL27), 06.07.2002; Malo polje (VL28), 21.09.2003; Ratečevo brdo (VL35), 16.10.2003; Turški vrh (WM83), 20.09.2002.

**HP:** polyphagous

\*[?] *Bactericera perrisi* Puton, 1876

**Löw, 1888:** Gorica, Trnovski gozd. These records may also refer to *B. kratochvili* and are in need of verification.

**HP:** *Artemisia campestris*, *A. alba* (Asteraceae)

*Bactericera striola* (Flor, 1861)

**Löw, 1888:** Gorica, Lesce

**Gräffe, 1911:** Tolmin

**GS:** Nova Gorica (UL99), 03.04.2005; Lukini (VL13), 24.9.2005; Tolmin (VM01), 03.04.2005; Ajševica (VL08), 02.08.2003 and 24.03.2005 on *Salix cinerea*; Trnovo (VL09), 31.12.2004 on *Pinus nigra*; Podnanos (VL27), 17.07.2005 on *Salix purpurea*; Ledine - Jelovica (VM32), 3.9.2005 on *Salix rosmarinifolia*.

**HP:** *Salix* spp. (Salicaceae)

*Trioza alacris* Flor, 1861

**GS:** common on *Laurus nobilis* in SW Slovenia; e.g. Snežatno (UL89), 01.06.2005; Fojana (UL89), 10.06.2005; Gornje Cerovo (UL89), 10.06.2005; Kromberk (UL99), 11.06.2005; Nova Gorica (UL99), 06.06.2000 and 09.06.2003; Pliskovica (VL06), 07.06.2003.

**HP:** *Laurus nobilis* (Lauraceae)

*Trioza anthrisci* Burckhardt, 1986

**GS:** Kucelj (VL08), 02.09.2002; Podkraj (VL28), 12.05.2002; Laniše (VL38), 12.05.2002; Spodnje Bukovo (VM11), 14.05.2000 and 13.07.2002.

**HP:** *Anthriscus* spp., *Chaerophyllum* spp. (Apiaceae)

*Trioza apicalis* Foerster, 1848

**Löw, 1888:** Gorica, Ljubljana, Nanos

**Janežič, 1989:** Šentjernej (WL27); Pleterje (WL49)

**GS:** Krn - 1100 m (UM92), 05.07.2003; Labinje (VM21), 13.10.2002.

**HP:** *Daucus carota* and some other Apiaceae.

*Trioza centranthi* (Vallot, 1829)

**Janežič, 1989:** Fjesa (UL84); Piran (UL84); Seča (UL93); Cerovo (UL89)

**HP:** *Centranthus ruber* (Valerianaceae)

*Trioza cerastii* (Linnaeus, 1758)

**Janežič, 1989:** Križna gora (VM41)

**GS:** Labinje - 670 m (VM21), 20.07.2003

**HP:** *Cerastium* spp. (Caryophyllaceae)

*Trioza chenopodii* Reuter, 1876

**Janežič, 1989:** Fjesa (UL84); Koper (VL04); Strunjan (UL94); Ribnica na Pohorju (WM25); Vinski vrh pri Ormožu (WM94).

**GS:** Počehova (WM55), 10.08.2004

**HP:** *Chenopodium* spp., *Atriplex* spp. and some other Chenopodiaceae

*Trioza chrysanthemi* Löw, 1878

**Löw, 1888:** Lesce

**Janežič, 1989:** Strunjan (UL94)

**HP:** *Leucanthemum* spp. (Asteraceae)

*Trioza cirsii* Löw, 1881

**GS:** Ratečevo brdo (VL35), 16.10.2003, captured on yellow sticky trap.

**HP:** *Cirsium* spp.

[?]*Trioza dispar* Löw, 1878

**Janežič, 1989:** in 30 localities in central and southern Slovenia, always on *Aposeris foetida*; needs verification.

**HP:** *Taraxacum* spp., *Aposeris foetida*(?) (Asteraceae)

*Trioza flavipennis* Foerster, 1848

**Janežič, 1989:** on *Aegopodium podagraria* in 131 localities throughout the whole territory;

**GS:** Spodnje Bukovo (VM11), 11.03.2001; Zgornje Pijavško (VM63), 01.05.2003.

**HP:** *Aegopodium podagraria* (Apiaceae)

*Trioza galii* Foerster, 1848

**Löw, 1888:** Gorica, Lesce

**GS:** Gorjansko - 197 m (UL97), 6.8.2005; Vipolže (UL89), 26.07.2005; Krn - 1100 m (UM92), 05.07.2003; Kucelj (VL08), 02.09.2002; Nanos (VL27), 26.07.2002; Malo polje (VL28), 21.09.2003; Ratečevo brdo (VL35), 16.10.2003; Soriška planina - 1300 m (VM22), 19.08.2002; Pokljuka - Močila (VM23), 14.08.2003; Jelovica - Ledine 1100 m (VM32), 19.09.2004.

**HP:** *Galium* spp. (Rubiaceae)

*Trioza ilicina* (De Stefani, 1901)

**Janežič, 1989:** Portorož (UL94); Nova Gorica (UL98)

**HP:** *Quercus ilex* (Fagaceae)

*Trioza munda* Foerster, 1848

**GS:** Soriška planina 1270 m (VM22), 19.09.2004 on *Picea excelsa*

**HP:** *Knautia* spp., *Scabiosa lucida*, *Succisa pratensis* (Dipsacaceae)

*Trioza proxima* Flor, 1861

**Löw, 1888:** Gorica, Ljubljana

**Janežič, 1989:** Razdrto (VL26)

**GS:** Črni vrh nad Cerknim - 1230 m (VM21), 20.07.2003

**HP:** *Hieracium pilosella* and some other *Hieracium* species (Asteraceae)

*Trioza remota* Foerster, 1848

**Janežič, 1989:** in 153 localities throughout the whole territory.

**GS:** Kromberk - 450 m (UL99), 10.03.2002, 09.11.2003 and 21.03.2004; Šmihel - 600 m (VL08), 31.03.2002; Pri peči (VL09), 30.04.2002; Trnovo (VL09), 31.12.2004; Labinje (VM21), 01.11.2003; Podčetrtek - 205 m (WM41), 27.04.2005.

**HP:** *Quercus petraea*, *Q. pubescens*, *Q. robur* (Fagaceae)

*Trioza rhamni* (Schrank, 1801)

**Löw, 1888:** Gorica, Ljubljana

**Janežič, 1989:** in 102 localities throughout the whole territory.

**GS:** Nova Gorica (UL99), 09.06.2002; Kromberk (UL99), 11.06.2005; Ajševica (VL08), 19.05.2002 and 22.04.2004; Nanos (VL27), 06.07.2002; Godovič (VL38), 10.05.2002.

**HP:** *Rhamnus cathartica* (Rhamnaceae)

*Trioza rotundata* Flor, 1861

**GS:** Porezen - 1600 m (VM21), 18.08.1999; Soriška planina 1270 m (VM22), 19.09.2004; Pokljuka - Konjska raven (VM23), 14.08.2003; Blegoš - 1500 m (VM31), 29.07.2001; Rogla - 1470 m (WM24), 25.07.2004.

**HP:** *Cardamine amara*, maybe also some other *Cardamine* species (Brassicaceae)

*Trioza schranki* Flor, 1861

**GS:** Soriška planina - 1300 m (VM22), 19.08.2002; Logarska dolina (VM73), 30.07.2005 on *Astrantia carniolica*.

**HP:** *Astrantia* spp. (Apiaceae)

*Trioza scottii* Löw, 1880

**Löw, 1888:** Šmarna gora (VM50)

**Janežič, 1989:** on *Berberis vulgaris* in 77 localities throughout the whole territory;

**GS:** Hotedrščica (VL38), 10.05.2002; Labinje (VM21), 13.10.2002 and 01.11.2003.

**HP:** *Berberis vulgaris* (Berberidaceae)

\**Trioza senecionis* (Scopoli, 1763)

**Scopoli, 1763:** Carniolia (Slovenia) - terra typica:

**HP:** *Senecio nemorensis*, *S. fuchsii* (Asteraceae)

*Trioza urticae* (Linnaeus, 1758)

**Janežič, 1989:** in 86 localities throughout the whole territory;

**GS:** very common and widespread throughout the whole territory, e.g.; Panovec (UL98), 13.09.2000; Nova Gorica (UL99), 14.12.1998; Paljevo (UL99), 20.09.2003; Banjšice - Humarji (UL99), 18.07.2004; Breginj - 550 m (UM72), 22.08.2003; Pl. Na Klinu - 900 m (UM72), 22.08.2003; Podčela (UM83), 16.09.2002; Krn - 1100 m (UM92), 05.07.2003; Lepena - 700 m (UM92), 22.08.2003; Na Skali (UM93) [S. Brelih leg.]; Hruševica (VL07), 28.04.2002; Matenja vas (VL36), 05.10.2004; Laniše (VL38), 12.05.2002; Bistra (VL48), 16.06.2004; Snežnik - 1560 m (VL54), 21.07.2002; Bevke (VL59), 14.07.2001; Trebnje (VL98), 10.07.2004; Most na Soči (VM01), 16.08.2003; Želin (VM10), 25.06.2003; Spodnje Bukovo (VM11), 11.03.2001; Zavode (WL37), 10.07.2004; Žadovinek (WL38), 10.07.2004; Gornje Pijavško (WL39), 01.05.2003; Jareninski dol (WM56), 25.07.2004; Mestni vrh pri Ptujju (WM64), 22.07.2003; Strezetina (WM84), 20.06.2003; Strezetina (WM84), 22.07.2003; Litmerk (WM84), 15.08.2004; Mali Brebrovnik (WM94), 22.07.2003; Čentiba (XM15), 27.07.2004.

**HP:** *Urtica dioica*, *U. urens* (Urticaceae)

*Trioza velutina* Foerster, 1848

**GS:** Orlek - 345 m (VL05), 19.06.2005; Lokvica - 215 m (UL97), 08.05.2005; Ajševica (UL98), 22.04.2004; Nova Gorica (UL99), 11.04.2004 and 18.06.2005; Podsabotin (UL99), 19.05.2004; Škabrijel (UL99), 04.06.2004; Črniške Ravne (VL08), 03.07.2004; Pri peči (VL09), 12.07.2002 and 02.05.2004; Socerb (VL14), 30.05.2004; Črnotiče (VL14), 30.05.2004; Nanos - 1040 m (VL27), 16.07.2004; Godovič (VL38), 10.05.2002; Hrušica (VL38), 30.05.2002; Labinje 800 m (VM21), 23.08.2004.

**HP:** *Galium* spp. (Rubiaceae)

### Comments on some critical or less known species

*Camaratoscena speciosa* (Flor, 1861) and *C. subrubescens* (Flor, 1861)

According to Conci & al. (1993) the distribution of *Camaratoscena subrubescens* is limited to warm regions of the Mediterranean northern side. It is recorded from

Spain, France, Italy (including Sicily), east Adriatic countries, Greece and Turkey. Also in Slovenia, its occurrence seems to be confined to the south-western submediterranean part of the country. Some records concerning *Camarotoscena speciosa* given by Janežič most probably refer to *C. subrubescens* or at least those originating from South-Western Slovenia (e. g.: Solkan, Skalnica, Grgar, Neblo, Prešnica, Dekani, Bertoki, Šmarje pri Kopru, Dragonja). This is because his identifications were based on gall characters only and not on adults or fifth instar nymphs. Specimens collected in this area by myself (although the material is still quite scarce), as well as the material collected by A. Hensch in the surrounding of Gorica (Löw, 1888), support this uncertainty representing *C. subrubescens* only. Anyway, records given by Janežič are in need of further faunistic verification. Until now, I also could not find both species together, although they use the same host species.

*Aphalara calthae* (Linnaeus, 1761)

According to Lauterer (1993) older records of *Aphalara calthae* published 40 years or more ago need to be verified, as species of the group *Aphalara polygoni* Förster were often published under this name as well. Recently collected material on Pokljuka confirms however unambiguously the occurrence of *Aphalara calthae* in Slovenia.

*Rhodochlanis bicolor* (Scott, 1880)

This species is recorded from South Russia, Ukraine, Kazakhstan (Loginova, 1964, Gegechkori & Loginova, 1990) and Bulgaria (Klimaszewski, 1973). It is known to occur in Iran as well (Burckhardt & Lauterer, 1993), but seems to be rather rare in the Mediterranean basin or perhaps merely less investigated. Conci and Tamanini recorded it from a comparatively restricted coastal area near to Ravenna (Conci & Tamanini, 1984). In Slovenia, it is only known from the two above-mentioned localities on the saline vegetation close to the Adriatic Sea. *Suaeda maritima* was confirmed as the host plant, on which also some few nymphs of fourth and fifth instars were found. Many adults and some nymphs were also collected near Poreč in Istria (Croatia) in late August 2005, always on the same host plant. These findings are obviously only a part of the larger, but still poorly investigated north-Adriatic population of *Rhodochlanis bicolor*.

*Psyllopsis fraxini* (Linnaeus, 1758)

Quite probably, *Psyllopsis fraxini* is widely spread throughout the whole country on its host plant *Fraxinus excelsior*. However, data given by Janežič (1989) based on the presence of galls are not unambiguous, because identical galls cause *P. distinguenda* Edwards, *P. discrepans* (Flor) and *P. dobreanuae* Loginova as well. *P. fraxini* is the most common species and plausible one.

*Psyllopsis meliphila* Löw, 1881

In Slovenia, in particular in its western part, this species is widely spread on its host plant *Fraxinus ornus* in temperate slopes. According to my observations, it develops two generations per year. The species is, however, discussed here only to clarify the type locality, since it was mostly erroneously interpreted in the past. F. Löw described the species from the material collected by Franz Then in the area

around Lesce and Bled (Lees-Valdes at that time) (L $\ddot{u}$ w, 1881). Now this region belongs to Slovenia. Conci & Tamanini (1990), however, placed this type locality in Austria and Carinthia (K $\ddot{a}$ rnten), what is wrong. Namely, even at that time this region belonged to the district Krain, which is now a part of the present Slovenia and not to Carinthia. Such misinterpretations are not rare for all of the species described at that time in the territory of the Austrian-Hungarian monarchy, which is not surprising due to the immense geopolitical changes, which followed afterwards.

*Acizzia jamatonica* (Kuwayama, 1908):

This eastern Palaearctic species has spread from Italy to Slovenia only very recently (Seljak, 2003; Seljak et al., 2004). In Europe it was recorded in North Italy for the first time (Alma et al., 2002). As early as in 2002 large populations were found on its host plant *Albizia julbrissin* in parks in Nova Gorica and soon elsewhere along the Slovene-Italian border as well. In 2003, it was found to be spread all over the south-western submediterranean part of Slovenia, and actually everywhere where its host plant is found planted (parks, parking places, gardens). Also in 2002, it was spreading also towards south in Istria (Umag, Pore $\acute{c}$ , Rovinj - Croatia). According to Šimala et al. (2006) it is continuing to spread along the coastal area in Dalmatia. The insect spreads mainly by being carried by traffic along the road network and, partly also by active flying in searching for still unoccupied *Albizia* trees. Now it is considered as a very serious pest of *Albizia julbrissin*, threatening its ornamental value and functionality. Due to the weak lignification of shoots, heavy affected trees may often get frozen during the following winter.

*Phyllopecta trisignata* (L $\ddot{u}$ w, 1886):

This species is widely distributed throughout the whole Mediterranean (Fauna Europaea, 2004). Its occurrence in Istria (Vološ $\acute{c}$ a, Croatia) was already recorded by Gr $\ddot{a}$ ffe (1911). A specimen captured on a yellow sticky trap in the Slovene coastal area (Parecag) in 2004 confirms its existence in this part of Europe.

*Diaphorina chobauti* Puton, 1898

It is a very rare species in Europe. According to Burckhardt (1984) and Conci et al. (1993) it has only been known from Liguria in North-Italy so far. Otherwise, it is widely distributed throughout the Near East, in North Africa and in the central Asia (Burckhardt, 1984, Gegechkori & Loginova, 1990, Conci et al., 1993). In Slovenia, there are only three localities known in the southwestern submediterranean part of the country. Another locality has been discovered near the village Doberdob on the Italian side. However, all these localities are quite close together and belong to the same geographical region (fig. 5). Specimens were always swept from *Convolvulus canthabrica* L. plants, mostly at the end of May and in the early June. One specimen however was found the 01.10.2005. As Conci et al. (1993) in Italy give similar collecting periods, it is suggested that the species develops two generations per year.

*Bactericera perrisi* Puton, 1876

There are some uncertainties about the occurrence of this species in Slovenia. L $\ddot{u}$ w (1888) recorded it from Gorica (G $\ddot{o}$ r $\ddot{z}$ ) and Trnovski gozd (Tarnovaner Wald), which were also the only known localities in the territory of Monarchy at that time. Later Graeffe (1911) recorded it to occur also near Trieste (Proseco). Under the



presumption that *Artemisia alba* is the host plant of this species (Conci et al., 1997) (*Artemisia campestris* is very rare in Slovenia) it might occur rather common in this (south-western) part of Slovenia. Nevertheless, I could not find it in this region so far. On the other hand, the related *B. kratochvili* is rather common here. It has been collected very commonly by me on dry meadows with lots of *Allium senescens*. As *B. kratochvili* was described much later, confusion between these two species by Löw seems to be possible.

*Trioza senecionis* (Scopoli, 1763)

Slovenia is “terra typica” for this species. Scopoli (1763: 140) described it in his “Entomologia carniolica” for the first time, obviously from material collected in Carniola. An exact locality was not specified. As this species has not been found since then this record is still the only one existent for Slovenia. Its wider distribution, however, is to be expected, as its host plants (*Senecio fuchsii*, *S. nemorensis*) occur rather commonly in Slovenia.

*Trioza kiefferi* Giard, 1902:

So far, this species is only known from South Italy, Malta, Iberian Peninsula and Algeria (Conci, Rapisarda & Tamanini, 1996). In Slovenia Janežič (1989) reported it to occur on *Rhamnus fallax* (= *Rh. alpinus* ssp. *fallax*) in several localities in the Slovene Alps. As his identifications were based merely on leaf galls by using Houard’s identification keys, he probably made the same mistake as many European plant gall researchers had already made before him. As Burckhardt (1983) stated, the resemblance of galls on *Rhamnus alpinus* compared to those on *Rhamnus alaternus* and *Rh. lycioides* produced by *Trioza kiefferi* in the Mediterranean area has led to misidentifications. Even more, according to the same author, galls on *Rhamnus alpinus* are not produced by any known psyllid. So far, in Slovenia I could only find adults of *Cacopsylla rhamnicola* (Scott, 1876) on *Rhamnus fallax*. Thus for all these reasons, I consider *Trioza kiefferi* as not existing in Slovenia.

## Discussion

In the present review, the available data and records of jumping plant-lice occurring in the territory of Slovenia have been summarized. The fauna includes 100 species (Homotomidae - 1 species, Calophyidae - 1 species, Psyllidae - 65 species, Triozidae - 33 species). 44 of them (Psyllidae - 34 species, Triozidae - 10 species) are recorded for the first time in Slovenia. This number probably represents about 60-70 % of the whole diversity of this insect group in Slovenia. However, the knowledge of distribution range of the majority of them is still very fragmentary, because a more systematic faunistic work on this group has been started only recently. An exception may represent the galls producing species, which were reported by Janežič fairly comprehensive (Janežič, 1989). Despite that, the number of above listed species already exceeds the diversity recorded in the adjacent Italian region Friuli-Venezia Giulia – 84 species (Conci et al. 1992 and 1997) or in Carinthia (Austria) respectively – 82 species (Burckhardt *et al.* 1999). The proper identity of *Bactericera curvatinervis*, *B. perrisi* and *Trioza dispar* in earlier records

is somewhat ambiguous and are in need of verification. In the text they are marked by a question sign in square brackets.

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