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The psyllid collection of Theodor Hartig in the Bavarian State Collection of Zoology, Munich (ZSM)

(Insecta, Hemiptera, Psylloidea)

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The supposedly lost psyllid collection of Theodor Hartig was recently discovered in the Bavarian State Collection of Zoology, Munich. The collection contains types of the eight species which he described and specimens of two additional species. Lectotypes are designated for seven species. The previous synonymies of three species are confirmed, and the following new synonymies and combinations are proposed: *Aphalara purpurascens* (Hartig, 1841), comb. nov. = *Aphalara crispicola* Ossiannilsson, 1987, syn. nov.; *Cacopsylla mali* (Schmidberger, 1836) = *Psylla viridis* Hartig, 1841, syn. nov.; *Cacopsylla moscovita* (Andrianova, 1948), nomen protectum = *Psylla fuscipes* Hartig, 1841, nomen oblitum, syn. nov.; *Trioza remota* Foerster, 1848, nomen protectum = *Psylla marginata* Hartig, 1841, = *Psylla simplex* Hartig, 1841, nomina oblita, syn. nov.

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Introduction

Theodor Hartig (born 21 February 1805 in Dillenburg, deceased 26 March 1880 in Braunschweig) was Professor of Forestry Sciences at the Collegium Carolinum in Braunschweig. Parts of his work are dedicated to insects including a paper dealing with plant-lice (Hemiptera, Sternorrhyncha) (Hartig 1841). This paper treats, among others, 12 species (in two genera) of jumping plant-lice (Psylloidea), eight of which are described as new. Subsequently Foerster (1848) listed two of Hartig's species as valid taxa and two as questionable synonyms, Flor (1861) synonymised two and Löw (1877) one. Löw (1882) mentioned in his synonymic revision of the Palaearctic psyllids, for which he had examined types of most species, that he had not seen the Hartig material which was allegedly destroyed. He listed the three previously synonymised species as synonyms and the other five species as nomina dubia, an opinion which was accepted by subsequent authors (Table 1).

While revising the psyllids of the Bavarian State Collection of Zoology Munich (ZSM) I discovered a box with the Sternorrhyncha collection of Theodor Hartig containing also the supposedly destroyed psyllid types. This material was probably acquired by Josef Kriechbaumer, curator at the ZSM in the second half of the 19th century, together with Hartig's Hymenoptera collection (Diller 1992).

The present paper describes the content of Hartig's psyllid collection, identifies the taxa currently treated as nomina dubia and, as consequence, proposes new synonymies and a new combination. In accordance with article 74.7 of the ICZN (1999) lectotypes of seven species are designated here for stabilising the nomenclature.

Hartig's psyllid collection

The box with Hartig's psyllid collection was found on 30 March 2006 sealed in a plastic bag together with a second box of the same make. Both boxes correspond to those used by Joseph Kriechbaumer. One box (Fig. 1) contained material identified by Hartig (rectangular labels) and Kriechbaumer (square labels) as well as unidentified aphids collected in the 20th century, the other box contained specimens from the 20th century similar to those in the former box. The specimens collected in the 20th century were probably added to the two boxes in the late 1970s when the ZSM collections were moved to the current location at Münchhausenstrasse. The Hartig and Kriechbaumer material was probably put in the box by Kriechbaumer in the 19th century (E. Diller pers. comm.).

The psyllid material was arranged in the same sequence in which it appears in Hartig's (1841) paper. However, two species, viz. *"Ps. pyri"* and *"Ps. urticae"*, are not represented in the collection neither by specimens nor labels suggesting that Hartig did not have any representatives. The specimens are pinned or mounted on card points which are pinned (Fig. 2). Only part of the specimens are labelled with cards in different colours bearing numbers. The key to the colour code and numbers is apparently lost (E. Diller pers. comm.). All material probably comes from Germany; for four of the new species Hartig (1841) provided locality data, for six food plant information and for one no associated information at all. Apart from *Psylla purpurascens*, there is no mention of the number of specimens which Hartig had at hand. The specimens are therefore treated as syntypes. For stabilising the nomenclature, lectotypes are designated here.

The psyllids were removed from the original box and are now conserved in a standard insect box. The detailed list of specimens present in Hartig's psyllid collection is given in appendix 1. Below the eight species described by Hartig (1841) are revised; they are listed in alphabetical order using the currently valid names.

Aphalara purpurascens (Hartig, 1841), comb. nov.

Psylla purpurascens Hartig, 1841: 375; holotype ♀; *Pinus*.

Aphalara crispicola Ossiannilsson, 1987: 221; **syn. nov.**

Comments. This is the species currently known as *A. crispicola* Ossiannilsson. In the original description Hartig (1841) mentions that he has only a single specimen at hand which has to be considered as holotype.

Arytaina genistae (Latreille, 1805)

Psylla spartii Hartig, 1841: 375; lectotype ♂, paralectotypes 3♂, 1♀, 4 damaged adults, here designated; Berlin, *Sarothamnus scoparius*; synonymised with *Arytaina genistae* (Latreille) by Löw (1877).

Comments. The synonymy of *Psylla spartii* with *Arytaina genistae* proposed by Löw (1877) is confirmed.

Table 1. List of psyllid species described by Hartig and their interpretation by subsequent authors.

Hartig 1841	Foerster 1848	Flor 1861	Löw 1882	Valid name
Psylla abietis	–	= *Rhinocola aceris*	= *Rhinocola aceris*	*Rhinocola aceris*
Psylla eupoda	*Trioza eupoda*	= *Trioza urticae*	= *Trioza urticae*	*Trioza urticae*
Psylla fuscipes	–	–	nomen nudum	*Cacopsylla moscovita*
Psylla marginata	–	–	nomen nudum, *Trioza*?	*Trioza remota*
Psylla purpurascens	–	–	nomen nudum, *Aphalara*?	*Aphalara purpurascens*
Psylla simplex	synonym of *Trioza apicalis* Foerster?		nomen nudum, *Trioza*?	*Trioza remota*
Psylla spartii	*Psylla spartii*	–	*Arytaina genistae*, synonymised by Löw 1877	*Arytaina genistae*
Psylla viridis	synonym of *Psylla crataegicola* Foerster?	–	nomen nudum	*Cacopsylla mali*

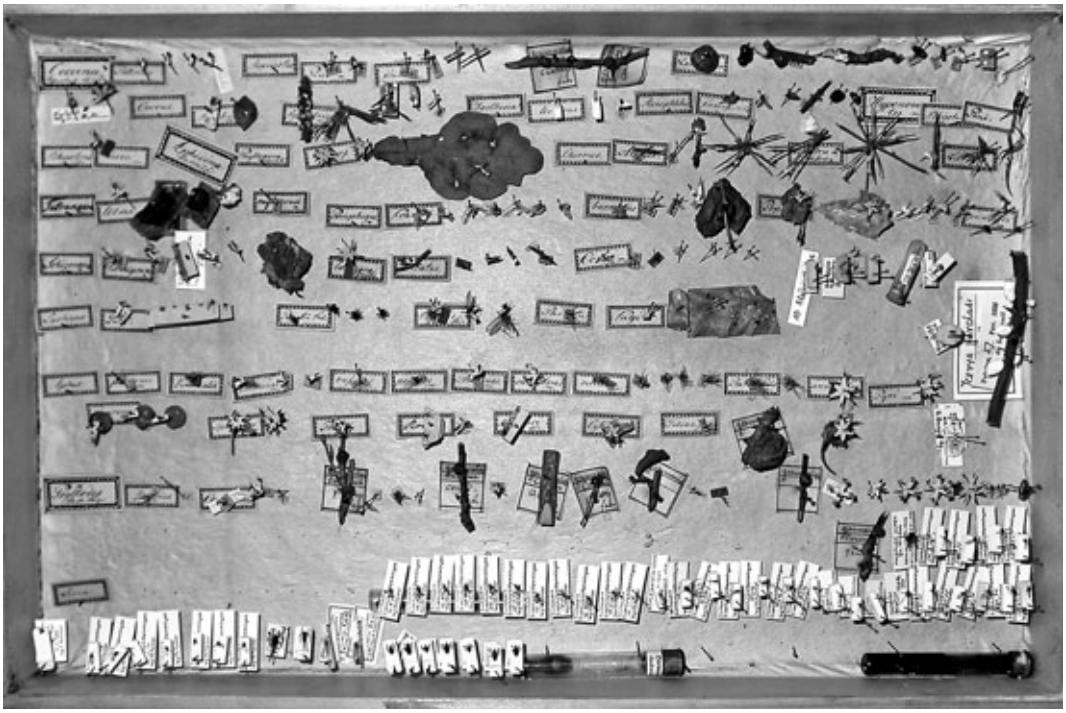

Fig. 1. Insect drawer with material of T. Hartig (rectangular labels) and J. Kriechbaumer (square labels) as well as unidentified pinned aphids collected in the 20th century.

Cacopsylla mali (Schmidberger, 1836)

Psylla viridis Hartig, 1841: 374; lectotype ♀, here designated; Harz, *Fagus*; **syn. nov.**

Comments. This is the species currently known as *Cacopsylla mali* (Schmidberger). Foerster (1848) questionably synonymised *P. viridis* with *Psylla crataegicola* Foerster, 1848, a synonym of *Cacopsylla mali*.

Cacopsylla moscovita (Andrianova, 1948), nomen protectum

Psylla fuscipes Hartig, 1841: 374; lectotype ♂, here designated; Braunschweig, in grass; **nomen oblitum**, **syn. nov.**

Comments. *Psylla fuscipes* Hartig is a senior synonym of the species currently known as *Cacopsylla moscovita* (Andrianova). In accordance with article 23.9 of the ICZN (1999) the prevailing usage of the name *Cacopsylla moscovita* must be maintained as the following conditions are both met: the senior synonym *Psylla fuscipes* has not been used as a valid name after 1899, and the junior synonym *Cacopsylla moscovita* (or in the combination *Psylla moscovita*) has been used for this particular taxon, as its presumed valid name, in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years (Burckhardt 1983, Burckhardt & Lauterer 2004, Hodkinson & White 1979, Gegechkori 1975, 1977, 1984, Gegechkori & Dzhibladze 1976, Ivanova 1974, Khlebutina 1983, Klimaszewski 1969, 1975, Kloet & Hinks 1964, Konovalova 1988, Labina 2006, Lauterer 1963, 1971, Lindberg & Ossiannilsson 1960, Loginova 1962, 1964, 1967, 1968, Ossiannilsson 1963, 1992, Poddubnyj 1975, White & Hodkinson 1982).

Rhinocola aceris (Linnaeus, 1758)

Psylla abietis Hartig, 1841: 375; lectotype ♂, paralectotype 1♀, here designated; 1 pin without specimen; *Picea abies*; synonymised with *Rhinocola aceris* (Linnaeus) by Flor (1861).

Comments. The synonymy of *Psylla abietis* with *Rhinocola aceris* proposed by Flor (1861) is confirmed.

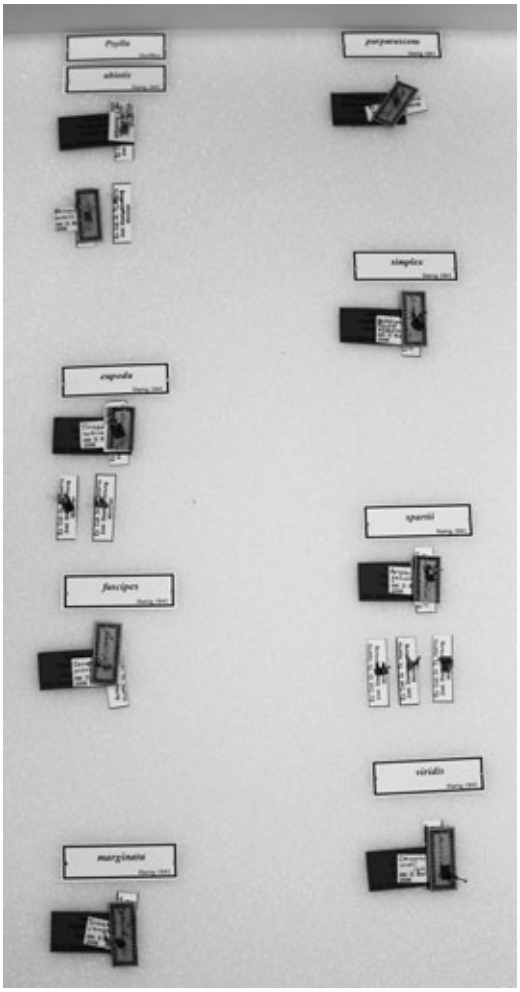

Fig. 2. Psyllid types of T. Hartig.

Trioza remota Foerster, 1848, nomen protectum

Psylla marginata Hartig, 1841: 374; lectotype ♂, here designated; **nomen oblitum**, **syn. nov**.

Psylla simplex Hartig, 1841: 374; lectotype ♀, here designated; Braunschweig; **nomen oblitum**, **syn. nov**.

Comments. *Psylla marginata* Hartig and *Psylla simplex* Hartig are both senior synonyms of the species currently known as *Trioza remota* Foerster. In accordance with article 23.9 of the ICZN (1999) the prevailing usage of the name *Trioza remota* must be maintained as the following conditions are both met: the senior synonyms *Psylla marginata* and *Psylla simplex* have not been used as valid names after 1899, and the junior synonym *Trioza remota* has been used for this particular taxon, as its presumed valid name, in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years (Burckhardt 1983, 1989, Burckhardt & Lauterer 2004, Conci et al. 1996, Dobreanu & Manolache 1962, Gegechkori & Loginova 1990, Hodkinson & White 1979, Klimaszewski 1967, 1969, 1973, 1975, Lauterer 1977, Loginova 1964, Malenovský 1999, 2006, Maryańska-Nadachowska et al. 1996, Maryańska-Nadachowska & Głowacka 1997, Ossiannilsson 1992, Poddubnyi 1989, Ramírez Gómez 1960, Seljak 2006, Wagner & Franz 1961, White & Hodkinson 1982, Wyniger et al. 2003, Zeidan-Gèze & Burckhardt 1998).

Trioza urticae (Linnaeus, 1758)

Psylla eupoda Hartig, 1841: 374; lectotype ♀, paralectotypes 1♂, 1♀, here designated; *Prunus spinosa*; synonymised with *Trioza urticae* (Linnaeus) by Flor (1861).

Trioza eupoda (Hartig); Foerster, 1848: 82.

Comments. The synonymy of *Psylla eupoda* with *Trioza urticae* proposed by Flor (1861) is confirmed.

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Appendix 1

List of specimens present in the Hartig psyllid collection. The material is listed in the sequence found in the box using Hartig's names. For each pin the number of specimens and labels are given, text on the labels is cited in quotation marks, the labels added by me in the context of the revision are listed after a dash; ID = currently valid name.

Psylla alni (L.)

ID: *Psylla alni* (Linnaeus)
9 pins
pin 1: 1 pinned ♀; large square yellowish label with bord "Alni Linn."
pin 2: 1 pinned ♀; no label
pin 3: 1 pinned ♀; small square reddish label "334"
pin 4: 1 fifth instar larva mounted on a small acetate sheet; small square reddish label "338"
pin 5: 1 pinned fifth instar larva; small square reddish label "328"
pin 6: 1 pinned fifth instar larva; no label
pin 7: 1 pinned fifth instar larva; no label
pin 8: 1 pinned fifth instar larva; small square reddish label "265"
pin 9: 1 pinned ♀; small square blue label "1659"

Ps. viridis m.

ID: *Cacopsylla mali* (Schmidberger)
1 pin
pin 1: 1 pinned ♀; small square brown label "1109", large square yellowish label with bord "viridis m." – "lectotype Psylla viridis Hartig, des. D. Burckhardt 2006", "Cacopsylla mali (Schmidberger), det. D. Burckhardt 2006"

Ps. fuscipes m.

ID: *Cacopsylla moscovita* (Andrianova)
1 pin
pin 1: 1 pinned ♂; small square light brown label with two pencil lines, large square yellowish label with bord "fuscipes m." – "lectotype Psylla fuscipes Hartig, des. D. Burckhardt 2006", "Cacopsylla moscovita (Andrianova), det. D. Burckhardt 2006"

Ps. simplex m.

ID: *Trioza remota* Foerster
1 pin
pin 1: 1 pinned ♀; small square brown label with one ink line, large square yellowish label with bord "simplex m." – "lectotype Psylla simplex Hartig, des. D. Burckhardt 2006", "Trioza remota Foerster, det. D. Burckhardt 2006"

Ps. marginata m.

ID: *Trioza remota* Foerster
1 pin
pin 1: 1♂ on card point; small square brown label with one ink line, large square yellowish label with bord "marginata m." – "lectotype Psylla marginata Hartig, des. D. Burckhardt 2006", "Trioza remota Foerster, det. D. Burckhardt 2006"

Ps. eupoda m.

ID: *Trioza urticae* (Linnaeus)
3 pins
pin 1: 1 pinned ♀; small square brown label "1122", large square yellowish label with bord "eupoda m." – "lectotype Psylla eupoda Hartig, des. D. Burckhardt 2006", "Trioza urticae (Linnaeus), det. D. Burckhardt 2006"
pin 2: 1♂ on card point; small square brown label with one ink line. – "paralectotype of Psylla eupoda".
pin 3: 1♀ on card point; small square brown label. – "paralectotype of Psylla eupoda".

Ps. Spartii m.

ID: *Arytaina genistae* (Latreille)
3 pins
pin 1: 1♂ on card point; small square brown label, large square yellowish label with bord "spartii m." – "lectotype Psylla spartii Hartig, des. D. Burckhardt 2006", "Arytaina genistae (Latreille), det. D. Burckhardt 2006"

pin 2: some legs on card point; small square brown label with one ink line. – "paralectotype of Psylla spartii".
pin 3: 3 pinned damaged adults. – "paralectotypes of Psylla spartii".
pin 4: 3♂ and 1 ♀ pinned; small square blue label "1218". – "paralectotypes of Psylla spartii".

Ps. purpurascens m.

ID: *Aphalara purpurascens* (Hartig)
1 pin
pin 1: 1 pinned ♀; small square green label "14", large square yellowish label with bord "pupurascens m." – "holotype Psylla pupurascens Hartig, labelled by D. Burckhardt 2006"

Ps. Abietis

ID: *Rhinocola aceris* (Linnaeus)
3 pins
pin 1: a card point without specimen; small square yellow label "714", large square yellowish label with bord "abietis m." – "Rhinocola aceris (Linnaeus), det. D. Burckhardt 2006"
pin 2: 1 pinned ♂; small square green label "163" – "lectotype Psylla abietis Hartig, des. D. Burckhardt 2006"
pin 3: 1 pinned ♀. – "paralectotypes of Psylla abietis".

Livia juncorum Latr.

ID: *Livia junci* (Schrank)
5 pins
pin 1: 1♂ on card point; large square yellowish label with bord "Juncorum L." – "Livia junci, det. D. Burckhardt 2006"
pin 2: a card point without specimen; small square reddish label "1011"
pin 3: 1♀ on card point; small square reddish label "1197"
pin 4: 1♂ on card point
pin 5: 1♀ on card point