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<th>TYPE SPECIMENS OF PSOCOPTERA DESCRIBED BY H. OKAMOTO IN HOKKAIDO UNIVERSITY INSECT COLLECTION</th>
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Abstract


Psocid species described by Hanjiro Okamoto are listed. Type specimens of 20 species of the altogether 34 Okamoto's psocid species are confirmed to exist in the Hokkaido University Insect Collection.

Author's address. Systematic Entomology, Graduate School of Agriculture, Hokkaido University, Sapporo, 060-8589, Japan.
INTRODUCTION

In the early 1900's, psocopteran fauna in Japan was studied mainly by two specialists, the German entomologist Günther Enderlein and his Japanese colleague Hanjiro Okamoto, who together laid the foundation of psocidology in Japan. The latter author described 34 new psocopteran species from Japan, Taiwan and Sakhalin in his three publications (Okamoto, 1907, 1910; Okamoto and Kuwayama, 1924). In these papers, he did not indicate the type depository, but many type specimens are stored in the Laboratory of Systematic Entomology of Hokkaido University, or Hokkaido University Insect Collection (SEHU).

Descriptions of Psocoptera at that time were mainly based on some prominent external characters, such as coloration, forewing venation etc., and informations of genital characters which are very important taxonomically and phylogenetically were rarely provided. Therefore, reexamination of type specimens is required for present-day works concerning these species. However, Okamoto did not attach type labels to the specimens and, in some cases, label data are scanty and written in Japanese letters (Kanji or Katakana: Yoshizawa, 2001). Consequently, recognition of type specimens of Okamoto's Psocoptera is difficult, especially for those who cannot read Japanese writing and/or are not skilled in identifying psocids.

In the following, I provide a list of all psocid species described by Okamoto and label data of all available type specimens to facilitate future studies. Under the 4th edition of the International Code of Zoological Nomenclature (1999), lectotype designation must contain an express statement of the taxonomic purpose of the designation (74.7.3). The purpose of the present paper is merely to give a list of these type specimens without taking taxonomic decisions. Therefore, lectotype designation is not made in this paper. If necessary, it should be done in future revisional studies concerning Okamoto's material.

GENERAL COMMENTS

All psocopteran specimens confirmed in this paper are dried, each mounted on a micropin (Yoshizawa, 2001, 2002) with only one exception glued on a paper card. Prior to the present examination, most specimens possibly examined by Okamoto and preserved in SEHU were accumulated in one box labeled as "Psocoptera" (the "Psocoptera box" in the following text), and many of them were identified and pinned under or on large name labels (about 20 mm x 45 mm in size) written by Okamoto (Yoshizawa, 2001). However, some other specimens possibly examined by Okamoto were placed in inappropriate boxes, such as those of Homoptera, Neuroptera etc. For example, the holotype of Caecilius annulicornis was discovered in a neuropteran box. Now, all discovered psocopteran specimens possibly examined by Okamoto and preserved in SEHU are accumulated into three boxes, each including (1) types (and also non-type specimens accompanying the type specimens), (2) identified non-type specimens, and (3) other specimens originally placed in the "Psocoptera box". Types and identified specimens are sorted by species and are placed in a unit box together with their corresponding species-name label.
Species names are alphabetically ordered based on the original species name given by Okamoto. If Okamoto's species has been synonymized or is now transferred to a genus different from the original one (Lienhard & Smither, 2002), the valid name of the current combination is indicated within brackets after the original name. Format of the label data is as follows: label data are noted following the *Type(s)* heading and number and sex of the specimen(s); double slash (//) shows change of line; colon (:) shows changing side (upper: under) of a label; if more than one label are attached to the specimen, a sequence of labels is indicated by numbers within brackets, from the top to the bottom; some remarks are also noted within brackets. For all the type specimens recognized in the present work, a new label is attached (Holotype or Syntype(s)// Genus// species Okamoto, 1907 or 1910// (det. K. Yoshizawa, 2002) [Yoshizawa's handwriting]), but data of this label are not included in the following list. At the end of each species section, the bases of type specimens recognition are discussed (*Notes*).

14 Okamoto's species could not be found in SEHU. However, as mentioned above, Okamoto did not mention the type depository in his papers and thus, undiscovered type specimens might be preserved in other institutes or in his personal collections. In the following, I provide a complete list of Okamoto’s psocopteran species, including the species of which type specimens could not be found in SEHU, to attract the attention.

**List of psocid species described by Okamoto and their type specimens**

*Amphigerontia ficivorella* Okamoto, 1907 [= *Psococerastis ficivorella* (Okamoto)]

*Type.* 1 female. Formosa// Matsumura [typewritten]: Koshun [in Kanji, Matsumura’s handwriting].

*Data in the original description.* Formosa (Shinsha), 24. Juli, 1906 (1 ♂); (Koshun), 6. Juli, 1906 (3 ♀), gesammelt von Herrn Prof. Dr. S. Matsumura.

*Notes.* The above-mentioned specimen is pinned on the name label of "Amphigerontia ficivorella Okam.". Although collecting date is not noted, label data of the specimen do not contradict the original description. The external features of the specimen also agree with the original description. Thus, the specimen can be considered as one of syntypes of *A. ficivorella*. I could not find other possible syntype specimens of this species.

*Amphigerontia jezoensis* Okamoto, 1907

*Type.* Not found.

*Data in the original description.* Ziozankei, 10. Juli, 1907 (1 ♂) und (7 ♀), gesammelt vom Verfasser.

*Amphipsocus formosanus* Okamoto, 1910

*Type.* 1 female. Formosa// Matsumura [typewritten]: 25.4.07// Kuyania [in Katakana, Matsumura’s handwriting].

*Data in the original description.* Formosa: Kuyania, 2 ♀ am 25. April 1907 von Herrn Prof. Dr. S. Matsumura gesammelt.

*Notes.* The above-mentioned specimen is pinned on the name label of
"Amphipsocus rubrostigma Okam.". The label data and external features of the specimen are in complete agreement with the original description. Thus, the specimen can be considered as one of the syntypes of *A. formosanus*. The second syntype specimen could not be found.

**Amphipsocus rubrostigma** Okamoto, 1910 [= *Amphipsocus japonicus* (Enderlein, 1906)]


*Data in the original description.* Moji, am 18. Juli 1906; Takasago, im Aug. 1904 und Kyoto in 1907, mehrere Exemplare von Herrn Prof. Dr. S. Matsumura und Herrn M. Suzuki gesammelt.

*Notes.* See Yoshizawa (2001).

**Caecilius annulicornis** Okamoto, 1910 [= *Valenzuela okamotoi* (Banks, 1937)]


*Data in the original description.* Formosa: Hoppo, 1 ♀ am 6. Mai 1907, und Daitei, 1 ♀ am 7. Mai 1907 von Herrn Prof. Dr. S. Matsumura gesammelt.

*Notes.* The specimen was preserved in a neuropteran box. In the "Psocoptera box", there was a name label of this species written by Okamoto, and one male specimen was pinned under it. However, label data and the sex of the specimen do not agree with those in the original description (Formosa/Matsumura: 30.iv.'07/// Hori), although the external features of the specimen agree with the original description. Both the external features and label data of the female specimen regarded here as a syntype of this species are in complete agreement with the original description. The second syntype specimen could not be found.

**Caecilius badiostigma** Okamoto, 1910 [= *Valenzuela badiostigma* (Okamoto)]

*Type.* Not found.

*Data in the original description.* Moji, 1 ♀ am 18. Juli 1906 von Herrn Prof. Dr. S. Matsumura entdeckt.

**Caecilius flavidorsalis** Okamoto, 1910 [= *Valenzuela flavidorsalis* (Okamoto)]

*Type.* Not found.

*Data in the original description.* Totomi, 2 ♀ und 5 ♂ im Aug. 1906 von Herrn W. Ishida gesammelt.

**Caecilius gracilis** Okamoto, 1910 [= *Valenzuela gracilis* (Okamoto)]

*Type.* 1 male. 21/10 1906/// Sap [Okamoto’s handwriting].

*Data in the original description.* Sapporo, 3 ♂ und 1 ♀ am 21. Okt. 1906 von Autor gesammelt.

*Notes.* Only one male specimen is pinned on the name label of "Caecilius gracilis Okam.". Label data of the specimen exactly agree with the original description ("Sap" is undoubtedly an abbreviation of "Sapporo"). The external features of the specimen
also agree with the original description. Thus, the above-mentioned specimen can be considered as one of the syntypes of *C. gracilis*. No other syntypes could be found.

*Caecilius kamakurensis* Okamoto, 1910 [= *Valenzuela kamakurensis* (Okamoto)]

*Type.* 1 male (= Holotype). Japan// Matsumura [typewritten]: Kamakura// 6/20 [in Katakana, Matsumura's handwriting].

*Data in the original description.* Kamakura, 1 ♂ am 20. Juni 1904 von Herrn Prof. Dr. S. Matsumura gefunden.

*Notes.* In the "Psocoptera box", there is no name label of *C. kamakurensis*. However, I discovered the above-mentioned specimen in the box, of which the label data and the external features are in agreement with the original description. Therefore, I considered the specimen to be the type specimen of the species. Since *C. kamakurensis* was described based on one male specimen, the specimen is regarded as the holotype.

*Caecilius luteovenosus* Okamoto, 1910 [= *Valenzuela luteovenosus* (Okamoto)]

*Type.* Not found.

*Data in the original description.* Akashi, 2 ♀ im Juli 1903 von Herrn Prof. Dr. S. Matsumura gesammelt.

*Caecilius nigricornis* Okamoto, 1910 [= *Valenzuela nigricornis* (Okamoto)]

*Type.* Not found.

*Data in the original description.* Tokyo, 1 ♀ im Jahre 1903 von Herrn Prof. Dr. S. Matsumura erbeutet.

*Caecilius stigmatus* Okamoto, 1910 [= *Valenzuela stigmatus* (Okamoto)]

*Type.* Not found.

*Data in the original description.* Kamakura, 2 ♂ am 20. Juni 1904 von Herrn Prof. Dr. S. Matsumura gesammelt; Iwamizawa bei Sapporo, 3 ♀ am 27. Aug. 1907 von Autor auf einem Apfelbaume gefunden.

*Cerastipsocus hakodatensis* Okamoto, 1907 [= *Sigmatoneura kolbei* (Enderlein, 1906)]

*Type.* Not found.


*Notes.* In the "Psocoptera box", there was a name label of this species, and one female specimen was pinned on it. Although the specimen was collected at Hakodate, the type locality of the species, sex and collecting date of the specimen do not agree with the original description (10.viii.'06: Hakodate [in Katakana]). Thus, the specimen cannot be the type.

*Cerastipsocus singularis* Okamoto, 1907 [= *Sigmatoneura kolbei* (Enderlein, 1906)]

*Type.* 1 female. 21/vii 1906// Shoka [Matsumura's handwriting]: Formosa// Matsumura [typewritten].

*Data in the original description.* Kagoshima, am 10. Juli, 1903 (1 ♀ ) und Formosa (Shōka), am 20. Juli, 1906 (1 ♀ ), gesammelt von Herrn Prof. Dr. S. Matsumura.

*Notes.* The above-mentioned specimen is pinned on the name label of "Cerastipsocus singularis Okam.". Label data of the specimen exactly agree with the
original description. The external features of the specimen also agree with the original
description. Thus, the specimen is undoubtedly one of two syntypes of C. singularis. The
second syntype of this species could not be found.

Copostigma hyalinum Okamoto, 1907 [= Clematostigma hyalinum (Okamoto)]

Type. 1 ex. Formosa// Matsumura [typewritten]: Koshun [in Kanji, Matsumura's handwriting].

Data in the original description. Formosa (Koshun, 7. Juli, 1906), gesammelt (3 ♂ und 1 ♀) von Herrn Prof. Dr. S. Matsumura.

Notes. The above-mentioned specimen is pinned on the name label of "Copostigma hyalinum Okam.". Although collected date is not noted, label data of the specimen do not
contradict with the original description. The external feature of the specimen also agree
with the original description and thus I consider the specimen as one of four syntypes of
C. hyalinum. No additional syntypes of this species could be found.

Copostigma subcostalis [sic!] Okamoto, 1907 [= Clematostigma subcostale (Okamoto)]

Type. 1 female. Formosa// Matsumura [typewritten]: Tainan// 21.v.'07 [Matsumura's handwriting].

Data in the original description. Formosa (Tainan), gesammelt am 21. Mai, 1907 (2 ♀ und 1 ♂) von Herrn Prof. Dr. S. Matsumura.

Notes. The above-mentioned specimen is pinned on the name label of "Copostigma subcostalis Okam.". The label data and external feature of the specimen agree with
the original description. Thus, the specimen is undoubtedly one of two syntypes of C.
subcostalis. The second syntype of this species could not be found.

Dypsocus tappanensis Okamoto, 1910

Type. Not found.

Data in the original description. Formosa: Tappan, 1 ♀ am 10. Okt. 1906 von Prof. Dr. S. Matsumura erbeutet.

Epipsocus fasciicornis Okamoto, 1910

Type. 1 male: 06 [stamped].

Data in the original description. Kyoto, 1 ♂ und 1 ♀ im Okt. 1906 von Herrn M. Suzuki gesammelt.

Notes. The above-mentioned specimen is pinned on the name label of "Epipsocus fasciicornis Okam.". The label data of the specimen is extremely scanty, and quality
of the label paper and data format are apparently different from those of the other type specimens identified in this work. However, the external feature of the specimen are in
agreement with the original description, although all wings are almost missing, and no
other specimens that can be considered as the syntypes of this species could be found.
Therefore, I consider the specimen as one of two syntypes of E. fasciicornis.

Hemicaecilius suzukii Okamoto, 1910 [= Mepleres suzukii (Okamoto)]

Type. Not found. See Yoshizawa (2000).

Data in the original description. Kyoto, 2 ♀ im Okt. 1906 von Herrn M. Suzuki gesammelt.
Kodamaius brevicornis Okamoto, 1907
   Type. Not found. See Yoshizawa (2001).
   Data in the original description. Formosa (Tainan), 18. Juli, 1906 (2 ♂ und 4 ♀ ),
   gesammelt von Herrn Prof. Dr. S. Matsumura.

Kodamaius pilosus Okamoto, 1907
   // Kodamaius// pilosus Okamoto, 1907// (det. K. Yoshi 2001) [Yoshizawa's handwriting].
   Data in the original description. Akashi (Juli, 1903, 1 ♀ ), gesammelt von Herrn
   Prof. Dr. S. Matsumura und 2 ♀ Exemplare aus Kyoto (Oct. 1906) gesammelt von Herrn
   M. Suzuki.

Kolbea kagoshimensis Okamoto, 1910 [= Pseudocaecilius kagoshimensis
   kagoshimensis (Okamoto)]
   kagoshimensis// (Okamoto, 1910)// (det. K. Yoshizawa, 1995 [typewritten]; 1 male (possibly one of the syntypes).
   Pseudocaecilius kagoshimensis// (Okamoto, 1910)// det. K. Yoshizawa, 1995 [typewritten].
   Data in the original description. Kagoshima, 3 ♂ und 1 ♀ am 10. Juli 1903; Moji, 1
   ♀ am 18. Juni 1906. Alle von Herrn Prof. Dr. S. Matsumura gesammelt.

Mesocaecilius quadrimaculatus Okamoto, 1910
   Type. 1 female. Formosa// Matsumura [typewritten]: 7. 4. 07// Toroen [in Katakana,
   Matsumura's handwriting].
   Data in the original description. Formosa, Toroen, am 7. April 1907 und Horisha,
   am 2. Mai 1907, je 1 ♀ von Herrn Prof. Dr. S. Matsumura gefunden.
   Notes. The above-mentioned specimen and three non-type conspecific specimens
   are pinned under the name label of "Mesocaecilius quadrimaculatus Okam.". Among
   these four specimens, label data of one specimen exactly agree with the original
   description. The external features also agree with the original description. Thus, the
   specimen is apparently one of the syntypes of M. quadrimaculatus. The second syntype
   could not be found.

Micropsocus flaviceps Okamoto, 1910 [= Ectopsocus flaviceps (Okamoto)]
   Type. Not found.
   Data in the original description. Sapporo, 1 ♀ am 2. Okt. 1906 von Herrn S.
   Mitsuhashi erbeutet.

Peripsocus ignis Okamoto, 1910
   Type. Not found.
   Data in the original description. Ochiai (Insel Yezo), 4 ♀ am 30. Aug. 1907 von
   Autor gesammelt.

Psocus capitatus Okamoto, 1907 [= Psococerastis capitata (Okamoto)]
   Type. 1 female (= Holotype). Formosa// Matsumura [typewritten].
Data in the original description. Formosa, Juli, 1906 (1 ♀), gesammelt von Herrn Prof. Dr. S. Matsumura.

Notes. The above-mentioned specimen is pinned on the name label of "Psocus capitatus Okam.". Although collecting date is not noted, other label data do not conflict with the original description. The specimen is badly damaged, and only the head and part of thorax remain. The head is clearly that of female Psocidae, and its color pattern agrees with the original description. No other specimen that can be considered as the type of this species could be found. Thus, I consider the specimen as the type of *P. capitatus*. The original description of this species was based on one female specimen and thus the specimen is the holotype.

*Psocus formosanus* Okamoto, 1907 [= *Psocidus formosanus* (Okamoto)]

Type. 1 male. Formosa// Matsumura [typewritten]: Koshun [in Kanji, Matsumura's handwriting].

Data in the original description. Formosa (Koshun), 29, Juni 1906 (3 ♂), gesammelt von Herrn Prof. Dr. S. Matsumura.

Notes. The specimen is pinned on the name label of "Psocus formosanus Okam.". Although label data lack collecting date, locality and collector's informations agree with those in the original description. The external features of the specimen also agree with the original description of *Pformosanus*. Thus, the specimen is considered to be one of three syntypes of *P formosanus*. I could not find the other syntypes of this species.

*Psocus grandis* Okamoto, 1907 [= *Psococerastis nubila* (Enderlein, 1906)]

Type. 1 female. Japan// Kuwayama [typewritten].


Notes. Among 10 specimens pinned under the name label of "Psocus grandis Okam.", the above-mentioned specimen only has a label not conflicting with the original description. The external features of the specimen also agree with the original description and thus the specimen is considered to be one of two syntypes of *P. grandis*. The second syntype of this species could not be found. As mentioned above, most of Okamoto's type specimens are mounted on micropins, but the type specimen of this species is glued on a small paper card. Some of the non-type specimens pinned under the name label of *P. grandis* are species of the genus *Metylophorus* but for the present they remain under the name label of *Psocus grandis*.

*Psocus mali* Okamoto, 1907 [= *Psococerastis mali* (Okamoto)]

Type. Not found.


Notes. A specimen is pinned under the name label of "Psocus mali Okam.", and label data of the specimen (Sapporo// 10/3 [Matsumura's handwriting]) do not conflict with the original description. However, the sex of the specimen is female. Therefore, the specimen cannot be a type.

*Psocus mitsuhashianus* Okamoto, 1907 [= *Sigmatoneura mitsuhashiana* (Okamoto)]

Shokkaku shibu ijou aritaru mo oretari [in Kanji and Katakana, handwriting: it means "antennae longer than 12 mm but missing"].


Notes. The above-mentioned specimen is pinned under the name label of "Psocus mitsuhashianus Okam.". Label data of the specimen exactly agree with the original description. The external features of the specimen are also in agreement with the original description of the species. Description of _P. mitsuhashianus_ was based on one male specimen. Thus, the specimen can be considered as the holotype of _P. mitsuhashianus._

_Focus pellucidus_ Okamoto, 1907 [= _Psocidus pellucidus_ (Okamoto)]

Type. 1 female. Late [in Kanji]/vii 1905// Towada [Matsumura’s handwriting].

Data in the original description. Sapporo, 10. Juli, 1903 (1♀); 30. Juli, 1903 (1♀); Towada, 25. Juli, 1905 (1♀); gesammelt von Herrn Prof. Dr. S. Matsumura.

Notes. Three specimens are pinned under the name label of "Psocus pellucidus Okam.". Among these three specimens, label data of one specimen completely agree with the original description. The external features of the specimen also agree with the original description. Thus, I consider the specimen as one of the syntypes of _P. pellucidus_. The other syntypes of this species are not found.

_Focus saghaliensis_ Okamoto & Kuwayama, 1924

Type. Not found.

Data in the original description. 5 males 3 females, Nakazaro, Odomari district, 2. ix. 1921, S. Kuwayama.

Notes. In the original description, the authors noted that the type series were alcoholic specimens and preserved in the collections of both authors. I thus searched alcoholic specimens stored in SEHU but could not find any specimen of this species.

_Focus tateokanus_ Okamoto, 1907 [= _Psocidus tateokanus_ (Okamoto)]


Data in the original description. Zahlreiche Exemplare in meiner Sammlung aus Tateoka, gesammelt auf einem alten Zaun am 5. Aug. 1906.

Notes. Twenty-three specimens are pinned under the name label of "Psocus tateokanus Okam.". Of them, label data of one specimen exactly agree with those in the original description. The external features of the specimen also agree with the original description. Twenty-two non-type specimens pinned under the name label of "Psocus tateokanus" contain more than one species (some are peripsocids and stenopsocids), but combinations between name label and specimens are kept in the original condition.

_Stephosocus nigricellus_ Okamoto, 1907

Type. 1 female (= Holotype). [1] Tokyo// 1903 [Matsumura’s handwriting].

Data in the original description. Tokyo (1), gesammelt von Herrn Prof. Dr. S. Matsumura.

Notes. The above-mentioned specimen is pinned on the name label of "Stephosocus nigricellus Okam.", and its label data and external features agree with the original description, although all wings are missing. Description of this species was based only
on one specimen. Thus, the specimen can be considered as the holotype of *S. nigricellus*.

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