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Source: Revue suisse de Zoologie, 125(1) : 149-153

Published By: Muséum d'histoire naturelle, Genève

URL: <https://doi.org/10.5281/zenodo.1196042>

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## The woodlice (Crustacea: Isopoda) described by Henri de Saussure and Jean Carl

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**Abstract:** Henri de Saussure and Jean Carl were both prolific taxonomists who worked on many groups. Both paid some attention to the terrestrial isopods, although neither was mainly concerned with the order Isopoda. The Muséum d'histoire naturelle de Genève contains type specimens of nine species described by Saussure and eleven species or subspecies described by Carl. All of the species described by the two are enumerated, the presence of type specimens is noted and the current nomenclatural combination for each species is given.

**Keywords:** Woodlice - Oniscidea - Geneva - type catalogue.

### INTRODUCTION

The Isopoda collection of the Muséum d'histoire naturelle de Genève (MHNG) is comparatively small but nonetheless rich in types. The early collections were rather limited, but the focus of more recent research on soil and cave faunas has resulted in a broad collection of the terrestrial Isopoda, albeit with an emphasis on the Palearctic region.

The Isopoda were among the groups collected by Henri de Saussure (1829-1905) during his expedition to the Antilles and Mexico in 1854-1856. Saussure worked on many groups including Hymenoptera, Orthoptera, Myriapoda and Crustacea (Hollier & Hollier, 2013), and described nine species of terrestrial Isopoda collected on his expedition. His exploration of cave faunas in Cuba marks the beginning of the long tradition of biospeleological research associated with the MHNG. Only one of the nine species described by Saussure is still valid. Saussure's specimens were originally directly pinned, but later card-mounted, and are still stored as dry specimens; although there are few labels on the pins, the other labels in the box provide important metadata allowing the specimens to be identified as types (see Fig. 1). Labels identifying specimens as syntypes have been added to the pins of the relevant specimens.

Jean Carl (1877-1944), assistant, curator and then deputy director at the MHNG from 1900 to 1944, followed Saussure in working on a variety of groups including the Orthoptera, Myriapoda and Crustacea. He also pioneered the study of cave and soil arthropods in Switzerland and founded the MHNG collection of Collembola. For

his study of the Swiss isopod fauna Carl examined the collections in the museums of Basle, Bern, Frauenfeld and Neuchâtel, as well as collecting in the field (Carl, 1908a). He made extended trips to Ticino in 1905 and 1907, concentrating particularly on caves. He was accompanied on these trips by Angelo Ghidini (1876-1916), who knew the region and was employed as his assistant (Carl, 1908a). Carl also studied specimens from the collection of Adrien Dollfus (1858-1921), himself a specialist on Isopoda. Dollfus' collection was eventually deposited in the Muséum national d'histoire naturelle in Paris (MNHN). Carl described sixteen species or subspecies of Isopoda, ten of which are currently valid. His monograph on the Swiss Isopoda (Carl, 1908a) was awarded the Schläfli prize. Most of Carl's type specimens are stored in alcohol, although many samples collected for his work on the Swiss fauna are now dry and may have always been.

More recently specimens from the MHNG Isopoda holdings have been studied by experts including Albert Vandel, Claudio Manicasteri, Stefano Taiti, Franco Ferrara and Helmut Schmalfuss, all of whom have deposited type specimens in the collection.

### CATALOGUE

The species are listed alphabetically and the type locality and type series information from the original description are given. Nomenclature for the current combinations follows Schmalfuss (2003).



Fig. 1. Isopoda collected by Henri de Saussure in Mexico and the Antilles. Photograph Philippe Wagneur.

*albidus gallicus* Carl, 1908b: 196-197, fig. 3 [*Trichoniscus*].

Cueva de Orobe [Spain] (coll. E. Simon). One ♂.

No specimens found in the MHNG. The holotype is presumably in the MNHN where Simon's collection is deposited.

A junior synonym of *Trichoniscoides cavernicola* (Budde-Lund, 1885)

*albidus helveticus* Carl, 1908a: 143-145, figs 43-46 [*Trichoniscus*].

Zürichberg, Frauenfeld, Genf, Crête du Locle [Switzerland]. More than one ♂ and ♀.

This taxon was raised to species level by Carl (1911: 25). The MHNG collection contains five specimens in alcohol, in two vials, under the name *Trichoniscus helveticus*. One vial, with one ♂ and three ♀ according to the label, has the locality "Zürichberg" and the date 11.X.05. The other specimen is without a precise locality, but the identification label is in Carl's handwriting and there is a typed label reading "coll. Carl." The specimens

in the first vial are syntypes and it seems likely that the other specimen is as well.

*Trichoniscoides helveticus* (Carl, 1908)

*aztecus* Saussure, 1857: 307 [*Porcellio*].

Mexique. Unspecified series.

Saussure (1858: 479) gave the more precise locality "Cordova, terres chaudes du Mexique". The MHNG has five card-mounted specimens under the name "mexicanus (Aztecus Sss.)", the specimens having originally been directly pinned. The species name label in the box has "Amer. centr., M H de Sauss." handwritten on it. Two of the specimens have a small printed label "Cordova t.c." and are syntypes, while the others have a small printed label "Haiti" and are therefore not part of the type series. Crustacea box 18.

A junior synonym of *Porcellio laevis* (Latreille, 1804)

*carinulatus* Saussure, 1857: 308 [*Pseudarmadillo*].

Mexique ou l'île de Cuba. Unspecified series.

The MHNG collection has one card-mounted specimen



under this name. The specimen was originally directly pinned and although it has a small printed label “Cuba” and “Cuba, M H de Saussure” handwritten on the species name label in the box: Saussure (1858: 484) stated that he could not remember the provenance. This specimen is a syntype. Crustacea box 20.

*Pseudarmadillo carinulatus* Saussure, 1857

**cavicolus** Carl, 1906: 604-604, figs 1-6 [*Mesoniscus*].

Höhle bei Tre Crocette, am Campo de Fiore ob Varese [Italy]. Unspecified number of ♂.

The MHNG has thirteen specimens in alcohol, in two tubes, under this name. One tube, with eleven specimens, has a typed label “*Mesoniscus cavicolus*, Carl, grotto Tre Crocette, Campo dei Fiori, Varese, Italie, mat. Carl”. These specimens are syntypes, despite the modern label. The other tube, with two specimens, is labelled “Grotta di Val Gamma 5.8.07” and as they were collected after the original description the specimens are not part of the type series.

A junior synonym of *Mesoniscus alpicola* (Heller, 1858)

**coecum** Carl, 1904: 327-329, figs 9-11 [*Ligidium*].

Höhle Kisil, Krim [Russia/Ukraine]. More than one specimen (size given as range).

The MHNG collection contains six specimens in alcohol, in two vials, under this name. The localities, handwritten on the identification labels, are “Grottes de la Crimée” and “Crimée, grottes, Carl” and the specimens are syntypes.

*Typhloligidium coecum* (Carl, 1904)

**cotillai** Saussure, 1857: 307 [*Porcellio*].

Cuba. Unspecified series.

Saussure (1858: 497) gave the type locality as “à l’entrée de la Grotte de Cotilla à huit lieues de la Havane”. The MHNG collection includes two specimens under this name; both are card-mounted, having originally been directly pinned. One has a small printed label with “Cuba”, the other is without labels. The species name label in the box has “Cuba, M H de Saussure” handwritten on it, and the specimens are syntypes. Crustacea box 18. A junior synonym of *Porcellio laevis* (Latreille, 1804)

**cristallinus** Carl, 1906: 607 [*Leucocyphonus*].

Grotta dell’Alabastro am Mte Generoso [Switzerland]. Two ♂.

Carl (1908a) mentioned further specimens, including ♀ specimens, from the Böggia cave near Meride in Ticino, Switzerland. The MHNG collection contains 16 specimens in alcohol under this name. They are in two vials, one with five specimens has the locality “Tessin mérid.” and “Grotte Meride” on the identification labels, the other, with 11 specimens, has the locality “Böggia bi Meride” and the date 8.IX.07. These are not part of the type series, and the whereabouts of the two syntypes is unknown.

A junior synonym of *Leucocyphonus verruciger* Verhoeff, 1900

**cubensis** Saussure, 1857: 306 [*Armadillo*].

Cuba. Unspecified series.

Saussure (1858: 482) gave the more precise locality “à l’entrée de la grotte de Cotilla, non loin de la Havane”.

The MHNG collection has four card-mounted specimens, originally directly pinned, under this name. The species name label in the box has “Cuba, M H de Saussure” handwritten on it. Three of the specimens have a small printed label “Cuba” and are syntypes, while the fourth has a small handwritten label “Mexico” and is therefore not a syntype. Crustacea box 20.

A junior synonym of *Cubaris murina* Brandt, 1833

**cubensis** Saussure, 1857: 307 [*Porcellio*].

Cuba. Unspecified series.

The MHNG has one card-mounted specimen under this name. The species name label in the box has “Cuba, M H de Saussure” handwritten on it and the specimen has a small printed label “Cuba”. This specimen is a syntype. Crustacea box 18.

A junior synonym of *Porcellio laevis* (Latreille, 1804)

**dollfusi** Carl, 1908b: 171-172, fig. 1 [*Leucocyphonus*].

Grottes de Choranche (Isère), Caves de Saint-Nazaire-en-Royans (Drôme) [France]. Two ♀.

The MHNG collection contains one specimen in alcohol under this name. The identification labels have “Caves de St. Nazaire” and “♀ Caves de Saint-Nazaire-en-Royans” handwritten on them, and the specimen is a syntype. There are also some more recently captured specimens, not part of the type series, under the name *Carltoniscus dollfusi*. The other syntype is presumably in the MNHN, where Dollfus’ collection is now deposited.

*Carltoniscus dollfusi* (Carl, 1908)

**eremitus** Carl, 1908b: 18-19, fig. 8 [*Trichoniscus*].

Grotte de Sirach [France]. One ♂ and one ♀.

No specimens found in the MHNG. The syntypes are presumably in the MNHN, where Dollfus’ collection is now deposited.

*Oritoniscus eremitus* (Carl, 1908)

**gibbosus** Carl, 1908a: 152-155, 8 figs in text [*Leucocyphonus*].

Grotta Tre Buchi, Grotte del Tanone (Monte Generoso) [Switzerland]. Unspecified number of ♂ and ♀.

The MHNG collection contains 15 specimens in alcohol, in two vials, under this name. The species name label in the jar has “Tessin mérid.” written on it, but both vials have “Grotta de Tanone” written on the labels in them, one giving the date as “6.IX.07”. There is also a label stating that the specimens were identified as “types” by A. Vandel in 1964. Since no holotype was designated, all of the specimens are syntypes.

*Calconiscellus gibbosus* (Carl, 1908)

**medius** Carl, 1908b: 19-21, fig. 9 [*Trichoniscus*].  
Grotte de Sirach [France]. Unspecified number of ♂ and ♀.

No specimens found in the MHNG. The syntypes are presumably in the MNHN, where Dollfus' collection is now deposited.

*Spelaeonthes medius* (Carl, 1908)

**mexicanus** Saussure, 1857: 307 [*Porcellio*].

Mexique. Unspecified series.

Saussure (1858: 480) gave the locality more precisely as "Cordova et dans les régions chaudes du Mexique". The MHNG collection has two card-mounted specimens under this name, the specimens having originally been directly pinned. There is a third card mount with a detached antenna and some legs. The species name label has "Amer. centr., M H de Sauss." handwritten on it. Both specimens have small printed labels "Cordova t.c." and are syntypes. Crustacea box 18.

A junior synonym of *Porcellio laevis* (Latreille, 1804)

**montesumae** Saussure, 1857: 307-308 [*Porcellio*].

Mexique (terres froides). Unspecified series.

Saussure (1858: 480) used the orthography "montezumae", gave the locality as "Tusitlan, à neuf lieues de Perote, dans les terres froides du Mexique", but also mentioned a specimen from near Cordoba. The MHNG has three card-mounted specimens, which were originally directly pinned, under this name, using the spelling "montezumae". One has a small printed label "Mexico t.f.", the second has a small handwritten label "Perote" and the third a small printed label "Cordova t.c." The species name label in the box has "Mexique, M H de Saussure" handwritten on it, and at least the first two specimens are syntypes. Crustacea box 18.

A junior synonym of *Porcellio scaber* Latreille, 1804

**poeyi** Saussure, 1857: 307 [*Porcellio*].

Cuba. Unspecified series.

The MHNG collection has one card-mounted specimen under the name "mexicanus (Poeyi Sss.)". The species name label has "Amer. centr., M H de Sauss." handwritten on it, and the specimen has a small printed label "Cuba". This specimen is a syntype. Crustacea box 18.

A junior synonym of *Porcellio laevis* (Latreille, 1804)

**propinquus** Carl, 1908b: 15-17, fig. 7 [*Trichoniscus*].

Grotte les Demoiselles (Viré, 1897), Nîmes (Chobaut) [France]. More than one ♂ and ♀.

The MHNG collection contains two specimens in alcohol, in one vial, under this name. Both identification labels in the vial have the locality "Grotte les Desmoiselles" handwritten on them, indicating that the specimens are syntypes. The other syntypes are presumably with the Dollfus collection in the MNHN.

*Phymatoniscus propinquus* (Carl, 1908)

**pruinosa** Carl, 1908a: 161-163, figs 69-71, 77, 155 [*Philoscia*].

Graubünden: Silvaplana-Moloja, St Moritz, Pontestrina, Cassacia, Viscosoprano Promotogno-Soligo Castasegna, Bernina-pass, Puschlav, Mesocco-Pian San Giacomo; Tessin: Val Blegno von Aquarossa, Leventina Faido-Rossura Piotta; St Gallen: Teufen [Switzerland]. Unspecified number of ♂ and ♀.

Carl (1911: 38) considered this name to be a junior synonym of *Philoscia germanicus* Verhoeff, 1896. *Philoscia germanicus* is currently regarded as a junior synonym of *Lepidoniscus minutus* (C. Koch, 1838). There are no specimens in the MHNG collection under any of those names. While it seems unlikely that all the specimens from so many localities have been lost, no type specimens could be identified in the MHNG collection.

*Lepidoniscus pruinosa* (Carl, 1908)

**rathkei transalpina** Carl, 1908a: 175-176 [*Porcellio*].

Muzzano, Carabbia am Monte Salvatore, Maroggia-Rovio, Monte Bré [Switzerland]. More than one ♀, some with juveniles.

Three vials containing syntypes were located amongst the dry material of the Carl duplicate collection, each with the identification label "Porcellio Rathkei var. transalpina" and the locality labels "Lugano, Carabbia, 6.IX.05", "Lugano – Muzzano, 3.9.05, Wald.Moos" and "Maroggia-Rovio 7.9.05." These specimens will be transferred to alcohol and placed in the main collection. This taxon is not listed in Schmalfuss (2003).

A junior synonym of *Trachelipus rathkii* (Brandt, 1833)

**roseus nanus** Carl, 1908a: 140-141, figs 8, 10 [*Trichoniscus*].

Frauenfeld, 12.x. Garten unter Brettern und Steinen, St. Gallen-Teufen, 9.x [Switzerland]. Unspecified number of ♂ and ♀.

Among the specimens in alcohol placed in the MHNG collection under the name *T. alpinus subterraneus* Carl, two vials (six specimens) were found with data labels "Frauenfeld 12.x.05, Garten unter Brettern und Steinen" and "St. Gallen, Teufen, 9.x.05" and the identification "Trichoniscus roseus var." These are obviously the syntypes of Carl's subspecies because these localities were not mentioned by Carl for *T. subterraneus* and so the vials have now been moved to a separate jar. The name was placed in synonymy with *T. carynthiacus* Verhoeff by Carl (1911: 28), itself a junior synonym of *A. roseus* (C. Koch). *T. roseus nanus* is not listed in Schmalfuss (2003), but was included as a synonym of *A. roseus* by Vandel (1960).

A junior synonym of *Androniscus roseus* (C. Koch, 1838)

**roseus subterraneus** Carl, 1906: 606-607 [*Trichoniscus*].

Grotten von Osteino, dell'Alabastro, del Mago, Tre buchi, Tonane; Grotte in Val Tazzino bei Lugano [Switzerland]. Unspecified sereis (only ♂ mentioned explicitly).

Among the specimens in alcohol placed in the MHNG collection under the name *T. alpinus subterraneus* Carl were two vials containing syntypes. These have labels reading “Grotta bi Val Tazzino bei Lugano, ♂” (one specimen) and “Grotta del Mago bei Mendrusio, 5.ix.05, ♀” (three specimens). These have now been moved to a separate jar. The other vials all have labels giving localities listed under *T. roseus* by Carl (1908a, 1911) rather than in the original description of *T. roseus subterraneus*. These labels have the identification *T. roseus* Koch written on them, and the specimens are not syntypes.

*Androniscus subterraneus* (Carl, 1906)

***sumichrasti*** Saussure, 1857: 307 [*Porcellio*].

Cuba. Unspecified series.

The MHNG has one card-mounted specimen under the name “cotillae (Sumichrasti Sss.)”. The specimen was originally directly pinned, and has a small printed label reading “Cuba” and a handwritten label “51”. The species name label in the box has “Cuba, M H de Saussure” handwritten on it, and the specimen is a syntype. Crustacea box 18.

A junior synonym of *Porcellio laevis* (Latreille, 1804)

***virei*** Carl, 1908b: 220-221, fig. 5 [*Trichoniscus*].

Grottes de Tharoux, Grottes de Padirac (Dr Viré), Tinodule de la Vayssière, Grottes inférieures d’Avejan (Dr Viré), Baumes-Chaudes (Dr Viré) [France]. Two ♂ and many ♀.

The MHNG collection contains four specimens in alcohol under this name. The vial contains a data label “Grotte de Tharoux, Gard, 2.viii.1903”, two identification labels with “Grotte de Tharoux, France” and “Grottes de Tharoux” written on them and an identification label “Trich. Virei Carl”. These specimens are syntypes. The other syntypes are presumably in the MNHN, where Dolfuss’ collection is now deposited.

*Oritoniscus virei* (Carl, 1908)

***vividus montanus*** Carl, 1908a: 141-143, figs 22-42, 157 [*Trichoniscus*].

St. Gallen-Teufen, Teufen-Gais, Frauenfeld, Zürichberg, Laubwald, Zürich, Genf, Bern [Switzerland]. Many ♂ and ♀.

The MHNG collection has more than 50 specimens in alcohol, in seven tubes, under the name *T. montanus*. All of the tubes have data labels corresponding to localities mentioned in the original description and most also have dates in [19]05 on the labels. These specimens are syntypes. This taxon was raised to species rank by Carl (1911: 23).

A junior synonym of *Hyloniscus riparius* (C. Koch, 1838)

## ACKNOWLEDGEMENTS

Thanks are due to Anita Hollier and Peter Schwendinger for comments on the text, Philippe Wagneur for the photograph and to Bernd Hauser for information on the history of the MHNG collections.

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