

# Collections unravelled: Loman's Pycnogonids

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## Abstract

Jan Cornelis Christiaan Loman (1856–1929) was a major contributor to our knowledge of sea spiders (Arthropoda, Pycnogonida) and to the collections of the Naturalis Biodiversity Center (NBC), Leiden. Loman worked on Pycnogonida material from various geographic origins, including southern Africa, the Antarctic Peninsula, Arctic seas, Southeast Asia, the Atlantic, Australia, the China Sea, Japan, and the Mediterranean Sea; he notably participated in the taxonomic study of samples from the Siboga Expedition, the Prince Albert I of Monaco expeditions, and the Swedish Antarctic Expeditions. In total, Loman described 54 sea spider species and six sea spider genera; 48 and three, respectively, are still regarded as valid today. In the present work, we aim to summarise Loman's outstanding contribution to sea spider taxonomy by listing all species he reported or described. We recovered a total of 162 records in NBC, 133 of which correspond to type material, including 19 holotypes and 37 syntypes. We further sought out all Loman's Pycnogonida material curated at NBC and located additional type material housed in institutions worldwide.

## Key Words

J.C.C. Loman, Pantopoda, Pycnogonida, type material, zoological collections

## Introduction

Natural History Collections (NHCs) are essential for the study of the biodiversity of our planet. They hold hundreds of millions of specimens that were sampled over the last ca. 270 years of biodiversity research. These materials are vital for the natural sciences, as the keystone of taxonomy (either morphological, molecular, or integrative), a major provider of material for phylogenomics, anatomy, and molecular biology, and a massive source of data for ecology. Critically, many NHCs are practically inaccessible due to the absence of documentation on the contents of the collections and the need to move to or send material from their curating institution. There is also a high risk that older material, for which trackability can be extremely tedious, may be temporarily or permanently lost. For these reasons, the systematic inventory and digitisation of NHCs are paramount

for the long-term preservation and accessibility of these materials and the continuation and repeatability of research that depends on them.

The Naturalis Biodiversity Center (NBC; Leiden, the Netherlands) hosts one of the most important collections of sea spiders (Arthropoda, Pycnogonida) in the world. Part of this material, including that of Paulus Peronius Cato Hoek (1851–1914), was deposited directly at NBC prior to the 1990s, when it was known as *Rijksmuseum voor Natuurlijke Historie* (RMNH). Other sea spider material was later transferred to NBC from the Zoological Museum of Amsterdam (ZMA); these collections include the material of Jan Cornelis Christiaan Loman (1856–1929) and Jan Hendrik Stock (1931–1997). Together, Hoek, Loman, and Stock described over 300 sea spider species, ca. 20% of their total known diversity, many of which are now curated at NBC.

The present work focuses on the contribution of J.C.C. Loman. Loman was a biology teacher at the Amsterdam Gymnasium. Little is known about him, except that he made several donations to the ZMA collection and that he studied not only Pycnogonida but also Platyhelminthes, Opiliones, and Tardigrada. He had a close connection with Heinrich Carl Redeke, who later became an authority in the field of freshwater ecology. Via Redeke, some of his collections were later donated to the ZMA in 1933. The contribution of Loman to Pycnogonida taxonomy is substantial. He authored 24 publications focused on sea spiders, in which 54 species and six genera were described (Tables 1, 2). Respectively, 48 and three are still regarded as valid at the time of this publication. The material studied by Loman originated from a wide diversity of geographic regions, including Southeast Asia, the Magellan Strait, South Africa, and the northeastern Atlantic (Fig. 1).

In 2024, a digitisation project was established and carried out at NBC to record all type material in the fluid collection. A total of 372 specimens were identified and recorded for sea spiders, all of which are now available online on Bioportal. However, not all type specimens are labelled as such, making their identification sometimes difficult, meaning that the actual number of type specimens may be considerably higher. Collections of slides were also not included in the project. Here, we update the 2024 digitisation project by producing a complete checklist of Loman's published material on sea spiders. This checklist notably includes the current taxonomic status of material hosted at NBC, collection specimen information, and further derivatives made from the original specimens, such as slides. Whenever possible, we matched the original material descriptions in publications with the physical specimens housed in the NBC collection. We also

include in this checklist all published type material not deposited at NBC that we were able to locate.

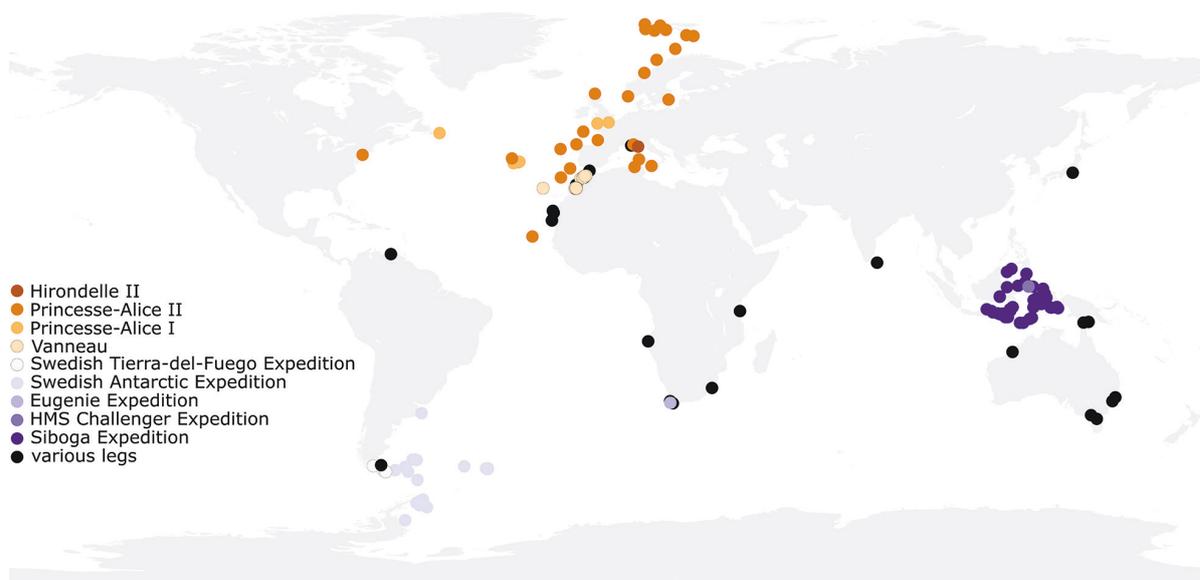
## Materials and methods

### Loman's material at the Naturalis Biodiversity Center

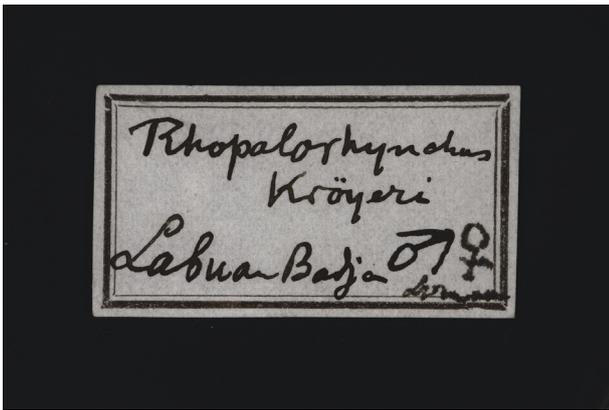
Loman's material at NBC is stored in 70% ethanol. Some of the original labels are still preserved (Figs 2, 3), providing insight into his handwriting. Most glass slides bear original labels with Loman's handwriting. These post-stamp-sized labels provide information on the original (type-) localities and, in most cases, include a note indicating that they belong to the type series. The fixation medium used by Loman for slide preparation is unknown. Some slides were later analysed, fixed, or remade by Stock; these are mounted in Faure's Medium.

## Checklist

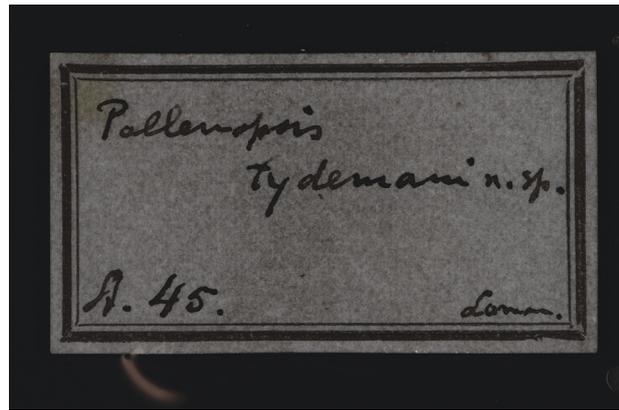
We compiled a list of all species described by Loman, including their type localities, sampling depths, and geographic coordinates, based on Loman's complete reference list (see Loman's work section). We specifically indicate type material hosted at NBC. We also list other material studied by Loman and housed at NBC and report the collection condition or preservation method used at the time of our study. Additional specimen-related data, such as specimen number, sex, or life stage, are reported when available. Further information is provided regarding current identification, type status, or other details that may be valuable for taxonomic studies. All slides were scanned and made digitally accessible on Bioportal: [bioportal.naturalis.nl](https://bioportal.naturalis.nl).



**Figure 1.** Geographical distribution of localities from which material was studied and described by J.C.C. Loman. Colours correspond to cruises as indicated in the in-figure caption; see text for explanations. Only localities with precisely definable locations were included, based on geographical coordinates or locality descriptions from Loman's publications or expedition reports.



**Figure 2.** Original label for *Rhopalorhynchus kroeyeri* Wood-Mason, 1873, ZMA.PYC.1309.



**Figure 3.** Original label for *Pallenopsis tydemani* Loman, 1908, ZMA.PYC.2548.

### Institution names are abbreviated

- GNHM** Gothenburg Natural History Museum.
- ISR** Institut Scientifique, Mohammed V University, Rabat.
- MNHN** Muséum national d’Histoire naturelle, Paris.
- MOM** Musée Océanographique de Monaco.
- NBC** Naturalis Biodiversity Center, Leiden.
- NRM** Swedish Museum of Natural History, Stockholm.
- RMNH** Rijksmuseum voor Natuurlijke Historie, Leiden, now known as NBC.
- ZMA** Zoologisch Museum Amsterdam (collections now hosted at the NBC).
- ZMH** Museum der Natur Hamburg.

### Identification of type material

According to the ICZN, and in particular Article 72, only material that is unambiguously extracted from type material can itself be considered as belonging to type material. However, it is very common for historical-type material not to be physically labelled as such, e.g. in the case of glass slides. In some cases, notably for the Siboga material studied by Loman, specimens that were extracted from a larger sample bear the original sample collection number physically indicated on the label, enabling the identification of specimens that originated from type material, e.g. for later preparation. In many other cases, however, this link to the original sample is not provided.

In such situations, we considered as unambiguously belonging to the type material all material that fulfils the following three criteria: 1) it is labelled as a new species, or equivalent, on the original label, with handwriting clearly attributable to the original author, here Loman; 2) the composition of the material is coherent with the indications provided in the original description, including the number of specimens, identified sexes, etc.; 3) it can be traced to the type locality, or to one of the original sampling localities in the case of syntypes. These criteria are applicable as long as the type material was not designated in the original description, resulting in syntype material, except for monotypic species,

as is the case for all taxa described by Loman and for much of the early taxonomic literature. Conversely, these criteria could not be applied when the type material was explicitly designated from among a wider collection of specimens.

## Results

### Loman’s work

Throughout his life, Loman studied material from a wide range of geographic origins and expeditions and published 24 references on pycnogonids, 18 of which include taxonomic content:

**Loman 1904a, 1906, 1908: the Siboga Expedition.** The Dutch Siboga Expedition took place in 1899–1900 and sampled across a large area between the southern Philippines, New Guinea, Timor, Java, and Borneo (Fig. 1). These specimens were initially housed at the ZMA, where they were studied by Loman in two descriptive papers (Loman 1904a, 1908). While Loman (1904a) included the description of one species and one genus, Loman (1908) treated material comprising 29 new species, four new genera, and one new subgenus (Tables 1, 2). Additional material, including four specimens of *Pallene* sp., was also published in Loman (1906). Most of Loman’s Siboga pycnogonids have been located in the NBC collections. The unidentified specimens of *Pallene* and some syntype specimens of *Parapallene hospitalis* could not be located, nor could additional specimens from the Indo-Pacific region published in Loman (1908). These specimens may have been reidentified by subsequent authors and overlooked during later re-examination of the collections.

**Loman 1904b: Weber material from South Africa.** Max Weber (1852–1937), then director of the ZMA, collected specimens of four pycnogonid species in South Africa in 1894 and made this material available to Loman. Loman identified two new species among this material (Table 1), resulting in a short publication (Loman 1904b). All specimens are currently housed at the NBC.

**Loman 1911: Doflein and Haberer material from the Sagami Bay.** Loman (1911) described historical material collected in Sagami and Osaka Bays, Japan, by Franz Doflein (1873–1924) and Karl Albert Haberer (1864–1941). This work includes three new species (Table 1), as well as the introduction of a *nomen novum* for a species originally described from the Siboga Expedition under a preoccupied name (Table 2). Glass slides of two type specimens are curated at the NBC and are well preserved. The location of the remaining material is currently unknown.

**Loman 1912, 1938: pycnogonids of the *Musée Océanographique de Monaco*.** Loman (1912) produced a descriptive account of material from the collections of the MOM, including species from the North Atlantic, the Mediterranean Sea, the English Channel, the Baltic Sea, and the North Sea. The report includes 25 species, of which two were new to science (Table 1). A glass slide forming part of the syntype series of *Ammonothea setulosa* Loman, 1912, has been located at the NBC. Other material from this study is curated at the MOM.

**Loman 1916: New Zealand material.** Loman (1916) described a new species from New Zealand (Table 1), the material of which is now housed at the NBC. In the same publication, Loman proposed a revision of the genus *Pal-lenopsis* and its subgenus *Rigona* (Table 2).

**Loman 1920: Swedish Expedition to Juan Fernandez Islands.** In 1920, Loman published a study of material collected during the Swedish Expedition to the islands of Chile, more specifically the Juan Fernández Islands (Loman 1920). This work resulted in the description of one new genus (Table 2) and two new species (Table 1). The curating institution for this material could not be determined.

**Loman 1923a: Swedish Antarctic Expeditions (1901–1903).** Loman studied a large number of specimens collected during the Swedish Antarctic Expeditions (1901–1903), published in Loman (1923a). The report includes five new species (Table 1) and provides insight into the diversity of pycnogonids in Antarctic waters. Specimens of species collected in large numbers were donated by Loman, or via Redeke, to the ZMA and subsequently to the NBC. Other material could only be partially located at the NRM.

**Loman 1923b: Other Swedish expeditions in South Africa and South America.** Loman identified four new species (Table 1) from material housed at the Swedish NRM. These specimens were collected during the Eugenie Expedition (1851–1853) in La Plata, the Strait of Magellan, off Valparaíso, and at the lighthouse of Cape

Town; the Swedish Tierra del Fuego Expedition (1895–1897); and by Johan August Wahlberg (1810–1856) in Port Natal in 1841. A single glass slide containing part of a syntype specimen and one non-type specimen was located. Additional material could be partially located at the NRM.

**Loman 1923c: Odhner's Australian material.** In the same year and in the same journal, Loman (1923c) published a short note on specimens received from Teodor Odhner (1879–1928) from Australia. This work includes the description of one new species (Table 1). The type material is currently housed at the NRM.

**Loman 1923d: Additional material from South and West Africa.** Loman (1923d) examined a small collection from the GNHM, sampled by Hilmner Nils Erik Skoog (1870–1927) in South and West Africa, in which he identified two species, neither of them new to science. Part of this material is curated at the GNHM; other specimens could not be located or are regarded as lost, with empty jars having been found (Lundin pers. com.).

**Loman (1925, 1928a, 1929): Material from Morocco and Mauritania.** During his later years, Loman studied pycnogonids from the Atlantic coast of Morocco and Mauritania, largely collected by the Vanneau expedition (1923–1926) and accessed through Robert-Philippe Dollfus (1887–1976). The first publication (Loman 1925) includes no new species and concludes that sea spiders from the Moroccan Atlantic coast do not differ significantly from those of Spain or the Mediterranean fauna. Loman (1928a) includes additional material collected by Dollfus together with Jacques Liouville (1879–1960) and describes one new species (Table 1). Loman (1929) presents a brief addendum with a small number of specimens and no new taxa. Most of this material is now stored at the ISR. Glass slides of *Ascorhynchus arenicola* (Dohrn, 1881), containing parts of a specimen, were located in the NBC collection. One specimen identified as *Ammonothea (Leonymphon)* sp. is curated at the MNHN.

**Loman 1928c: Venezuelan material.** Loman (1928c) described a new species from Venezuela (Table 1), collected by Jan Versluys (1873–1939). The material is currently housed at the NBC.

**Other work by Loman.** In addition to species descriptions, Loman authored species checklists for specific localities, anatomical studies, and other works related to Pycnogonida (Loman 1903, 1905, 1907, 1915, 1917, 1924, 1928b, 1938). These publications do not include additional material newly described by Loman.



**Table 2.** Genera described by J.C.C. Loman. When Loman's original names differ from the currently accepted valid names, these are also indicated.

Loman's references	New genus (or subgenus) described in publication	Valid names of genera (or subgenera) described in publication (when different)
1904a	<i>Pipetta</i>	<i>Pantopipetta</i> Stock, 1963
1908	<i>Cilunculus</i>	
	<i>Fragilia</i>	<i>Pycnofragilia</i> Hedgpeh, 1943
	<i>Pallenopsis</i> ( <i>Rigona</i> )	<i>Pallenopsis</i> Wilson, 1881
	<i>Scipiulus</i>	
1920	<i>Pycnothea</i>	

### Systematic checklist of Loman's material

All species are listed in alphabetical order according to the name combination originally used by Loman.

#### *Ammothea* Leach, 1814

*Ammothea brevicauda* Loman, 1904b: 376–378, Pl. 14, figs 1–4.

**Current accepted name.** *Achelia brevicauda* (Loman, 1904).

**Holotype.** SOUTH AFRICA • 1 ♂ (preserved in ethanol 70%); Eastern Cape, Port Elisabeth; ZMA.PYC.1082. 1 ♂ (animal parts); Eastern Cape, Port Elisabeth; potential parts of holotype fixed in glass slide ZMA.CRUS.P.6016

**Remarks.** ZMA.CRUS.P.6016 is not marked as type material; however, it shares the same locality information as the type locality and originates from Loman's collection.

#### *Ammothea fernandeziana* Loman, 1920: 142–144, fig. 2

**Current accepted name.** *Achelia fernandeziana* (Loman, 1920).

**Syntypes.** CHILE • 1 ♂ adult, 1 ♀ adult; Juan Fernández Islands, Masatierra; depth 30–45 m; 28 Aug. 1917; potential animal parts of syntype fixed in glass slide ZMA.CRUS.P.6012.

**Remarks.** Slide ZMA.CRUS.P.6012 was located with “n. sp.” written on it; this slide may be part of the type series. Syntypes were not located.

#### *Ammothea nana* Loman, 1908: 60–61, Pl. 1, figs 1–13

**Current accepted name.** *Achelia nana* (Loman, 1908).

**Syntypes.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); Selayar-anchorage and surroundings, including Pulu Pasi Tanette, near the North point of Selayar-island; depth up to 36 m; Siboga Expedition 1899–1900 leg.; Sta. 213; ZMA.PYC.1024. • 1 ♀ adult (preserved in ethanol 70%); Anchorage off North-Ubian; 6°07.5'N, 120°26'E; depth 16–23 m; Siboga Expedition 1899–1900 leg.; Sta. 99; ZMA.PYC.1025, animal parts fixed in glass slide ZMA.PYC.P.1054. • 4 specimens (preserved in ethanol 70%); Anchorage between this island and Sea of Ceram; depth 18 m; Siboga Expedition

1899–1900 leg.; Sta. 172; ZMA.PYC.1026, animal parts fixed in glass slide ZMA.PYC.P.1053, ZMA.PYC.P.1055, ZMA.PYC.P.1056, ZMA.PYC.P.1057 and ZMA.PYC.P.1058.

#### *Ammothea setulosa* Loman, 1912: 13–14.

**Current accepted name.** *Achelia setulosa* (Loman, 1912).

**Syntypes.** CAPE VERDE ISLANDS • 1 ♂ adult, 1 ♀ adult; “Calypso” Exp. leg.; Sta. 45; MOM-INV-0001361. 1 ♀ adult (animal parts); “Calypso” Exp. leg.; Sta. 45; potential parts of syntype fixed in glass slide ZMA.PYC.P.1019.

**Remarks.** Slide ZMA.PYC.P.1019 was located with the type locality information written on it; this slide may be part of the type series.

#### *Ammothea socors* Loman, 1908: 61–62, Pl. 1, figs 14–19

**Current accepted name.** *Achelia socors* (Loman, 1908)

**Holotype.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); Anchorage off Kelang Island, South coast of Manipa-Island; depth 36 m; Siboga Expedition 1899–1900 leg.; Sta. 184; ZMA.PYC.1023, animal parts fixed in glass slide ZMA.PYC.P.1052.

#### *Ammothea superba* Loman, 1911: 11–12, Pl. 1, figs 14–15, Pl. 2, figs 16–24

**Current accepted name.** *Achelia superba* (Loman, 1911).

**Syntypes.** JAPAN • 1 specimen; Sagami Bay, Enoshima; depth 80 m; syntypes not located. • 2 specimens; Sagami Bay, near Kotawa; depth 180 m; syntypes not located. • 2 specimens; Sagami Bay, near Jagoshima; depth 150 m; syntypes not located. • 1 specimen; Sagami Bay, Dzushi; depth 131 m; syntypes not located. • 2 specimens; Sagami Bay, Uruga-Kanal; depth 150 m; syntypes not located. • few specimens; Sagami Bay, Misaki; depth ca. 80 m; syntypes not located.

**Remarks.** ZMA.CRUS.P.5999, ZMA.CRUS.P.6000, ZMA.CRUS.P.6001, ZMA.CRUS.P.6002, and ZMA.CRUS.P.6003 are animal parts mounted on glass slides, most likely belonging to the syntype series of this species. However, the slides bear “Japan” and “n. sp.” on their labels and cannot be linked with certainty to specific specimens.

#### *Ammothea* (*Achelia*) Hodge, 1864 [Superseded rank; *Achelia* Hodge, 1864]

*Ammothea* (*Achelia*) *aspera* Loman, 1923c: 1–4, fig. 1.

**Current accepted name.** *Achelia aspera* (Loman, 1923).

**Holotype.** AUSTRALIA • 1 ♂ adult (preserved in ethanol 80%); N.W. Australia, Cape Jaubert; 19°S, 121°15'E; depth 99 m [54 fathoms]; NRM, coll. num. 852.

***Ammothea (Achelia) parvula* Loman, 1923b: 2–4. fig. A**

**Current accepted name.** *Achelia parvula* (Loman, 1923).

**Syntypes.** CHILE • 4 ♂ adults (preserved in ethanol 80%); E. Magellan Strait, Possession Bay; 10–11 m [6 fathoms]; Swedish Tierra-del-Fuego Expedition leg.; NRM, coll. num. 851. 1 ♂ adult (animal parts); E. Magellan Strait, Possession Bay; 10–11 m [6 fathoms]; Swedish Tierra-del-Fuego Expedition leg.; potential parts of syntype fixed in glass slide ZMA.CRUS.P.5984.

**Remarks.** Slide ZMA.CRUS.P.5984 was located with the type locality information and “n. sp.” written on it; this slide may be part of the type series.

***Ammothea (Ammothella) Verrill, 1900 [Superseded rank; Ammothella Verrill, 1900]***

*Ammothea (Ammothella) paradisiaca* Loman, 1923b: 4–6, fig. B.

**Current accepted name.** *Ammothella paradisiaca* Loman, 1923.

**Syntypes.** CHILE • 1 ♂ adult, 2 ♀ adults (preserved in ethanol 80%); Valparaiso; Eugenie-Expedition 1851–1853 leg.; NRM, coll. num. 853.

***Ammothea (Leionymphon) Möbius, 1902***

*Ammothea (Leionymphon) clausi* Pfeffer, 1889.

**Current accepted name.** *Ammothea clausi* Pfeffer, 1889.

**Non-type material.** SOUTH GEORGIA • 2 specimens (preserved in ethanol 70%); Cumberland Bay, Outside May Creek; 54°17'S. 36°18'W; depth 75 m; Swedish Antarctic Expedition 1901–1903 leg.; Sta. 22; RMNH.PYC.1147.

**Remarks.** Two specimens from the original lot of 25 specimens (Loman 1923a: 23) were located in the original ZMA collection.

***Anoplodactylus Wilson, 1878***

*Anoplodactylus anarthrus* Loman, 1908: 76–77, Pl. 4, figs 40–45.

**Holotype.** INDONESIA • 1 ♂ adult (whole organism fixed in glass slide); Timor, Semau Island, Haingsisi; depth 23 m; Siboga Expedition 1899–1900 leg.; Sta. 60; ZMA.PYC.P.1087.

***Anoplodactylus brevicollis* Loman, 1908: 74, Pl. 3, figs 29–32.**

**Holotype.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); Anchorage off Pulu Jedan, East coast of Aru-Islands, Pearl-Banks; depth 31 m; Siboga Expedition 1899–1900 leg.; Sta. 273; ZMA.PYC.1085.

***Anoplodactylus digitatus* (Böhm, 1879)**

**Non-type material.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); East Java; South of Kangean Island; 7°02.6'S, 115°23.6'E; depth 100 m; Siboga Expedition 1899–1900 leg.; Sta. 15; ZMA.PYC.1086.

**Remarks.** One specimen from the original lot (Loman 1908: 74–76, Pl. 2, figs 25–28) was located in the original Zoological Museum of Amsterdam collection.

***Anoplodactylus stylops* Loman, 1908: 71, Pl. 2, figs 20–24**

**Current accepted name.** *Anoplodactylus tubiferus* (Haswell, 1884).

**Synonym.** *Anoplodactylus pulcher* Carpenter, 1907.

**Syntypes.** INDONESIA • multiple ♂ and ♀ adults (preserved in ethanol 70%); Banda; depth 9–36 m; Siboga Expedition 1899–1900 leg.; Sta. 240; ZMA.PYC.1087, animal parts fixed in glass slides ZMA.PYC.P.1126, ZMA.PYC.P.1127, ZMA.PYC.P.1128 and ZMA.PYC.P.1134.

***Anoplodactylus versluysi* Loman, 1908: 73–74, Pl. 3, figs 33–39**

**Syntypes.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); East of Sumbawa; 8°30'S, 119°07.5'E; depth 73 m; Siboga Expedition 1899–1900 leg.; Sta. 310; ZMA.PYC.1092. • 1 ♂ adult and 1 ♀ adult (preserved in ethanol 70%); Haingsisi auf Semau, nahe Timor; Siboga Expedition 1899–1900 leg.; Sta. 303; ZMA.PYC.1093. • 1 ♂ adult (whole organism fixed in glass slide); Makassar Strait, Sebangkatan Island, Borneo Bank; depth 34 m; Siboga Expedition 1899–1900 leg.; Sta. 81; ZMA.PYC.P.1129, animal parts fixed in glass slides ZMA.PYC.P.1131 and ZMA.PYC.P.1145. • 1 ♀ adult (whole organism fixed in glass slide); South of Selayar Islands; 65.7°S [*sic*; most probably 6.57°S], 12°34.5'E; depth 120–400 m; Siboga Expedition 1899–1900 leg.; Sta. 65a; ZMA.PYC.P.1130, animal parts fixed in glass slide ZMA.PYC.P.1149.

***Ascorhynchus* Sars, 1877**

*Ascorhynchus arenicola* (Dohrn, 1881).

**Non-type material.** MOROCCO • 1 ♂ adult (animal parts fixed in glass slide); Atlantic Coast; 33°41.15'N, 7°35.51'W; 59 m depth; Vanneau exp. leg.; Sta. 33; ZMA.CRUS.P.6014 and ZMA.CRUS.P.6015.

**Remarks.** Animal parts of a male specimen from the original lot (Loman 1925: 51) were located in the original ZMA collection.

***Ascorhynchus levissimus* Loman, 1908: 33–34, Pl. 4, figs 46–51**

**Holotype.** INDONESIA • 1 specimen (preserved in ethanol 70%); Flores Sea; 7°24'S, 118°15.2'E; depth 794 m; Siboga Expedition 1899–1900 leg.; Sta. 45; ZMA.PYC.2534.

***Ascorhynchus minutus* Hoek, 1881**

**Non-type material.** INDONESIA • 1 juvenile (preserved in ethanol 70%); East of Sumbawa; 8°30'S, 119°07.5'E; depth 73 m; Siboga Expedition 1899–1900 leg.; Sta. 310; ZMA.PYC.1068.

***Chaetonymphon* Sars, 1888**

*Chaetonymphon australe* (Hodgson, 1902).

**Current accepted name.** *Nymphon australe* Hodgson, 1902.

**Non-type material.** SOUTH GEORGIA • 8 specimens (preserved in ethanol 70%); Cumberland Bay; Swedish Antarctic Expedition 1901–1903 exp. leg.; RMNH.PYC.1155. • 1 ♂ adult (preserved in ethanol 70%); Cumberland Bay, Outside the entrance to Cumberland Bay; 54°11'S. 36°18'W; 252–310 m; Swedish Antarctic Expedition 1901–1903 leg.; Sta. 34; RMNH.PYC.1157.

**Remarks.** RMNH.PYC.1157 is a single specimen from the original lot (Loman 1923a: 21), which contained 570 specimens. RMNH.PYC.1155 lacks details on the station number from which it was collected; however, the specimens originate from the Swedish Arctic Expedition. Three large lots are known from this expedition, from stations 4, 8, and 34, from which these specimens may have originated.

***Chaetonymphon brevicaudatum* Miers, 1875**

**Current accepted name.** *Nymphon brevicaudatum* Miers, 1875.

**Non-type material.** SOUTH GEORGIA • 8 specimens (preserved in ethanol 70%); Cumberland Bay, Outside May Creek; 54°17'S. 36°18'W; 75 m; Swedish

Antarctic Expedition 1901–1903 exp. leg.; Sta. 22; RMNH.PYC.1158.

**Remarks.** Eight specimens were located from the original lot of 135 specimens (Loman 1923a: 21).

***Cilunculus* Loman, 1908: 54.**

*Cilunculus frontosus* Loman, 1908: 54–55, Pl. 7, figs 83–95.

**Holotype.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); near Manado; 1°58.5'N, 125°00.5'E; depth 1165–1260 m; Siboga Expedition 1899–1900 leg.; Sta. 122; ZMA.PYC.1108 (Fig. 4), animal parts fixed in glass slides ZMA.PYC.P.1232.

***Cilunculus perspicax* Loman, 1908: 55–56, Pl. 7, figs 96–101**

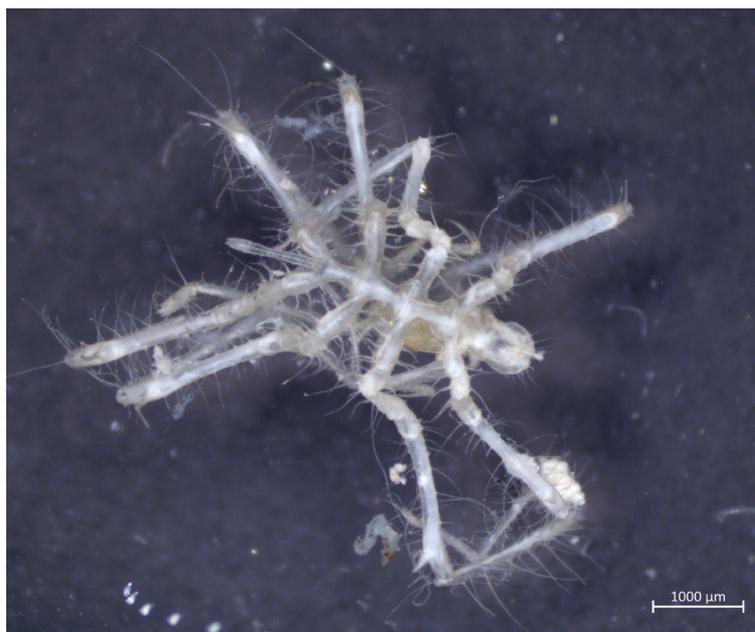
**Holotype.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); not far from Manado, near Talisei Island; 1°58.5'N, 125°00.5'E; depth 1165–1264 m; Siboga Expedition 1899–1900 leg.; Sta. 122; ZMA.PYC.1109, animal parts fixed in glass slides ZMA.PYC.P.1228 and ZMA.PYC.P.1229.

***Colossendeis* Jarzynsky, 1870**

*Colossendeis articulata* Loman, 1908: 22–23, Pl. 6, figs 66–73.

**Current accepted name.** *Hedgpeithia articulata* (Loman, 1908).

**Holotype.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); near Kabaena Island; 5°26'S, 121°18'E; depth 1944 m; Siboga Expedition 1899–1900 leg.; Sta. 210a; ZMA.PYC.1322.



**Figure 4.** Dorsal view of the holotype of *Cilunculus frontosus* Loman, 1908, ZMA.PYC.1108.

***Colossendeis dofleini* Loman, 1911: 3–4, Pl. 1, figs 9–13**

**Current accepted name.** *Hedgpathia dofleini* (Loman, 1911).

**Holotype.** JAPAN • 1 ♀ adult; Japan, Sagami Bay, near Misaki; holotype not located.

***Colossendeis gigas* Hoek, 1881**

**Non-type material.** INDONESIA • 1 specimen (preserved in ethanol 70%); Aru Islands, Dobo; 5°46.7'S, 134°00'E; depth 1788 m; Siboga Expedition 1899–1900 leg.; Sta. 271; ZMA.PYC.1028.

**Remarks.** One specimen from the original lot (Loman 1908: 21) was located in the original ZMA collection.

***Colossendeis leptorhynchus* Hoek, 1881**

**Non-type material.** INDONESIA • 2 specimens (preserved in ethanol 70%); near Tengah Islands; 7°24'S, 118°15.2'E; depth 794 m; Siboga Expedition 1899–1900 leg.; Sta. 45; ZMA.PYC.1030. • 2 specimens (preserved in ethanol 70%); Makassar Strait; 0°34.6'N, 119°08.5'E; depth 1301 m; Siboga Expedition 1899–1900 leg.; Sta. 88; ZMA.PYC.1031. • 5 specimens (preserved in ethanol 70%); near Tengah Islands; 7°36'S, 117°30.8'E; depth 694 m; Siboga Expedition 1899–1900 leg.; Sta. 314; ZMA.PYC.1032. • 1 specimen (preserved in ethanol 70%); 7°19.4'S, 116°49.5'E; depth 538 m; Siboga Expedition 1899–1900 leg.; Sta. 316; ZMA.PYC.1033.

**Remarks.** Specimens from the original lots (Loman 1908: 21) were located in the original ZMA collection.

***Discoarachne* Hoek, 1881**

*Discoarachne brevipes* Hoek, 1881.

**Current accepted name.** *Tanystylum brevipes* (Hoek, 1881).

**Non-type material.** SOUTH AFRICA • 10 specimens (preserved in ethanol 70%); Seapoint (Tafelbaai), near Cape Town; RMNH.PYC.1107. • 1 ♂ adult and 1 ♀ adult (preserved in ethanol 70%); Port Natal; Wahlberg leg.; RMNH.PYC.1109.

**Remarks.** Fifteen specimens are described in Loman (1904b: 379–383, Pl. 14, figs 7–11) for RMNH.PYC.1107; however, ten specimens from the original lot (Loman 1923b: 6, fig. C) were located.

***Eurycyde* Schiödte, 1857**

*Eurycyde raphiaster* Loman, 1912: 13.

**Holotype.** CAPE VERDE ISLANDS • 1 specimen; 4 miles southwest of Boa Vista; MOM-INV-0001360.

***Eurycyde setigera* Loman, 1908: 29–30, Pl. 5, figs 52–58**

**Current accepted name.** *Bathyzetes setigera* (Loman, 1908).

**Syntypes.** INDONESIA • 4 specimens (preserved in ethanol 70%); not far from Manado, near Talisei Island; 1°58.5'N, 125°00.5'E; depth 1165–1264 m; Siboga Expedition 1899–1900 leg.; Sta. 122; ZMA.PYC.1102, animal parts fixed in glass slides ZMA.PYC.P.1193 and ZMA.PYC.P.1198,

**Remarks.** In Loman (1908), “Unweit Menado” is written; this translates to “not far from Menado”, the current name being Manado. The glass slides contain a reference to the old registration number “pa.1104b”; however, this is most likely a typographical error for 1102.

***Eurycyde virago* Loman, 1908: 30–31, Pl. 5, figs 59–65**

**Current accepted name.** *Bathyzetes virago* (Loman, 1908).

**Syntypes.** INDONESIA • 2 ♀ adults (preserved in ethanol 70%); East of Seram, Ceram Sea; 3°27.0'S, 131°00.5'E; depth 567 m; Siboga Expedition 1899–1900 leg.; Sta. 173; ZMA.PYC.1103, animal parts fixed in glass slides ZMA.PYC.P.1194, ZMA.PYC.P.1195 and ZMA.PYC.P.1197.

**Remarks.** The glass slides bear the old collection codes Pa.1105b and Pa.1105c. These may represent incorrect notations of the collection code ZMA.PYC.1103.

***Fragilia* Loman, 1908: 56. [Junior homonym; *Pycnofragilia* Hedgpeth, 1943 is a replacement name]**

*Fragilia hamisetosa* Loman, 1908: 56–58, Pl. 8, figs 112–121.

**Current accepted name.** *Pycnofragilia hamisetosa* (Loman, 1908).

**Syntypes.** INDONESIA • 1 ♂ adult and 2 ♀ adults (preserved in ethanol 70%); North of Seram; 2°40'S, 128°37.5'E; depth 835 m; Siboga Expedition 1899–1900 leg.; Sta. 178; ZMA.PYC.2545, animal parts fixed in glass slides ZMA.PYC.P.1251, ZMA.PYC.P.1252, ZMA.PYC.P.1253 and ZMA.PYC.P.1255. • 1 ♀ adult (preserved in ethanol 70%); not far from Manado, near Talisei Island; 1°58.5'N, 125°00.5'E; depth 1165–1264 m; Siboga Expedition 1899–1900 leg.; Sta. 122; ZMA.PYC.2546. • 1 ♀ adult (preserved in ethanol 70%); near Sulu Islands; 5°11.2'N, 119°35.4'E; depth 450 m; Siboga Expedition 1899–1900 leg.; Sta. 94; ZMA.PYC.2547.

***Hannonia* Hoek, 1881**

*Hannonia typica* Hoek, 1881.

**Non-type material.** SOUTH AFRICA • 2 ♂ adults, 1 ♀ adult and 1 juvenile (preserved in ethanol 70%); Seapoint (Tafelbaai), Cape Town; RMNH.PYC.1110.

**Remarks.** Specimens from the original lots (Loman 1904b: 383–384, Pl. 14, figs 12–15) were located in the RMNH collection.

### *Nymphon* Fabricius, 1794

*Nymphon charcoti* Bouvier, 1911.

**Non-type material.** SOUTH GEORGIA • 1 specimen (preserved in ethanol 70%); Cumberland Bay, Outside May Creek; 54°17'S. 36°18'W; 75 m depth; Swedish Antarctic Expedition 1901–1903 leg.; Sta. 22; RMNH.PYC.1178.

**Remarks.** A single specimen from the original lot of 16 specimens (Loman 1923a: 15) was located in the RMNH collection.

### *Nymphon cognatum* Loman, 1928a: 61–62, 65–67, fig. A

**Syntypes.** MOROCCO • more than 12 ♂ adults, ♀ adults and juveniles; Atlantic Coast; 30°30.30'N, 9°47'W; depth 52 m; Vanneau exp. leg.; Sta. 97; ISR, no collection number provided. • 1 ♂ adult and 1 ♀ adult; Atlantic Coast; 30°37.20'N, 9°54.30'W; depth 18 m; Vanneau exp. leg.; Sta. 121; ISR, no collection number provided.

### *Nymphon giraffa* Loman, 1908: 39–40, Pl. 6, figs 74–82

**Holotype.** INDONESIA • 1 ♂ adult (whole organism fixed in glass slide); Makassar Strait, Sebangkatan Island, Borneo Bank; depth 34 m; Siboga Expedition 1899–1900 leg.; Sta. 81; ZMA.PYC.P.1285.

### *Nymphon pfefferi* Loman, 1923a: 17–18, fig. B

**Synonym.** *Nymphon antarcticum* Pfeffer, 1889 *nec* *Nymphon antarcticum* Miers, 1879.

**Syntypes** [from Pfeffer (1889); examined at least in part by Loman]. SOUTH GEORGIA • 2 specimens; Royal Bay, Moltke Harbour; ZMH-A0000729.

**Remarks.** Loman introduced the binomen *Nymphon pfefferi* Loman, 1923 as a *nomen novum* for *Nymphon antarcticum* Pfeffer, 1889, as the latter was preoccupied by *Nymphon antarcticum* Miers, 1879.

### *Nymphon subtile* Loman, 1923a: 19–20, fig. C

**Holotype.** FALKLAND ISLANDS • 1 ♂ adult (preserved in 80% ethanol); Port William; depth 22 m; Swedish Antarctic Expedition 1901–1903; Sta. 51; NRM, coll. num. 856.

### *Nymphopsis* Haswell, 1884

*Nymphopsis abstrusus* Loman, 1923b: 7–10, fig. D.

**Holotype.** SOUTH AFRICA • 1 ♂ adult (preserved in 80% ethanol); Cape of Good Hope, lighthouses; Eugenie

1851–1853 Expedition leg.; NRM, coll. num. 855. 1 ♂ adult (animal parts); Cape of Good Hope, lighthouses; Eugenie 1851–1853 Expedition leg.; potential parts of holotype fixed in glass slide ZMA.CRUS.P.6017

**Remarks.** Slide ZMA.CRUS.P.6017 was located with the type locality information and “n. sp.” written on it; this slide may be part of the type series.

### *Nymphopsis anarthrus* Loman, 1928c: 39–42, figured.

**Syntypes.** VENEZUELA • 2 ♂ adults, 1 ♀ adult and one juvenile (preserved in ethanol 70%); around Tortuga Island near the coast; depth 45 m; RMNH.PYC.705. ♂ adults and ♀ adult (animal parts); around Tortuga Island near the coast; depth 45 m; potential parts of syntypes fixed in glass slides ZMA.PYC.P.1329, ZMA.PYC.P.1330, ZMA.PYC.P.1331 and RMNH.PYC.P.1333.

**Remarks.** The slides were located with the type locality information written on them and “n.”; these slides may be part of the type series.

### *Nymphopsis korotnewi* Schimkewitsch, 1887

**Non-type material.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); Timor, Anchorage south coast of Timor; 8°39.1'S, 127°04.4'E; depth 34 m; Siboga Expedition 1899–1900 leg.; Sta. 285; RMNH.PYC.1180.

**Remarks.** A single specimen from the original lot (Loman 1908: 50, Pl. 13, figs 179–181) was located in the RMNH collection.

### *Nymphopsis muscosus* Loman, 1908: 52–53, Pl. 13, figs 175–188

**Current accepted name.** *Nymphopsis muscosa* Loman, 1908.

**Syntypes.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); Anchorage off North-Ubian, Sulu Islands; 06°07.5'N, 120°26'E; depth 16–23 m; Siboga Expedition 1899–1900 leg.; Sta. 99; ZMA.PYC.2537 (Figs 5, 6). • 1 ♂ adult (preserved in ethanol 70%); Ternate Anchorage; depth 23 m; Siboga Expedition 1899–1900 leg.; Sta. 136; ZMA.PYC.2538. • 1 ♀ adult (preserved in ethanol 70%); East of Sumbawa; 8°30'S, 119°07.5'E; depth 73 m; Siboga Expedition 1899–1900 leg.; Sta. 310; ZMA.PYC.2539. • multiple ♂ and ♀ adults (preserved in ethanol 70%); Anchorage East of Sailus Besar, Tengah Islands; depth 36 m; Siboga Expedition 1899–1900 leg.; Sta. 315; ZMA.PYC.2540.a. • 1 ♂ adult and larvae (preserved in ethanol 70%); Anchorage East of Sailus Besar, Tengah Islands; depth 36 m; Siboga Expedition 1899–1900 leg.; Sta. 315; ZMA.PYC.2541.

**Remarks.** ZMA.PYC.P.1323, ZMA.PYC.P.1324, ZMA.PYC.P.1325, ZMA.PYC.P.1326, ZMA.PYC.P.1327, ZMA.PYC.P.1334, ZMA.PYC.P.1335, ZMA.PYC.P.1342, ZMA.PYC.P.1343, and ZMA.PYC.P.1344 are animal parts mounted on glass slides and represent parts of syntypes from ZMA.PYC.2540.a or ZMA.PYC.2541.



**Figure 5.** Dorsal view of a syntype of *Nymphopsis muscosa* Loman, 1908, ZMA.PYC.2537.



**Figure 6.** Ventral view of a syntype of *Nymphopsis muscosa* Loman, 1908, ZMA.PYC.2537.

***Pallenopsis* Wilson, 1881**

*Pallenopsis sibogae* Loman, 1911: 14.

**Synonym.** *Pallenopsis plumipes* Loman, 1908: 66–67, Pl. 12, figs 160–164.

**Holotype.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); near Kwandang Bay entrance, North Celebes; 1°00.5'N, 122°56'E; depth 80 m; Siboga Expedition 1899–1900 leg.; Sta. 117; ZMA.PYC.2549.

**Remarks.** Renamed in Loman (1911) as *Pallenopsis sibogae*, as the binomen *Pallenopsis plumipes* was preoccupied by Meinert, 1899.

***Pallenopsis tumidula* Loman, 1923a: 32–34, fig. G**

**Syntypes.** ARGENTINA • 3 specimens (preserved in ethanol 70%); coast of North Argentina; 37°30'S, 56°11'W; depth 100 m; Swedish Antarctic Expedition 1901–1903 leg.; Sta. 2; ZMA.PYC.1043. 1 ♂ (animal parts); coast of

North Argentina; 37°30'S, 56°11'W; depth 100 m; Swedish Antarctic Expedition 1901–1903 leg.; potential parts of syntype fixed in glass slide ZMA.CRUS.P.6011.

**Remarks.** Three specimens were located from a lot of nearly four dozen specimens. Slide ZMA.CRUS.P.6011 was located with the type locality information and “n. sp.” written on it; this slide may be part of the type series.

***Pallenopsis tydemani* Loman, 1908: 65–66, Pl. 10, figs 139–145**

**Current accepted name.** *Bathypallenopsis tydemani* (Loman, 1908).

**Syntypes.** INDONESIA • 2 ♀ adults and 1 ♂ adult (preserved in ethanol 70%); near Tengah Islands; 7°36'S, 117°30.8'E; depth 694 m; Siboga Expedition 1899–1900 leg.; Sta. 314; ZMA.PYC.2514, animal parts fixed in glass slides ZMA.PYC.P.1362 and ZMA.PYC.P.1364. • 1 ♀ adult (preserved in ethanol 70%); Flores Sea; 7°24'S, 118°15.2'E; depth 794 m; Siboga Expedition 1899–1900 leg.; Sta. 45; ZMA.PYC.2548.

***Pallenopsis (Rigona) Loman, 1908: 67–68.***

*Pallenopsis (Rigona) aculeata* Loman, 1916: 22–25, fig. A–F.

**Current accepted name.** *Pallenopsis obliqua* (Thomson, 1884).

**Syntypes.** NEW ZEALAND • 4 ♀ adults (preserved in ethanol 70%); Dunedin; RMNH.PYC.21, animal parts fixed in glass slides RMNH.PYC.P.25 and RMNH.PYC.P.26.

***Pallenopsis (Rigona) ovalis* Loman, 1908: 68–69, Pl. 10, figs 137–138**

**Current accepted name.** *Pallenopsis ovalis* Loman, 1908.

**Holotype.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); Anchorage East of Sailus Besar, Tengah Islands; depth up to 36 m; Siboga Expedition 1899–1900 leg.; Sta. 315; ZMA.PYC.2550, animal parts fixed in glass slide ZMA.PYC.P.1366.

**Remarks.** ZMA.PYC.P.1366 is a glass slide with parts of two different species mounted on it; see *Pallenopsis (Rigona) rigens* Loman, 1908.

***Pallenopsis (Rigona) rigens* Loman, 1908: 68, Pl. 9, figs 128–133**

**Current accepted name.** *Pallenopsis hoeki* (Miers, 1884).

**Holotype.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); Anchorage off Pulu Jedan, East coast of Aru-Islands (Pearl Banks); depth 13 m; Siboga Expedition 1899–1900 leg.; Sta. 273; ZMA.PYC.2552, animal parts fixed in glass slide ZMA.PYC.P.1366.

**Remarks.** ZMA.PYC.P.1366 is a glass slide with parts of two different species mounted on it; see *Pallenopsis (Rigona) ovalis* Loman, 1908.

***Pallenopsis (Rigona) virgatus* Loman, 1908: 69–70, Pl. 9, fig. 134, Pl. 10, figs 135–136.**

**Current accepted name.** *Pallenopsis virgata* Loman, 1908.

**Holotype.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); East of Sumbawa; 8°30'S, 119°07.5'E; depth 73 m; Siboga Expedition 1899–1900 leg.; Sta. 310; ZMA.PYC.1048, animal parts fixed in glass slides ZMA.PYC.P.1354 and ZMA.PYC.P.1360.

***Parapallene* Carpenter, 1892**

*Parapallene capra* Loman, 1908: 42–44, Pl. 11, figs 156–159.

**Holotype.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); Anchorage near Seger, West-entrance Selee (Galewo)-Strait (?), West coast of New Guinea; depth 29 m; Siboga Expedition 1899–1900 leg.; Sta. 163; ZMA.PYC.1041, animal parts fixed in glass slide ZMA.PYC.P.1398.

***Parapallene hospitalis* Loman, 1908: 45–46, Pl. 8, figs 102–111**

**Syntypes.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); Java Sea, between Kangean Island and Bawean Island; 6°36.5'S, 114°55.5'E; depth 88 m; Siboga Expedition 1899–1900 leg.; Sta. 318; ZMA.PYC.1042. • 1 specimen (whole organism fixed in glass slide); Java Sea, between Kangean Island and Bawean Island; 6°05.5'S, 113°30'E; depth 82 m; Siboga Expedition 1899–1900 leg.; Sta. 321; ZMA.PYC.P.1399, animal parts fixed in glass slides ZMA.PYC.P.1394, ZMA.PYC.P.1395, ZMA.PYC.P.1396 and ZMA.PYC.P.1397. • 1 ♂ adult (preserved in ethanol 70%); Indian Ocean; 1906; Buitendijk, P. leg.; RMNH.PYC.24.

**Remarks.** ZMA.PYC.1042 has been marked as the holotype; however, this may have been due to the type from the Leiden Collection (RMNH.PYC.24) and the glass slides not having been located previously. ZMA.PYC.1042 should therefore be regarded as a syntype.

***Parapallene nierstraszi* Loman, 1908: 44–45, Pl. 9, figs 122–127**

**Syntypes.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); West of New Guinea; 2°35.5'S, 131°26.2'E; depth 95 m; Siboga Expedition 1899–1900 leg.; Sta. 167; ZMA.PYC.1038. • 2 ♀ adult (preserved in ethanol 70%); near the South coast of Timor; 9°00.3'S, 126°24.5'E; depth 112 m; Siboga Expedition 1899–1900 leg.; Sta. 289; ZMA.PYC.1039. • 1 ♀ adult (preserved in ethanol 70%); near the South coast of Timor; 10°12.2'S, 124°27.3'E; depth

73 m; Siboga Expedition 1899–1900 leg.; Sta. 294; ZMA.PYC.1040.

### *Phoxichilus Latreille, 1816*

*Phoxichilus meridionalis* Böhm 1879.

**Non-type material.** INDONESIA • 2 ♂ adults (preserved in ethanol 70%); Anchorage off Pulu Jedan, east-coast of Aru islands (Pearl banks); depth 13 m; Siboga Expedition 1899–1900 leg.; Sta. 273; ZMA.PYC.1073. • 1 ♂ adult (preserved in ethanol 70%); Anchorage near Seget, west-entrance Selee (Galewo-) Strait; depth 29 m; Siboga Expedition 1899–1900 leg.; Sta. 163; ZMA.PYC.1712. • 3 ♂ adults (preserved in ethanol 70%); Gisser, Anchorage between this island and Ceram Sea; depth 18 m; Siboga Expedition 1899–1900 leg.; Sta. 172; ZMA.PYC.1713. • 1 ♂ adult (preserved in ethanol 70%); Lucipara Islands, 5700 m N. 279° E. from Southpoint of South-Lucipara Island; depth 894 m; Siboga Expedition 1899–1900 leg.; Sta. 225; ZMA.PYC.1714. • 2 ♂ adults (preserved in ethanol 70%); Tengah Islands, Anchorage East of Sailus Besar, Tengah-Islands; depth 0–36 m; Siboga Expedition 1899–1900 leg.; Sta. 315; ZMA.PYC.1715. • 3 ♀ adults (preserved in ethanol 70%); Kei-Islands, Tual-Anchorage; depth 22 m; Siboga Expedition 1899–1900 leg.; Sta. 258; ZMA.PYC.1716.

**Remarks.** Specimens from the original lot (Loman 1908: 78–79) were located in the ZMA collection. These specimens were reidentified by Stock (1968) as the holotype and paratypes of *Endeis biseriata* Stock, 1968.

*Phoxichilus procerus* Loman, 1908: 79–80, Pl. 11, figs 146–152

**Current accepted name.** *Endeis procera* (Loman, 1908).

**Syntypes.** INDONESIA • 4 specimens (preserved in ethanol 70%); Anchorage off North-Ubian; 6°07.5'N, 120°26'E; depth 16–23 m; Siboga Expedition 1899–1900 leg.; Sta. 99; ZMA.PYC.1592. • 1 ♀ adult (preserved in ethanol 70%); South of Selayar Islands; 65.7°S [*sic*; most probably 6.57°S], 12°34.5'E; depth 120–400 m; Siboga Expedition 1899–1900 leg.; Sta. 65a; ZMA.PYC.2553.

*Pipetta* Loman, 1904a: 264–265.

*Pipetta weberi* Loman, 1904a: 265–266, fig. 7.

**Current accepted name.** *Pantopipetta weberi* (Loman, 1904).

**Syntypes.** INDONESIA • parts of ♀ adult (preserved in ethanol 70%); Banda Sea; 4°50.5'S, 127°59'E; 2081 m depth; Siboga Expedition 1899–1900 leg.; Sta. 227; ZMA.PYC.1377.a. • 1 ♀ adult (whole organism fixed in glass slide); Banda Sea; 4°50.5'S, 127°59'E; 2081 m depth; Siboga Expedition 1899–1900 leg.; Sta. 227; ZMA.PYC.P.1377. • 1 ♀ adult (whole organism fixed in glass slide); Banda Sea; 4°50.5'S, 127°59'E; 2081

m depth; Siboga Expedition 1899–1900 leg.; Sta. 227; ZMA.PYC.P.1379. • animal parts of a specimen (fixed in glass slide); Banda Sea; 4°50.5'S, 127°59'E; 2081 m depth; Siboga Expedition 1899–1900 leg.; Sta. 227; ZMA.PYC.P.1371.

**Remarks.** The publication mentions station 127 from the Siboga Expedition, with the locality given as the Banda Sea and a depth of 2081 m. However, this does not correspond with the expedition data. The correct station number should be 227 instead. Loman provided additional information and figures in his second paper on Siboga material (Loman 1908: 27–28, Pl. 13, figs 190–192, Pl. 14, figs 193–199). ZMA.PYC.P.1378 is a glass slide with part of a *Pipetta* specimen; there is no indication of a species name, but it bears the same collecting data as the syntypes of this species. Loman did not describe or identify any other species of *Pipetta* from Siboga Expedition material; therefore, it is possible that this glass slide forms part of the type series.

*Pycnogonum Brünnich, 1764*

*Pycnogonum claudum* Loman, 1908: 36–37, Pl. 15, figs 200–203.

**Current accepted name.** *Pycnopallene clauda* (Loman, 1908).

**Holotype.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); East of Sumbawa; 8°30'S, 119°07.5'E; depth 73 m; Siboga Expedition 1899–1900 leg.; Sta. 310; ZMA.PYC.1083 (Figs 7, 8).

*Pycnogonum microps* Loman, 1904b: 378–379, Pl. 14, figs 5, 6

**Holotype.** SOUTH AFRICA • 1 ♀ adult (preserved in ethanol 70%); Natal, beach near Illovo or Isipungo-Natal; ZMA.PYC.1220.

*Pycnogonum mucronatum* Loman, 1908: 35, Pl. 12, figs 168–170

**Holotype.** INDONESIA • 1 ♂ adult (preserved in ethanol 70%); Sapeh-Strait; 8°23.5'S, 119°04.6'E; depth 69 m; Siboga Expedition 1899–1900 leg.; Sta. 49a; RMNH. PYC.706 (Figs 9, 10).

*Pycnogonum occa* Loman, 1908: 35–36, Pl. 12, figs 171–174

**Syntypes.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); Ceram Sea; 3°27.0'S, 131°00.5'E; depth 567 m; Siboga Expedition 1899–1900 leg.; Sta. 173; RMNH. PYC.16. • 5 ♀ adults (preserved in ethanol 70%); Ceram Sea; 3°27.0'S, 131°00.5'E; depth 567 m; Siboga Expedition 1899–1900 leg.; Sta. 173; ZMA.PYC.2535. • 4 ♀ adults (preserved in ethanol 70%); Ceram Sea; 2°40'S, 128°37.5'E; depth 835 m; Siboga Expedition 1899–1900 leg.; Sta. 178; ZMA.PYC.2536.



Figure 7. Dorsal view of the holotype of *Pycnogonum claudum* Loman, 1908, ZMA.PYC.1083.



Figure 8. Ventral view of the holotype of *Pycnogonum claudum* Loman, 1908, ZMA.PYC.1083.

***Pycnogonum platylophum* Loman, 1923b: 10–12, fig. E**

**Holotype** NRM, coll. num. 854, preserved in 80% ethanol.

**Type locality.** Swedish Tierra-del-Fuego Expedition, Lennox Cove, 10–20 fathoms.

***Pycnogonum rhinoceros* Loman, 1923a: 7–9, fig. A**

**Current accepted name.** *Pycnogonum diceros* Marcus, 1940.

**Holotype.** SOUTH GEORGIA • 1 ♂ (preserved in 80% ethanol); South Georgia, outside the entrance to Cumberland Bay; 54°10'60.0"S, 36°17'60.0"W; depth

252–310 m; Swedish South Polar Expedition 1901-03 leg.; Sta. 34; NRM, coll. num. 1292.

**Remarks.** The name was preoccupied by *Pycnogonum rhinoceros* Dohrn, 1881.

***Pycnogonum tumulosum* Loman, 1908: 34, Pl. 12, figs 165–167**

**Holotype.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); North of Waigeo; 0°07.2'N, 130°25.5'E; depth 59–83 m; Siboga Expedition 1899–1900 leg.; Sta. 154; ZMA.PYC.2490 (Figs 11, 12).



**Figure 9.** Dorsal view of the holotype of *Pycnogonum mucronatum* Loman, 1908, RMNH.PYC.706.



**Figure 10.** Ventral view of the holotype of *Pycnogonum mucronatum* Loman, 1908, RMNH.PYC.706.

***Pycnogonum ungelatum* Loman, 1911: 7–8, Pl. 2, figs 25–27**

**Holotype.** JAPAN • 1 ♂ adult; Sagami Bay; holotype not located. 1 specimen (animal parts); Sagami Bay; potential parts of holotype fixed in glass slide ZMA.CRUS.P.5998.

**Remarks.** The slide bears “Japan” and “n. sp.” on the label and most likely belongs to the type series.

***Pycnothea* Loman, 1920: 137–138.**

*Pycnothea selkirkii* Loman, 1920: 138–139, fig. 1.

**Syntypes.** CHILE • 1 ♂ adult and 1 ♀ adult; Juan Fernández Islands, Masatierra; depth 30–40 m; Swedish Expedition leg.; syntypes not located. 1 ♂ (animal parts); Juan Fernández Islands, Masatierra; depth 30–40 m; Swedish Expedition leg.; potential parts of syntype fixed in glass slide ZMA.CRUS.P.6013.

**Remarks.** Slide ZMA.CRUS.P.6013 bears “n. g. n. sp.” on the slide but no species name. It also has the locality “Juan Fernandez” written on the label. This slide may be part of the type series, as Loman described a single new species and a new genus in the same publication.



**Figure 11.** Dorsal view of the holotype of *Pycnogonum tumulosum* Loman, 1908, ZMA.PYC.2490.



**Figure 12.** Ventral view of the holotype of *Pycnogonum tumulosum* Loman, 1908, ZMA.PYC.2490.

### ***Rhopalorhynchus* Wood-Mason, 1873**

*Rhopalorhynchus kroeyeri* Wood-Mason, 1873.

**Non-type material.** INDONESIA • 4 specimens (preserved in ethanol 70%); West coast of Flores, Bay of Badjo; depth up to 40 m; Siboga Expedition 1899–1900 leg.; Sta. 50; RMNH.PYC.25. • 1 ♂ adult and 1 ♀ adult (preserved in ethanol 70%); West coast of Flores, Bay of Badjo; depth up to 40 m; Siboga Expedition 1899–1900 leg.; Sta. 50; ZMA.PYC.1308. • 19 ♂ adults and 21 ♀ adults (preserved in eth-

anol 70%); West coast of Flores, Bay of Badjo; depth up to 40 m; Siboga Expedition 1899–1900 leg.; Sta. 50; ZMA.PYC.1309. • 1 ♂ adult and 1 ♀ adult (preserved in ethanol 70%); West coast of Flores, Bay of Badjo; depth down to 40 m; Siboga Expedition 1899–1900 leg.; Sta. 50; ZMA.PYC.1310. • 17 ♂ adults and 11 ♀ adults (preserved in ethanol 70%); West coast of Flores, Bay of Badjo; depth up to 40 m; Siboga Expedition 1899–1900 leg.; Sta. 50; ZMA.PYC.1311. • 10 specimens (preserved in ethanol 70%); West coast of Flores, Bay of Badjo; depth up to 40 m; Siboga Expedition 1899–1900 leg.; Sta. 50; ZMA.PYC.1312.

• 1 ♂ adult (preserved in ethanol 70%); near Tengah Islands; depth 36 m; Siboga Expedition 1899–1900 leg.; Sta. 184; ZMA.PYC.1313. • 1 ♂ adult (preserved in ethanol 70%); near Tengah Islands; depth up to 36 m; Siboga Expedition 1899–1900 leg.; Sta. 213; ZMA.PYC.1314.

**Remarks.** Specimens from the original lot (Loman 1908: 24–26, Pl. 15, figs 213–220) were located in the ZMA collection. ZMA.PYC.1308, ZMA.PYC.1309, ZMA.PYC.1312, ZMA.PYC.1313, and ZMA.PYC.1314 were reidentified by Stock (1958: 119–124) as *Rhopalorhynchus lomani* Stock, 1958. ZMA.PYC.1308 was designated as type material for *Rhopalorhynchus lomani* Stock, 1958. ZMA.PYC.1310 and ZMA.PYC.1311 were reidentified by Stock (1958: 124–125) as *Rhopalorhynchus sibogae* Stock, 1958. ZMA.PYC.1310 was designated as type material for *Rhopalorhynchus sibogae* Stock, 1958.

### *Scipiolus* Loman, 1908: 58.

*Scipiolus plumosus* Loman, 1908: 58–59, Pl. 15, figs 204–212.

**Holotype.** INDONESIA • 1 ♀ adult (preserved in ethanol 70%); 2.3 miles N. 63°W from the North Point of Nuhu Jaao, Kei Islands; 5°36.5'S, 132°55.2'E; depth 90 m; Siboga Expedition 1899–1900 leg.; Sta. 260; ZMA.PYC.1065, animal parts fixed in glass slides ZMA.PYC.P.1468, ZMA.PYC.P.1470 and ZMA.PYC.P.1471.

### *Tanystylum* Miers, 1879

*Tanystylum kentrodes* Loman, 1923b: 28–29, fig. E  
“*Tanystylum kentrodes* n. sp.” [not available due to the absence of description]: Loman 1923a: 13

**Current accepted name.** *Tanystylum stylicherum* (Miers, 1875).

**Synonym.** *Tanystylum longicaudatum* Hodgson, 1915.

**Holotype.** Unknown.

**Type locality.** Sta. 40, Falkland Islands, Berkeley Sound, depth, 16 m.

### *Tanystylum oedinotum* Loman, 1923a: 29–30, fig. F

**Holotype.** Unknown.

**Type locality.** Sta. 51, Falkland Islands, Port William, depth 22 m.

### *Tanystylum pfefferi* Bouvier, 1913 [*nec Tanystylum pfefferi* Schimkewitsch, 1906]

[Sometimes erroneously attributed to Loman, 1923a: 26–27, fig. D]

**Current accepted name.** *Tanystylum neorhetum* Marcus, 1940.

**Synonym.** *Clotenia dohrni* Pfeffer, 1889.

**Remarks.** Bouvier (1913) proposed the binomen *Tanystylum pfefferi* as a *nomen novum* for *Clotenia dohrni*

Pfeffer, 1889, after reassigning the species to the genus *Tanystylum*, as the name was preoccupied by *Tanystylum dohrni* Schimkewitsch, 1887. Loman later listed “*Tanystylum pfefferi nomen novum*” (*sic*) among material from South Georgia. This has sometimes been erroneously interpreted as Loman (1923) being the authority for this species (*e.g.*, Stock 1954).

Loman (1923a) cited *in extenso* the passage in which Bouvier (1913) proposed the *nomen novum* for Pfeffer’s species. It is unclear whether citing the species as “*Tanystylum pfefferi nomen novum*” in his own work implied that Bouvier’s *nomen novum* was considered unavailable by Loman – noting that Loman’s work predates the ICZN – or, more likely, that he intended to emphasise that the name was a *nomen novum* for Pfeffer’s (1889) species and omitted to cite Bouvier as the authority. The name *Tanystylum pfefferi* was subsequently also found to be preoccupied by *Tanystylum pfefferi* Schimkewitsch, 1906 (see Schimkewitsch 1929), and Marcus (1940) replaced it with the *nomen novum* *Tanystylum neorhetum* Marcus, 1940.

No material of this species was deposited by Loman in collections now curated at NBC; however, owing to its particular nomenclatural history, it is included here. The syntypes from South Georgia (more than 10 specimens) are curated at the ZMH under collection number ZMH-A0000726.

## Conclusion

Most of Loman’s material originates from the Siboga Expedition of 1899–1900. At NBC, a total of 162 records have been identified as corresponding to material described in Loman’s publications. These records consist of glass slides with animal parts, glass slides with complete specimens fixed on them, or ethanol jars containing one or more specimens. Among these records, 133 correspond to type material, including 19 holotypes and 37 syntypes. An additional 69 type parts preserved as slides were also identified. Type material, or parts of type material, was located for a total of 42 species. Thirteen records among Loman’s non-type material were later reidentified as new species, and nine specimens were subsequently designated as type material by Stock (1958, 1968), namely *Rhopalorhynchus lomani* Stock, 1958, *Rhopalorhynchus sibogae* Stock, 1958, and *Endeis biseriata* Stock, 1968. The contribution of Loman to the taxonomy of sea spiders is substantial, as reflected by the two pycnogonid species named in his honour: *Nymphon lomani* Gordon, 1944 and *Rhopalorhynchus lomani* Stock, 1968.

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