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Studies on spirostreptoid millipeds. XXV. On the status of some harpagophorid millipeds named by C. Attems, in the Vienna Natural History Museum (Spirostreptida: Harpagophoridae)

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Abstract

Examination of type material in the Naturhistorisches Museum, Wien, has disclosed a number of errors and inconsistencies in the descriptions of harpagophorid millipeds by C. Attems, particularly in his 1942 treatment. Attems' concept of *Thyropygus javanicus* is confirmed as correct by examination of the holotype in the Zoological Institute, St. Petersburg, and *T. brevicaudatus* and *T. piceus* (both ATTEMS, 1942) are added to the synonymy of that species (now *Remulopygus javanicus*); *Thyropygus pfeifferae* ATTEMS, 1942, is considered a junior synonym of *Falcigonopus falciferus* (KARSCH, 1881); the enigmatic name *Julus (Spirostreptus) attenuatus* BRANDT, 1841, is resurrected as the senior synonym of *Julus (Spirostreptus) pachysoma* BRANDT, 1841, *Harpagophora nigra* ATTEMS, 1914, and *Thyropygus poseidon* ATTEMS, 1936 (**comb.n., syn.n.**).

Keywords: Millipeds, Harpagophoridae, Indo-Australia, taxonomy

Zusammenfassung

Eine Revision des Typenmaterials im Naturhistorischen Museum in Wien bot die Möglichkeit, mehrere Fehler in Taxonomie und Nomenklatur der Harpagophoridae (Diplopoda) zu berichtigen. *Thyropygus brevicaudatus* und *T. piceus* (ATTEMS, 1942) sind Synonyma von *Remulopygus javanicus* (BRANDT, 1841); *T. pfeifferae* (ATTEMS, 1942) ist Synonym von *Falcigonopus falciferus* (KARSCH, 1881); *Julus (Spirostreptus) pachysoma* (BRANDT, 1841), *Harpagophora nigra* (ATTEMS, 1914) und *Thyropygus poseidon* (ATTEMS, 1936) sind Synonyma von *Harpagophora attenuata* (BRANDT, 1841), **syn.n., comb.n**. Die Gonopoden der Typen von *T. javanicus* und *T. attenuatus* werden abgebildet.

Introduction

The majority of harpagophorids presently known from southeast Asia and Indonesia were named by Count C. Attems during his long and illustrious involvement with myriapod taxonomy. Although Attems' descriptions and illustrations were typically quite adequate and reliable, his taxonomic philosophy was ultraconservative and his nomenclatorial approach highly idiosyncratic. As a result, the classification of Asiatic harpagophorids became almost incomprehensible and remained so until 1961 when J.-M. Demange provided a rationally based and extremely useful revision of that fauna.

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Near the end of his career, Graf Attems published (1942) a synoptic work entitled "Zur Kenntnis der Indischen Harpagophoridae" which provided an overview of that fauna, including the proposal of many new species and genera. Regrettably, a number of the genera were defined with characters now considered to have at most specific value, and many of them were hopelessly heterogeneous in content. Finally, through an unknown mishap, some of the descriptive text was displaced and interchanged, leading to a complete miscomprehension of the species by anyone who did not compare the drawings with the corresponding verbal descriptions.

Having the opportunity in 1975 to examine many of Attems' types, the first author encountered a number of inconsistencies such as mentioned above, and took the occasion to work them out as well as possible. In the interest of enhancing the nomenclatorial stability of these interesting animals, the following short essays are offered. Some information from sources other than the Attems' material is included.

Abbrevations

AMNH:	American Museum of Natural History, New York, USA
HNHM:	Hungarian Natural History Museum, Budapest, Hungary
MNHN:	Muséum National d'Histoire Naturelle, Paris, France
NHMW:	Naturhistorisches Museum in Wien, Austria
NRM:	Naturhistoriska Riksmuseet, Stockholm, Sweden
ZISP:	Zoological Institute, St. Peterburg, Russia
ZMB:	Museum für Naturkunde, Berlin, Germany

I. On the identity of *Julus (Spirostreptus) javanicus* BRANDT, 1841

This name was based upon "plura specimina" from "Java" in the collection of the Zoological Institute, St. Petersburg, and was validated by a fairly detailed account of external structure. However, most of this description could apply to many harpagophorids: the only really precise information given is the number of segments (60-61) and even this figure occurs in a number of the species known from Java, as defined on the basis of gonopod structure (cf. DEMANGE 1961, for details).

During the period of transition from peripheral to genitalic characters in milliped taxonomy, the status of *javanicus* was solved more or less by the **fiat** of Graf Attems, who presumed that the name probably applied to the commonest harpagophorid occurring around Djakarta (formerly Batavia). Any names subsequently based on Javan material (as by PORAT 1876 and SILVESTRI 1897) were routinely referred by Attems to the synonymy of *javanicus*, even though they too were not founded upon details of gonopod structure. This was certainly an expedient way to dispose of uncertain names, and cleared the way for Attems to propose new ones of his own when he later - during the 1930s - obtained Javan material considered to be not conspecific with his concept of *javanicus*. It does, however, do some violence to the principle of priority which would mandate that at least some attempt be made to study the extant type material of older names.

Referring to this general problem, the first author proposed (HOFFMAN 1975) to place *javanicus* sensu BRANDT, 1841, into the category of nomina dubia and resurrect in its place

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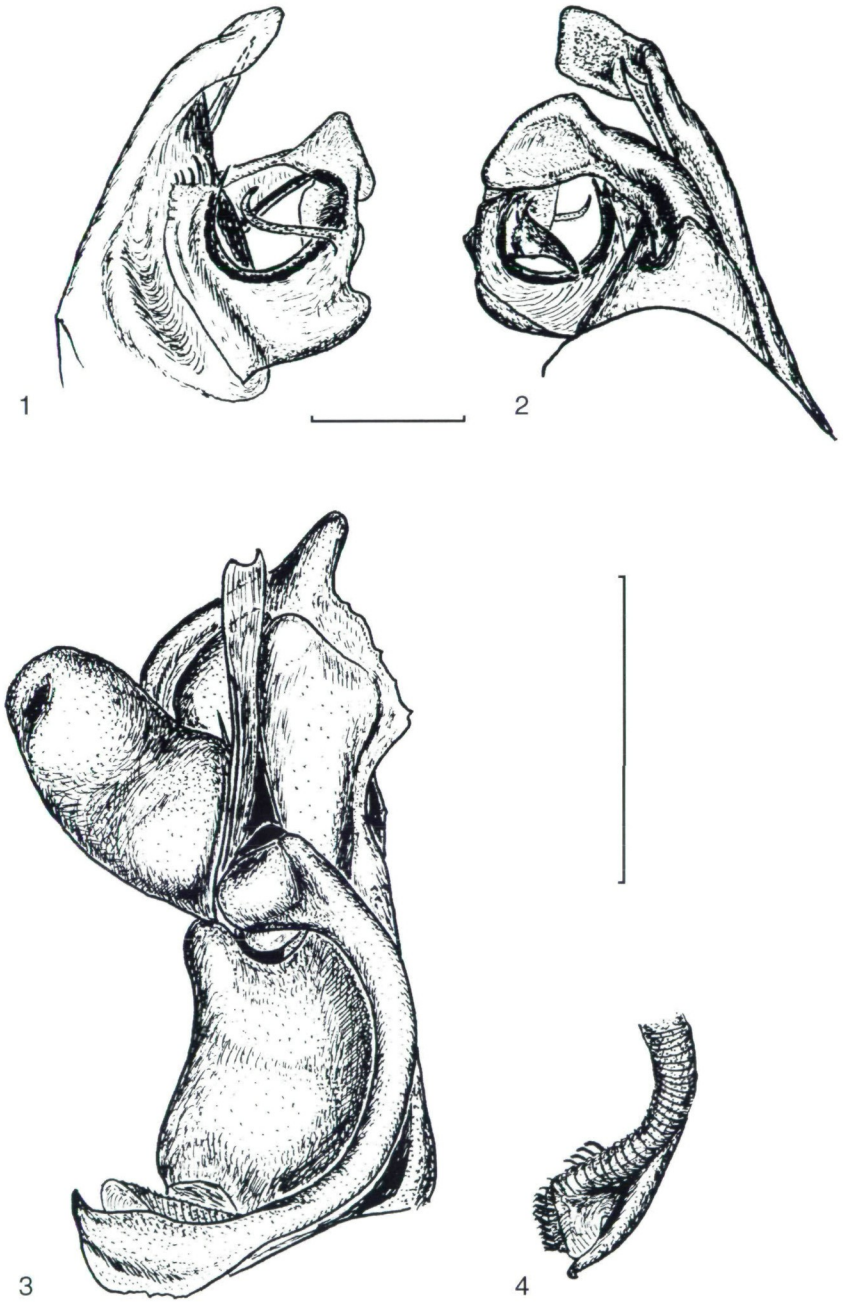

Figs 1 - 4: (1 - 2) *Remulopygus javanicus* (BRANDT). Right gonopod of syntype, (1) medial aspect and (2) lateral aspect. (3 - 4) *Harpagorphora attenuata* (BRANDT). Right gonopod of holotype, (3) aboral aspect, (4) apex of telopodite in a different orientation. Scales = 2 mm.

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the oldest species-name for which the gonopod structure was known. This happened to be *Julus bipulvillatus* GERVAIS, 1847, based on a specimen (MNHN) thought to have come from Brasil (but obviously mislabeled!) and at that time the new combination *Remulopygus bipulvillatus* was created in the belief that this species was not congeneric with *Thyropygus erythropleurus* POCOCK, 1894, the type of *Thyropygus*.

But shortly after this proposal was published, the second author was able to study Brandtian type material at St. Petersburg and made some drawings of the gonopods of one of the original syntypes of *javanicus*. These drawings show clearly that, providentially, Attems was correct in his guess, and that *javanicus* - as described and illustrated by DEMANGE (1961: 33-40), and by our figures 1 and 2 - *is* representative of the traditional concept of the species. This knowledge permits the confident disposal of some other names published by Attems, as treated individually in subsequent accounts.

II. The status of the names *Thyropygus brevicaudatus* and *Thyropygus pfeifferae*

These two names were applied by ATTEMS (1942) to new species described in his last paper on harpagophorids. That some kind of mix-up occurred during preparation of the manuscript (possibly during the editorial or printing stages) is evident from contradictions in the key to the seven species of *Thyropygus* recognized by Attems and in the verbal descriptions and illustrations. It was possible for the first author to investigate the problem by study of the type material itself, with the following results.

The first couplet in Attems' key (1942: 81) takes out *T. pfeifferae* with the statements "Das Gonopodencoxit endet mit einem grossen, spitzen, stark gekrümmten Haken. Die Sohlenpolster verschwinden erst auf dem Praefemur [sic!], dann vom 25. Segment an auch auf der Tibia. Stigmengruben bis zur Mitte des Praefemur reichend. Analschuppe völlig mit dem Ring verschmolzen." In the description of this species (p. 84-85) the last three statements are confirmed, but the gonopod coxa is said to end in "...eine sagittal gestellte runde Platte" and the illustration (Figure 4) shows this condition clearly. There is certainly no indication of a large, sharp, strongly recurved hook!

The key couplet alternative leading on to *T. brevicaudatus* states "Am Ende des Gonopodencoxit kein solcher Haken. Sohlenpolster bis zum letzten Beinpaar vorhanden. Stigmengruben bis zum Ende des Praefemur oder weiter reichend." But the description of this species (p. 84) contradicts the first point: "Das Coxit endet mit einem grossen, in der Sagittalebene stehenden, allmählich fein zugespitzten Haken (Taf. VI, Fig. 2C)" while agreeing with the second and third.

Examination of the type specimens themselves gave the following results. *T. pfeifferae* was based on a single male labeled, in Attems' handwriting, "pfeifferae Att./ Type / Borneo / I. Pfeiffer" (NHMW 2179). This specimen has 69 segments, short stigmal grooves, and legs 50% longer than body diameter; in all peripheral structures it agrees closely with the description. The gonopods are exactly as figured on Plate 6, figures 2 and 3, and described in the verbal account of *T. brevicaudatus*.

The latter species was also based on a single male, which bears Attems' hand-written label "Thyropygus brevicaudatus /Att./ Borneo od. Celebes/ Type / Plason 1878". This

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animal has 61 segments, long stigmal grooves, and short legs (length less than body diameter), and in general is adequately described by the printed account, except for the gonopods. These are exactly as shown in Attems' Text Figures 4 and 5, captioned *T. pfeifferae*.

It must be concluded that in some inexplicable way the paragraphs describing gonopod structure for these two species became transposed. The names *pfeifferae* and *brevicaudatus* are based on species of two quite different genera, making it easy to affirm the correctness of the present match-up of gonopods with bodies in the Vienna collection (which differ also in size) and with the statements in the key to species of Attems' paper.

Thyropygus pfeifferae is referable to the genus *Falcigonopus*, established by DEMANGE (1961) for several species endemic to Borneo, all of which have short stigmal grooves, long legs, a high segment count, reduced ventral pads on the legs, and a characteristic gonopod structure. These appendages are clearly illustrated by Attems (Pl. VI, figs. 2 and 3) under the name *brevicaudatus*. On the basis of gonopod structure, segment count, and distribution of ventral pads on the anterior legs, *pfeifferae* is herewith considered to be a junior synonym of *Falcigonopus falciferus* (KARSCH, 1881) (**syn.n.**).

Thyropygus brevicaudatus, a species with long stigmal grooves, short legs, and ventral pads on all legs, is clearly referable to *Remulopygus* (DEMANGE, 1961), which was treated by Attems and Demange under the name *Thyropygus*. In his key (p. 81, 82) Attems separated it from *javanicus* chiefly because the former was thought to lack the large, rounded, laminate lobe of the gonopod tibiotarsus that is characteristic of the latter. But in fact, this lobe is present on the holotype of *brevicaudatus*. It was merely concealed in the particular aspect from which Attems made his drawing. The actual comparison of material disclosed no difference whatever between the holotype and specimens which Attems had correctly identified as *javanicus*, and we conclude therefore that *brevicaudatus* is a junior subjective synonym of the latter (**syn.n.**).

III. Identity of the name *Thyropygus piceus* ATTEMS, 1930

While making the comparisons noted in the preceding account, the first author took the occasion to study also the type material of *Thyropygus piceus* ATTEMS, 1930. The original description of this name did not compare it with anything else, and only in 1942 did Attems do this, in the key to species of *Thyropygus*. Here, *piceus* was distinguished from the line leading to *javanicus* because of having one tibial spine on the gonopod instead of two, although the original description and drawings are absolutely uninformative on this point. The species was said to have been based on a single male from Buitenzorg, but the bottle labeled as "type" of *piceus* now contains six specimens, all apparently conspecific. Examination of the single dissected male shows the gonopods to have **two** tibial spines, and moreover to agree exactly with the published drawings, which were made from an incompletely exposed dissection. No differences whatever were found between the syntypes of *piceus* and material identified by Attems as *javanicus*: *piceus* must therefore join the long roster of the latter's junior synonyms (see below).

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IV. Synonymy of *Remulopygus javanicus* (BRANDT, 1841)

As the list of proven or suspected junior synonyms of *javanicus* grows progressively longer, an up-to-date summary seems advisable and what seems to be a fairly accurate account is provided herewith:

Julus (Spirostreptus) javanicus BRANDT, 1841: 92. Two male and two female syntypes labeled "Java" (ZISP). Examined and illustrated by S.G.

Julus bipulvillatus GERVAIS, 1847: 189. Holotype male labeled "Brésil" (MNHN). Examined by R.H.

Spirostreptus lemniscatus KARSCH, 1881: 26. Two male, two female syntypes labeled "Lahat, Lombok" (ZMB). Synonymy by DEMANGE, 1961; confirmed by examination of type material by R.H.

Spirostreptus flavomarginatus DADAY, 1889: 128. One male and two female syntypes labeled only "Matang" (HNHM). Examined by R.H. **syn.n.**

Remulopygus flavomarginatus: HOFFMAN, 1982: 37, figs. 1, 2.

Thyropygus laticollis SILVESTRI, 1897: 3, figs. III-IV. Male holotype labeled only "Java" (Mus. Dresden, possibly destroyed). Placement on basis of original description and figures.

Spirostreptus mölleri [recte: *moelleri*] ATTEMS, 1903: 72, pl. 5, figs. 15-19. Syntypes labeled "Boyor [=Bogor], Buitenzorg" (NRM). Synonymy confirmed by examination of type material by R.H..

Thyropygus piceus ATTEMS, 1930: 153, figs. 45-50. Six male and female syntypes labeled "Buitenzorg, Java" (NHMW 2177). Examined by R.H.

Thyropygus brevicaudatus ATTEMS, 1942: 83, figs. 4, 5 [NOT plate VI, figs. 2 and 3 as stated, see discussion above]. Male holotype labeled "Borneo oder Celebes" (NHMW 2178). Examined by R.H.

Thyropygus krakataunus CHAMBERLIN, 1945: 25, fig. 116. Male holotype from "Krakatau" (AMNH). Placement on basis of original description.

The review of Daday's harpagophorids by HOFFMAN (1982) provisionally considered *T. flavomarginatus* to represent a valid species closely related to *javanicus*. In retrospect, this was doubtless a too generous evaluation, and both *flavomarginatus* DADAY and *krakataunus* CHAMBERLIN are herewith merged with *javanicus* (substantiating Demange's much earlier [1961] disposition of the latter name).

IV. Status of the name *Thyropygus poseidon* ATTEMS, 1936

This name was published in "The Diplopoda of India" (1936: 266) for material supposedly taken on Ceylon by the Austrian "Novara Expedition". In 1942 Attems transferred it to his new genus *Thyropistus* where it was also treated by Demange in his monograph on Asiatic harpagophorids.

Yet to anyone familiar with this fauna, *T. poseidon* looks like a totally alien element, and the first author expressed some doubt about it in his treatment of Asiatic harpagophorids (HOFFMAN 1975: 128). Eventually, while looking up something totally unrelated to spirostreptoids in Schubart's papers on South African diplopods, he was amazed to see the gonopod of *poseidon* illustrated on page 169 of the 3rd fascicle (1966) under the name *Harpagophora nigra* ATTEMS, 1914. The correctness of this identification was confirmed by reference to Attems' 1914 monograph, and there can be no doubt that these two names are based upon one and the same species. This situation was mentioned in 1975 to Dr. Pretzmann, who informed that mislabeling of material of the Novara Expedition happened frequently, and that he had also encountered the same problem in

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his own studies on freshwater crabs of the genus *Parathelphusa*. In a paper on thelphusids PRETZMANN (1964) stated "Wenn wir die Reiseroute der Fregatte Novara betrachten (...Cap, Ceylon, Nikobaren, Singapore, Java, Manila, Hongkong, Shanghai... Australien, Tahiti, Chile...) finden wir, dass die fraglichen Fundortverwechslungen *immer in Fahrtrichtung liegen* . . ." [italics ours]. As *"H. nigra"* is not uncommon in the coastal region of South Africa, no doubt the type was collected there, but labeled as coming from the next stop: Ceylon.

There are yet two older names, however, discovered by the second author during the course of his own work with Brandtian types in the collection at St. Petersburg. As these names are based on conspecific individuals, we arbitrarily select the one having page priority as senior synonym:

Harpagophora attenuata (BRANDT, 1841), comb.n.

Figures 3, 4.

Julus (*Spirostreptus*) *attenuatus* BRANDT, 1841: 94. Male holotype (ZISP), labeled only "Cape".

Julus (*Spirostreptus*) *pachysoma* BRANDT, 1841: 95. Male lectotype, and female paralectotype (ZISP), labeled only "Cape." **syn.n.**

Harpagophora nigra ATTEMS, 1914: 164, figs. 175-178. Male lectoype (ZMB 2054), from Hopefield, Cape Province, South Africa; two male paralectotypes labeled only "Cap" (NHMW 2066). **syn.n.** -- SCHUBART, 1966: 168, figs. 148-150.

Thyropygus poseidon ATTEMS, 1936: 266, figs. 63a-e. Male holotype (NHMW 2176), labeled only "Ceylon" (Novara Expedition). **syn.n.**

The range of this species seems to be confined to the extreme southwestern corner of Cape Province, and Brandt's type must certainly have been taken in the vicinity of Cape Town. The record for Port Elizabeth (ATTEMS, 1928) seems geographically improbable and requires confirmation.

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