

**Review of the subspecies of *Scolopendra subspinipes* Leach, 1815
with the new description of the South Chinese member of the genus
Scolopendra Linnaeus, 1758
named *Scolopendra hainanum* spec. nov.**

(Myriapoda, Chilopoda, Scolopendridae)

Christian Kronmüller

Kronmüller, C. 2012. Review of the subspecies of *Scolopendra subspinipes* Leach, 1815 with the new description of the South Chinese member of the genus *Scolopendra* Linnaeus, 1758 named *Scolopendra hainanum* spec. nov. (Myriapoda, Chilopoda, Scolopendridae). Spixiana 35(1): 19–27.

To clarify their discrimination, the taxa of the *Scolopendra subspinipes* group, formerly treated as subspecies of this species, are reviewed. *Scolopendra dehaani* stat. revalid. and *Scolopendra japonica* stat. revalid. are reconfirmed at species level. *Scolopendra subspinipes cingulatoides* is raised to species level. This species is re-named to *Scolopendra dawydoffi* nom. nov. to avoid homonymy with *Scolopendra cingulatoides* Newport, 1844 which was placed in synonymy under *Scolopendra cingulata* Latreille, 1829 by Kohlrausch (1881). *Scolopendra subspinipes piceoflava* syn. nov. and *Scolopendra subspinipes fulgurans* syn. nov. are proposed as new synonyms of *Scolopendra subspinipes*, which is now without subspecies. Lewis already synonymized *Ostostigmus politoides* Attems, 1953 and *Ostostigmus puncticeps* Attems, 1953 under *Scolopendra subspinipes* without going down to subspecies level – both species are synonymized now (syn. nov.) under *Scolopendra japonica*. Furthermore, *Scolopendra hainanum* spec. nov., a species near allied to *S. subspinipes* is described from Hainan Island, China.

Scolopendra subspinipes cingulatoides = *Scolopendra dawydoffi* nom. nov.

Scolopendra subspinipes piceoflava = *Scolopendra subspinipes* syn. nov.

Scolopendra subspinipes dehaani = *Scolopendra dehaani* stat. nov.

Scolopendra subspinipes japonica = *Scolopendra japonica* stat. nov.

Scolopendra subspinipes fulgurans = *Scolopendra subspinipes* syn. nov.

Ostostigmus puncticeps = *Scolopendra japonica* syn. nov.

Ostostigmus politoides = *Scolopendra japonica* syn. nov.

Christian Kronmüller, Zoologische Staatssammlung München, Münchhausenstr. 21. 81247 München, Germany; e-mail: shifu@shaolinquan.de

Introduction

Scolopendra subspinipes is a common centipede in the whole Asian subtropics and tropical area and is also introduced in many other countries and areas around the world. Within the species, the taxonomical characters show a wide range of variety, which makes the determination of several subspecies im-

possible. As there are neither geographical factors nor taxonomical details to distinguish the individual subspecies, in my opinion, it is useful to abolish the subspecies according to the latest taxonomical and geographical knowledge.

To date, *Scolopendra subspinipes* comprises six valid subspecies named *Scolopendra subspinipes subspinipes* Leach, 1815, *Scolopendra subspinipes cingula-*

toides Attems, 1938, *Scolopendra subspinipes dehaani* Brandt, 1840, *Scolopendra subspinipes japonica* L. Koch, 1878, *Scolopendra subspinipes fulgurans* Bücherl, 1946 and *Scolopendra subspinipes piceoflava* Attems, 1938. All of them occur in Asia except for *Scolopendra subspinipes fulgurans* which was described from South America, more exactly Brazil.

Scolopendra subspinipes mutilans L. Koch, 1878 and *Scolopendra subspinipes gastroforeata* Muralewicz, 1913 have already been synonymized with *Scolopendra subspinipes subspinipes* (Schileyko 2001, 2004, Lewis 2010). The subspecies *Scolopendra subspinipes multidens* Newport, 1844, has been upgraded to species level by Chao & Chang (2003). It is distinguished from *Scolopendra subspinipes* by lacking gonopods in males and a strong punctuation of the head capsule.

Methods

All examinations are made with a Bresser Advance ICD binocular. All photos are made with a Canon EOS 60D either connected to the binocular or used with a Canon macro 100 mm lens, apart from the habitat photo which is made with a standard lens. The drawings are made with a 0.4 mm fineliner.

Taxonomy

Comparing the taxonomic details of the remaining subspecies of *Scolopendra subspinipes*, it is obvious, that they can be divided into two groups: The first group consists of taxa with usually a two spined

prefemoral process, a coxopleural process with two spines, the prefemoral of the terminal legs with one or two spines ventrally and with tarsal spurs from locomotory leg 1 to 20; while the second group comprises the subspecies having a prefemoral process with usually more than two spines, a coxopleural process with usually more than 2 spines, a divergent number of ventral spines at the prefemur of the terminal legs and tarsal spurs only from locomotory legs 1 to 19 (see Table 1).

Group 1

Scolopendra subspinipes subspinipes
Scolopendra subspinipes mutilans
Scolopendra subspinipes piceoflava
Scolopendra subspinipes fulgurans
Scolopendra subspinipes gastroforeata

Group 2

*Scolopendra subspinipes dehaani**
Scolopendra subspinipes japonica
*Scolopendra subspinipes cingulatoides**

* The original description of these subspecies is incomplete.

Scolopendra subspinipes Leach, 1815, sensu stricto

Scolopendra subspinipes piceoflava Attems, 1938, syn. nov.
Scolopendra subspinipes fulgurans Bücherl, 1946, syn. nov.

Distribution. Russia, India, Sri Lanka, Malaysia, Singapore, Laos, Vietnam, Thailand, China, Hong Kong, Japan, Philippines, Indonesia, São Tomé, Príncipe, Ivory Coast, Liberia, Zanzibar, South

Table 1. Taxonomic characters of the *Scolopendra subspinipes* subspecies, *Scolopendra multidens* and *Scolopendra hainanum* spec. nov.

species	spination of the prefemur of the terminal legs	prefemoral process (corner spine)	coxopleural process	antennomere (number of segments)
<i>Scolopendra subspinipes subspinipes</i>	ventral (1)–2–(3); medial 1–2; dorsal-medial 1–3	(1)–2–(3–5)	2(1–3)	17–20
<i>Scolopendra subspinipes dehaani</i>	ventral 0; dorsal-medial 0–3	(1)–2–(3)	1–2	?
<i>Scolopendra subspinipes mutilans</i>	ventral (1)–2; medial 1; dorsal 1	2(5)	(1)–2–(3)	?
<i>Scolopendra subspinipes japonica</i>	ventral 2–3; medial 1–2; dorsal 2–4	(2)3	(2)3	?
<i>Scolopendra subspinipes cingulatoides</i>	ventral 2; medial/dorsal; 4	3–4	3	?
<i>Scolopendra subspinipes gastroforeata</i>	ventral 2; 2–2, 1; dorsal 1, 2	2	2	17–19
<i>Scolopendra subspinipes piceoflava</i>	ventral 2; dorsal-medial 1–2	2–5	2	17–19
<i>Scolopendra subspinipes fulgurans</i>	ventral 2; medial 2; dorsal 1	2–3	2	18–19
<i>Scolopendra multidens</i>	ventral 2–3; medial 2; dorsal 2	(2)3(–)	3	18
<i>Scolopendra hainanum</i> spec. nov.	ventral-lateral 1; ventral-medial 1; dorsal-medial 1–2	2	2	17–20

Africa, Seychelles, Reunion, Mauritius, Rodrigues, Madagascar, Andaman Islands, Nicobar Islands, Pacific Islands, Bermuda, Central America, Caribbean Islands, Colombia, Guyana, French Guyana, Surinam, Brazil.

Description

(according to Attems, 1930)

General: Length up to 150 mm, colouration variable.

Head: No anterior transverse sulcus, from 4 to 9 (mostly 5–6) coxosternal teeth, antennomere with 18–19 (rarely just 17 or more than 19) articles, 4½ to 6 of them are sparsely hirsute.

Tergites: Paramedian sulci start on tergite 3 (sometimes tergite 2 or more caudal), margination starts from tergite 5 to 16.

Sternites: Sternite 2 to 19 with two paramedian furrows (very weak at sternite 16 to 19).

Coxopleural process: 2 coxopleural spines (seldom only 1 or up to 3).

Locomotory legs: All legs with two accessory spurs, 20th pair of legs mostly with tarsal spur.

Prefemur of terminal legs: Ventral-lateral with 2 (rarely 1 or 3) spines, medial 1 or 2 and dorsal-medial 1 to 3 spines; prefemoral process with usually 2, rarely with 1 or 3–5 tips.

Remarks on the description of

Scolopendra subspinipes piceoflava Attems, 1938

Distribution. Indonesia.

Attems (1934) described the species with weak paramedian sulci on the tergites, only seen at the caudal end of tergite 3 to 20. In my opinion, the sulci

are not weaker than in other subspecies. Sometimes, a short median sulcus can be seen on tergite 9 to 20. This character can also be observed for example in specimens of *Scolopendra subspinipes subspinipes* from Japan and also from the Philippines (Negros Island). The terminal legs have two ventral spines and one or two dorsal-median spines. The prefemoral process shows between 2 and 5 tips.

Scolopendra subspinipes piceoflava differs from *Scolopendra subspinipes* s. str. only in its colour as it is described with a reddish brown head capsule and first tergites, while the other tergites are dark brown with a lighter (or even yellowish) caudal border. In centipede taxonomy, colouration is not a reliable scientific character for distinguishing a species. Therefore it is herewith synonymized with *Scolopendra subspinipes*.

Remarks on the description of

Scolopendra subspinipes fulgurans Bücherl, 1946

Distribution. Brazil.

Bücherl (1946) stated that beside *Scolopendra viridicornis* Newport, 1844 the species *Scolopendra subspinipes* is the most common species in Brazil, especially in the southern parts. This might be interpreted as an argument for the introduction of this species to South America by ships from Asia. Nevertheless, in 1946 he described that common species found in Brazil as a new *subspinipes* subspecies *Scolopendra subspinipes fulgurans*, similar to *Scolopendra subspinipes subspinipes* but differing in colour from Brazil, South America. Since then, many myriapodologists assumed that *Scolopendra subspinipes* was introduced to South America by human activity. For that reason and the lack of clear

glabrous segments of antennomere	paramedian sutures of the sternite	margination of the tergites	paramedian sutures begin at tergite	coxosternal teeth on each side	tarsal spines
6	2–19	begins from tergite 5 to 16	3	(4)–5–6–(9)	1–19 (20)
?	?	?	?	?	?
?	2–19	begins from tergite 8 to 10	4–9	5 in 2/3	1–20
?	2–19	begins from tergite 10 to 12	3	4–6	1–19
?	absent	?	?	?	?
4.5–6	2–19, 1–17 depressions	begins from tergite 5	2	5	1–19
6	last sternit with median suture	begins from tergite 5 to 7	3	5–6	1–20
6	2–20	begins from tergite 5 to 7	3	4–5	?
?	weak	?	2	6	1–19
5–6	2–20, getting weaker caudally	3–21	absent, in some specimens noticeable	5–6	1–19, sometimes 2–19



Fig. 1. *Scolopendra hainanum*. **A.** dorsal view of the head; **B.** ventral view of the head; **C.** two-tipped corner spur; **D.** reproductive organs with the splitted genital sternit 1 and the knob-like genital sternit 2.

differences to *Scolopendra subspinipes* sensu stricto I herewith synonymize *S. s. fulgurans* with *Scolopendra subspinipes*. As it wasn't possible to examine the type material (probably lost), I examined the Brazilian material of the Bavarian State Collection of Zoology, Munich (ZSM) which consists of two specimens labelled as *Scolopendra subspinipes* which key out as *Scolopendra subspinipes fulgurans*. One of them was in very good condition (ZSMA20051154).

***Scolopendra dawydoffi* nom. nov.**
(pro *S. subspinipes cingulatoides* Attems, 1938,
as direct substitute)

Distribution. Vietnam, Laos.

Description
(according to Attems, 1938)

Attems executed an incomplete description of this species, but he stated that *Scolopendra subspinipes cingulatoides* unites the taxonomical characters of *Scolopendra subspinipes* and *Scolopendra cingulata* Latreille, 1829. Although the only character he describes as *cingulata*-like is the shape and the thickness of the

prefemur of the terminal legs. The relation between length and width, according to Attems, is 5.5:3.2 compared to *Scolopendra subspinipes dehaani* with 8:2.5 (both species from the same locality).

Scolopendra subspinipes cingulatoides also differs from the nominate subspecies by a coxopleural process which ends in 3 coxopleural spines and the spinulation of the prefemur of the terminal legs: 2 ventral spines, 4 medial and dorsal medial spines. The prefemoral process is 3-, seldom 4-tipped.

Lewis (2010) wrote in his new keys, that the relationship between *Scolopendra cingulata* and *Scolopendra subspinipes cingulatoides* should be observed. The two species can be clearly distinguished by the spinulation of the prefemur of the terminal legs: *Scolopendra subspinipes cingulatoides* has medial spines while *Scolopendra cingulata* lacks them, which supports the assumption that they are separate species.

For that reason, *S. s. cingulatoides* is raised to species level. As *Scolopendra cingulatoides* Newport, 1844 is a junior synonym of *Scolopendra cingulata* Latreille 1829, I herewith propose the name *Scolopendra dawydoffi* nom. nov., in honour of Dr. C. Dawydoff the collector of this species.



Fig. 2. A. *Scolopendra hainanum* spec. nov., habitus, adult specimen, 22 cm; B. The primeval forests of Hainan Island and probably South China are the habitat of *Scolopendra hainanum* spec. nov.

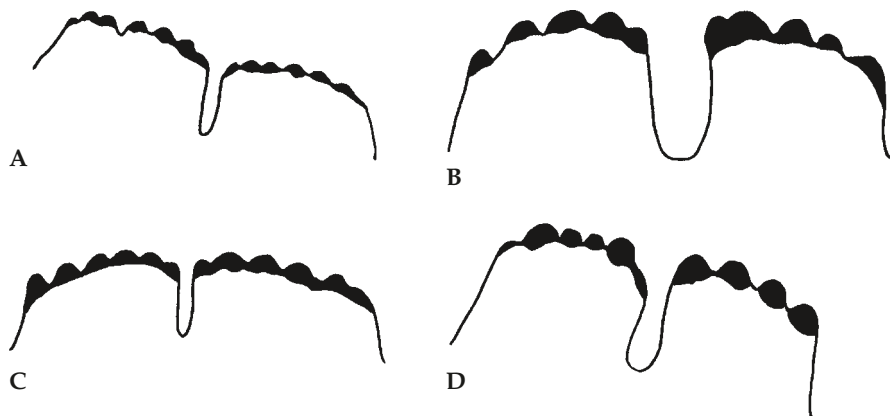


Fig. 3. Coxosternal teeth, ventral view. A. *Scolopendra hainanum*; B. *Scolopendra subspinipes*; C. *Scolopendra dehaani*; D. *Scolopendra japonica*.

Scolopendra dehaani Brandt, 1840 (stat. nov.)

Distribution. India, Burma, Bangladesh, Malay Peninsula, Andaman Islands, Nicobar Islands, China, Hong Kong, Indonesia, Thailand, Vietnam, Japan, Okinawa, Cambodia.

Scolopendra subspinipes dehaani, which is the largest subspecies (over 22 cm body length), is clearly separable from all other taxa of the *Scolopendra subspinipes* group by the absence of ventral spines at the prefemur of the terminal legs (see Fig. 3). As this character is stable, *S. dehaani* is revalidated at species level.

Scolopendra japonica L. Koch, 1878 (stat. nov.)

Otostigmus puncticeps Attems, 1953, syn. nov.
Otostigmus politoides Attems, 1953, syn. nov.

Distribution. Japan, Taiwan, Cambodia.

Scolopendra japonica differs from *S. subspinipes* in the spinulation of the prefemur of the terminal legs, a prefemoral process with sometimes 2, but usually 3 spines, a coxopleural process with 2–3 spines and no tarsal spur on locomotory leg 20. In contrast to *Scolopendra dehaani*, it shows between 2 and 3 ventral spines at the prefemur of the terminal legs and differs from *Scolopendra dawydoffi* by remarkable long and slender terminal legs instead of the *cingulata*-like short and thick legs of *S. dawydoffi* (see Fig. 4). Therefore *Scolopendra japonica* L. Koch, 1878 is revalidated at species level.

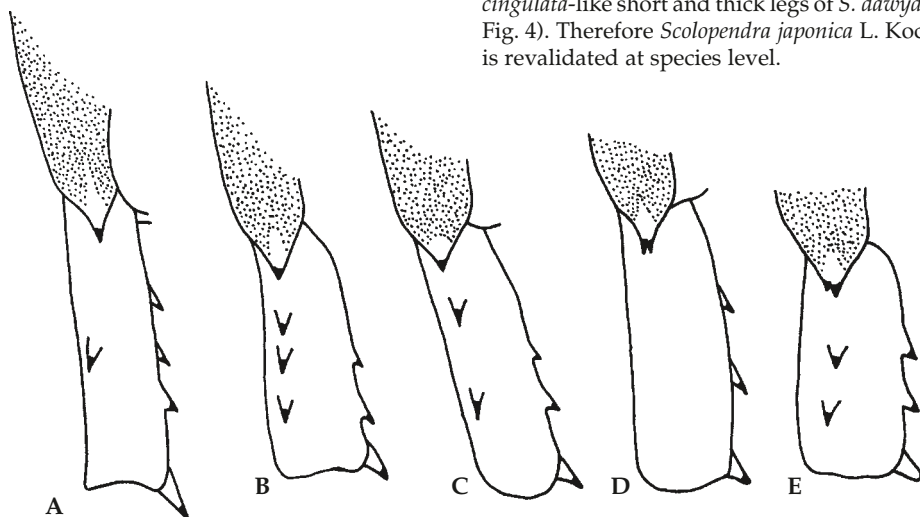


Fig. 4. Prefemur of the right terminal leg, ventral view. A. *Scolopendra hainanum*; B. *Scolopendra japonica*; C. *Scolopendra subspinipes*; D. *Scolopendra dehaani*; E. *Scolopendra dawydoffi* (drawing after Attems).

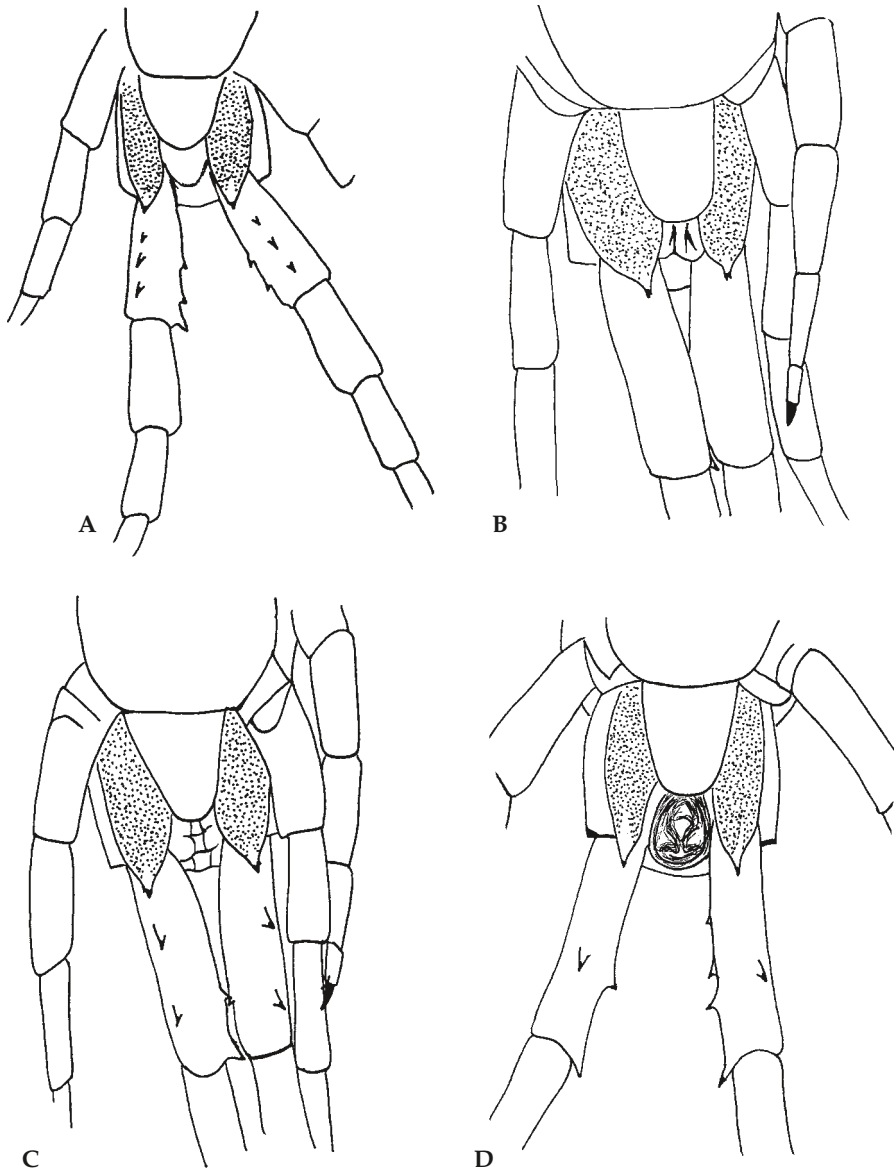


Fig. 5. Terminal two segments including coxosternal process, sternites and complete terminal legs, ventral view. A. *Scolopendra japonica*; B. *Scolopendra dehaani*; C. *Scolopendra subspinipes*; D. *Scolopendra hainanum*.

Lewis (2004) noticed, that the type material of *Otostigmus puncticeps* Attems, 1953 and *Otostigmus politoides* Attems, 1953 in the Naturhistorisches Museum in Wien (NHMW), was misidentified to generic level but shows clear characters of the genus *Scolopendra*. According to the latest keys, the species keys out as *Scolopendra japonica*. Because of the confusing situation of the *S. subspinipes* complex, Lewis (2004) proposed the synonymy of *Otostigmus*

puncticeps and *Otostigmus politoides* with *Scolopendra subspinipes* without going down to subspecies level. Although the type material of both species consists of juvenile or adolescent stages (size from 24–33 mm, head capsule wider than the tergites, antennomeres with 17 segments and margination only seen in the end tergite), it shows some characters which clearly lead to *Scolopendra japonica*. The single holotype of *Otostigmus puncticeps*, the smaller specimen, has a

short coxopleural process with 2–3 tips, 20th pair of locomotory legs without tarsal spur and spinulation of the prefemur of the terminal legs is as follows: two ventrolateral, one medial and one or two dorsomedial spines. *Otostigmus politoides* (single holotype, 33 mm) shows a coxosternal process with 3 spines, the 20th pair of locomotory legs without tarsal spur and the prefemur of the terminal legs with 3 ventrolateral, one medial and two dorsomedial spines. The prefemoral process shows 3 spines. I herewith propose to synonymize them with *Scolopendra japonica*, as the descriptions match most closely to this species. For that reason the occurrence of *Scolopendra japonica* in Cambodia has to be added. Further faunistic investigation should be made, to show whether the species occurs in other Asian countries as well.

Scolopendra hainanum spec. nov.

During my analysis of the *Scolopendra subspinipes* complex I got some living specimens from Hainan Island, China, which were labelled as *Scolopendra subspinipes dehaani* “tigerleg” but attracted attention by a constantly difference to all other known members of the genus *Scolopendra*: The new species has a heart-shaped (or even splitted) genital sternit 1 and to date, it looks like both sexes have a structure that resembles to a genital sternit 2. During mating attempts sexed males did not show visible gonopods like *Scolopendra subspinipes* and also no spinning organ could be seen.

Material. Holotype: 156 mm long, of unknown sex, (preserved in 70 % ethanol, deposited at the Bavarian State Collection of Zoology in Munich, ZSMA20110500 – the 12th locomotory leg of the left side has been cutted off and preserved in 96 % ethanol for further DNA analysis), South China, Hainan Island near the city of Puqian, leg. Liu Meijun, 17 August 2010. – Additionally, 10 still living paratypes presently in the collection of the author, same collecting data as holotype.

Distribution. Hainan Island (possibly also occurring in South China (continent)).

Description

General: *Scolopendra hainanum* has dark brown (or even black) coloured tergites and orange-brown striped legs. The head capsule and first tergites are sometimes coloured reddish brown. It can grow up to a length of 230 mm.

Head capsule: The head capsule has no sulci but very fine punctated areas (see Fig. 1). The prefemoral teeth have 2(–3) apical tubercles and one medial tubercle which is clearly separated. On each side there are between 6–7 coxosternal teeth on a broad-based

and wide toothplate. The coxosternum has no visible sulci. The antennomeres have between 17–19 segments of which 6 are glabrous (the antennomeres of the holotype seem to be damaged and have around 14–15 segments).

Tergites: Complete and good visible margination starts at tergite 5. Some specimens show light paramedian sulci starting on tergite 3 or 4 (the holotype without paramedian sulci). Tergite 21 is rounded smoothly without median keel, sulcus or depression.

Sternites: Starting on sternite 2 and ending on sternite 19 or 20, all sternites show nearly complete paramedian sulci. Sternite 21 long, gradually narrowed and caudally rounded. Some specimens show a longitudinal depression on sternite 21.

Coxopleural process: The coxopleural process is conically shaped, and usually 2-tipped (sometimes only 1 tip). A dense, small stripe-like pore area leads to the tip of the coxopleural process.

Locomotory legs: All locomotory legs have 2 accessory claws, legs 1–19 show 1 tarsal spine.

Terminal legs: The terminal legs are long and slender. The prefemur shows 1 ventrolateral spine, 1 ventromedial spine and 2 dorsomedial spines. The prefemoral process is 2-tipped.

Sexual organs: The specimens supposed to be males show neither visible gonopods nor a spinning organ, but all examined specimens show an anatomical structure that resembles a genital sternit 2. In all specimens, the genital sternit 1 is splitted into two valve-like parts (see Fig. 1d).

Remarks on *Scolopendra multidens* Newport, 1844

Scolopendra multidens once was supposed to be another subspecies of *Scolopendra subspinipes*. Chao (2008) treated it as a separate species. The spinulation of the prefemur of the terminal legs, the prefemoral process and also the coxopleural process exhibit clear differences to *Scolopendra subspinipes*. Another important fact is, that similar to *Scolopendra hainanum*, the males of *Scolopendra multidens* don't have visible gonopods.

Discussion

The confusing situation of the *Scolopendra subspinipes* group was a well-known problem. The present investigation is based on morphology solely. As I know, Jui-Lung Chao is presently working on *Scolopendra subspinipes* by studying the molecular data (COI sequences). His first results suggest, that

the DNA results support the taxonomy presented here. As far as there won't be any new scientific results connected with drastic changes within the genus *Scolopendra*, I prefer not to distinguish any subspecies within *Scolopendra subspinipes* but to treat *Scolopendra dehaani*, *S. japonica*, *S. dawydoffi*, *S. multidentis* and *S. hainanum* as full species. Probably, *S. multidentis* is closer related to *S. hainanum* than to *S. subspinipes*, as the shape of the genital organs is similar and should be regarded as an important taxonomical character. As this character is more stable than the spinulation of the terminal legs, the coxopleural process or the number of the coxosternal teeth or segments of antennomere, the genital organs of scolopendrid centipedes should be checked and described in taxonomic papers now.

Acknowledgements

Thanks to Dr. John Lewis for the many advices and the inspiring email contact. Thanks also to Dr. Greg Edgecombe and the staff of the Natural History Museum in London, to Dipl.-Biol. Stefan Friedrich and Prof. Dr. Roland Melzer of the Zoological State Collection in Munich for their help. Many thanks to my friend Dipl.-Biol. Martin Thierer-Lutz for the daily phone calls, meetings and all other support. Also many thanks go to Turgut Kocer who provided me the photos of the type material of *Scolopendra subspinipes piceoflava*.

References

v. Attems, C. 1930. Myriapoda. 2. Scolopendromorpha. In: Schulze, F. E., Kükenthal W., Heider, K. & Hesse, R. (eds). Das Tierreich, vol. 54. 308 pp., Berlin (Walter de Gruyter).

-- 1934. Neue Myriopoden des Museums Basel. Verhandlungen der Naturforschenden Gesellschaft in Basel 45: 43–62.

-- 1938. Die von Dr. C. Dawydoff in Französisch Indochina gesammelten Myriopoden. Mémoires du Muséum National d'Histoire Naturelle 6(2): 187–353.

Bücherl, W. 1946. Novidades sistemáticas na ordem Scolopendromorpha. Memórias do Instituto Butantan 19: 135–158.

Chao, J.-L. 2008. Scolopendromorpha (Chilopoda) of Taiwan. 94 pp., Saarbrücken (VDM Verlag Dr. Müller).

-- & Chang, H.-W. 2003. The scolopendromorph centipedes (Chilopoda) of Taiwan. African Invertebrates 44: 1–11.

Kohlrausch, E. 1881. Gattungen und Arten der Scolopendriden. Archiv für Naturgeschichte 47: 50–132.

Lewis, J. G. E. 2001. The scolopendrid centipedes in the collection of the National Museum of Natural History in Sofia (Chilopoda: Scolopendromorpha: Scolopendridae). Historia Naturalis Bulgarica 13: 5–51.

-- 2004. Notes on the type specimens of three species of *Otostigmus* described from Indo-China by Carl Attems (Chilopoda: Scolopendromorpha: Scolopendridae). Annalen des Naturhistorischen Museums in Wien 105 B: 27–33.

-- 2010. A key and annotated list of the *Scolopendra* species of the Old World with a reappraisal of *Arthrorhabdus* (Chilopoda: Scolopendromorpha: Scolopendridae). International Journal of Myriapodology 3(2010): 83–122.

Schileyko, A. 2001. New data on chilopod centipedes of Vietnam. Pp. 417–445 in: Biological diversity of Vietnam. Data on zoological and botanical studies in Vu Quang National Park (Ha Tinh Province, Vietnam).

Buchbesprechungen

Fortsetzung von Seite 18

Trotz des konsequent homogenen Aufbaus der einzelnen Beiträge, ist der vorliegende Band abwechslungsreich und lädt zum Blättern und Lesen ein. So konnte der Herausgeber eine schöne Auswahl verschiedener Arthropodengruppen zusammenstellen. Kurze Beiträge wechseln mit langen ab, bedingt durch die sehr unterschiedliche Artenzahl der einzelnen Taxa. Nachträge zu Gruppen, die in früheren Bänden bearbeitet wurden, führen dem Leser zudem die Dynamik des Projektes vor Augen. Auf den ersten Blick erstaunlich ist die recht gute Repräsentanz von in oder auf Gewässern lebenden Taxa wie Wasserwanzen, Wasserläufer, Taumel- und Schwimmkäfer, aber auch von humicolen Arthropoden wie Asseln oder Palpenkäfern. Häufig handelt es sich um die Bewohner flächenmäßig kleiner Habitats, die durch den Menschen stark gefährdet sind. Gute Arteninventare bilden eine wichtige Grundlage zu deren Schutz.

Zu den aus der 2005 von A. van Harten publizierten Bestandsaufnahme "Insects of the UAE: a checklist of published records" bekannten 830 Arten und den in den ersten drei Bänden dieser Serie hinzugekommenen 570, 390 und 400 Arten, werden diesmal 469 weitere Neufunde hinzugefügt, was wiederum einem Zuwachs von über 20 % entspricht. Eine statistische Auswertung dieses beständigen Fortschrittes zeigt noch kein Anzeichen einer nahenden Sättigung. Wir hoffen deshalb, dass die Reihe mit weiteren inhaltlich und aufmachungsmäßig ähnlich hochstehenden Bänden weiter wachsen wird, und möchten uns dem Dank anschließen, den Tony van Harten seiner Hoheit Sheikh Tahnoon Bin Zayed Al Nahyan ausspricht für dessen großzügige und dauerhafte finanzielle Unterstützung des Projektes.

Marion Kotrba, Daniel Burckhardt

2. Ptak, Roderich 2011. *Birds and beasts in Chinese texts and trade. Lectures related to South China and the overseas world. Maritime Asia Vol. 22*, Harrassowitz Verlag, Wiesbaden, 140 Seiten, 10 Tafeln, in englischer Sprache. ISBN 978-3-447-06449-1.

Auch in der neuen Folge der Serie "Maritime Asia" werden eine Reihe von zoologischen Themen im kulturhistorischen Kontext behandelt. Das Werk enthält fünf Essays, die ursprünglich zu unterschiedlichen Anlässen erarbeitet wurden und hier zusammengestellt sind.

Im ersten Artikel geht der Autor, ein Sinologe mit weitreichenden zoologischen Interessen der Frage nach, inwieweit es sich bei den chinesischen Tiernamen um echte oder "literarische" Arten handelt. Dazu analysiert er vor allem zwei Werke der konfuzianischen Klassiker, dem Buch der Oden ("Shijing") und der enzyklopädischen Schrift "Erya", in denen viele Tiere erwähnt sind. Aus dem Buch der Oden konnten kürzlich die Besucher der taiwanischen Ausstellung "Singende Insekten" in der Zoologischen Staatssammlung München Zitate über

Laubheuschrecken, Grillen und Zikaden kennen lernen. Manchmal, wie in diesem Fall ist der Bezug der Texte zu realen Arten oder Taxa offensichtlich. Dies gilt zum Beispiel auch bei Texten über den Panda oder die Karetschildkröte. In anderen Fällen kann selbst genaues Studium nicht erhellen, ob sich ein bestimmter chinesischer Ausdruck auf eine reale Art bezieht. Zum Beispiel wird ein Tier beschrieben ("lushu"), das wohl am ehesten ein Zebra sein könnte, aber es ist nicht klar, ob die Chinesen der damaligen Zeit schon Kunde von einem Zebra gehabt haben können. Auch, ob ein Vogel namens "jujiu" wirklich ein Vogel oder eher ein Symbol war, bleibt unklar, obwohl dieses Tier vielfach genannt und beschrieben wurde und sich schon manche Sinologen um eine Deutung bemüht haben. Vieles kann man nicht mehr klären, weil ja die Überlieferung auf schriftliche Quellen beschränkt ist und die zweifellos vielfältigen mündlichen Traditionen nicht zugänglich sind. Interessant ist auch, dass verschiedentlich ähnliche Tiere durch eine gemeinsame Wurzel des Schriftzeichens als zu einem Cluster gehörig gekennzeichnet sind.

Dass mit Seide und Perlen zwei Handelsgüter tierischer Herkunft von überragender Bedeutung waren ist allgemein bekannt. Ptak zeigt aber, dass noch viel mehr Tiere und tierische Produkte im späten Mittelalter und der frühen Neuzeit in China wesentliche Handelsgüter waren. Zum Beispiel ist von bemalten japanischen Paravents bekannt, dass Schweine, Hunde, Vögel und sogar Elefanten von China nach Japan exportiert wurden. Auch verschiedene Vögel, deren Gefieder bewundert wurde, wie z. B. Eisvögel (kingfisher, "feicui") waren ein vielfach bezeugtes Handelsgut. Straußeneier waren als "Dracheneier" besonders interessant. Natürlich waren zum Beispiel auch Ambra (die wachsartige Substanz aus dem Verdauungstrakt der Pottwale) und rote Koralle wichtige, wertvolle Güter.

In je einem Artikel wird über die Literatur über Kamele der Tang- und Ming-Zeit sowie über Pferde (speziell den Pferdehandel auf der Insel Hainan) referiert; diese beiden Säuger waren von besonderer Bedeutung für den Transport und selbst wichtiges Handelsgut. In einem Essay analysiert Ptak die älteste Liste von Vögeln auf Macao in dem Buch "Aomen jilüe" von 1751 von den beiden Autoren Yin Guangren und Zhang Rulin. Der Autor kommt allerdings zu dem Schluss, dass die Autoren der Liste wohl manche der Arten selbst nicht gesehen haben; nur wenige der Vögel können klar einer Art zugeordnet werden. Im letzten Essay wird die Auseinandersetzung der Quellen mit Tierbeschreibungen, die für chinesische Verhältnisse exotisch waren, dargestellt. Das Wissen über viele Tiere wurde von den Jesuiten in das Reich der Mitte gebracht.

Auch dieser Band der Serie "Maritime Asia" setzt sich mit Tieren auseinander, oft mit philologischem Schwerpunkt, aber stets mit zoologischem Hintergrund. Es ist wieder ein Werk von hohem interdisziplinärem Wert das Aspekte der chinesischen Kultur erschließt.

Klaus Schönitzer