中国浙江省天目山のババヤスデ科の2新種

誌名	Edaphologia
ISSN	03891445
著者名	田辺,力 石井,清
発行元	日本土壌動物研究会
巻/号	57号
巻号補足	
掲載ページ	p. 13-19
発行年月	1996年8月

Edaphologia, No. 57: 13-19, August 30, 1996

Two New Xystodesmid Millipeds from the Tian-mu Mountains, Zhejiang Province, China

Tsutomu TANABE[1], Kiyoshi ISHII[2], and YIN Wen-ying[3]

1) Tokushima Prefectural Museum, Hachiman-cho, Tokushima, 770 Japan
2) Department of Biology, Dokkyo University School of Medicine, Mibu, Tochigi, 321-02 Japan
3) Shanghai Institute of Entomology, Academia Sinica, Shanghai, 200025 China

Abstract A new xystodesmid genus, *Sinoria,* and two new xysotdesmid species, *Sinoria tianmu* and *Riukiaria chinensis* are described based on materials from the Tian-mu Mountains, Zhejiang Province, China.

Key words: Diplopoda, Xystodesmidae, *Sinoria, Riukiaria,* new genus, new species, China

Introduction

Only a few reports have so far been conducted to classify xystodesmid millipeds in China (HOFFMAN, 1956; 1964). Recently one of us (K. ISHII) collected some specimens of xystodesmid millipeds from the Tian-mu Mountains, Zhejiang Province, China (IMADATÉ, 1990). The specimens were composed of a species not belonging to any nominal genera and a species of the genus *Riukiaria* ATTEMS, 1938, which is known from Japan, Taiwan, and Korea, without any records from China (GOLOVATCH, 1978; HOFFMAN, 1980; SHINOHARA, 1977; TANABE, 1988, 1990). In this paper, the former is described as a new species of a new genus. On the other hand, the later, which differs in several respects from congeners described before, is described as a new species.

The type specimens are deposited in the collection of the Shanghai Institute of Entomology, Academia Sinica, Shanghai China.

Descriptions

Sinoria n. gen.

Diagnosis. Characterized by the feature that the left acropodite is twisted anticlockwise near the tip in posterior view (clockwise in right gonopod). While the left acropodite of *Sinoria* is twisted anticlockwise in posterior view, in other Oriental xystodesmid genera with twisted

This study is supported by the Grant-in aid No. 01041032 for Field Research of the Monbusho International Science Research Program, Japan.

acropodites, the left acropodite is twisted clockwise in posterior view.

Type species. Sinoria tianmu n. sp.

Etymology. The generic epithet refers to China.

Description. Body composed of head and 20 segments.

Head capsule smooth; epicranial suture distinct; genae not margined laterally, with a central impression. First antennomere subglobose; 2nd-6th clavate; 6th with a sense organ distodorsally; 7th short and truncate; relative lengths of antennomeres 2=3=4=5=6>1>7.

Tergites without setae and tubercles. Metatergites with transverse depression at midlength. Paranota well developed laterally, smooth on both anterior and posterior margins; posterolateral corners of paranota blunt on segments 1-5 and acutely produced on segments 6-19. Peritremata distinct. Ozopores located at posterior 1/3.

Sternites without setae. Sternites of segment 4 and segments 5-6 with a pair of projections and a pair of projections or elevations between each leg pair, respectively.

Gonopodal characters: Coxae connected by membrane only, no remnant of sternal plate; sternal apodeme long, straight; coxa oval, with coxal apophysis and one macroseta; prefemur with large proximolateral projection; acropodite and prefemoral process curved medially; left acropodite twisted anticlockwise near tip in posterior view but clockwise in right gonopod; prefemoral process subparallel with acropodite. Prostatic groove originating in pit at base of prefemur, running along lateral side of acropodite, and opening terminally on tip.

Distribution. The Tian-mu Mountains, Tai-shun County, Zhejiang Province, China.

Remarks. Sinoria belongs to the tribe Xystodesmini HOFFMAN, 1980, because this genus agrees well with the definition of the tribe by HOFFMAN (1980) in "the male gonopod with long, nearly straight sternal apodeme and telopodite generally reduced in size, equaling coxae or appreciably smaller in overall bulk." HOFFMAN originally gave this definition to the tribe Harpaphini HOFFMAN, 1980, which was subsequently synonymized with the tribe Xystodesmini (TANABE & SHINOHARA, 1996).

Sinoria has a proximolateral projection of male gonopods, which has been observed only among Oriental xystodesmids and is supposed to be an apomorphy. In sharing of this feature, *Sinoria* is considerable to be closely related to other Oriental xystodesmids.

Sinoria tianmu n. sp.
(Fig. 1)

Diagnosis. With the characters of the genus.

Etymology. The species epithet refers to the type locality.

Description. Male holotype. Anterolateral corners of paranota rounded. Posterolateral corners of paranota blunt on segments 1-5 and acutely produced on segments 6-19 (Fig. 1 A-C), becoming progressively more acuminate posteriorly.

Sternite of segment 4 with a pair of small projections between 3rd legs (Fig. 1 D). Sternite of segment 5 with a pair of high projections between 4th legs and widely segregated elevations between 5th legs (Fig. 1 E). Sternite of segment 6 with a pair of widely segregated elevations between 6th legs and convexly recessed between 7th legs to accommodate acropodites (Fig. 1 F). Postgonopodal sternites with a small medial tubercle between each leg pair.

Coxae without distomedial projections. Coxae of segment 4 with clavate projection proximomedially (Fig. 1 D). Prefemoral spines beginning on segment 5, becoming progressively longer posteriorly.

Gonopodal aperture elliptical. Gonopods in situ with telopodites subparallel. Gonopodal structure as in Fig. 1 G, H: Coxa oval, with large coxal apophysis near distal edge on anterior face, a macroseta between coxal apophysis and cannula; sternal apodeme long, nearly straight. Prefemur with large flat proximolateral projection (ppp); prefemoral process spoon-shaped, thin and enlarged in apical 1/3, curved medially, subparallel to acropodite, extending to near level of tip of acropodite. Acropodite arcuate, curved medially, gutter-shaped in basal 3/4, twisted anticlockwise at 1/4 of length in left gonopod in posterior view but clockwise in right gonopod, with an outer acute process near tip.

Color in life. Unknown.

Chaetotaxy. Epicranial 2 (left), 2 (right); frontal+genal about 10; clypeal about 30; labral about 30.

Female. Unknown

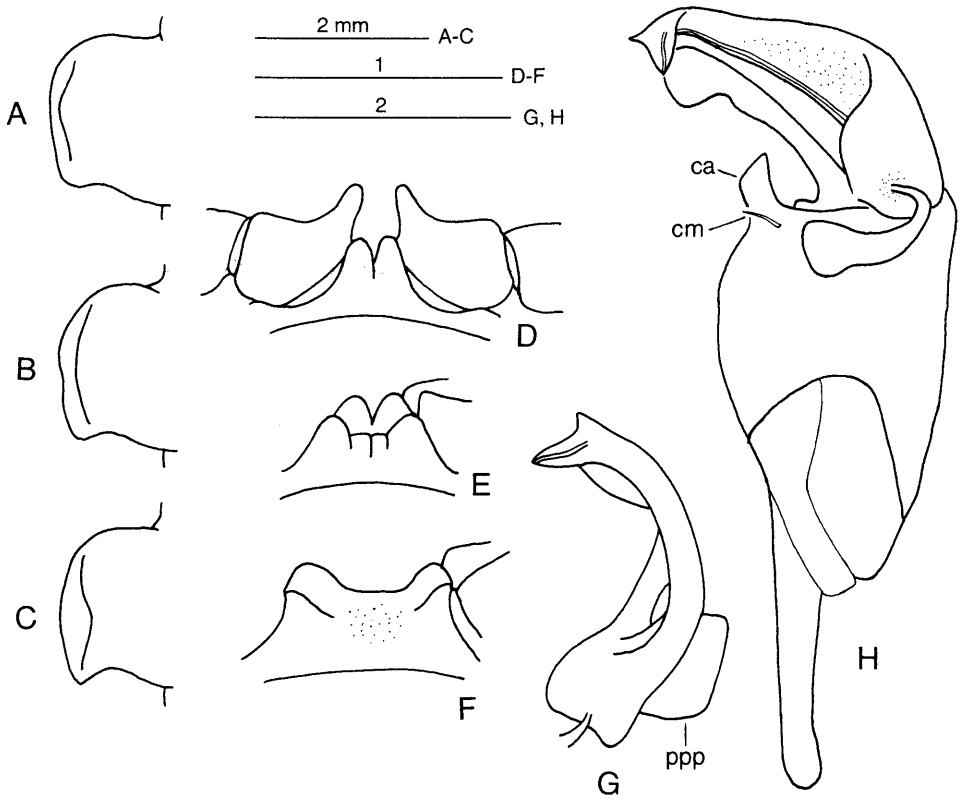

Fig. 1. *Sinoria tianmu* n. sp., male holotype. A-C, Left paranota, dorsal views: A, segment 5; B, segment 6; C, segment 7. D, coxae and sternal projections of segment 4, posterior views, setae omitted. E-F, sternal projections, posterior views, setae omitted: E, segment 5; F, segment 6. G, telopodite of left gonopod, ventral view, setae omitted. H, left gonopod, medial view, setae omitted except coxa. ca, coxal apophysis. cm, coxal macroseta. ppp, prefemoral proximolateral projection.

Measurements. Male holotype: Head width 4.4 mm, 10th metatergal width (between ozopores) 7.3 mm.

Distribution. The Tian-mu Mountains, Tai-shun County, Zhejiang Province, China.

Specimen examined. A broad-leaved forest at the top of the Tian-mu Mountains, 1500 m alt., Nature Protective Area, Tai-shun County, Zhejiang Province, China, 3 September 1989 (K. ISHII), 1 male holotype.

Riukiaria chinensis n. sp.
(Fig. 2)

Diagnosis. Separable from congeners by the feature that posterolateral corners of paranota are blunt on segments 1-7 and acutely produced on segments 8-19 in male, and blunt on segments 1-8 and acutely produced on segments 9-19 in female, while those of both sexes in all other congeners are blunt on segments 1-4 and acutely produced on segments 5-19.

Gonopods of this species is similar to those of *R. holstii* (POCOCK), 1895, *R. pugionifera* VERHOEFF, 1936, *R. puella* TANABE, 1988, and *R. jamila* TANABE, 1990. Considering the simplicity of the genital structures that are generally used for identification, any diagnosis concerning gonopodal characters would be far less efficient than simply comparing material to the illustrations supplied for this species group.

Description. Male holotype. Head capsule smooth; epicranial suture distinct; genae not margined laterally, with a central impression. First antennomere subglobose; 2nd-6th clavate; 6th with a sense organ distodorsally; 7th short and truncate; relative lengths of antennomeres $2=3=4=5=6>1>7$.

Tergites without setae and tubercles. Metatergites with transverse depression at midlength. Paranota well developed laterally, smooth on both anterior and posterior margins; anterolateral corners rounded; posterolateral corners blunt on segments 1-7 and acutely produced on segments 8-19 (Fig. 2 A-C), becoming progressively more acuminate posteriorly. Peritremata distinct. Ozopores located at posterior 3/5.

Sternites without setae and medial tubercles. Sternite of segment 4 with a pair of small projections between 3rd legs. Sternite of segment 5 with a pair of high projections between 4th legs and between 5th legs; both pairs similar in height to each other (Fig. 2 D). Sternite of segment 6 with a pair of widely segregated projections between 6th legs and convexly recessed between 7th legs to accommodate acropodites (Fig. 2 E).

Coxae without distomedial projections. Prefemoral spines beginning on segment 6, becoming progressively longer posteriorly.

Gonopodal aperture elliptical. Gonopods in situ with telopodites subparallel. Gonopodal structure as in Fig. 2 F, G: Coxae oval, connected by membrane only, no remnant of sternal plate, with coxal apophysis near distal edge on anterior face, a macroseta between coxal apophysis and cannula; sternal apodeme long, nearly straight. Prefemur with large flat proximolateral projection (ppp); prefemoral process arcuate, somewhat curved laterally, extending to near level of tip of acropodite. Acropodite arcuate, curved medially, forming a pair of forceps with prefemoral process on ventral view (Fig. 2 F), twisted clockwise at about 1/4 of length in left gonopod in posterior view but anticlockwise in right gonopod, with small inner acute process at twisted portion. Prostatic groove originating in pit at base of prefemur, running along lateral side of acropodite, and opening terminally on tip.

Color in life. Unknown.

Chaetotaxy. Epicranial 2 (left), 2 (right); frontal+genal uncountable, because most setae snapped; clypeal about 30; labral about 30.

Female allotype. Somatic features as in male holotype, except for: (1) body more arched; (2) antennae and legs more slender; (3) paranota less produced; posterolateral corners blunt on segments 1-8, acutely produced on segments 9-19; and (4) sternites of segments 5-6 without projections (4th sternite with projections as in male holotype).

Cyphopod (Fig. 2 H-I) with both anterior and posterior receptacles; receptacles cupped around valves; anterior receptacle larger than posterior one; both anterior and posterior valves subequal in both size and shape; valves and receptacles with setae.

Measurements. Male holotype: Head width 5.0 mm, 10th metatergal width (between

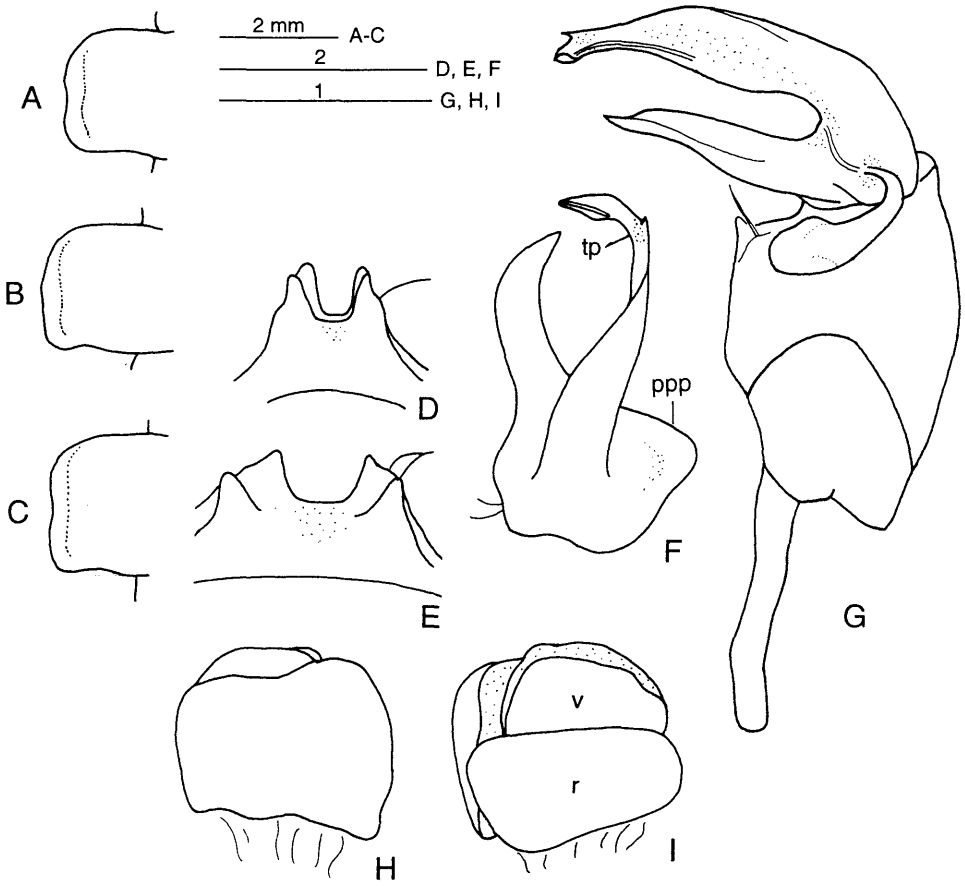

Fig. 2. *Riukiaria chinensis* n. sp. A-G, Male holotype. A-C, left paranota, dorsal views: A, segment 7; B, segment 8; C, segment 9. D-E, sternal projections, posterior views, setae omitted: D, segment 5; E, segment 6. F, telopodite of left gonopod, ventral view, setae omitted. G, left gonopod, medial view, setae omitted except coxa. H-I, left cyphopod of female paratype, setae omitted: H, anterior view; I, posterior view. ppp, prefemoral proximolateral projection. r, receptacle. tp, twisted portion. v, valve.

ozopores) 8.4 mm. Female allotype: Head width 5.2mm, 10th metatergal width (between ozopores) 9 mm.

Distribution. The Tian-mu Mountains, Tai-shun County, Zhejiang Province, China.

Remarks. Gonopods of this species are typical of the genus, that is, acropodites form a pair of forceps with a prefemoral process in ventral view, but paranotal morphology is distinctly differs from other congeners, namely, posterolateral corners of paranota of this species are blunt on segments 1-7 in a male and segments 1-8 in a female, and acutely produced on segments 8-19 in a male and segments 9-19 in a female; those of other congeners are blunt on segments 1-4 and acutely produced on segments 5-19 in both sexes. Here, putting special stress on gonopodal morphology, we propose this species for a new species of *Riukiaria.*

Specimens examined. A broad-leaved forest at the top of the Tian-mu Mountains, 1500m alt., Nature Protective Area, Tai-shun County, Zhejiang Province, China, 3 September 1989 (K. ISHII), 1 male holotype, 1 female allotype.

Acknowledgments

We wish to express our thanks to Dr. G. IMADATÉ, Professor Emeritus of Tokyo Medical and Dental University, for his kind leading through the Sino-Japanese cooperative study. We also acknowledge Dr. H. TAMURA, Professor Emeritus of Ibaraki University, for his kind advice and for reading the manuscript.

摘　要

田辺　力（徳島県立博物館　〒770　徳島県徳島市八万町向寺山）：石井　清（獨協医科大学生物学教室　〒321-02　栃木県下都賀郡壬生町北小林　880）：尹　文英（中国科学院上海昆虫研究所上海市重慶南路225）：中国浙江省天目山のババヤスデ科の2新種.

Edaphologia, No.57 : 13-19, 1996.

文部省科学研究費補助金による国際学術研究「中国の亜熱帯森林における土壌動物相の研究」（課題番号01041032研究代表今立源太良）における中日共同研究を通じて，中国浙江省天目山で発見されたババヤスデ科の1新属 Sinoria および2新種 *Sinoria tianmu, Riukiaria chinensis* を記載した。*Sinoria* は左の生殖肢の主軸が後方からみて反時計回り（右の生殖肢では時計回り）にねじれていることで既知属と区別される．*Riukiaria chinensis* は側庇後角が第1-7体節で鈍く，第8-19体節で鋭くとがることにより既知種と区別される。

References

GOLOVATCH, S. I., 1978. Some east Asian millipedes (Diplopoda) in the collection of the Zoological Institute, USSR Academy of Science. *Entomologeskoe Obozr.,* **57**: 677-681. (In Russian.)

HOFFMAN, R. L., 1956. Studies on some Oriental xystodesmine millipeds (Polydesmida, Chelodesmidae). *Proc. Ent. Soc. Wash.,* **58**: 95-104.

HOFFMAN, R. L., 1964. A new subfamily of xystodesmid millipeds from North America and China (Polydesmida). *Trans. Amer. Ent. Soc.,* **90**: 301-311.

HOFFMAN, R. L., 1980 ("1979"). Classification of the Diplopoda. 237 pp. Museum d'Histoire Naturelle, Geneva, Switzerland.

IMADATÉ, G., 1990. Study on soil fauna of subtropical forests in China I. Sino-Japanese cooperative study on the soil fauna of the Tian-mu Mountains in 1989. *Edaphologia,* (42): 36-40.

SHINOHARA, K., 1977. Reevaluation on *Riukiaria* (Diplopoda). *Acta Arachnol.,* **27** (special number): 115-

119. (In Japanese with English summary.)
TANABE, T., 1988. Two new species of the genus *Riukiaria* from Kyûshû and Is. Yaku-shima, Japan (Diplopoda: Polydesmida: Xystodesmidae). *Acta Arachnol.*, **37**: 37–45.
TANABE, T., 1990. A new milliped of the genus RIUKIARIA from Is. Yaku-shima, Japan (Diplopoda: Polydesmida: Xystodesmidae). *Zool. Sci.*, **7**: 443–447.
TANABE, T. & K. SHINOHARA, 1996. Revision of the millipede genus *Xystodesmus*, with reference to the status of the tribe Xystodesmini (Diplopoda: Xystodesmidae). *Jour. Nat. His.*, in press.