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A New Scolopendrellidae Species (Myriapoda: Symphyla) from the Northern Mariana Islands, Micronesia, with a List of the West Pacific Symphyla Species

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Abstract Symphyla have been collected from the northern Mariana Islands for the first time. One species was found, *Symphylella marianensis*, which is new to science. It is described and figured.

Key words: Myriapoda, Symphyla, Scolopendrellidae, *Symphylella*, new species, distribution, Mariana Islands.

The Symphyla accounted for below, the first ones from the northern Mariana Islands, belong to the collection brought together by the Biological Expedition to the northern Mariana Islands, arranged by the Natural History Museum and Institute, Chiba, in cooperation with the Department of Natural Resources (the Commonwealth of the Northern Mariana Islands) and the Marine Laboratory of the University of Guam. The collection is from the islands Alamagan and Anatahan and consists of 8 specimens.

Systematics

Family Scolopendrellidae

Genus *Symphylella* Silvestri, 1902

The range of the genus is worldwide and more than 40 species have been described from the temperate, subtropical and tropical regions.

Symphylella marianensis sp. n.

(Figs. 1 and 2)

Material examined. Holotype: CBM-ZU-95, adult (♀), ANATAHAN, SW slope, alt. 365 m, *Ficus* forest, 1992. V. 13, loc. An-4(T), leg. T. Kurozumi. Paratypes: CBM-ZU-96–98, 1 ad.[1] (♀), 1 juv. 9, 1 juv. 8, same data as holotype. Other material: ANATAHAN, NW coast, alt. 10 m, under coconut palm, 1992. V. 11, 1 subad., loc. An-1(T), CBM-ZU-99, and same island, NW valley, alt. 185 m, *Hibiscus* forest, 1 subad. 11, 1 juv. 9, loc. An-2(T), CBM-ZU-100, leg. T. Kurozumi; ALAMAGAN, SW slope, alt. 250 m, 1992. V. 19, 1 juv. 10, loc. Al-2(T), CBM-ZU-101, leg. T. Kurozumi. Holotype, paratypes and all other material deposited in the zoological collections of Natural History Museum and Institute, Chiba, Japan.—8 specimens.

Description

Length. Body except antennae and cerci 2.74(-2.76)[2] mm

Head. 1.2 times as long as broad, broadest behind centre at level of points of articulation of mandibles; the latter almost concealed; central rod very indistinct with traces only of its anterior half and of anterior branches. Dorsal surface of head behind anterior branches with very thin setae of different lengths. Long and protruding setae in oblique post-antennal row and in lateral and posterior parts; longest one (a posterolateral one) more than twice longer than shorter ones. Postantennal organ spherical; diameter of organ 0.5 of that of antennal segment 1. Palp of first maxilla straight, somewhat bulbous, pointed. Cuticle of dorsal side of head with faint dense granulation.

Antennae. Antennae with (17–)18(–19) segments; 1/4 of length of body. First segment

1) Abbreviations: ad., a specimen with the maximum number of legs; subad. ··· and juv. ···, a subadult specimen and a juvenile specimen with the number of pairs of legs indicated. These numbers include the first rudimentary pair.

2) Range of variation in adult paratype in parenthesis.

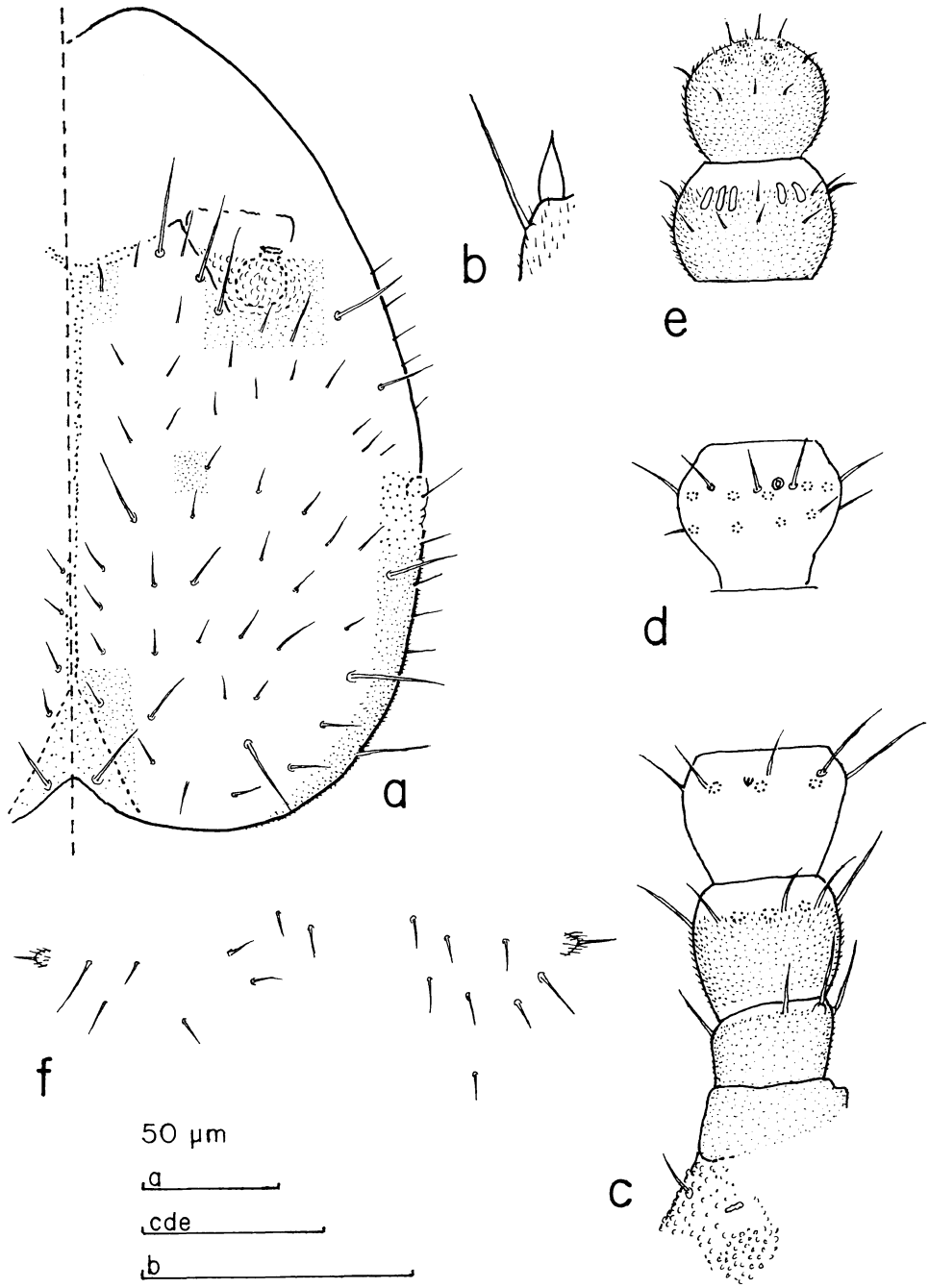

Fig. 1. *Symphylella marianensis* n. sp., holotype (♀). a, head, right side, dorsal view; b, palp of first maxilla; c–e, left antenna: c, antennal base with postantennal organ and first 3 antennal segments; d, 10th segment; e, apical segments; f, rudimentary first pair of legs. Pubescence only partly drawn in a and c, not drawn in d and f.

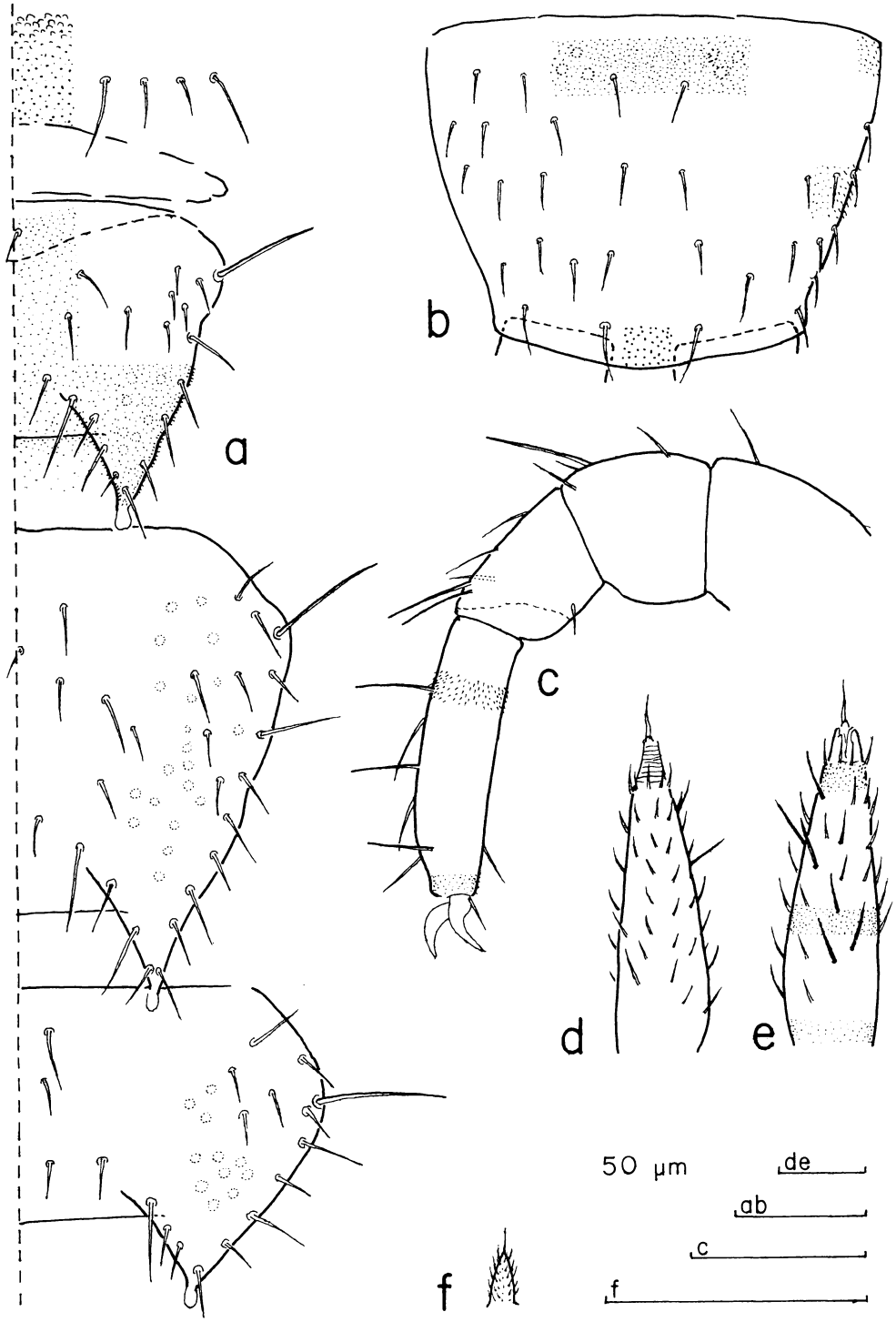

Fig. 2. *Symphylella marianensis* n. sp., holotype (♀). a, tergites 1–4, right side; b, last tergite; c, leg 12, first three segments, anterior view; d, left cercus, dorsal view; e, left cercus, ventral view; f, stylus, leg 12. Pubescence only partly drawn in a, b and e, not drawn in d.

distinctly smaller than following ones, 1.5(–1.6) times as wide as long; length and diameter 0.6 (–0.7) and 0.8 of those of segment 2; 4(–5) setae in a single whorl, 2 long and thin on inner side, longest one 0.6 of greatest diameter of segment and (1.3–) 1.4 times length of outer seta. Segment 2 1.1(–1.3) times as wide as long, with 8 setae rather evenly distributed around segment; longest setae on inner side, their length (0.5–)0.6 of greatest diameter of segment and 1.2(–1.3) times as long as outer setae. Segment 3 similar to preceding segment but inner setae slightly longer. Segment 10 1.1(–1.2) times as wide as long with 10 setae in the primary whorl; inner and outer setae subequal, their length 0.3–0.4 of the greatest diameter of segment; secondary whorl consisting of 7 very thin setae on inner, ventral and outer sides. Proximal part of antennae with one whorl of setae on each segment; secondary whorl begins on ventral side of segment (8–)9. Primary whorl with 1–2 circular sense organs from segment (6–) 8 (–9) onwards to segment (15–) 16 (–17). Bladder-shaped organs on 7 segments next to apical one; they increase in number on distal segments to a maximum of ≈15. Rudimentary spined organs dorsally on segments 3–5. Apical segment subglobular, only very little wider than long with several short setae on distal half; small sensory spined organs in 4 depressions in distal surface. All segments distinctly pubescent.

Tergites. Tergite 1 rudimentary with 9(–10) thin setae arranged in two groups, 5+4(5+5). Thirteen tergites with triangular processes. Second tergite complete. Ratio of distance between processes to their length 0.4 on tergite 2, 0.6 on tergite 3 and 1.5 on tergite 4; triangular processes with small glabrous ovoid end-swellings; processes of posterior tergites with proportionately broader bases than those anteriorly. Tergites 3, 6, 9 and 12 longer than preceding ones. Long (sub)anterolateral setae on tergites 1–15, 0.7–0.8 of the length of posterior triangular processes on anterior tergites, may be even longer than processes on posterior tergites. Triangular processes with at least one marginal seta (most often more) between apical and inner basal seta, exceptions only on most posterior tergites. Number of posteromarginal setae on different tergites varies between 2–5. Number of lateromarginal setae on anterior tergites: 6 and 7 on tergite 2, (9–)10–11 on tergite 3, (6–)8–9 on tergite 4. Last tergite with setae in 4 indistinct longitudinal rows, 4 setae in submedian rows and 4–5 in lateral ones. Cuticle of tergites granulated or shortly pubescent. On lateral thirds of tergites many small circular spots either smooth or with fine granulation only.

Legs. First pair of legs reduced to two small hairy cupules each with one long seta. Last pair of legs 0.1 of length of body. Tarsus subcylindrical with distal fourth tapering; 3.6(–3.8) times as long as wide with 6 dorsal setae: 4 slightly curved and erect, 2 curved and depressed; longest erect seta, the most proximal one, about as long as greatest diameter of tarsus and about 0.5 of length of tibia. The latter 1.5(–1.6) times as long as wide with 4 dorsal setae; longest seta 0.8 of greatest diameter of tibia and 1.2 times as long as longest seta of tarsus. Femur about as long as wide. Anterior claw 1/4 of length of tarsus, 1.1 times as long as posterior claw which is a little more curved and more slender than anterior claw. Tarsus, tibia and femur wholly pubescent; trochanter too but on posterior side pubescence arranged in dense rows on cuticular thickenings.

Styli at bases of legs 3–12; they are densely pubescent with a longer hair at apex. Coxal sacs at bases of legs 3–9. Coxal plates of leg 10 with 3 setae, those of leg 11 with 2(–3), of leg 12 with one.

Cerci. (3.5–)3.6 times as long as wide; outer side more curved than inner one. They are (1/16–)1/17 of the length of body and 0.6(–0.7) of the length of leg 12. Setae on all sides, mainly short, thin, slightly curved; 6 longer and almost straight setae protruding on ventral side, longest ones 0.6 of greatest diameter of cercus. Terminal area short with about 8(–9) ventral lamellae. Apical seta about as long as terminal area and 0.1 of length of cercus. Pubescence dense and very short.

Affinities. The difficulties to trace relationships in the symphyla are great but the new species may be a relative of my own *S. asiatica* from Sri Lanka (Scheller, 1971). It is easily distinguished from it by e.g. characters of the

Table 1. A list of Symphyla species recorded from west Pacific.

Species	Island	References
Fam. Scolpendrellidae (2 out of 8 genera)		
Genus *Symphylella*		
javanensis Scheller	Java	Scheller (1988)
marianensis Scheller	northern Mariana Is.	This paper
vulgaris (Hansen)	Sumatra	Jupeau (1957)
	Japan	Rochaix (1954)
Genus *Symphylellina*		
pachypoda Broelemann	Loyalty Is.	Broelemann (1931)
Fam. Scutigerellidae (3 out of 6 genera)		
Genus *Scutigerella*		
palmonii Michelbacher (s.n. *S. nodicerca* Mich.)	Japan	Rochaix (1954)
Genus *Hanseniella*		
caldaria (Hansen)	Japan	Rochaix (1954)
orientalis (Hansen)	Sumatra	Jupeau (1957)
		Pocock (1894)
	Java	Pocock (1894)
	Samoa	Attems (1929)
sp.	Taiwan	Takashima (1938)
Genus *Millotellina*		
krakatauanus Scheller	Krakatau Is.	Scheller (1988)
michelbacheri Jub.-Jup. & Rev.	Caroline Is.	Juberthie-Jupeau and Reveillet (1991)
reducta	New Guinea	Jupeau (1957)
remyi Jub.-Jup. & Rev.	southern Mariana Is.	Juberthie-Jupeau and Reveillet (1991)
	Caroline Is.	Juberthie-Jupeau and Reveillet (1991)

Moreover, unidentified species have been mentioned in papers by Sawa (1930), Takashima (1936) and Aoki and Harada (1978).

first tergite (9–10 setae, not 6–7), the chaetotaxy of the inner side of the triangular appendages of the anterior tergites and the cerci (the latter without long and protruding posterolateral setae in *marianensis*, with 3–4 in *asiatica*). Moreover, the long seta at the palp of the first maxilla and some characters of the antennae are of value in separating these two species. There are reasons to connect *marianensis* also to *tenella* (Scheller, 1961) from Hawaii and particularly to *caribica* (Scheller and Muchmore 1989) from the Virgin Islands.

Remarks

No symphylans at all have previously been reported from the northern Mariana Islands but from Guam and Saipan southwards in the island chain and from the Caroline Islands two species have been found, both belonging to the genus *Milotellina* (Juberthie-Jupeau and Reveillet, 1991). However, in general the Symphyla of the West Pacific islands and of the neighbouring areas have received little attention. It is true that several finds have been published but to a large extent they are accidental and the provisional list (Table 1) will give an idea only of species and genera occurring there.

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