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The centipede *Scolopendra morsitans* L., 1758, new to the Hawaiian fauna, and potential representatives of the “*S. subspinipes* Leach, 1815, complex” (Scolopendromorpha: Scolopendridae: Scolopendrinae)

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Abstract. *Scolopendra morsitans* L., 1758, is documented from Honolulu, Oahu, Hawaiian Islands, the first record of this anthropochoric chilopod from both the archipelago and state. Hawaii thus becomes the second American state to harbor the species, the other being Florida, where an individual has been taken in Jacksonville, Duval County. Meristic and morphological data are presented for three Hawaiian specimens. At least two other species of *Scolopendra*, both introduced, occur on these islands: *S. polymorpha* Wood, 1861, known only from one specimen from Oahu, and one or more representatives of the “*S. subspinipes* Leach, 1815, complex,” which is widespread and even inhabits Midway Atoll.

Key Words. *Scolopendra subspinipes*, *S. polymorpha*, Scolopendrinae, introduction, Oahu.

Introduction

In the review of Hawaiian scolopendromorph centipedes, all of which possess 21 leg-bearing segments, Shelley (2000) reported two species, both anthropochores, in the nominate subfamily of Scolopendridae - *Scolopendra subspinipes* Leach, 1815, occurring throughout the archipelago including Midway Atoll, and *S. polymorpha* Wood, 1861, represented by one individual from an Oahu pineapple plantation. The latter derives from North America, where it occupies an irregular area from the Central Plains westward to the Pacific Ocean, extending northward to Washington and Montana, USA, and southward to Baja California Sur and Guerrero, Mexico (Shelley 2002). Shelley (2000, 2002) combined the subspecies of *S. subspinipes* under the nominate (Kraepelin 1903; Attems 1914, 1930; Chamberlin 1944; Chamberlin and Wang 1952; Wang 1962; Schileyko 2007), but Kronmüller (2012) showed them to be full species that can be collectively referenced as the “*S. subspinipes* complex.” The dominant scolopendrines in southeast Asia, three have been widely introduced in Oceania (Shelley 2004), and as *S. subspinipes*, the assemblage was first documented from Hawaii by Gervais (1847), suggesting transport there and throughout the Pacific by migrating Polynesians (Buxton and Hopkins 1927, Shelley 2000). Not recalling which representatives have been encountered in the Hawaiian Islands, we incorporate the three most widely introduced species into the ensuing key.

While sampling in Sand Island State Recreation Area at the entrance to Honolulu Harbor, Oahu, in August 2013, WDP and DAY discovered three moderate-size scolopendrines beneath trunks of coconut palms (*Cocos nucifera* L.) that were shipped to RMS for deposit in the North Carolina State Museum of

Natural Sciences (NCSM). They are *S. morsitans* L., 1758, considered native to Africa, Australia, and Asia from India to the Philippines/Papua New Guinea (Koch 1983, Khanna 2001, Shelley et al. 2005, Shelley 2006), which constitutes a third anthropochoric Hawaiian scolopendrine. A fourth specimen, not shipped but considered conspecific, was discovered at the same locality three weeks later in beach sand beneath driftwood at the high water mark. Although one of the first three individuals is a subadult and markedly smaller, all match published diagnoses of *S. morsitans*, with the cephalic plate overlapping the first tergite that lacks the anterior transverse sulcus (terminology per Lewis et al. [2005] and Bonato et al. [2010]). An ultimate leg on one larger specimen is slightly shorter and exhibits different spination; apparently the original appendage was lost and a new one regenerated. Meristic and morphological data are provided in the following table; illustrations are available in Attems (1930, fig. 38), Lewis (2001, figs 2-4), and Shelley (2002, figs. 57-60). Shelley (2004) cited *S. morsitans* from the following Oceanian countries and territories: Cook Islands, Federated States of Micronesia, French Polynesia, Guam, Kiribati, New Caledonia, Northern Marianna Islands, Solomon Islands (Papua New Guinea), Republic of the Marshall Islands, Tonga, and Tuvalu. Hawaii becomes the second US state where the centipede has been documented, the other being Florida, where an individual from Jacksonville, Duval County, constituted the first authentic North American record (Shelley et al. 2005). Sample data are as follows:

USA, Hawaii, Oahu, Sand Island State Recreation Area at entrance to Honolulu Harbor (N 21° 18' 05.23", W 157° 52' 55.99"), 3 specimens, 26 August 2013, WD Pereira, DA Yee (NCSM) and 1 individual, 4 September 2013, WD Pereira (Bishop Museum, Honolulu).

***Scolopendra morsitans* from Hawaii.** L, left; R, right; PFP, Prefemoral Process. Measurements are in mm.

Length	Width	L Antennomeres	R Antennomeres	L Setal Transition	R Setal Transition	L Ventral Prefemoral Spines/Rows	R Ventral Prefemoral Spines/Rows	L PFP Spines	R PFP Spines
62.9	6.3	20	19	6	6 ^{1/2}	3/3/3	3/3/3	3	4
67.4	7.1	20	20	6	6	3/4/3	2/1/1/2	4	8
48.4	5.3	21	21	5 ^{3/4}	6 ^{1/4}	3/3/3	3/3/3	4	2

Key to known and potential Hawaiian Scolopendromorpha. In the spination figures in couplet 6, normal conditions are not within parentheses and rare ones are; thus (1)2(3) means normally with two spines, occasionally with one or three.

1. With four ocelli on each side of the cephalic plate. **2**
— Ocelli absent **Cryptopidae**
2. Spiracles rounded and without valves, those on segment 3 typically larger.
..... **Scolopendridae: Otostigminae**
— Spiracles triangular, valvular, and subequal in size (Scolopendridae: Scolopendrinae). **3**
3. Tergite 1 with conspicuous anterior transverse sulcus. ***Scolopendra polymorpha* Wood, 1861**
— Without this character. **4**
4. Prefemora of ultimate legs with 0-3 ventral spines arranged in one longitudinal row; large-bodied, aggressive species, adults >15 cm (6") long. **5**
— Ultimate prefemora typically with 9-10 ventral spines arranged in three longitudinal rows; smaller species, adults <7.5 cm (3") long. ***S. morsitans* L., 1758**
5. Ultimate prefemora without ventral spines. ***S. dehaani* Brandt, 1840**
— Ultimate prefemora with ventral spines. **6**

6. Ultimate prefemora with (1)2(3) ventral spines, coxopleural process with (1)2(3) spines.
 *S. subspinipes* Leach, 1815
 — Ultimate prefemora with (2)3 ventral spines, coxopleural process with 2-3 spines.
 *S. japonica* L. Koch, 1878

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