Uloborus plumipes and Dipoena pelorosa (Araneae: Uloboridae, Theridiidae): two newly recorded spiders in Japan

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Abstract — Two spider species, Uloborus plumipes Lucas 1846 and Dipoena pelorosa Zhu 1998, have been newly recorded in Japan. Uloborus plumipes is widespread throughout the old world, but was not previously found in Japan. Dipoena pelorosa was found only in China.

Key words — taxonomy, distribution, new records, Wakayama Pref., Kochi Pref., Okinawa Pref.

Introduction

After spider specimens collected from various parts of Japan had been examined, the following two species were recognized: Uloborus plumipes Lucas 1846 and Dipoena pelorosa Zhu 1998. These are new to the Japanese spider fauna and are recognized or redescribed here.

Uloborus plumipes is widespread throughout the old world and was introduced into Argentina (World Spider Catalog 2017), but was not found in Japan previously. Recently, several specimens of the species were collected in Wakayama Pref., Honshu, and Kochi Pref., Shikoku, Japan. The specimens were collected from a roadside guard rail, a public lavatory in a park, and a private house; that is, from artificial structures. Therefore, there is a possibility that the species is not native, but was introduced into Japan.

Dipoena pelorosa was found only in China, in Shaanxi and Hunan (Zhu 1998, Song, Zhu & Chen 1999, Yin et al. 2012). Several specimens collected on Iriomotejima Island, Okinawa Pref., Japan, were identified as this species. They were collected from a falling-leaf layer in a forest by the shifting method or from an underfloor of a ruined house next to a forest.

Materials and methods

Specimens were preserved in 75% ethanol and their morphological features were observed under a stereoscopic microscope (M3Z, Wild Heerbrugg AG, Heerbrugg, Switzerland). Photographs were taken with a digital camera EOS Kiss X7, using an EF-S 60-mm f2.8 macro photo lens and a MT-24EX macro twin flash (Canon Inc., Tokyo, Japan), or connected to the microscope. All measurements were made with a micrometric ocular lens on the microscope and are given in millimeters. The voucher specimens used in this study are deposited in the collection of the Department of Zoology, National Museum of Nature and Science, Tokyo (NSMT). Length divided by width is abbreviated as L/W, and anterior width divided by posterior width as AW/PW.

Taxonomy

Uloborus plumipes Lucas 1846

[Japanese name: Ke-ashi-uzugumo]
(Figs. 1A–B, 2)

Uloborus plumipes Lucas 1846, p. 252, pl. 15, fig. 8 (♀), female holotype from Algeria, not examined; Berland & Millot 1940, p. 153, fig. 6 (♂); Brignoli 1979, p. 277, fig. 6 (♀); Efimik, Eysunin & Kuznetsov 1997, p. 86, fig. 5 (♂); Roberts 1998, p. 93, unnumbered fig. (♀); Horak & Kropf 1999, p. 254, fig. 1 (♀); Almqvist 2005, p. 44, figs. 75a–1 (♀); Saaristo 2010, p. 286, figs. 40.1–16 (♀); Hänggi & Straub 2016, p. 6, fig. 2 (♀).

For synonyms and further literature, see World Spider Catalog (2017).


Notes. To date, only one species of Uloborus, U. wallckenbauri, was recorded in Japan. Uloborus plumipes and U. wallckenbauri can be easily distinguished by their general appearance. The dorsum of the abdomen has a pair of shoulder humps and 3 pairs of hair tufts in U. plumipes, but has neither a shoulder hump nor a hair tuft in U. wallckenbauri (Fig. 1, A vs. C). On the other hand, their
epigynes and male palps closely resemble each other. Although the morphology of the epigyne or male palp is the key to the identification of many spiders, in this case, the general appearance is more reliable than the morphology of the copulatory organs for identification of these species.

**Description.** Based on 1♀/1♂ from Wakayama Pref. (NSMT-Ar 14745). Body 4.13 / 2.80 long. Carapace 1.40 / 1.13 long; 0.83 / 1.00 wide. Median ocular area slightly longer than wide [L/W ratio 1.04 / 1.14]; wider behind than in front [AW/PW ratio 0.82 / 0.86]. Labium longer than wide [L/W ratio 1.67 / 2.29]. Sternum longer than wide [L/W ratio 1.32 / 1.32]. Length of legs [tarsus + metatarsus + tibia + patella + femur = total]: I, 0.58 + 1.65 + 1.18 + 0.60 + 1.78 = 5.79 / 0.53 + 1.34 + 1.18 + 0.51 + 1.55 = 5.11; II, 0.50 + 0.98 + 0.70 + 0.45 + 1.18 = 3.81 / 0.43 + 0.80 + 0.70 + 0.40 + 0.98 = 3.31; III, 0.49 + 0.73 + 0.45 + 0.39 + 0.93 = 2.99 / 0.35 + 0.50 + 0.46 + 0.28 + 0.76 = 2.35; IV, 0.55 + 1.10 + 1.00 + 0.60 + 1.38 = 4.63 / 0.79 + 0.84 + 0.80 + 0.44 + 1.03 = 3.90. Abdomen 2.88 / 1.85 long; 2.16 / 1.03 wide. Length of leg I divided by length of carapace rario 4.14 / 4.52. Tibia I anteriorly with conspicuous fringe (Fig. 1B), metatarsus IV dorsally with calamistrum. Male palp (Fig. 2B): embolus thin and long, circler. Abdomen longer than wide [L/W ratio 1.33 / 1.80], with a pair of shoulder hump and three pairs of hair tuft (Fig. 1A). Epigyne (Fig. 2A): with reversed U-shape projection.

**Color variation.** Almquist (2005) mentioned as “coloration variable”, and Hänggi & Straub (2016) also showed various color variations of this species. Likewise, specimens from Kochi have dark color abdomen unlike white colored specimens from Wakayama.

**Distribution.** Old world, Argentina.
Fig. 3. *Dipoena pelorosa* (female: NSMT-Ar 14746, male: NSMT-Ar 14747). A, habitus of female; B, same, male; C, epigyne; D, male palp; E–F, clarified epigyne, ventral view. Scales = 1 mm (A–B); 0.1 mm (C–F).
Diploena pelorosa Zhu 1998

[Japanese name: Kobu-himegumo]
(Figs. 3A–D)


Notes. Diploena pelorosa can be easily distinguished from other congeners by its unique shaped abdomen that has 3 pairs of knobs (Figs. 3A–B). The morphology of the epigyne and the male palp are also quite different from those of congeners: the spermadeca is elongated in pelorosa (Fig. 3E), while globular in other species; male palp tegulum is much larger than other species (Fig. 3D).

Given these differences, it is uncertain if this species should be placed in the genus Diploena. However, it is positioned in Diploena in this paper because another suitable genus could not be found.

Description. Based on 1♀/1♂ from Iriomotejima Is., Okinawa Pref. (NSMT-Ar 14746–14747). Body 2.13 / 1.88 long. Carapace 0.85 / 0.93 long; 0.75 / 0.78 wide. Median ocular area as long as wide [L/W ratio 1.00 / 1.00]; almost same width as in front as behind [AW/PW ratio 0.94 / 0.89]. Labium wider than long [L/W ratio 0.47 / 0.63]. Sternum slightly wider than long [L/W ratio 0.88 / 0.87].

Length of legs [tarsus + metatarsus + tibia + patella + femur = total]: I, 0.25 + 0.33 + 0.73 + 0.80 + 1.10 = 3.21 / 0.73 + 1.18 + 1.33 + 0.35 + 1.43 = 5.02; II, 0.20 + 0.30 + 0.54 + 0.31 + 0.86 = 2.21 / 0.58 + 0.73 + 0.75 + 0.33 + 1.00 = 3.39; III, 0.16 + 0.26 + 0.29 + 0.43 + 0.69 = 1.83 / 0.45 + 0.49 + 0.68 + 0.26 + 0.71 = 2.39; IV, 0.19 + 0.33 + 0.54 + 0.65 + 0.68 = 2.39 / 0.50 + 0.55 + 0.65 + 0.28 + 0.90 = 2.88. Length of leg I divided by length of carapace ratio 3.78 / 5.40. Male palp (Fig. 3D): embolus thin and short, curved, tegulum large. Abdomen 1.28 / 0.98 long; 1.25 / 0.93 wide, with 3 pairs of knobs (Fig. 3A, arrows). Epigyne (Fig. 3C, E–F): oval, surrounded by chitinous part. Spermadeca elongated (Fig. 3E).

Coloration and markings. Female and male (Figs. 3A–B), carapace brown. Dorsum of abdomen brown, marginally paler, with four pairs of white spots (the most posterior pair invisible in Fig. 2A; white spots faded out in Fig. 3B).

Variation. Although the specimens used for above description have 3 pairs of knobs on dorsum of abdomen, 1♀ and 1♂ of other specimens have 4 pairs of knobs as in the original description of the species. In the former specimens, the most anterior pair cannot be recognized. White spots on dorsum of abdomen are indistinct in 1♀1♂ of specimens examined as in Fig. 3B (♂).

Distribution. China, Japan (Iriomotejima Is., this study).

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References


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