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Two new species of jumping spiders (Araneae: Salticidae) from Japan

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Abstract — Two new species of the spider family Salticidae (Araneae) from Japan are here described: *Marpissa yawatai* sp. nov. and *Mendoza suguroi* sp. nov. Although *M. yawatai* shows similarities in morphology and coloration with the previously described *Marpissa nivoyi*, the new species can be distinguished by the shape of the lateral cymbial process, the shapes of the embolic base and the retrolateral tibial apophysis on the male palp, and the unique structure of the seminal duct of females. *Mendoza suguroi*, in contrast, can be easily separated from congeners by its general appearance.

Key words — *Marpissa, Mendoza*, Salticidae, taxonomy

Introduction

The family Salticidae is a species-rich taxon that worldwide encompasses about 500 genera and more than 5000 species (Ono et al. 2009; Platnick 2013). Up to the present, about 100 species of salticids have been recorded from Japan (Tanikawa 2012), but many species are not yet described despite increased interest in the spiders from this region (Tanikawa 2008).

Here I report one new species each from the genera *Marpissa*, C. L. Koch 1846 and *Mendoza* Peckham & Peckham 1894 from Japan. Four species of the genus *Marpissa* have been recorded from the main islands of Japan (Baba 2013), but until now there have been no records of this genus from the Ryûkyû Islands of southwest Japan. Using specimens collected from the island of Honshu and the Ryûkyûs, I describe a new species *Marpissa yawatai*. In the genus *Mendoza*, five species have been recorded from among the main islands of Japan and the Ryûkyû Islands (Baba 2006). Using specimens obtained from two islands in the middle the Ryûkyûs, I describe a new species, *Mendoza suguroi*. The holotype and paratypes designated in this paper are deposited in the collection of the Department of Zoology (Tsukuba), National Museum of Nature and Science, Tokyo.

The following abbreviations are used: ALE, anterior lateral eye; AME, anterior median eye; PLE, posterior lateral eye; PME, posterior median eye. The measured distances between eyes are expressed in pairs, e.g., ALE-ALE for the distance between these two eyes. All measurements are in mm.

Marpissa yawatai sp. nov.

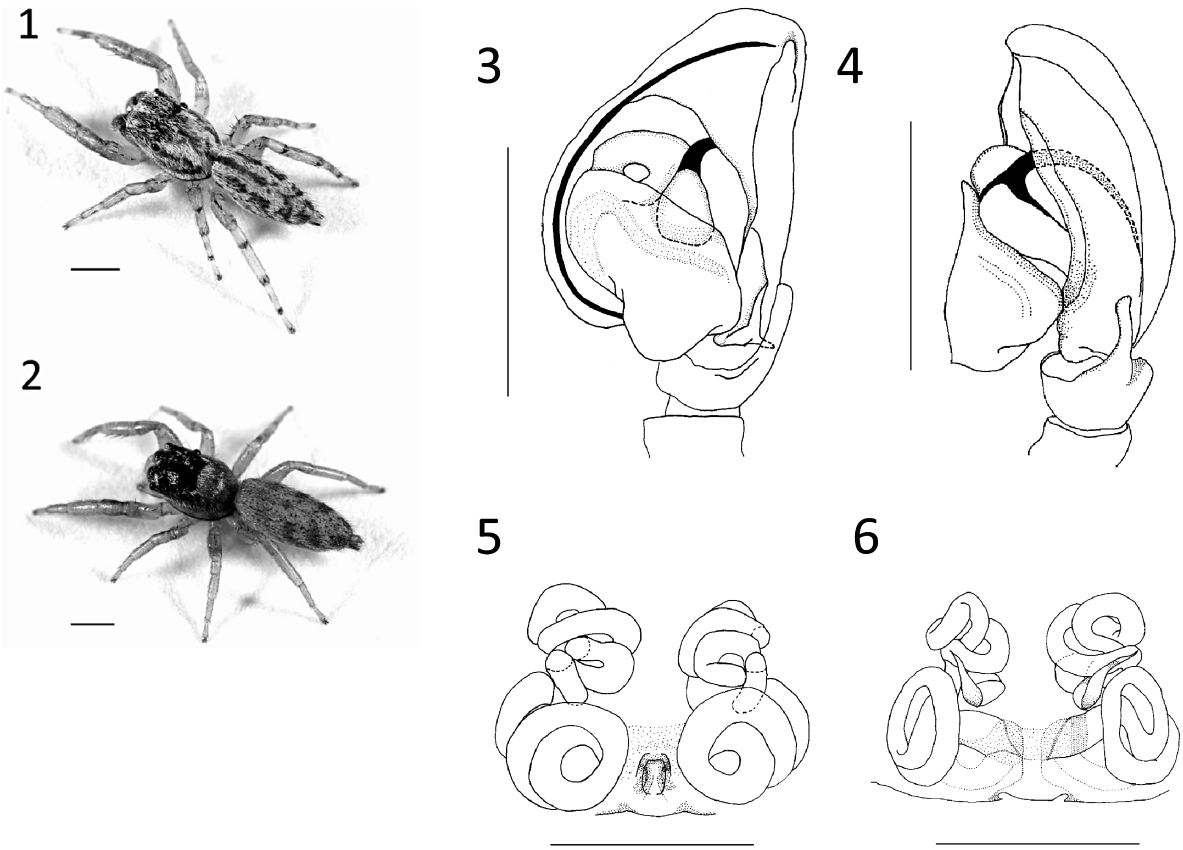
[Japanese name: Kumadori-haetori]
(Figs. 1−9)

Type series. All the type specimens were collected from Noda City, Chiba Pref., Japan. Holotype: ♂, Futatsuzuka, 11-IX-2003, A. Yawata leg. (NSMT-Ar 12551). Paratypes: 1♂, same locality as the holotype, 28-IX-2004, A. Yawata leg. (NSMT-Ar 12552); 1♀, Yamazaki, 19-VI-2011, T. Suguro leg. (NSMT-Ar 12553).

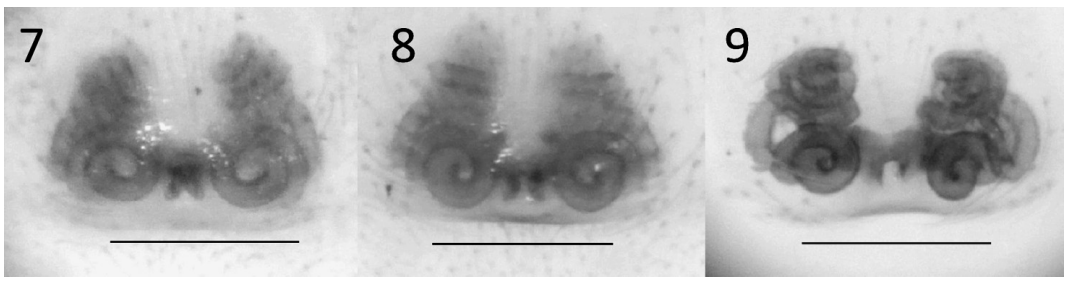
Other specimens. Chiba Pref. 1♂, Sangao, Noda City, 2-VII-2002, A. Yawata leg.; 1♂, Mitsubori, Noda City, 25-XII-2002, A. Yawata leg.; 1♂1♀, Higashifukai, Nagareyama City, 4-IV-2013, Y. G. Baba leg. Kagoshima Pref. 1♂1♀, Sumiyo-son, Amami-Oshima Island, 15-IX-2011, T. Suguro leg., female was collected as a juvenile and transformed into an adult in captivity; 1♂, Kamishiro, China-cho, Okinoerabu-jima Island, 15-III-2013, T. Suguro leg.

Diagonosis. *Marpissa yawatai* is similar in morphology and coloration to its congener, *Marpissa nivoyi*, an allopatric species distributed throughout Europe and Central Asia (Lognov 1999). However, the genital structures of *M. yawatai* are clearly different from those of *M. nivoyi* by showing the sharpened lateral cymbial process, the pear-shaped embolic base, the relatively thin retrolateral tibial apophysis on male palp (Fig. 3−4), and the unique structure of spermathecae (Figs. 5−6).

Description. Measurements (♂/♀) based on the male holotype and the female paratypes. Total body length 4.44/5.56; carapace dimensions: length 2.03/2.12, width 1.36/1.39, height 0.79/0.76; abdomen dimensions: length 2.30/3.03, width 1.09/1.55; eye fields: ALE-ALE 1.24/1.30, ALE-PLE 0.88/0.91, PLE-PLE 1.24/1.30, ALE-PME 0.48/0.48, ALE/AME 0.54/0.50, ALE/PLE 1.00/1.00



Figs. 1–6. *Marpissa yawatai* sp. nov. 1, male, dorsal view (holotype, NSMT-Ar 12551); 2, female dorsal view (paratype NSMT-Ar 12552); 3, male palp, ventral view; 4, same, retrolateral view; 5, epigynum, ventral view; 6, internal female genitalia, dorsal view. Scales = 1.0 mm (1–2); 0.5 mm (3–4); 0.25 mm (5–6).



Figs. 7–9. Variation in the shape of epigynum of *Marpissa yawatai* sp. nov., 7–8, from Higashifukai, Nagareyama City, Chiba Pref.; 9, from Kawauchi, Sumiyo-son, Amami-Oshima Island. Scales = 0.25 mm.

Table 1. Length of leg segments of *Marpissa yawatai* sp. nov. (♂/♀, in mm).

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	1.18/1.12	0.70/0.55	1.06/0.91	0.70/0.64	0.39/0.39	4.03/3.61
II	0.88/0.91	0.52/0.52	0.70/0.61	0.52/0.52	0.36/0.33	2.98/2.89
III	0.91/0.91	0.45/0.39	0.55/0.58	0.51/0.61	0.30/0.33	2.72/2.82
IV	1.21/1.24	0.55/0.58	0.91/0.88	0.67/0.76	0.36/0.33	3.70/3.79

PME/PLE 0.29/0.29, AME diameter 0.39/0.42. Lengths of legs are shown in Table 1.

Coloration and markings. Male (Fig. 1): carapace and abdomen light grey, with characteristic red markings; eye field dark; chelicerae, maxillae, and labium brown. Sternum light brown with dark margins. Legs light brown. Female (Fig. 2): carapace brown; eye field black, edged with white hairs; a pair of white spots within eye field; sternum, maxillae, and labium light brown; abdomen brown with several pairs of orange bands. Legs light brown.

Male palp (Figs. 3–4). Embolic base pear-shaped in ventral view; cymbial ledge well developed; lateral cymbial process sharpened; retrolateral tibial apophysis rather thin.

Female genitalia (Figs. 5–6). Copulatory opening small; spermathecae long tube-shaped and coiled.

Variation (7♂, 3♀). Ranges are min-max values for each sex. Total body length ♂4.00–5.19 ♀5.00–5.63; carapace dimensions: length ♂1.91–2.52 ♀2.12–2.18, width ♂1.33–1.72 ♀1.36–1.45, height ♂0.60–0.96 ♀0.75–0.91; abdomen dimensions: length ♂2.06–2.85 ♀2.79–3.03, width ♂1.06–1.12 ♀1.24–1.55; abdomen length/width ♂1.94–2.54 ♀1.96–2.24; eye fields: ALE-ALE ♂1.15–1.51 ♀1.24–1.39; PLE-PLE ♂1.15–1.51 ♀1.24–1.39; ALE-PLE ♂0.81–1.06 ♀0.87–0.97; ALE-PME ♂0.42–0.58 ♀0.45–0.48; ALE-PLE/carapace length ♂0.42–0.45 ♀0.41–0.44; ALE-ALE/PLE-PLE ♂0.95–1.00 ♀1.00; AME diameter ♂0.36–0.52 ♀0.42–0.45; ALE/AME ♂0.50–0.59 ♀0.50–0.53; ALE/PLE ♂1.00–1.25 ♀1.00–1.17; PME/PLE ♂0.25–0.33 ♀0.29–0.33.

Epigynum. Variation in the arrangement of seminal duct is shown in Figs. 7–9.

Remarks. This new species occurs on the common reed *Phragmites australis*, which grows on the shorelines of freshwater ponds (Yawata *pers. comm.*); it also occurs in the grass litter of wetlands and arable fields (Suguro *pers. comm.*).

Although the male and female of this species look quite different from one another, I conclude that they are the same species by the following evidence: (1) they occur in sympatry even in the remote regions; (2) I could not confirm the presence of other potential species paring with the each sex in their collection sites.

Distribution. Japan (Honshu, Ryûkyû Islands).

Etymology. The specific name is dedicated to Mr. Akihiko Yawata who donated the specimen designated as the holotype.

Mendoza suguroi sp. nov.
[Japanese name: Shimayahazu-haetori]
(Figs. 10–19)

Type series. Holotype: 1♂, Kuronuki, Okinoerabu-jima Island, Kagoshima Pref., 15-III-2013, T. Suguro leg. (NSMT-Ar 12554). Paratypes: 2♀, same collection data as the holotype, T. Suguro leg. (NSMT-Ar 12555, Ar 12556).

Other specimens. 1♂3♀, Kuronuki, Okinoerabu-jima Island, Kagoshima Pref., 13-III-2013, T. Suguro leg.; 1♂, same collection data as the holotype, T. Suguro leg.; 3♂3♀, Nago City, Okinawa-jima Island, Okinawa Pref., 10-XII-2012, A. Tanikawa leg.

Diagonosis. This new species can be clearly distinguished from congeners by the following characters: the unique markings on abdomen of both sexes; the shape of tibial apophysis; the relatively short cymbium; and the position of subtegulum and embolic base from retrolateral view (Figs. 12–13); the relatively large copulatory opening and the unique structure of spermathecae (Figs. 15–16).

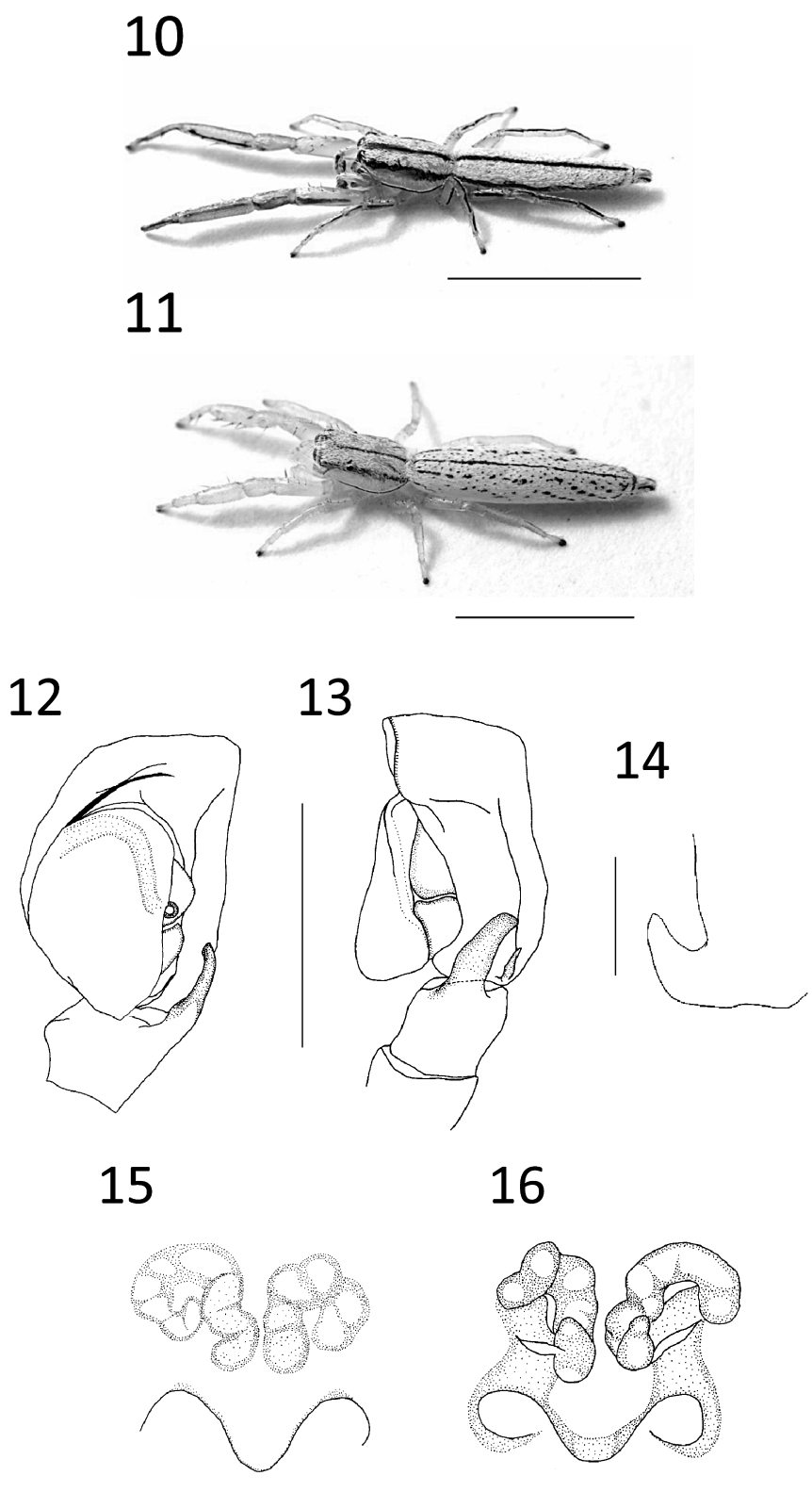
Description. Measurement (♂/♀) based on the male holotype and one of the female paratypes (NSMT-Ar 12555). Total body length 7.53/8.71; carapace dimensions: length 2.82/2.71, width 1.75/1.81, height 0.88/0.94; abdomen dimensions: length 4.71/5.71, width 1.50/2.00; eye fields: ALE-ALE 1.21/1.27, ALE-PLE 0.97/1.00, PLE-PLE 1.24/1.30, ALE-PME 0.51/0.55, ALE/AME 0.43/0.45, ALE/PLE 1.00/1.00, PME/PLE 0.20/0.25, AME diameter 0.42/0.45. Lengths of legs are shown in Table 2.

Coloration and markings. Male (Fig. 10): carapace rather white with a dark brown midline and a pair of lateral brown stripes oriented longitudinally; labium and maxillae pale yellow; chelicera pale yellow with a longitudinal black stripe; sternum pale yellow and edged with four pairs of black lines; dorsum of abdomen rather white with a dark brown midline and a pair of longitudinal brown lines; ventral side of abdomen pale yellow with a black midline. Leg I light brown with black stripes on both ventral and dorsal sides of femora, and ventral side of patellae and pro-lateral side of tibiae. Leg II-IV light brown, with black stripes on ventral and dorsal sides of femora, and ventral sides of patellae, tibiae, and metatarsi. Female (Fig. 11): carapace pale yellow with a black midline and a pair of lateral brown lines oriented longitudinally; sternum, labium, and maxillae pale yellow; abdomen pale yellow with a thin black midline and scattered black lines. Leg I brown; remaining legs light brown.

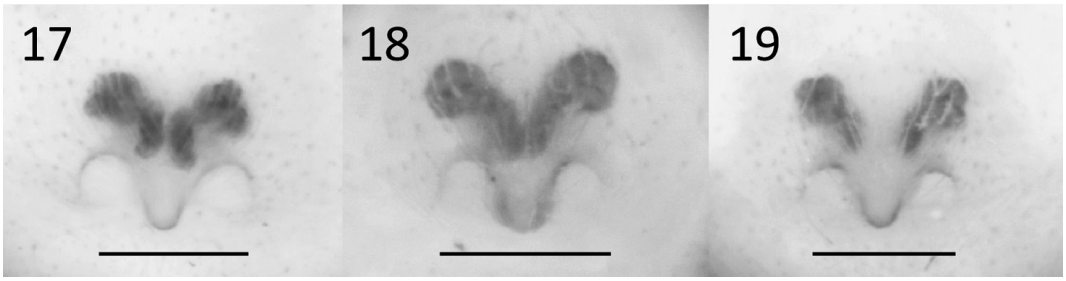
Male palp (Figs. 12–14). Basal end of retrolateral side of cymbium with a hook-shaped projection; subtegulum and embolic base prominent in retrolateral view; tibial apophysis rather thick; dorsal sides of cymbium and tibia partly covered with white hairs.

Female genitalia (Figs. 15–16). The margin of epigynal opening steeply curved; seminal duct long and curved.

Variation (6♂, 8♀). Ranges are min-max values for each sex. Total body length ♂6.35–7.88 ♀7.18–8.94; carapace dimensions: length ♂2.31–3.12 ♀2.35–3.06, width ♂1.5–2.06, ♀1.44–1.88, height ♂0.75–0.94 ♀0.81–1.12; abdomen dimensions: length ♂4.56–5.62 ♀4.71–6.35, width ♂1.19–1.5, ♀1.38–2.00; abdomen length/width ♂1.19–1.50 ♀1.38–2.00; eye fields: ALE-ALE ♂ 1.06–1.33 ♀1.06–1.27; PLE-PLE ♂1.06–1.36 ♀1.06–1.30; ALE-PLE ♂0.84–1.03 ♀0.79–1.00; ALE-PME ♂0.42–0.52 ♀0.42–0.55; ALE-PLE/carapace length ♂0.32–0.37 ♀0.32–0.39; ALE-ALE/PLE-PLE ♂0.98–1.00 ♀0.93–1.00; AME diameter ♂0.36–0.48 ♀0.39–0.45; ALE/AME ♂0.40–0.50 ♀0.36–0.46; ALE/PLE ♂1.00–1.20



Figs. 10–16. *Mendoza suguroi* sp. nov. 10, male, dorsal view (holotype, NSMT-Ar 12554); 11, female dorsal view (paratype NSMT-Ar 12555); 12, male palp, ventral view; 13, same, retrolateral view; 14, basal end of retrolateral side of cymbium, dorsal view; 15, epigynum, ventral view; 16, internal female genitalia, dorsal view. Scales = 5.0 mm (10–11); 0.5 mm (12–13), 0.125 mm (14), 0.25 mm (15–16).



Figs. 17–19. Variation in the shape of epigynum in *Mendoza suguroi* sp. nov. 17, from Nago City, Okinawa-jima Island; 18–19, from Kuronuki, China-cho, Okinoerabu-jima Island. Scales＝0.25 mm.

Table 2. Length of leg segments of *Mendoza suguroi* sp. nov. (♂/♀, in mm).

Leg	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	2.12/1.67	1.21/0.85	2.30/1.58	1.37/094	0.45/0.45	7.45/5.49
II	1.15/1.09	0.61/0.64	1.00/0.94	0.67/0.64	0.39/0.36	3.82/3.67
III	1.12/1.12	0.52/0.45	0.70/0.64	0.67/0.61	0.42/0.45	3.43/3.27
IV	1.42/1.36	0.70/0.61	1.27/1.24	0.97/0.91	0.42/0.39	4.78/4.51

♀0.83–1.00; PME/PLE ♂0.20–0.40 ♀0.20–0.40.

Epigynum. Variation in the arrangement of the seminal duct is shown in Figs. 17–19.

Distribution. Okinoerabu-jima and Okinawa-jima Islands.

Etymology. The specific name is dedicated to Mr. Tatsumi Suguro, University of Tsukuba, who donated the specimens designated as the type series.

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