

New Spider Species of the Genera *Masirana* and *Cybaeus* (Araneae, Leptonetidae and Cybaeidae) from Kyushu, Japan

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Abstract Two new species of spiders (Arachnida, Araneae) of the genera *Masirana* Komatsu, 1942 (Leptonetidae) and *Cybaeus* L. Koch, 1868 (Cybaeidae) are described from Kyushu, Japan under the names, *Masirana kusunoensis* sp. nov. (type locality: Kusahara-joshi, Kusuno-machi, Kumamoto-shi, Kumamoto Prefecture) and *Cybaeus takachihoensis* sp. nov. (type locality: Iwato, Takachiho-cho, Nishi-usuki-gun, Miyazaki Prefecture).

Key words: Taxonomy, Araneae, Leptonetidae, Cybaeidae, Japan, new species.

Through intensive field investigations in Kyushu, Japan, the first author (T. Irie) contributed toward the knowledge of spider fauna of this region since more than fifty years. On the basis of the material obtained with caving and collecting around caves, he recorded (partly in collaboration with the second author) many new species of the families Leptonetidae and Cybaeidae living in such dark places in the forests (Irie, 2000, 2007; Irie and Ono 2000, 2001, 2002, 2003, 2005, 2009). In the present paper the authors describe further two new species of spiders of these families from Kumamoto and Miyazaki Prefectures in Kyushu.

About forty species of two genera, *Falcileptoneta* Komatsu, 1970, and *Masirana* Komatsu, 1942, have been known in the family Leptonetidae of Japan (Irie and Ono, 2009). Of these, five species of the genus *Masirana* were recorded from Kyushu. A new species of *Masirana* to be described herein was found in a bamboo clump, which was overlooked at the former field investigations.

The taxonomical study of spiders of the genus *Cybaeus* L. Koch, 1868, is recently undertaken throughout the land. Although many species of

the genus have been recorded from Kyushu (Komatsu, 1963, 1970; Yaginuma, 1970; Irie, 1998, 2007; Irie and Ono, 2000, 2001, 2002; Ihara, 2003, 2007, 2008), some undescribed species are remaining in the collection of the first author. A new species found at Takachiho-cho, Nishi-usuki-gun, Miyazaki Prefecture, was selected from the collection.

All the type specimens of the new species to be described herein are deposited in the collection of the National Museum of Nature and Science, Tokyo (NSMT). Other specimens examined are preserved in the private collection of the first author (T. Irie).

The abbreviations used in this paper are as follows: ALE, anterior lateral eye; AME, anterior median eye; Cp, length of clypeus; OA, ocular area; PE, posterior eye; PLE, posterior lateral eye; PME, posterior median eye.

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Family Leptonetidae

Masirana kusunoensis Irie et Ono, sp. nov.

[Japanese name: Kusuharajo-mashiragumo]

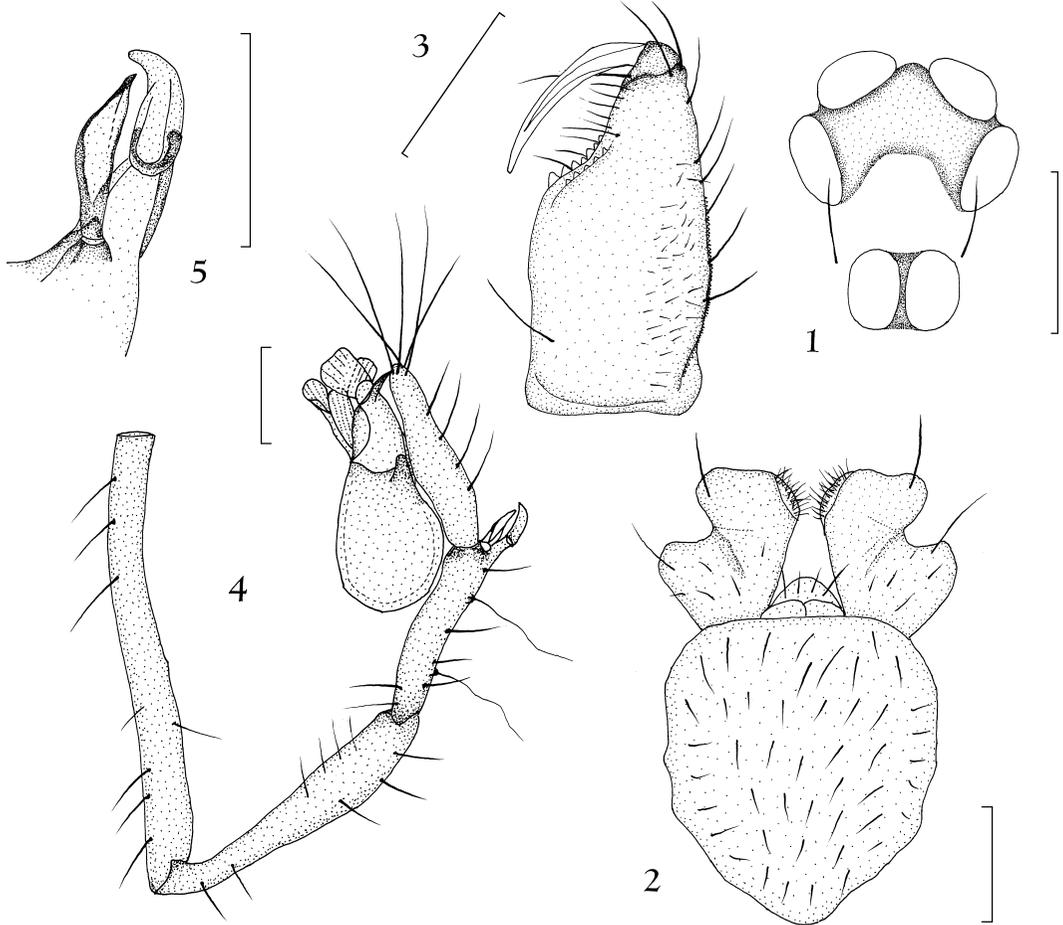
(Figs. 1–5)

Type series. Holotype: ♂, Kusuhara-joshi (the ruins of Kusuhara-jo Castle), Kusuno-machi, Kumamoto-shi, Kumamoto Prefecture, Kyushu, Japan, 16-I-2008, T. Irie leg. (NSMT-Ar 8841); allotype: ♀, Nishikajio-machi, Kumamo-shi, Kumamoto Prefecture, Kyushu, Japan, 16-II-2008, T. Irie leg. (NSMT-Ar 8842); paratype: 1 ♀, same

locality as for the allotype, 14-XII-2007, T. Irie leg. (NSMT-Ar 8843).

Description. Measurements (holotype ♂/allotype ♀; in mm): Body length 1.66/2.13, carapace length 0.73/0.80, width 0.56/0.60, abdomen length 0.93/1.33, width 0.60/0.83. Lengths of palp and legs are as shown in Table 1. Eyes: AME 0.06/0.05, ALE 0.06/0.07, PE 0.05/0.05. Distances between eyes: ALE-ALE 0.07/0.07, ALE-PE 0.02/0.02. OA length 0.17/0.18, width 0.14/0.15, Cp 0.10/0.15.

Male (holotype): Carapace light yellowish brown, hairless. Median furrow light brown, linear. Cervical grooves and radial furrows distinct



Figs. 1–5. *Masirana kusunoensis* Irie et Ono, sp. nov., holotype ♂ (NSMT-Ar 8841). — 1, ocular area, dorsal view; 2, left chelicera, ventral view; 3, maxillae, labium and sternum, ventral view; 4, left palp, ventral view; 5, tibial apophyses of palp, retrolateral view. (Scales: 1, 5, 0.2 mm; 2–4, 0.1 mm.)

Table 1. Measurements of palp and legs of *Masirana kusunoensis* Irie et Ono, sp. nov. (holotype ♂/allotype ♀; in mm).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
palp	0.83/0.63	0.53/0.20	0.33/0.46	—	0.36/0.46	2.05/1.75
I	1.36/1.57	0.28/0.30	1.66/1.53	1.30/0.80	0.86/0.80	5.46/5.00
II	1.16/1.03	0.26/0.23	1.10/1.20	0.96/0.73	0.66/0.70	4.14/3.89
III	1.03/0.90	0.23/0.20	1.00/0.90	0.83/0.73	0.56/0.66	3.65/3.39
IV	1.20/1.33	0.23/0.26	1.26/1.33	1.03/1.03	0.63/0.73	4.35/4.68

and dark yellowish brown. All the eyes nearly same in size; major axes of ALEs convergent behind; PEs close to each other, their axes parallel (Fig. 1). Maxilla light brown, the anterior part expanded laterally; labium light brown, almost as long as wide; sternum light yellowish brown, shield-shaped and slightly longer than wide (Fig. 2). Chelicera light yellowish brown, with seven teeth on promargin of fang furrow, five teeth on retromargin (Fig. 3). Legs pale brown; leg formula 1,4,2,3. Abdomen haired, light yellowish brown, oval in shape and longer than wide.

Male palp (Figs. 4–5): Femur > patella > tarsus > tibia in length. Tibia with two long trichobothria on the dorsal surface and with two apophyses on the apical part; the main apophysis spiniform with an accompanying apophysis at the base, which reminds the bract and flower of a Japanese skunk cabbage of *Symplocarpus* (Fig. 5). Projections and embolus of bulb are as shown in Fig. 4.

Female (allotype): Similar to the male in coloration and general features. Body slightly longer than that of the male. Palp longer than the carapace, femur > tarsus = tibia > patella in length. Femur of the palp with three dorsal and five prolateral spines; the dorsal spine in the apical part of patella 0.25 mm long.

Distribution. Japan, Kyushu (Kumamoto Prefecture).

Etymology. The specific name is derived from the type locality.

Remarks. This new species is closely similar to *Masirana mizonokuchiensis* Irie et Ono, 2005 from Kagoshima Prefecture, Kyushu, and *M. taraensis* Irie et Ono, 2005 from Nagasaki Prefecture, Kyushu, in the structure of male palp,

but differs from the two known species in the peculiar shape of tibial apophysis. The female genitalia of the new species is not remarkable and similar to that of *M. mizonokuchiensis*. Female of *M. taraensis* is unknown. Spiders of this new species were collected in a clump of bamboos. The species seems to be epigeal and may appear to be troglomorphic.

Family Cybaeidae

Cybaeus takachihoensis Irie et Ono, sp. nov.

[Japanese name: Takachiho-namihagumo]

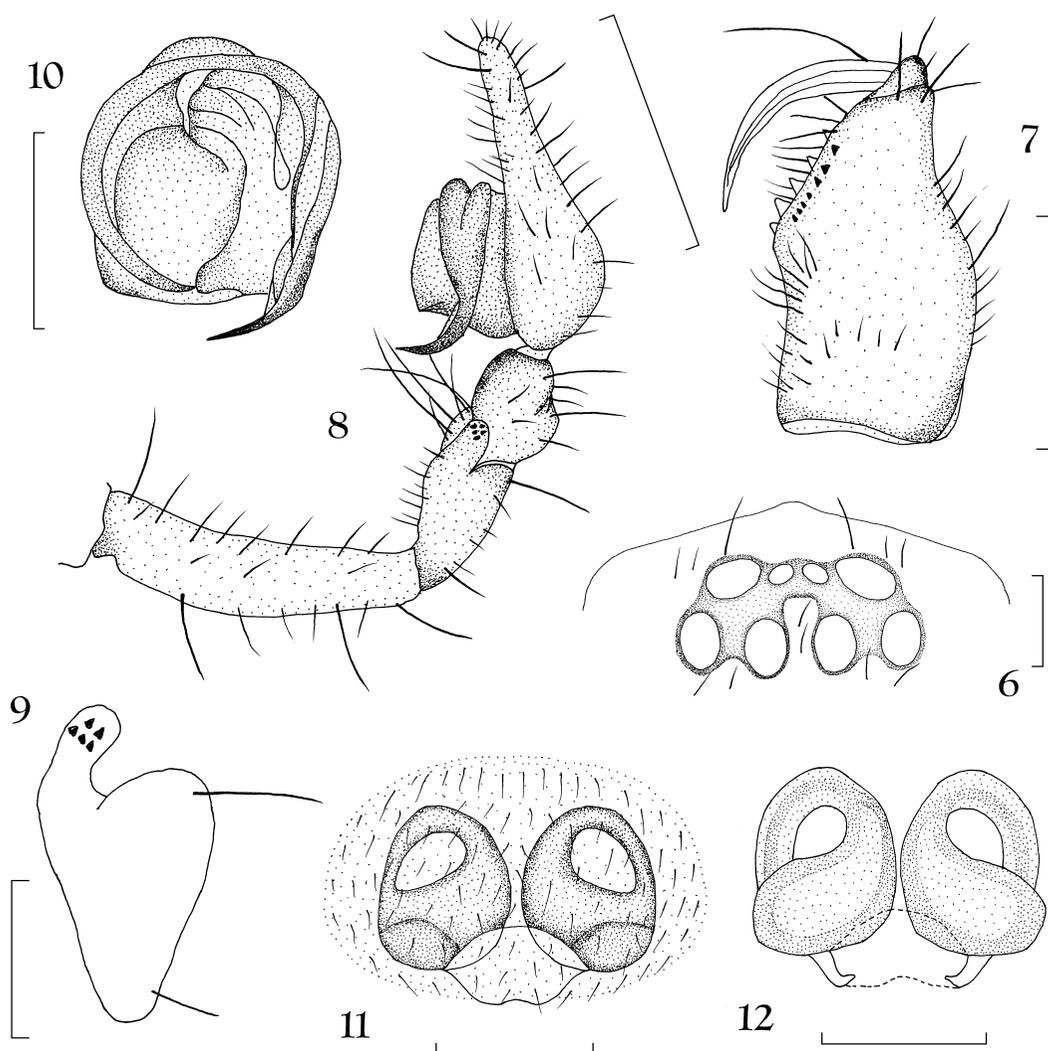
(Figs. 6–12)

Type series. Holotype: ♂, Iwato, Takachihocho, Nishi-usuki-gun, Miyazaki Prefecture, Kyushu, Japan, 13-I-2009, T. Irie leg. (NSMT-Ar 8844); allotype: ♀, same locality and collector as for the holotype, 20-X-2008 (NSMT-Ar 8845).

Other specimens examined. 8 ♂, 13-I-2009 and 1 ♂, 31-III-2010, same locality and collector as for the holotype.

Description. Measurements (holotype ♂/allotype ♀; in mm). Body length 3.33/3.86; carapace length 1.83/2.10, width 1.26/1.33; abdomen length 1.50/1.76, width 1.10/1.36. Length of legs as shown in Table 2. Eyes: AME 0.10/0.06, ALE 0.13/0.13, PME 0.13/0.13, PLE 0.13/0.10. Distances between eyes: AME-AME 0.10/0.06, PME-PME 0.06/0.06, ALE-ALE 0.13/0.20, PLE-PLE 0.33/0.36. OA length 0.26/0.26, width 0.50/0.56, Cp 0.10/0.15.

Male (holotype): Carapace dark yellowish brown with light gray radial marks, slightly longer than wide. The row of anterior eyes slightly procurved in their frontal edge (Fig. 6). Che-



Figs. 6–12. *Cybaeus takachihoensis* Irie et Ono, sp. nov.: 6–10, holotype ♂ (NSMT-Ar 8844), 11–12, allotype ♀ (NSMT-Ar 8845). — 6, Ocular area, dorsal view; 7, left chelicera, ventral view; 8, left palp, retrolateral view; 9, patella of left palp, dorsal view; 10, apical part of the bulb of left palp, ventral view; 11, epigynum, ventral view; 12, internal structure of genitalia, dorsal view. (Scales: 6, 9–12, 0.2 mm; 7–8, 0.5 mm.)

licera yellowish brown; promargin of fang furrow with five teeth, retromargin with three teeth and four denticles (Fig. 7). Sternum dark yellowish brown, slightly longer the wide. Labium yellowish brown, almost as long as wide. Legs yellowish brown; leg formula 4,1,2,3; with three claws, upper claw of the first leg with seven teeth, that of the fourth leg with five teeth; lower claw of the first leg with three teeth, that of the fourth leg

with two teeth.

Abdomen oval in shape and slightly longer than wide, dark gray, dorsally with two pairs of dots, one chevron and one bar marks, all dark yellowish brown in color. The coloration of abdomen of this new species is similar to those of the other epigeian species of the genus.

Male palp (Figs. 8–10): Tibia short and almost as long as patella. Patella with a thumb-shaped

Table 2. Measurements of legs of *Cybaeus takachihoensis* Irie et Ono, sp. nov. (holotype ♂/ allotype ♀; in mm; palp omitted).

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	1.40/1.63	0.56/0.60	1.33/1.60	1.00/1.30	0.73/0.83	5.02/5.96
II	1.33/1.50	0.40/0.53	1.23/1.40	0.99/1.20	0.73/0.86	4.68/5.49
III	0.96/1.30	0.33/0.43	0.83/1.16	1.00/1.10	0.60/0.73	3.72/4.72
IV	1.46/1.70	0.40/0.46	1.30/1.50	1.30/1.66	0.80/0.86	5.26/6.18

apophysis furnished with five teeth (Fig. 9). Palpal organ is as shown in Fig. 10, genital bulb globular.

Female (allotype): Other than longer legs, the general characteristics are same as those of the holotype male.

Female genitalia (Figs. 11–12): Atrium relatively small, oval, wider than long. Copulatory ducts short, spermatheca reniform basally, its head indistinct.

Distribution. Japan, Kyushu (Miyazaki Prefecture).

Etymology. The specific name is derived from the type area.

Remarks. The present new species is allied to *Cybaeus kuramotoi* Yaginuma, 1963, *C. kumaensis* Irie et Ono, 2001, and *C. kunisakiensis* Ihara, 2003, in the arrangement of eyes, in the markings of abdomen, and in the shape of thumb-shaped apophysis of male palpal patella, but differs from these known species in the shape of palpal bulb of male and in the structure of female genitalia. Male palpal patella of the new species has a thumb-shaped apophysis with five teeth. This is an epigeal species and may appear to be troglomorphic.

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