

A New Species of the Genus *Cybaeus* (Araneae, Cybaeidae) from Kumamoto Prefecture, Japan, with a Description of the Male of *Cybaeus uenoi*

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Abstract A new species of the genus *Cybaeus* L. Koch, 1868 (Araneae, Cybaeidae) is described from Kumamoto Prefecture, Kyushu, Japan, under the name of *Cybaeus kawabensis* sp. nov. The male of *Cybaeus uenoi* (Yaginuma, 1970) is described for the first time based on specimens collected from Kumamoto and Nagasaki Prefectures.

Key words: Araneae, Cybaeidae, *Cybaeus*, new species, new records, Kumamoto, Nagasaki, Japan.

Nine species of the genus *Cybaeus*, L. Koch, 1868 (six cave-dwellers and three epigeal species) were hitherto recorded from Kumamoto Prefecture, Kyushu, Japan (Irie, 1998; Irie & Ono, 2000, 2001). An epigeal species recently discovered in Kuma-gun, southern part of Kumamoto Prefecture seems to be separated from all the known species by the shape of male palpal organ and the structure of female genitalia. After a careful examination of its characteristics, the present authors recognized that the spider is new to science.

Cybaeus uenoi described by Yaginuma (1970) based on a single female specimen from Nariaikô, an abandoned mine in Izuhara-chô, Tsushima Islands, was never recorded since its original description. However, the senior author (T. Irie) recently collected some specimens of the spider in question, including males, in several places of Kumamoto and Nagasaki Prefectures, northwestern Kyushu. This means a second record of the species and is more remarkable in including males of the spider discovered for the first time.

The above two species will be reported in the present paper.

All the type specimens of the new species and

some specimens of *Cybaeus uenoi* used for this study are deposited in the collection of the National Science Museum (Nat. Hist.), Tokyo. Other specimens examined are preserved in the private collection of the senior author (T.I.).

The abbreviations used in this paper are as follows: ALE, anterior lateral eye; AME, anterior median eye; PLE, posterior lateral eye; PME, posterior median eye; OA, ocular area; Cp, length of clypeus; PLS, PVS, RLS, RVS, VS, positions of the spines on legs as proposed by Komatsu (1968).

Cybaeus kawabensis Irie et Ono, sp. nov.

[Japanese name: Kawabe-namihagumo]

(Figs. 1–10)

Type series. Holotype: ♂, Dôsako, Sagaramura, Kuma-gun, Kumamoto Pref., Kyushu, Japan, 9–XII–2001, T. Irie leg. (NSMT-Ar 5215); allotype: ♀, Shimo-tôji, Itsuki-mura, Kuma-gun, Kumamoto Pref., Kyushu, Japan, 22–I–2001, T. Irie leg. (NSMT-Ar 5216).

Other specimens examined. 1 ♀, same as for the holotype, 1–XII–2001, T. Irie leg.

Description. Measurements (holotype ♂ / al-

Table 1. Measurements of legs of *Cybaeus kawabensis* sp. nov. (♂ holotype / ♀ allotype; in mm).

| Leg | Femur | Patella | Tibia | Metatarsus | Tarsus | Total |
|-----|-----------|-----------|-----------|------------|-----------|-----------|
| I | 1.93/1.80 | 0.66/0.66 | 1.86/1.73 | 1.60/1.13 | 1.13/0.93 | 7.18/6.25 |
| II | 1.83/1.73 | 0.63/0.70 | 1.73/1.56 | 1.66/1.40 | 1.13/0.93 | 6.93/6.32 |
| III | 1.66/1.46 | 0.43/0.50 | 1.33/1.16 | 1.30/1.30 | 0.60/0.73 | 5.32/5.15 |
| IV | 2.00/2.14 | 0.60/0.53 | 1.76/1.66 | 2.00/1.83 | 1.03/0.93 | 7.39/7.09 |

lotype ♀; in mm). Body length 4.06/5.10; carapace length 2.33/2.30, width 1.66/1.66; abdomen length 1.73/2.80, width 1.16/2.43. Length of legs as shown in Table 1. Eye sizes; AME 0.07/0.08, ALE 0.10/0.13, PME 0.11/0.13, PLE 0.10/0.13. Distances between eyes: AME-AME 0.03/0.03, PME-PME 0.06/0.09, ALE-ALE 0.16/0.23, PLE-PLE 0.36/0.43. OA length 0.23/0.26, width 0.53/0.63, Cp 0.10/0.10.

Male (holotype). Carapace yellowish brown with gray radial marks, slightly longer than wide. Row of anterior eyes straight (Fig. 1). Chelicera brown; promargin of fang furrow with 3 teeth, retromargin with 3 teeth and 5 denticles (Fig. 2). Sternum yellowish brown, almost as long as wide. Labium brown, almost as long as wide.

Legs yellow; leg formula 4, 1, 2, 3. Spination of legs following Komatsu (1968) as shown in Figs. 5–8. Tibia I with PVS 1–4, PLS 2–4, RVS 1–4, RLS and VS. Tibia II with PVS 1–4, PLS 2–4, RVS 1–4 and RLS. Metatarsus I with PVS 1–3, PLS 2, RVS 1–3 and RLS. Metatarsus II with PVS 1–3, PLS 2, RVS 1–3, RLS and VS. Legs with three claws; upper claw of 1st leg with 8 teeth, that of 4th leg with 6 teeth; lower claw of 1st leg with 3 teeth, that of 4th leg with 2 teeth.

Abdomen oval in shape and longer than wide, gray, dorsally with two pairs of white, suboval spots, two chevrons and one bar, similar to those of other epigean species.

Male palp (Figs. 3–4): Tibia short and almost as long as patella. Patella with a thumb-like apophysis furnished with 10 teeth. Genital bulb globular, as shown in Fig. 4.

Female (allotype). Legs shorter than those of the male holotype. However, other characteristics in general appearance same as those of the male.

Female genitalia: as shown in Figs. 9–10.

Distribution. Japan, Kyushu (Kumamoto Pref.).

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

Remarks. The present species is closely similar to *Cybaeus higoensis* Irie et Ono, 2000, in the arrangement of eyes, in the spination and in the markings of abdomen, but is distinguished from the latter by the structure of male palp and female genitalia. Male palpal patella of the new species has a thumb-like apophysis with 10 teeth, while the apophysis of *C. higoensis* furnished with only 8 teeth. This new spider is an epigean species and appears to be troglomorphic.

Cybaeus uenoi (Yaginuma, 1970)

[Japanese name: Tsushima-namihagumo]

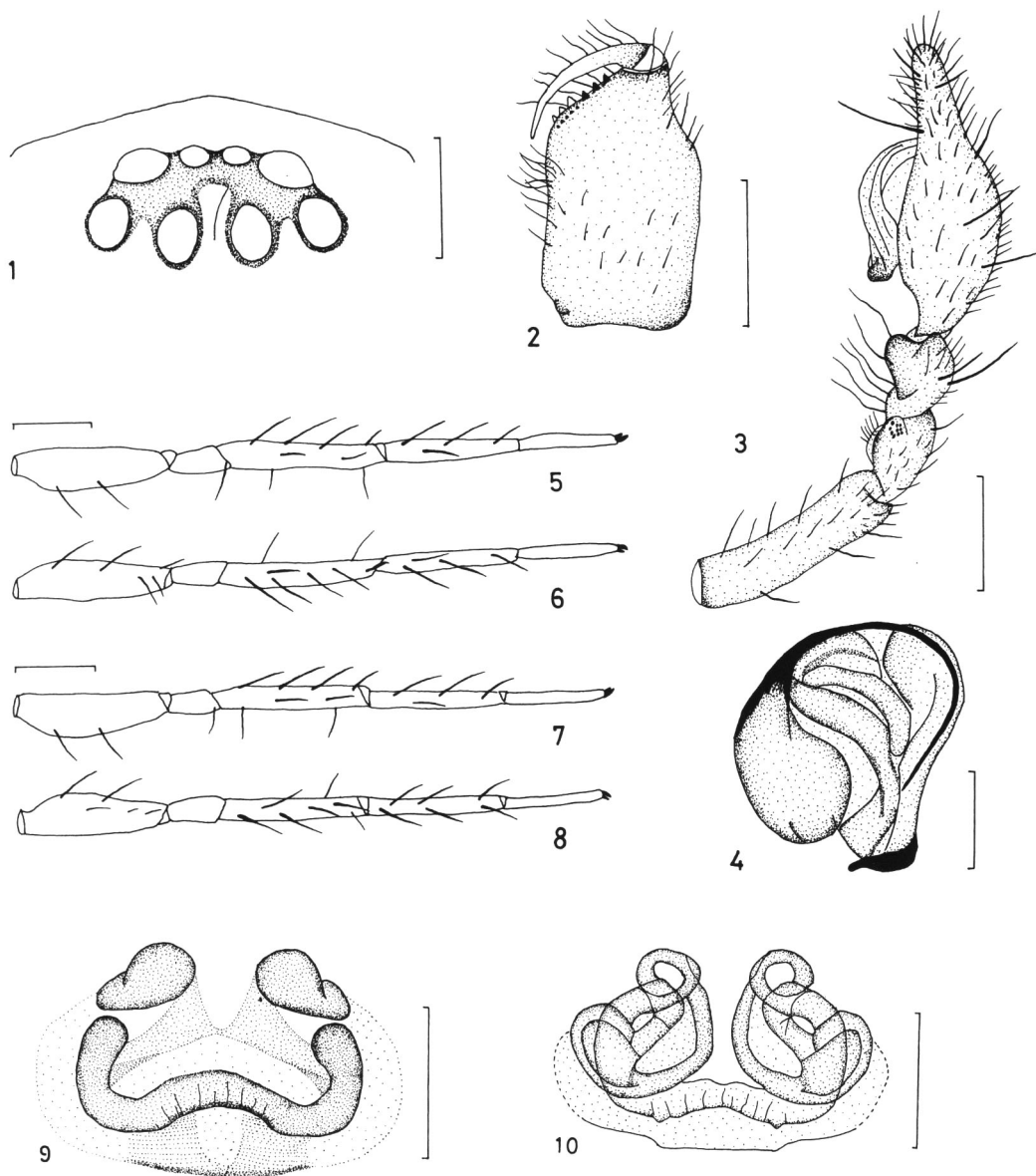
(Figs. 11–18)

Dolichocybaeus uenoi Yaginuma, 1970, p. 244 (female holotype from Nariai-kô Mine, Nariaisai, Izuhara-chô, Tsushima Islands, Nagasaki Pref., Kyushu, Japan, 19–X–1969, S.-I. Uéno leg., NSMT-Ar 82, examined).

Cybaeus uenoi: Yaginuma, 1986, p. 145.

Specimens examined. 1♂, Mt. Tara-dake, Takaki-chô, Kita-takaki-gun, Nagasaki Pref., Kyushu, Japan, 21–XI–2000, T. Irie leg.; 1♀, same locality., 19–II–2001, T. Irie leg.; 1♀, Kuroki-dani, Mt. Tara-dake, Ohmura-shi, Nagasaki Pref., 14–XII–2000, T. Irie leg.; 1♀ 1♂, Itagi, Itsuki-mura, Kuma-gun, Kumamoto Pref., 21–I–2001, T. Irie leg. (NSMT-Ar 5217).

Description of male (based on 1♂ from Itagi, Itsuki-mura, Kumamoto Pref., NSMT-Ar 5217). Measurements (in mm). Body length 4.46; carapace length 2.30, width 1.73; abdomen length 2.16, width 1.83. Length of legs as shown in Table 2. Eye sizes; AME 0.10, ALE 0.16, PME

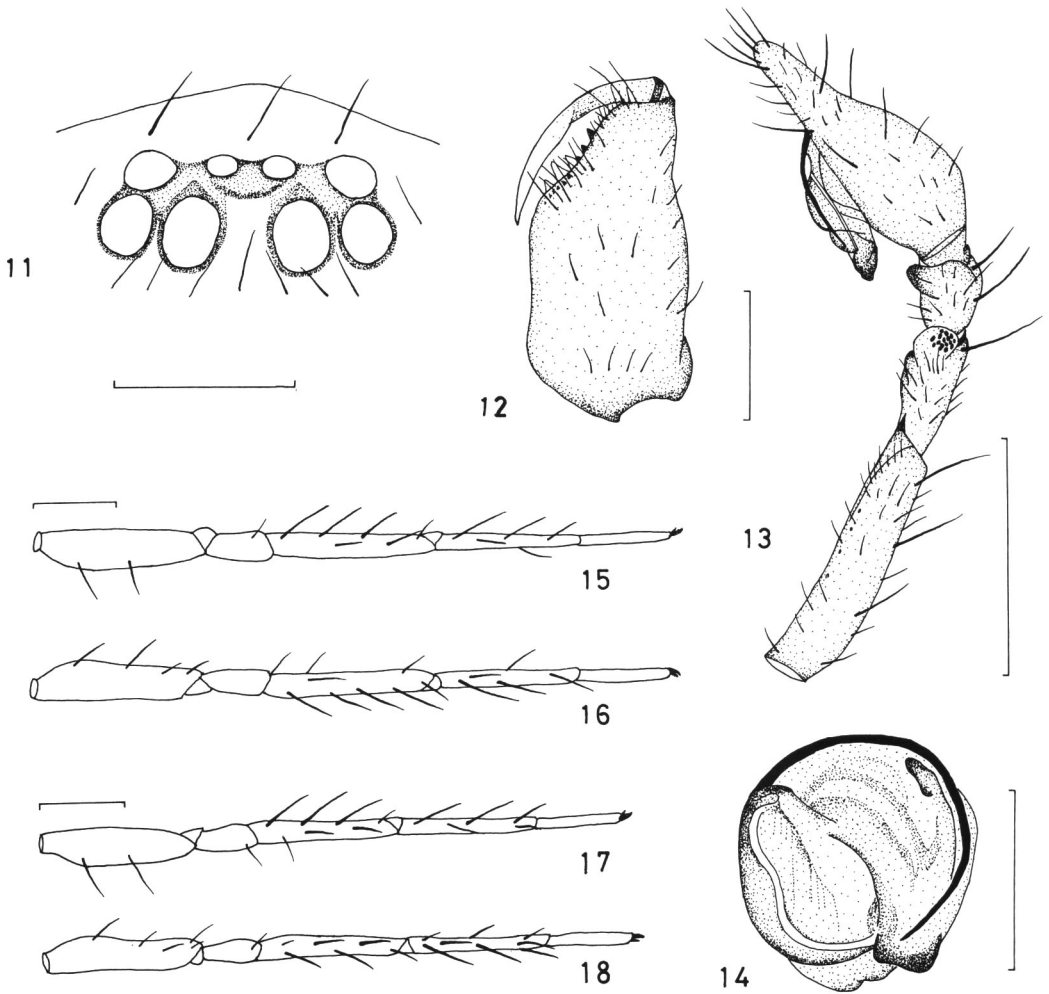


Figs. 1–10. *Cybaeus kawabensis* Irie et Ono, sp. nov.: 1–8, ♂ holotype (NSMT-Ar 5215), 9–10, ♀ allotype (NSMT-Ar 5216). — 1, Ocular area, dorsal view; 2, left chelicera, ventral view; 3, left palp, retrolateral view; 4, apical part of the bulb of left palp, ventral view; 5, leg I, prolateral view; 6, leg I, retrolateral view; 7, leg II, prolateral view; 8, leg II, retrolateral view; 9, epigynum, ventral view; 10, internal structure of genitalia, dorsal view. (Scales: 1, 4, 9–10, 0.2 mm; 2–3, 0.5 mm; 5–8, 1.0 mm.)

0.16, PLE 0.15. Distances between eyes: AME-AME 0.03, PME-PME 0.10, ALE-ALE 0.25, PLE-PLE 0.40. OA length 0.33, width 0.72, Cp 0.16.

Male. Carapace yellowish brown, 1.4 times as long as wide. Row of anterior eyes straight

(Fig. 11). Chelicera brown, promargin of fang furrow with 3 teeth, of which the middle one is the largest, retromargin with 3 teeth, 2 smaller teeth and 4 denticles (Fig. 12). Sternum yellowish brown, almost as long as wide. Labium yellowish brown, almost as long as wide.



Figs. 11–18. *Cybaeus uenoi* (Yaginuma, 1970), ♂ from Kumamoto Pref. (NSMT-Ar 5217). — 11, Ocular area, dorsal view; 12, left chelicera, ventral view; 13, left palp, retrolateral view; 14, apical part of the bulb of left palp, ventral view; 15, leg I, prolateral view; 16, leg I, retrolateral view; 17, leg II, prolateral view; 18, leg II, retrolateral view. (Scales: 11–12, 14, 0.2 mm; 13, 15–18, 1.0 mm.)

Table 2. Measurements of legs of *Cybaeus uenoi* (Yaginuma, 1970) (♂ from Kumamoto Pref.; in mm).

| Leg | Femur | Patella | Tibia | Metatarsus | Tarsus | Total |
|-----|-------|---------|-------|------------|--------|-------|
| I | 2.16 | 0.83 | 2.26 | 1.96 | 1.26 | 8.47 |
| II | 2.01 | 0.83 | 2.06 | 1.90 | 1.23 | 8.03 |
| III | 1.96 | 0.70 | 1.70 | 1.73 | 1.00 | 7.09 |
| IV | 2.53 | 0.73 | 2.23 | 2.50 | 1.13 | 8.92 |

Legs yellowish brown, longer than those of the female, leg formula 4, 1, 2, 3. Spination of legs following Komatsu (1968) as shown in Figs. 15–18. Tibia I with PVS 1–4, PLS 2–4, RVS 1–4,

RVS and VS. Tibia II with PVS 1–3, PLS 2–4, RLS 1–3 and RLS. Metatarsus I with PVS 1–3, PLS 2, RVS 1–3 and RLS. Metatarsus II with PVS 1–3, PLS 2–4, PVS 1–3, RLS and VS.

Abdomen oval in shape and longer than wide, gray, with moderate markings as seen in other epigeal species, i.e., a median lanceolate mark, two pairs of suboval spots, two chevrons and a pair of bars.

Male palp (Figs. 13–14): Tibia short and almost as long as patella. Patella with a thumb-like apophysis furnished with 17 teeth. Genital bulb globular, as shown in Fig. 14.

Distribution. Japan, Kyushu (Kumamoto and Nagasaki Prefs., including Tsushima Islands).

Remarks. The present species is closely similar to *Cybaeus kuramotoi* Yaginuma, 1963, in the spination of legs and the markings of abdomen, but is clearly distinguished from the latter by the palpal organ. Male palpal patella of *Cybaeus uenoi* has a thumb-like apophysis with 17 teeth, while the apophysis of *C. kuramotoi* is furnished with only 4 teeth. Besides, the tip of conductor of genital bulb of *Cybaeus uenoi* is smoother than that of *C. kuramotoi*.

Although the holotype female was found in a mine, the present species is regarded as an epigeal spider and appears to be troglomorphic.

References

- Irie, T., 1998. A new eyeless spider of the genus *Cybaeus* (Araneae: Cybaeidae) found in a limestone cave of Kyushu, Japan. *Acta arachnol.*, **47**: 97–100.
- Irie, T., & H. Ono, 2000. A new species of the genus *Cybaeus* (Araneae: Cybaeidae) found in a limestone cave and tuff caves of central Kyushu, Japan. *Bull. Natn. Sci. Mus., Tokyo*, Ser. A, **26**: 173–177.
- Irie, T., & H. Ono, 2001. Two new species of the genus *Cybaeus* (Araneae: Cybaeidae) from Kyushu, Japan. *Bull. Natn. Sci. Mus. Tokyo*, Ser. A, **27**: 205–210.
- Komatsu, T., 1968. Cave Spiders of Japan. II. *Cybaeus*, *Dolichocybaeus* and *Heterocybaeus* (Cybaeinae). 38 pp. Arachnological Society of East Asia, Osaka.
- Yaginuma, T., 1963. Spiders from limestone caves of Akiyoshi Plateau. *Bull. Akiyoshi-dai Sci. Mus.*, (2): 49–62. (In Japanese, with English descriptions and summary.)
- Yaginuma, T., 1970. Two new spiders of the genera *Lep-toneta* and *Dolichocybaeus* from the Islands of Tsushima. *Bull. Natn. Sci. Mus., Tokyo*, **13**: 241–248.
- Yaginuma, T., 1986. Spiders of Japan in Color, New Edition. xxiv+305 pp., 64 pls. Hoikusha, Osaka. (In Japanese.)

