

# A New Dictynid Spider from Iriomotejima Island, Southwest Japan, with a List of Japanese Species of the Genera *Lathys* and *Brommella* (Arachnida, Araneae)

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**Abstract** A new species of the genus *Lathys* Simon, 1884, is described from Iriomotejima Island, Ryukyu Islands, Southwest Japan under the name of *Lathys insulana* sp. nov. A list is presented for Japanese species of the genera *Lathys*, sensu lato (4 spp.) and *Brommella* Tullgren, 1948 (1 sp.), and their synonymy is explained. *Lathys maculosa* (Karsch, 1879) (originally *Dictyna*) and *L. annulata* Bösenberg et Strand, 1906, are revived respectively from junior synonyms of *L. puta* (O. Pickard-Cambridge, 1863) and *L. humilis* (Blackwall, 1855), both originally described under *Ciniflo* Blackwall, 1841. *Lathys ocellata* Bösenberg et Strand, 1906 and *L. orientalis* Bösenberg et Strand, 1906, are newly synonymized with *L. maculosa*, and *L. novembris* Dönitz et Strand, 1906, is suggested to be synonymous with *L. annulata*. Transfer of *Lathys punctosparsa* Oi, 1957, to *Brommella* is supported.

**Key words:** Taxonomy, Araneae, Dictynidae, new species, new synonymy, Japan.

## Introduction

Five species of the dictynid genus *Lathys* Simon, 1884, were hitherto recorded from Japan (Karsch, 1879; Bösenberg & Strand, 1906; Oi, 1957; Yaginuma, 1960, 1968, 1970, 1986; Lehtinen, 1967; Ono, 1991; and others), that is, *Lathys puta* (O. Pickard-Cambridge, 1863), *L. humilis* (Blackwall, 1855), *L. novembris* Dönitz et Strand, 1906, *L. sexoculata* Seo et Sohn, 1984, and *L. punctosparsa* (Oi, 1957). However, these species have taxonomic problems in various sides.

Although *Lathys puta* was synonymized by Lehtinen (1967) with *Dictyna maculosa* Karsch, 1879, *Lathys ocellata* Bösenberg et Strand, 1906, and *L. orientalis* Bösenberg et Strand, 1906, all originally described from Japan, some difference in female genitalia between European and Japanese spiders was recently recognized (Ono & Mizuyama, 2001). The same doubt can be posed for European *Lathys humilis*, which was also synonymized with a Japanese species, *L. annulata* Bösenberg et Strand, 1906, by the same author.

*Lathys novembris* was regarded as a *nomen dubium* (Lehtinen, 1967), because the depository of its type specimen was unknown. However, certain spiders collected in Japan can be identifiable with that species by the original description and figure, and in fact that is the same as *Lathys annulata*.

*Lathys punctosparsa* has been regarded as a member of *Lathys* by many Japanese authors, although it was transferred to the genus *Pagomys* Chamberlin, 1948, by Oi (in Yaginuma, 1966). After a particular discussion performed by Braun (1964), *Pagomys* was regarded as a junior synonym of *Brommella* Tullgren, 1948, and Lehtinen (1967) treated the Japanese species as *Brommella punctosparsa*. The present author will support his claim based on importance of peculiar structure of male palp which Japanese and American species have in common [cf. figures in Oi (1961) and Chamberlin (1948) and Chamberlin & Gertsch (1958)].

Recently, the present author obtained specimens of a hitherto unrecorded spider of the genus *Lathys*, which were collected by Dr. Akio

Tanikawa in Iriomotejima Island, Southwest Japan. The spider possesses only six eyes and seems to be a new species related to *Lathys sexoculata*, another six-eyed species of *Lathys* in Japan.

The new species is described in the present paper and a list of known species of the genera *Lathys* and *Brommella* in Japan is made on the basis of recent taxonomical informations, especially in the structure of female genitalia.

Type specimens of the new species to be described in this paper are deposited in the collection of the Department of Zoology, National Science Museum, Tokyo (NSMT). The abbreviations used herein are as follows: ALE, anterior lateral eye; AME, anterior median eye; PLE, posterior lateral eye; PME, posterior median eye.

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### Description of new species

#### *Lathys insulana* sp. nov.

(Figs. 1–7)

**Diagnosis.** This new species is closely related to *Lathys sexoculata* Seo et Sohn, 1984, known from Japan (Honshu) and Korea (type locality: Mt. Keum, Namhae-gun, Gyeongsangnam-do, Korea), but is easily distinguished from the latter by the structure of female genitalia and male palpal organ. Intromittent canals of female genitalia of this new species are shorter than those of the latter and separated from each other at the middle of their length (cf. Fig. 7 and Ono, 1991, p. 38, fig. 2). Tibia of male palp of *insulana* is much longer than that of *sexoculata* and the dorsal tibial apophysis is much thinner in the

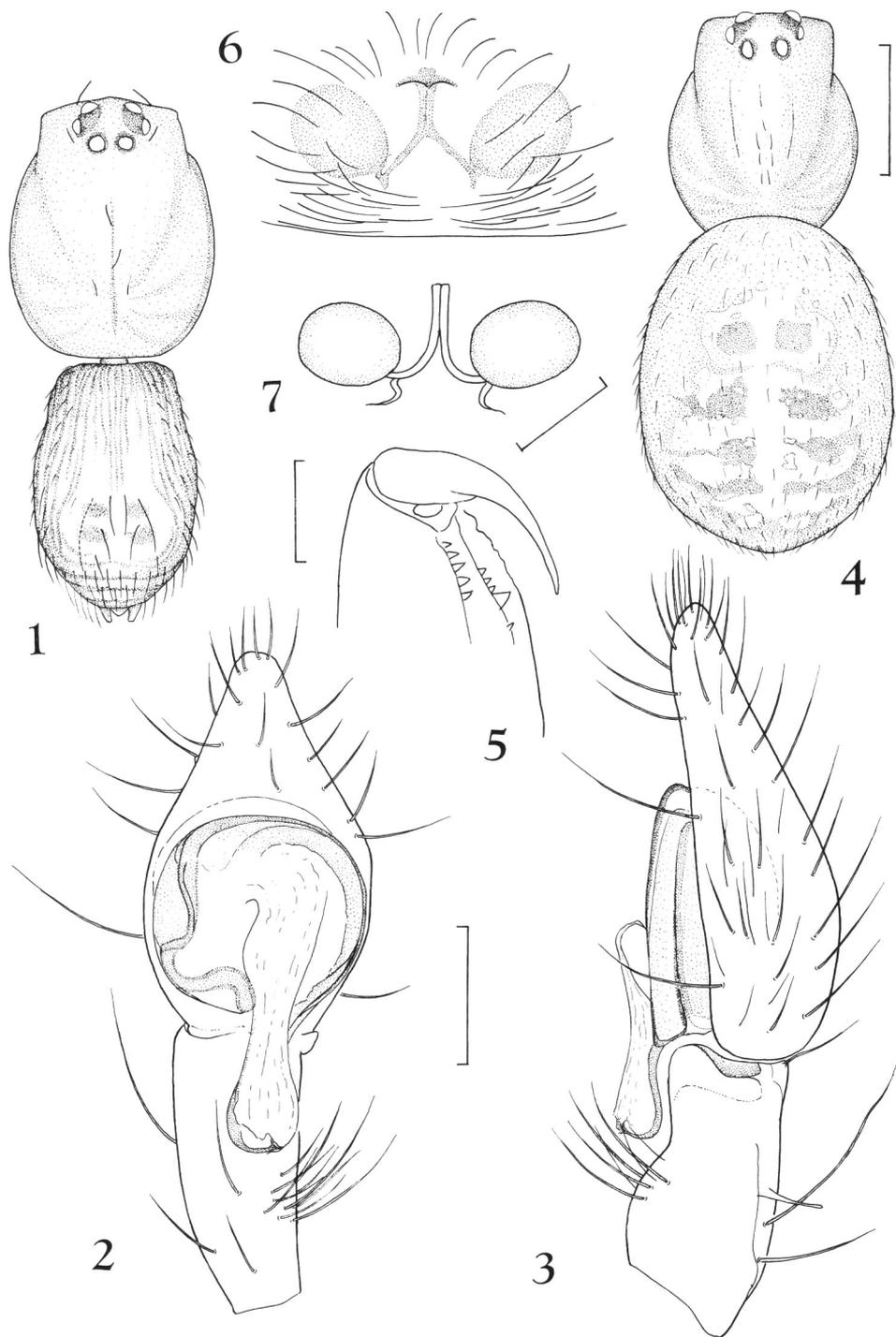
new one (cf. Fig. 2–3 and Ono & Ogata, 1993, p.130, figs. 1–2). Besides, the tegular apophysis of male palp of the new species is very large and peculiar in shape (Fig. 2).

**Type series.** Holotype male from Shirahama, Iriomotejima Island, Ryukyu Islands, Okinawa Pref., Southwest Japan, 26–XII–1991 (NSMT-Ar 5295), allotype female from Komi, same island, 28–III–1989 (NSMT-Ar 5296) and paratypes: 1 male from Shirahama, 24–XII–1991 (NSMT-Ar 5297), 1 male from Komi, 24–XII–1991, (NSMT-Ar 5298), 2 females from Geda River, 29–XII–1991, (NSMT-Ar 5299–5300), 2 females and 1 male from Otomi, 29–XII–1990 and 25–XII–1991 (NSMT-Ar 5301–5303), 1 female from Sonai, 5–I–1992 (NSMT-Ar 5304), all from Iriomotejima Island, collected by A. Tanikawa.

**Comparative material.** *Lathys sexoculata* Seo et Sohn, 1984: many females and males as reported by Ono (1991) and Ono & Ogata (1993).

**Description** (based on the male holotype and the female allotype). Measurement: Female: Body length 2.05 mm; prosoma length 0.88 mm, width 0.62 mm; opisthosoma length 1.27 mm, width 1.00 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: I 2.55 mm (0.85+0.29+0.58+0.53+0.30), II 2.01 mm (0.63+0.27+0.43+0.40+0.28), III 1.66 mm (0.50+0.20+0.35+0.36+0.25), IV 2.10 mm (0.68+0.29+0.43+0.46+0.24). Male: Body length 1.88 mm; prosoma length 0.98 mm, width 0.72 mm; opisthosoma length 0.91 mm, width 0.63 mm; lengths of legs [total length (femur+patella+tibia+metatarsus+tarsus)]: I 4.55 mm (1.08+0.37+1.65+0.97+0.48), II 2.99 mm (0.85+0.31+0.73+0.70+0.40), III 2.29 mm (0.68+0.28+0.48+0.56+0.29), IV 2.74 mm (0.80+0.28+0.66+0.65+0.35).

**Prosoma.** Carapace longer than wide (length/width female 1.42, male 1.36), with a long but indistinct median furrow and several setae on the top, head high. Eyes: AME absent, ALE>PME≥PLE (female 6: 5: 5, male 6.5: 6: 5.5 in size), ALE-ALE equal or wider than diameter of ALE (female 6: 6, male 8: 6.5), PME-PME>PME-PL (female and male 4: 3), clypeus very nar-



Figs. 1–7. *Lathys insulana* Ono, sp. nov.: 1–3, male holotype (NSMT-Ar 5295); 4–7, female allotype (NSMT-Ar 5296). — 1, 4, Pro- and opisthosomata, dorsal view; 2, palpal organ, ventral view; 3, palpal organ, retrolateral view; 5, chelicera, ventral view; 6, epigynum, ventral view; 7, female genitalia, dorsal view. [Scales: 1, 4, 0.5 mm; 2–3, 5–7, 0.1 mm.]

row, distance between frontal margin of carapace and ALE shorter than the distance between both the ALEs (female 2: 6, male 2: 8). Labium slightly wider than long (6.5: 7) in female, as long as wide in male, sternum longer than wide (length/width female 1.17, male 1.44).

Appendages. Chelicera in both sexes with four large and one small teeth on anterior margin of fang furrow and five small teeth on the posterior margin (female chelicera illustrated as Fig. 5); male chelicera well-developed and long (its length without fang: 0.6 mm), dorsally with a long seta. Male palp (Figs. 2–3): tibia relatively long, as long as tarsus, apically sclerotized and forming an indistinct retrolateral apophysis, dorsally with a spiniform apophysis at the middle; tegular apophysis large and extending to the middle of tibia, embolus filiform and long, not visible in ventral view (Fig. 2). Legs of male much longer than those of female, with a dorsal spine on femora I–IV, 1-1 dorsal spines, a prolateral spine, 1 or 2 ventral spines on tibiae I–IV, 0-2-2 ventral spines on metatarsi I–II, 2 apical spines on both lateral sides on metatarsi III–IV. Spines on female legs indistinct except for a dorsal spine on each femur.

Opisthosoma oval, longer than wide (length/width female 1.27, male 1.44), furnished with long hairs. Female genitalia: Epigynum with a copulatory opening at the center of anterior part, intromittent canals tubular and long, separated from each other at the middle, spermathecae large, oval (Figs. 6–7).

Coloration and markings (Figs. 1, 4). Female and male: Carapace light brown, median furrow and area between both lateral eyes black, chelicera yellowish brown, fang dark brown, labium, maxillae and sternum light yellowish brown, legs and palps yellowish brown. Opisthosoma dorsum dark grey with white markings and some black spots, venter grey.

*Variation.* Body length: females 1.88–2.07 mm, males 1.50–2.00 mm. White markings on opisthosomal dorsum variable.

*Distribution.* Japan (Iriomotejima Island).

*Remark.* Specific name from Latin meaning

islander.

### A list of Japanese species of *Lathys* and *Brommella*

Genus *Lathys* Simon, 1884, sensu lato

[Japanese name: Karehagumo-zoku]

*Notes.* Two groups are recognizable in Japanese species: group A with *Lathys maculosa* and *L. annulata*, and group B with *Lathys sexoculata* and *L. insulana*. In the group A, tibia of male palp has a digitiform or indistinct apophysis in the apical part, and intromittent canals of female genitalia are thick and winding, while the tibial apophysis of male palp is spiniform and situated at the middle of the segment, and the canals of female genitalia are thin and straight or curved in the group B.

*Lathys maculosa* (Karsch, 1879)

[Japanese name: Yamato-karehagumo]

*Dictyna maculosa* Karsch, 1879, p. 96 (female holotype from Japan, W. Dönitz leg., ZMB 2888, examined). — Kishida, 1913, p. 40 [Tsukushi-hagumo]; Saito, 1941, p. 142 [Tsukushi-hagumo]; Yaginuma, 1954, p. 13 [Tsukushi-hagumo]. [Regarded as a junior synonym of *Ciniflo puta* O. Pickard-Cambridge, 1863, by Lehtinen (1967); hereby revived from the synonymy.]

*Lathys ocellata* Bösenberg et Strand, 1906, p. 109 (female holotype from Saga, 14–III–1882, W. Dönitz leg., SMF 2786, examined). [Syn. nov.] — Kishida, 1913, p. 40; Komatsu, 1936, p. 28 [Kiuro-karehagumo]; Saito, 1941, p. 145 [Saga-karehagumo]; Yaginuma, 1954, p. 14 [Kiuro-karehagumo]; 1960, p. 24 [Kiuro-karehagumo]; 1962, p. 8 [Kiuro-karehagumo]. [Regarded as a junior synonym of *Ciniflo puta* O. Pickard-Cambridge, 1863, by Lehtinen (1967); hereby desynonymized with that species and regarded as a junior synonym of *Dictyna maculosa*.]

*Lathys orientalis* Bösenberg et Strand, 1906, p. 110 (one female and one male syntypes from Saga, Kompira, W. Dönitz leg., SMF 2787, examined). [Syn. nov.] — Kishida, 1913, p. 40; Saito, 1941, p. 146 [Otosaga-karehagumo]; Yaginuma, 1954, p. 14 [Otosaga-karehagumo]; 1962, p. 8 [Yamato-karehagumo]. [Regarded as a junior synonym of *Ciniflo puta* O. Pickard-Cambridge, 1863, by Lehtinen (1967); hereby desynonymized with that species and newly synonymized

with *Dictyna maculosa*.]

*Lathys puta*: Lehtinen, 1967, p. 243 [nec *Lathys puta* (O. Pickard-Cambridge, 1863)]. — Yaginuma, 1968, p. 24 [Kiiro-karehagumo]; 1970, p. 644 [Kiiro-karehagumo]; 1986, p. 11.

*Lathys maculosa*: Ono & Mizuyama, 2001, p. 45 [Yamato-karehagumo]. [This combination was de facto suggested by Lehtinen (1967).]

**Notes.** Lehtinen (1967) synonymized Japanese species, *Dictyna maculosa* Karsch, 1879, *Lathys ocellata* Bösenberg et Strand, 1906, and *L. orientalis* Bösenberg et Strand, 1906, with a well known European species, *Lathys puta* (O. Pickard-Cambridge, 1863), regarding all these are conspecific. Although the synonymy between three Japanese species can be accepted, that with European one seems doubtful because some difference in details of female genitalia between

these species was recognized (Ono & Mizuyama, 2001, figs. 1-4). *Lathys maculosa* is revived as was performed above.

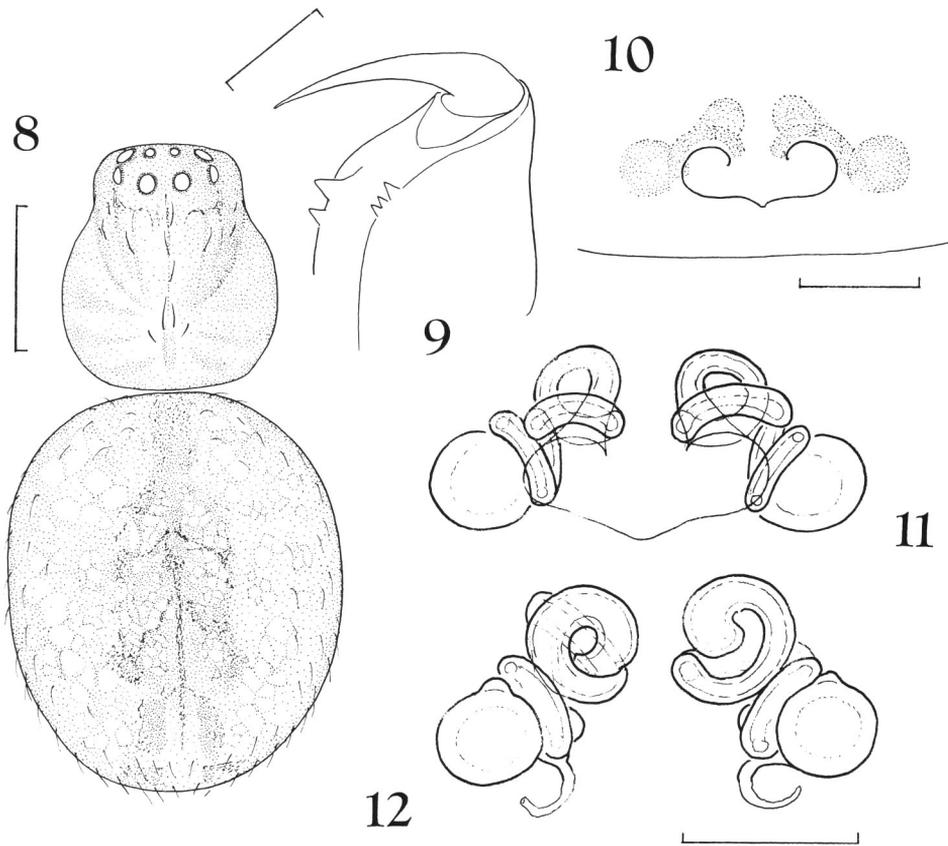
*Lathys annulata* Bösenberg et Strand, 1906

[Japanese name: Karehagumo]

(Figs. 8–12)

*Lathys annulata* Bösenberg et Strand, 1906, p. 110 (female holotype from Saga, Yunohama-Bergen, Dönitz leg., SMF 2783, examined). — Kishida, 1913, p. 40 [Karehagumo]; Komatsu, 1936, p. 87 [Kuroshiro-karehagumo]; Saito, 1941, p. 143 [Karehagumo]; Yaginuma, 1954, p. 14 [Kuroshiro-karehagumo]; 1960, p. 24 [Karehagumo]; 1962, p. 8 [Karehagumo]; 1968, p. 24 [Karehagumo]. [Regarded as a junior synonym of *Ciniflo humilis* Blackwall, 1855, by Lehtinen (1967); hereby revived from the synonymy.]

? *Lathys novembris* Dönitz et Strand, 1906, p. 375 (female



Figs. 8–12. *Lathys annulata* Bösenberg et Strand, 1906, a female from Ueno-shi, Mie Pref. (NSMT-Ar 5305). — 8, Pro- and opisthosomata, dorsal view; 9, chelicera, ventral view; 10, epigynum, ventral view; 11, female genitalia, ventral view; 12, female genitalia, dorsal view. [Scales: 8, 0.5 mm; 9–12, 0.1 mm.]

holotype from Saga, 28–XI–1882, W. Dönitz leg., depository unknown). — Kishida, 1913, p. 40; Komatsu, 1936, p. 68 [Ruri-karehagumo]; Saito, 1941, p. 144 [Shimozuki-karehagumo]; Yaginuma, 1954, p. 14 [Ruri-karehagumo]; 1962, p. 8 [Ruri-karehagumo]. [Regarded as a *nomen dubium* by Lehtinen (1967); hereby regarded as a presumptive synonym of *L. annulata*.]

*Lathys humilis*: Lehtinen, 1967, p. 242 [nec *Lathys humilis* (Blackwall, 1855)]. — Yaginuma, 1970, p. 644 [Karehagumo]; 1986, p. 11 [Karehagumo]. Shinkai & Takano, 1984, p. 183 [Karehagumo].

*Notes.* This species also regarded as the same species as European *Lathys humilis* (Blackwall, 1855) by Lehtinen (1967). However, the structure of female genitalia of the Japanese spider is different from that of the European one. Some characters of a female specimen from Ueno-shi, Mie Pref., Honshu, Japan, 17–V–1997, K. Kaihotsu leg. (NSMT-Ar 5305) are illustrated (Figs. 7–12). Spermathecae of the Japanese spider are smaller than those of the European species and the intromittent canals of both are winding otherwise (cf. Figs. 10–11 and Wiehle, 1953, fig. 227). A future comparison of details of male palpal organ is expected for a reliable identification of both the species.

*Lathys novembris* was described under the authorship of Dönitz & Strand in the additional pages (Anhang) of “Japanische Spinnen” by Bösenberg & Strand (1906). All the descriptions of species in “Anhang” were based on notes made by W. Dönitz during his stay in Japan and the depository of their type specimens were unknown. Although Lehtinen (1967) treated the species with a *nomen dubium*, it is regarded as a presumptive synonym of *L. annulata* on the basis of correspondence of its description and figure with those of the latter.

*Lathys sexoculata* Seo et Sohn, 1984

[Japanese name: Mutsume-karehagumo]

*Lathys punctosparsa* (?): Nishikawa & Kawanaka, 1973, p. 224 (nec *Lathys punctosparsa* Oi, 1957).

*Lathys sexoculata* Seo et Sohn, 1984, p. 114 (female holotype from Mt. Keum, Namhae-gun, Gyeonhsangnam-do, Korea, 3–VIII–1983, B. K. Seo leg., in the collection of the Department of Biology, College of

Science and Engineering, Keimyung University, Korea, not examined). — Ono, 1991, p. 37; Ono & Ogata, 1993, p. 130; Ogata, 1994, p. 24.

*Lathys insulana* Ono, 2003

[Japanese name: Shima-karehagumo]

*Lathys insulana* Ono, 2003, p. 8. [Described in the present paper.]

Genus *Brommella* Tullgren, 1948

[Japanese name: Nashiji-karehagumo-zoku]

*Brommella punctosparsa* (Oi, 1957)

[Japanese name: Nashiji-karehagumo]

*Lathys (Scotolathys) punctosparsus* Oi, 1957, p. 47 (female holotype and one female paratype from Buttsu-ji, Takasaka-mura, Toyota-gun, Hiroshima Pref., Honshu, Japan, 24–X–1955, R. Oi leg., NSMT-Ar 2082–2083, examined).

*Lathys punctosparsus*: Yaginuma, 1960, p. 24.

*Lathys (Scotolathys) punctosparsa*: Oi, 1961, p. 33.

*Lathys punctosparsa*: Yaginuma, 1962, p. 8; 1968, p. 24; 1986, p. 11; Chikuni, 1989, p. 22.

*Pagomys punctosparsa*: Oi in Yaginuma, 1966, p. 35.

*Brommella punctosparsa*: Lehtinen, 1967, p. 219.

*Notes.* This is a relatively rare species in Japanese dictynids with six eyes. It has been regarded as a member of *Lathys* by many Japanese authors, although it was moved to the genus *Pagomys* Chamberlin, 1948, by the original author (in Yaginuma, 1966). Shortly before this the genus was already regarded as a junior synonym of *Brommella* Tullgren, 1948, by Braun (1964) and Lehtinen (1967) treated the species as *Brommella punctosparsa*. Having a peculiar shape of male palp (Oi, 1961, p. 33, fig. 1–2), the species seems far from other *Lathys* species. The present author supports this combination.

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