

## Spiders of the Genus *Dipoena* (Araneae, Theridiidae) from Japan

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**Abstract** Fourteen species of spiders of the genus *Dipoena* are recorded from Japan and arranged into four species groups. Three new species are described: *Dipoena okinawana* sp. nov., *D. maculosa* sp. nov. and *D. yona* sp. nov. *Dipoena martiniae* Roberts, 1983 and *D. prona* (Menge, 1868) are recorded from Japan for the first time. New synonymies are presented: *Dipoena kayaensis* Paik, 1996 with *D. japonica* (Yoshida, 1985); *D. coreana* Paik, 1995 and *D. ruedai* Barrion et Litsinger, 1995 with *D. martiniae* Roberts, 1983; *D. longisternum* Bösenberg et Strand, 1906 with *D. mutilata* Bösenberg et Strand, 1906. Redescriptions based on the type material are presented for some known species.

**Key words:** Arachnida, Araneae, Theridiidae, *Dipoena*, taxonomy, new species, new synonymies, new records, Japan.

### Introduction

The genus *Dipoena* Thorell, 1869 belongs to the family Theridiidae and its members are small spiders with body length between 1.4 and 4.5 mm. Spiders of the genus can be easily distinguished from those of the other theridiid genera by having a head completely projecting forward, a male carapace high, cylindrical and with various cervical grooves, and female genitalia with two pairs of spermathecae. More than 170 species have been known from all over the world, mainly from tropical regions. Many species of the genus have a peculiar shape, especially in male carapace.

Ten species were described under this genus from Japan, that is, *Dipoena caninotata*, *D. castrata*, *D. flavomarginata*, *D. longisternum*, *D. mutilata* and *D. uniforma* described by Bösenberg & Strand (1906), *Dipoena puctisparsa* by Yaginuma (1967), *D. okumae* and *D. chikunii* by Yoshida (1988) and *D. yoshidai* by Ono (1991). Of these, two species were synonymized with other species, namely, *Dipoena uniforma* Bösenberg et Strand, 1906 with *D. castrata* Bösenberg et Strand, 1906 (Yaginuma, 1977) and *Dipoena caninotata* Bösenberg et Strand, 1906 with *Theridion subpallens* Bösenberg et Strand, 1906 (Yoshida, 1988), and further two species, *Dipoena okumae* Yoshida, 1988 and *D. chikunii* Yoshida, 1988 were transferred to the genus *Thymoites* Keyserling, 1884 (Yoshida, 1995).

On the other hand, following four species were transferred from other theridiid genera to *Dipoena*: *Dipoena mustelina* (Simon, 1888) was transferred from *Euryopis*

Menge, 1868 by Yaginuma (1967); *Dipoena japonica* (Yoshida, 1985), *D. amamiensis* (Yoshida, 1985) and *D. nigromaculata* (Yoshida, 1987) were moved into this genus from *Pholcomma* Thorell, 1869 by Yoshida (1991) and Zhu (1998).

According to the above reports, ten species of the genus *Dipoena* were hitherto recorded from Japan.

In the present paper, the result of a taxonomical study of spiders of the genus *Dipoena* from Japan will be presented on the basis of examinations of the materials newly obtained. For a revision of problematical species, the type specimens deposited in the old collection of Senckenberg Museum, Frankfurt am Main, were re-examined by both the authors. After examinations of the types, the synonymy between *Dipoena caninotata* Bösenberg et Strand, 1906 and *Theridion subpallens* Bösenberg et Strand, 1906 proposed by Yoshida (1988) was confirmed and a synonymy between *Dipoena longisternum* Bösenberg et Strand, 1906 and *D. mutilata* Bösenberg et Strand, 1906 was newly recognized.

In the report on *Dipoena japonica* (Yoshida, 1985) and *D. amamiensis* (Yoshida, 1985) made by Yoshida (1991), identifications of the species was confused: the material used in the paper for "*D. japonica*" contained those of *D. japonica*, *D. amamiensis* and the third species which was, in fact, identified with *Dipoena martinae* Roberts, 1983 originally described from the Aldabra Islands, Western Indian Ocean, and the material for "*D. amamiensis*" contained those of *D. amamiensis* and a new species to be described in the present paper. *Dipoena martinae* will be newly recorded from Japan and described herewith based on Japanese specimens. Besides, *Dipoena coreana* Paik, 1995, described from Korea and *D. ruedai* Barrion et Litsinger, 1995, from the Philippines were regarded as synonymous with *D. martinae*. *Dipoena kayaensis* Paik, 1996, described from Korea was also synonymized with *D. japonica* (Yoshida, 1985).

*Dipoena prona* (Menge, 1868) widely distributed in Europe and North America was recently discovered in Aichi Prefecture, Honshu. This spider will be also newly recorded from Japan.

Other than above species, three new species will be described in the present paper. Thus, 14 species of the genus *Dipoena* will be registered into the Japanese fauna.

Abbreviations used in this paper are as follows: ALE, anterior lateral eye(s); AME, anterior median eye(s); ASEA, Arachnological Society of East Asia, ASJ at present; ASJ, Arachnological Society of Japan, Otemon Gakuin University, Osaka, Japan; CHY, the private collection of Hajime Yoshida, Yamagata; MOA, median ocular area; NSMT, National Science Museum, Tokyo, Japan; NSMT-Ar, the Araneae Collection of the Department of Zoology of NSMT; PLE, posterior lateral eye(s); PME, posterior median eye(s); SMF, Senckenberg Museum Frankfurt am Main, Germany.

## Taxonomy

### Family Theridiidae

#### Genus *Dipoena* Thorell, 1869

*Dipoena* Thorell, 1869, p. 91 (type species: *Atea melanogaster* C.L. Koch, 1837). For literatures see catalogues.

**Diagnosis.** This genus is closely related to *Euryopsis* Menge, 1868, in having two pairs of spermathecae in female genitalia, but is distinguished from the latter by following characteristics: colulus replaced by a pair of setae; carapace of male frequently high.

Small-sized spiders; body length 1.4–4.5 mm. Carapace of male frequently high, cylindrical and with many cervical grooves; male palp with radix, if not median apophysis a separate sclerite. Abdomen usually subspherical, rarely with humps; colulus replaced by a pair of setae; female genitalia with two pairs of spermathecae.

**Species groups.** Levi (1953) classified the species of the genus into six species groups: 1) *lineatipes* group (characteristics: duct of palp much coiled, embolic division very small), 2) *nigra* group (characteristics: PME close together, duct forming a prominent loop in the venter of the bulb, epigynum a shallow depression, its border sclerotized), 3) *buccalis* group (characteristics: cymbium with a large spine, median apophysis of palp widely attached, radix a separate sclerite, epigynum a circular depression), 4) *sulfurica* group (characteristics: having markings on abdomen, relatively flat radix lies close to the proximal end of the median apophysis, spermathecae and connecting canals sclerotized), 5) *prona* (= *hamata*) group (characteristics: male carapace modified, radix complex and prominent sclerite in the venter of the bulb, tegulum relatively narrow, epigynum with a depression), 6) *abdita* group (characteristics: coloration bright, carapace golden yellow, abdomen pinkish grey, carapace low).

**Species included.** More than 170 species were described up to the present from the world, mainly from tropical and temperate regions. In Japan, 14 species of four species groups have been recognized:

1) *lineatipes* group (6 species): *Dipoena japonica* (Yoshida, 1985), *D. amamiensis* (Yoshida, 1985), *D. martinae* Roberts, 1983, *D. nigromaculata* (Yoshida, 1987), *D. mustelina* (Simon, 1889) and *D. flavomarginata* Bösenberg et Strand, 1906;

2) *nigra* group (4 species): *D. mutilata* Bösenberg et Strand, 1906, *D. castrata* Bösenberg et Strand, 1906, *D. okinawana* sp. nov. and *D. maculosa* sp. nov.;

3) *sulfurica* group (1 species): *D. punctisparsa* Yaginuma, 1967;

4) *prona* (= *hamata*) group (3 species): *D. prona* (Menge, 1868), *D. yoshidai* Ono, 1991 and *D. yona* sp. nov.

**Etymology.** From Greek proper name, Dipoinos; feminine.

Species Group of *Dipoena lineatipes****Dipoena japonica*** (Yoshida, 1985)

[Japanese name: Yamato-mijingumo]

(Figs. 1–6)

*Pholcomma japonicum* Yoshida, 1985, p. 10, figs. 3, 8–11 [holotype ♀ from “Kyojin-no-taki” (misread; the correct name of the fall is Keishin-no-taki), foot of Mt. Nishikoma-dake, Nagano Pref., Japan, 9–VIII–1974, Y. Chikuni leg., in ASEA (ASJ), paratype: 1 ♀ from Susado, Horigane-mura, Minamiazumi-gun, Nagano Pref., Japan, 10–VI–1970, Y. Chikuni leg., in NSMT, examined]. – Chikuni, 1989, p. 31, fig. 9, p. 175; Yoshida, 1989, p. 318, figs. 1, 4, M.

*Dipoena japonica* (in part): Yoshida, 1991, p. 33.

*Dipoena kayaensis* Paik, 1996, p. 42, figs. 1–14 (holotype ♂ from Mt. Kayasan, Hein-sa, Korea, 10–VII–1974, K. Y. Paik leg., allotype ♀ from Mt. Seulakk-san, Korea, 9–VIII–1960, K. Y. Paik leg., paratype: 1 ♂, Cheungha, Bogeung-sa, Kyungpook, Korea, 25–VIII–1977, B. K. Seo leg., in the collection of Kyungpook National University, Taegu, Korea, not examined). [**Syn. nov.**]

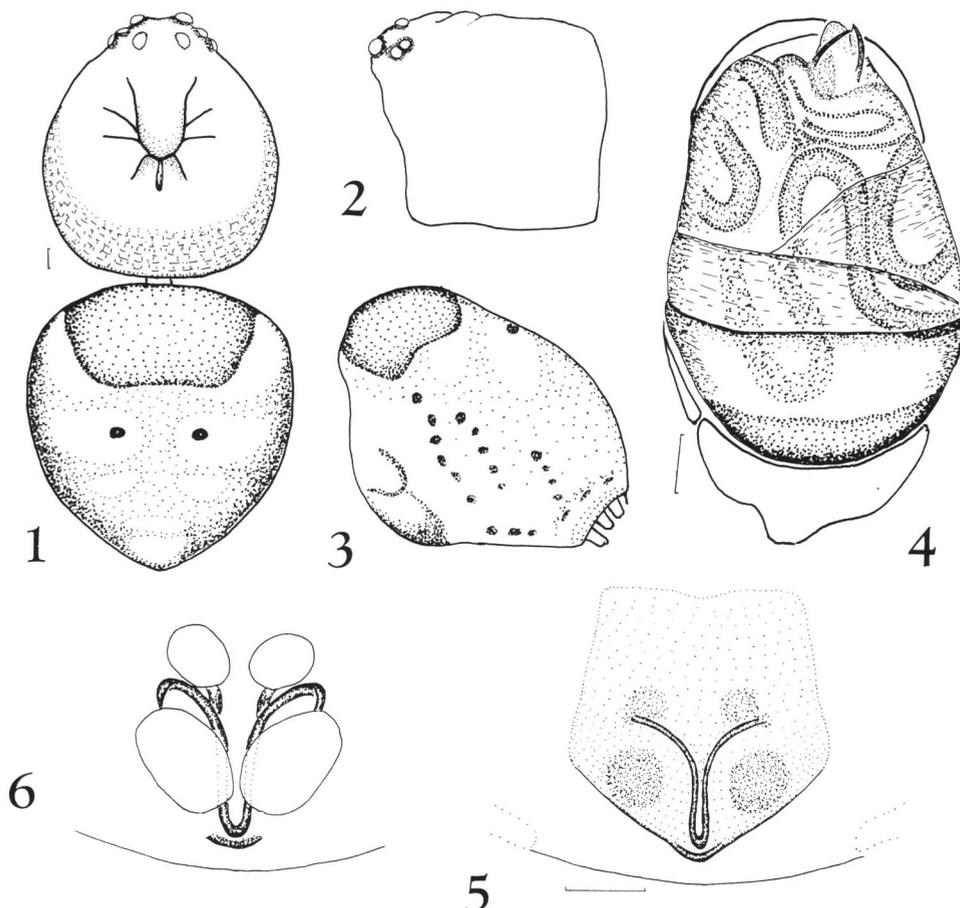
*Specimens examined.* 1 ♀ (holotype), Keishin-no-taki, the foot of Mt. Nishikoma-dake, Nagano Prefecture, Japan, 9–VIII–1974, Y. Chikuni leg. [ASEA (ASJ)]; 1 ♀ (paratype), Susado, Horigane-mura, Minamiazumi-gun, Nagano Prefecture, 10–VI–1970, Y. Chikuni leg. (NSMT-Ar 908); 1 ♀, Nageto, Shigaraki-cho, Aichi Prefecture, 16–VI–1987, K. Ogata leg. (CHY); 1 ♀, 1 ♂, Tarui, Takahashi-shi, Okayama Prefecture, 23–III–1997, K. Nojima leg. (NSMT-Ar 4492); 1 ♀, Sato, Asahi-machi, Okayama Prefecture, 21–VI–1990, K. Nojima leg. (CHY); 1 ♀, Takatomi, Kamogawamachi, Okayama Prefecture, 18–VI–1990, K. Nojima leg. (CHY).

*Description.* Female (based on a specimen from Takahashi-shi, Okayama Prefecture). Total length 2.47 mm (variation: 2.47–2.74 mm). Carapace length 0.92 mm; width 0.87 mm; height 0.71 mm. Abdomen length 1.89 mm; width 1.63 mm; height 1.63 mm. First leg: femur 0.79 mm; patella and tibia 0.84 mm; metatarsus 0.45 mm; tarsus 0.29 mm. Second patella and tibia 0.82 mm; third patella and tibia 0.76 mm; fourth patella and tibia 1.26 mm.

ALE smaller than the others (5 : 6). AME five-thirds their diameter apart and one-third from ALE. PME seven-sixths their diameter apart and one from PLE. Ratio of MOA, anterior width : posterior width : length = 7 : 6 : 6. Abdomen without dorsal sclerotized plate. Female genitalia as shown in Figs. 5–6.

Male (based on a specimen from Takahashi-shi, Okayama Prefecture). Total length 2.84 mm. Carapace length 1.29 mm; width 1.18 mm; height 1.05 mm. Abdomen length 1.37 mm; width 1.37 mm; height 1.5 mm. First leg: femur 0.87 mm; patella and tibia 1.03 mm; metatarsus 0.55 mm; tarsus 0.34 mm. Second patella and tibia 0.95 mm; third patella and tibia 0.74 mm; fourth patella and tibia 1.34 mm.

Carapace circular and very high (Fig. 2), with thoracic groove as shown in Fig 1. Diameters in ratio, AME : ALE : PME : PLE = 10 : 4 : 7 : 6. AME three-fifths their diameter apart and three-tenths from ALE. PME their diameter apart and nine-sevenths from PLE. ALE and PLE almost touching. Ratio of MOA, anterior width : posterior



Figs. 1–6. *Dipoena japonica* (Yoshida, 1985), ♀ holotype from Nagano Prefecture (ASJ) and 1♂ from Okayama Prefecture (NSMT-Ar 4492). — 1, Cephalothorax and abdomen of male, dorsal view; 2, male carapace, lateral view; 3, male abdomen, lateral view; 4, male palp, ventral view; 5, epigynum, ventral view; 6, female internal genitalia, dorsal view. [Scales: 0.1 mm.]

width : length = 25 : 9 : 16. Male palp as shown in Fig. 4. Leg formula, 4, 1, 2, 3. Abdomen globular, dorsum anteriorly with a large sclerotized plate and venter with sclerotized spots arranged in six rows (Fig. 3).

**Coloration.** Basal color yellowish brown. Eyes on the dark bases. Abdomen with dorsal median and lateral dusky fleck; sclerotized plate and spots brown.

**Distribution.** Japan: Honshu (known from Nagano, Aichi and Okayama Prefectures). Korea.

**Etymology.** Derived from the name of country.

**Notes.** *Dipoena amamiensis* (Yoshida, 1985), *D. martinae* Roberts, 1983 and

this species are closely allied to each other in superficial appearances and in the structure of genital organs, but they are distinguished from each other by the coloration and the length of body.

Some specimens recorded in Yoshida (1991) as *Dipoena japonica* belong to the other species, *D. amamiensis* and *D. martinae*. A correct identification is performed in this paper.

Judging from the original description by Paik (1996), *Dipoena kayaensis* Paik, 1996, described from Mt. Kayasan, Korea, is regarded as a junior synonym of this species. Both species have a same condition not only in the marking of abdomen with a number of brown dotted lines on both sides but also in the structure of genital organ.

### *Dipoena amamiensis* (Yoshida, 1985)

[Japanese name: Amami-mijingumo]

(Figs. 7–10)

*Pholcomma amamiense* Yoshida, 1985, p. 11, figs. 4–5, 11–12 (holotype ♀ from Naze, Amami-oshima Island, Kagoshima Prefecture, Japan, 27–III–1978, H. Yoshida leg., in ASEA (ASJ), examined).

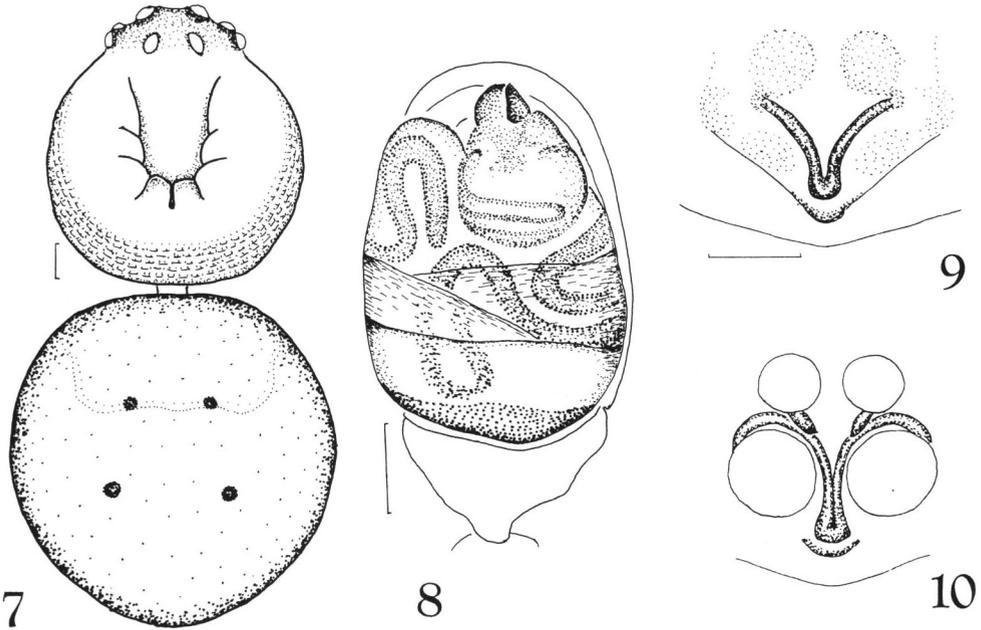
*Dipoena japonica* (in part): Yoshida, 1991, p. 33, figs. 1, 3–4.

*Dipoena amamiensis* (in part): Yoshida, 1991, p. 35; Zhu, 1998, p. 242, fig. 159 A–D; Song, Zhu & Chen, 1999, p. 110, fig. 53 G–H.

*Dipoena amamiensis*: Ogata, 1993, p. 536, figs. 77–78; Paik, 1995, p. 33, figs. 7–12

*Specimens examined.* 1 ♀, Green Fund Forest, Hachioji-shi, Tokyo Prefecture, 12–VII–1995, T. Sadamoto leg. (CHY); 1 ♀, Hashidaira, Hourai-machi, Aichi Prefecture, 9–IV–1992, K. Ogata leg. (CHY); 1 ♂ (CHY), 1–VI–1977, 3 ♀, 3 ♂, 2 ♀ juvenile (NSMT-Ar 4493), 17–VI–1978, 1 ♀, 1 ♂ juvenile (CHY), 25–VI–1978, Mt. Iwawakis-san, Osaka Prefecture, H. Yoshida leg.; 1 ♀, 1 ♂, Atoyama, Higashikurikura-mura, Okayama Prefecture, 3–VI–1990, K. Nojima leg., (CHY); 1 ♀, 10–VII–1989, 2 ♀, 6–VII–1990, 1 ♀, 1–IX–1990, Mt. Madoga-san, Numatamachi, Asaminami-ku, Hiroshima-shi, Hiroshima Prefecture, Y. Ihara leg. (CHY); 1 ♀, Akashi, Hatsukaichi-shi, Hiroshima Prefecture, 31–V–1992, Y. Ihara leg. (CHY); 1 ♂, Janoike, Mt. Gokurakuji-san, Hatsukaichi-shi, Hiroshima Prefecture, 5–VII–1992, M. Ihara leg. (CHY); 1 ♀, Chikurinji, Kawachi-mura, Hiroshima Prefecture, 10–VII–1989, Y. Ihara leg. (CHY); 1 ♂, 1 ♀, Hiura, Shingu-mura, Ehime Prefecture, 20–V–1994, Y. Ihara leg. (CHY); 2 ♀, 2 ♂, Wakinotani, Mt. Ogawa-san, Kanesamachi, Iyomishima-shi, Ehime Prefecture, 20–V–1994, Y. Ihara leg. (NSMT-Ar 4494); 1 ♀ (holotype), Naze, Amami-oshima Island, Kagoshima Prefecture, 27–III–1978, H. Yoshida leg. (ASJ); 1 ♂, Mt. Yang-ming-shan, Taipei City, Taiwan, 3–VIII–1977, H. Yoshida leg. (CHY).

*Description.* Female (one specimen from Higashi-kurikura-mura, Okayama Prefecture): Total length 1.74 mm. Carapace length 0.61 mm; width 0.58 mm; height 0.45 mm. Abdomen length 1.16 mm; width 1.08 mm; height 1.24 mm. First leg:



Figs. 7–10. *Dipoena amamiensis* (Yoshida, 1985), ♀ holotype from Amami-oshima Island (ASJ) and 1♂ from Osaka Prefecture (CHY). — 7, Cephalothorax and abdomen of male, dorsal view; 8, male palp, ventral view; 9, epigynum, ventral view; 10, female internal genitalia, dorsal view. [Scales: 0.1 mm.]

femur 0.53 mm; patella and tibia 0.58 mm; metatarsus 0.29 mm; tarsus 0.21 mm. Second patella and tibia 0.53 mm; third patella and tibia 0.42 mm; fourth patella and tibia 0.71 mm.

Diameters in ratio, AME:ALE:PME:PLE=7:4:6:5. AME five-sevenths their diameter apart and two-sevenths from ALE. PME two-thirds their diameter apart and from PLE. Ratio of MOA, anterior width:posterior width:length=17:13:12. Abdomen without dorsal sclerotized plate. Female genitalia as shown in Figs. 9–10.

Male (one specimen from Mt. Iwawaki-san, Osaka Prefecture): Total length 1.97 mm. Carapace length 0.87 mm; width 0.74 mm, height 0.74 mm. Abdomen length 1.11 mm; width 1.08 mm; height 1.18 mm. First leg: femur 0.61 mm; patella and tibia 0.66 mm; metatarsus 0.37 mm; tarsus 0.26 mm. Second patella and tibia 0.63 mm; third patella and tibia 0.58 mm; fourth patella and tibia 0.87 mm.

Carapace circular and high, with thoracic groove as shown in Fig. 7. Diameters in ratio, AME:ALE:PME:PLE=4:2:3:3. AME three-fourths their diameter apart and one-fourth from ALE. PME five-sixths their diameter apart and one from PLE. ALE and PLE almost touching. Ratio of MOA, anterior width:posterior width:

length=20:15:13. Male palp as shown in Fig. 8. Leg formula, 4, 1, 2, 3. Abdomen globular, with a large dorsal sclerotized plate (Fig. 7).

**Coloration.** Basal color dark brown. Legs brown with black flecks on the following points: both lateral side of distal one-third of femora; distal half of patella; distal one-third of tibiae and metatarsi.

**Variation.** Total length of females: 1.74–2.05 mm; total length of males: 1.89–1.97 mm.

**Distribution.** Japan: Honshu (Tokyo, Aichi, Osaka, Okayama and Hiroshima Prefectures), Shikoku (Ehime Prefecture) and Ryukyu Islands (Amami-oshima Island). Korea and China.

**Etymology.** Derived from the type area, Amami-osima Island.

**Notes.** Yoshida (1991) reported *Dipoena japonica* from Japan and Taiwan. However, many specimens used for the report belong to *Dipoena amamiensis*. The male described as *Dipoena amamiensis* by Yoshida (1991, figs. 5–6) was in fact that of a new species (*D. okinawana* sp. nov.).

Zhu (1992, 1998) recorded females of this species from China, but his spider seems to belong to another species. They may be females of *D. sticta* Zhu, 1992 which resembles *D. japonica*. The female of *D. sticta* has been unknown.

*Dipoena menustya* Roberts, 1983 described from Aldabra Islands and *D. lineatipes* Bryant, 1933 described from North America are closely allied to this species.

### ***Dipoena martinae* Roberts, 1983**

[Japanese name: Hoshi-mijingumo]

(Figs. 11–16)

*Dipoena martinae* Roberts, 1983, p. 227, figs. 32–35 (holotype ♂ from Grande Terre, Wilson's Well, from Apodytes bush in mixed stand of scrub in open, low vegetation, Aldabra, western Indian Ocean, 9–III–1974, in BMNH, not examined); Zhu, 1998, p. 236, fig. 154 A–F; Song, Zhu & Chen, 1988, p. 112, fig. 55 C–D, K–L.

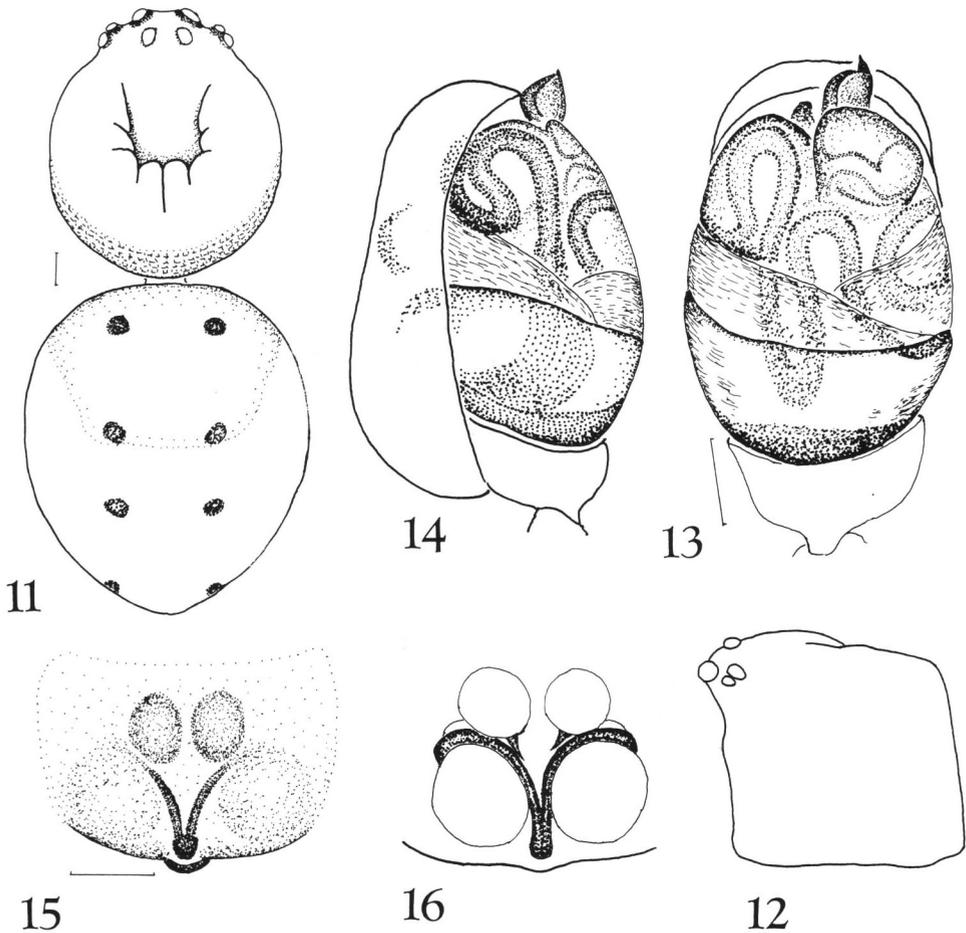
*Dipoena japonica* (in part): Yoshida, 1991, p. 10, fig. 2.

*Dipoena decamaculata* Chen, Peng et Zhao, 1992, p. 270, figs. 1–5 (holotype ♂ and allotype ♀ from Xiushui County, Jiangxi Province, China, 10–IX–1991, collector not given, paratypes: 6 ♀5 ♂ from same locality as for the holotype, 10–V/10–VIII/30–VIII/30–IX/20–X–1991, in the Laboratory of Pest Natural Enemies, Department of Biology, Hubei University, China, not examined). [Synonymized by Zhu (1998).]

*Dipoena coreana* Paik, 1995, p. 32, figs. 1–6 (holotype ♂ from Jinjoo, Kyungnam, 13–VIII–1981, B. K. Seo leg., in the collection of Kyungpook University, Taegu, Korea, not examined). [**Syn. nov.**]

*Dipoena ruedai* Barrion & Litsinger, 1995, p. 454, fig. 274 (holotype ♂ from Magsaysay Vill., Siniloan, Laguna Prov., Luzon Island, Philippines, 12–XII–1984, A. T. Barrion leg., paratypes: 2 ♀, 24–I–1985, 1 ♀, 6–II–1985, from same locality as for the holotype, A.T. Barrion leg., in the International Rice Research Institut, Manila, not examined). [**Syn. nov.**]

**Specimens examined.** 1 ♀, 28–XII–1985, 1 ♂, 30–III–1986, Iriomotejima Island, Okinawa Prefecture, Japan, A. Tanikawa leg. (CHY).



Figs. 11–16. *Dipoena martinae* Roberts, 1983, 1♀, 1♂ from Iriomotejima Island (CHY). — 11, Cephalothorax and abdomen of male, dorsal view; 12, male carapace, lateral view; 13, male palp, ventral view; 14, male palp, prolateral view; 15, epigynum, ventral view; 16, female internal genitalia, dorsal view. [Scales: 0.1 mm.]

*Description based on the Japanese material.* Female (one specimen from Iriomotejima Island): Total length 1.92 mm. Carapace length 0.84 mm; width 0.63 mm; height 0.47 mm. Abdomen length 1.47 mm; width 1.26 mm; height 1.26 mm. First leg: femur 0.66 mm; patella and tibia 0.68 mm; metatarsus 0.37 mm; tarsus 0.24 mm. Second patella and tibia 0.61 mm; third patella and tibia 0.53 mm; fourth patella and tibia 0.87 mm. ALE smaller than the others (5:6). AME four-thirds their diameter apart and one-third from ALE. PME two-thirds their diameter apart and from PLE. Ratio of MOA, anterior width:posterior width:length=9:7:7. Abdomen without dorsal plate, black spots small. Female genitalia as shown in Figs. 15–16.

Male (one specimen from Iriomotejima Island): Total length 1.95 mm. Carapace length 0.89 mm; width 0.76 mm; height 0.61 mm. Abdomen length 0.97 mm; width 0.89 mm; height 0.92 mm. First leg: femur 0.66 mm; patella and tibia 0.74 mm; metatarsus 0.42 mm; tarsus 0.26 mm. Second patella and tibia 0.71 mm; third patella and tibia 0.53 mm; fourth patella and tibia 0.87 mm.

Carapace circular and high (Fig. 12), with thoracic groove as shown in Fig. 11. Diameters in ratio, AME : ALE : PME : PLE = 8 : 4 : 6 : 5. AME their diameter apart and one-fourth from ALE. PME two-thirds their diameter apart and four-thirds from PLE. ALE and PLE almost touching. Ratio of MOA, anterior width : posterior width : length = 19 : 14 : 14. Structure of male palp as shown in Figs. 13–14. Leg formula, 4, 1, 2, 3. Abdomen globular, with a large dorsal sclerotized plate.

Coloration. Basal color pale yellow. Carapace light brown. Abdomen with four pairs of dorsal and a pair of indistinct lateral black spots. Epigastric area dusky. Taisi of palp blackish brown.

*Distribution.* Japan: Ryukyu Islands (Iriomotejima Island). China, Korea, the Philippines and the Aldabra Islands (Western Indian Ocean).

*Etymology.* Dedicated to the wife (Anne C. Martin) of the author of the name (M. J. Roberts).

*Notes.* Yoshida (1991) reported this species from Iriomotejima Island as a color variation of *Dipoena japonica*, but it was a misidentification.

Judging from original descriptions by Paik (1995) and Barrion and Litsinger (1995), *Dipoena coreana* Paik, 1995, described from Kyungnam, Korea, and *D. ruedai* Barrion et Litsinger, 1995, from Luzon Island, Philippines, are regarded as junior synonyms of *D. martinae*.

### *Dipoena nigromaculata* (Yoshida, 1987)

[Japanese name: Kurohoshi-mijingumo]

*Pholcomma nigromaculatum* Yoshida, 1987, p. 29, figs. 1–5 (holotype ♀, Shuishe, Nantow County, Taiwan, 29–III–1979, H. Yoshida leg., NSMT-Ar 1871, allotype ♂, Iriomotejima Island, Okinawa Prefecture, Japan, 10–VIII–1985, A. Tanikawa leg., NSMT-Ar 1872, paratypes: 2 ♀, same data as for the holotype, 1 ♀, same data as for the allotype, CHY, examined).

*Dipoena nigromaculata*: Zhu, 1998, p. 227, fig. 147 A–E; Song, Zhu & Chen, 1998, p. 112, fig. 55 G–H, N.

*Specimens examined.* 1 ♀ (holotype), Shuishe, Nantow County, Taiwan, 29–III–1979, H. Yoshida leg. (NSMT-Ar 1871), 2 ♀ (paratype), same data as for the holotype (CHY); 1 ♂ (allotype), Iriomotejima Island, Okinawa Prefecture, 10–VIII–1985, A. Tanikawa leg. (NSMT-Ar 1872); 1 ♀ (paratype), same data as for the allotype (CHY).

*Distribution.* Japan: Iriomotejima Island, Ryukyu Islands. Taiwan.

*Etymology.* From Latin meaning “with black markings,” derived from black

flecks on lateral sides of abdomen.

*Note.* Description and figures see Yoshida (1987). This species was originally described by the senior author under the genus *Pholcomma*, but was recently transferred to *Dipoena* by Zhu (1998).

*Dipoena mustelina* (Simon, 1889)

[Japanese name: Kani-mijingumo]

(Fig. 17)

*Euryopis mustelina* Simon, 1889, p. 251 (holotype ♀, from Yokohama, Japan, A. Mellottée leg., in Muséum National d'Histoire Naturelle, Paris, not examined); Bösenberg & Strand, 1906, p. 137, pl. 3, fig. 2 A–D, pl. 12, fig. 276; Saito, 1941, p. 177, fig. 202 a–c; Yaginuma, 1960, p. 34, pl. 7, fig. 42.

*Dipoena mustelina*: Yaginuma, 1967, p. 88, fig. 1 a–c; Yaginuma, 1968, p. 34, pl. 7, fig. 42; Shinkai & Takano, 1984, p. 51, 2 figs.; Yaginuma, 1986, p. 42, text-fig. 23(3), pl. 10, fig. 3; Chikuni, 1989, p. 36, fig. 32, p. 179; Zhu, 1998, p. 240, fig. 157 A–D; Song, Zhu & Chen, 1999, p. 112, fig. 55 E–F, M; Yoshida, Tso & Severinghaus, 2000, p. 124, fig. 4.

*Specimens examined.* 2 ♀, 1 ♂, Oshidomari, Rishiri-to Island, Hokkaido, 4–VIII–1981, H. Yoshida leg. (CHY); 1 ♀ juvenile, Ominato, Mutsu-shi, Aomori Prefecture, 17–VII–1978, H. Yoshida leg. (CHY); 1 ♀, Mt. Namidate-yama, Aomori-shi, Aomori Prefecture, 15–VII–1978, H. Yoshida leg. (CHY); 1 ♀, Tobi-shima Island, Sakata-shi, Yamagata Prefecture, 9–VIII–1972, H. Yoshida leg. (CHY); 6 ♀, Nishiyama, Shinjo-shi, Yamagata Prefecture, 5–VII–1982, H. Yoshida leg. (CHY); 4 ♀, 29–VII–1981, 1 ♂, 23–V–1982, 4 ♀, 1 ♂, 10–VI–1985, Mukaimachi, Mogami-machi, Yamagata Prefecture, H. Yoshida leg. (CHY); 1 ♀, 1 ♂, Ohori, Mogami-machi, Yamagata Prefecture, 6–VII–1982, H. Yoshida leg. (CHY); 2 ♀, 2 ♂, Wakahata-numa, Obanazawa-shi, Yamagata Prefecture, 30–V–1987, H. Yoshida leg. (CHY); 1 ♀, 1 ♂, juvenile, Kanagasawa, Hosono, Obanazawa-shi, 30–VI–1986, H. Yoshida leg. (CHY); 1 ♀, 1 ♀ juvenile, 15–VI–1986, 1 ♂, 1 ♀ juvenile, Takinosawa, Higashine-shi, Yamagata Prefecture, H. Yoshida leg. (CHY); 6 ♀, 2 ♂, (NSMT-Ar 4495), 4–VII–1982, 2 ♂ (CHY), 11–VII–1982, 3 ♀ (CHY), 2–VII–1984, 1 ♂ (CHY), 6–VIII–1986, Mt. Sakazuki-yama, Yamagata-shi, Yamagata Prefecture, H. Yoshida leg.; 2 ♀, 1 ♂, 2 ♀ juvenile, 2–IX–1977, 1 ♂, 18–VII–1982, Mt. Chitose-yama, Yamagata-shi, Yamagata Prefecture, H. Yoshida leg. (CHY); 2 ♀, Hataya, Yamanobe-machi, Yamagata Prefecture, 16–VI–1985, H. Yoshida leg. (CHY); 5 ♀, 7 ♂, Hanayama-mura, Kurihara-gun, Miyagi Prefecture, 24–VI–1997, K. Kumada leg. (NSMT-Ar 3759); 1 ♀, Hachioji-shi, Tokyo, 21–V–1989, K. Kumada leg. (NSMT-Ar 1274); 2 ♀, 2 ♂, Susado, Horiganemura, Nagano Prefecture, 7–VI–1970, Y. Chikuni leg. (CHY); 1 ♀, Ichinose, Shiramine-mura, Ishikawa Prefecture, 7–VI–1987, J. Taka leg. (CHY); 1 ♂, Kushida, Matsuzaka-shi, Mie Prefecture, 4–X–1995, M. Eguchi leg. (CHY); 2 ♀, 2 ♂ juvenile (CHY), 27–VI–1976, 1 ♀ (CHY), 1–VI–1977, 1 ♂ (CHY), 25–VI–1978, 1 ♀, 1 ♂, (NSMT-Ar 4496), 20–VI–1979, Mt. Iwawaki-san, Osaka Prefecture, H. Yoshida leg.;

1 ♀, Mt. Makio-san, Izumi-shi, Osaka Prefecture, 8-V-1977, H. Yoshida leg. (CHY); 4 ♀, 1 ♂, 4 ♀ juvenile, 3-V-1977, 2 ♀, 1 ♂, 25-IV-1978, Matsuo-ji, Izumi-shi, Osaka Prefecture, H. Yoshida leg. (CHY); 2 ♀, Kongo-ji, Mt. Amano-san, Kawachinagano-shi, Osaka Prefecture, 25-III-1970, H. Tanaka leg. (CHY); 1 ♀, Mt. Inubo-san, Osaka Prefecture, 1-VI-1970, H. Tanaka leg. (CHY); 3 ♀, 1 ♂, Kimi-toge, Hashimoto-shi, Wakayama Prefecture, 9-IV-1978, H. Yoshida leg. (CHY); 1 ♂, Taki, Totsugawamura, Nara Prefecture, 26-V-1979, H. Yoshida leg. (CHY); 1 ♀, Mikata, Hikami-cho, Hyogo Prefecture, 29-IV-1969, H. Tanaka leg. (CHY); 1 ♀, Inoko, Tottori-shi, Tottori Prefecture, 17-II-1965, T. Arita leg. (NSMT-Ar 151); 2 ♀, 1 ♂, Mt. Omogo-san, Ehime Prefecture, 26-V-1970, H. Tanaka leg. (CHY); 2 ♀, 1 ♂ juvenile, Mt. Tachibana-san, Fukuoka-shi, Fukuoka Prefecture, 2-V-1978, H. Yoshida leg. (CHY); 3 ♀, 2 ♂, Kumanogawa, Fuji-machi, Saga Prefecture, 5-V-1978, H. Yoshida leg. (CHY); 1 ♀, Itsuki-mura, Kuma-gun, Kumamoto Prefecture, 15-V-1983, T. Irie leg. (NSMT-Ar 3881); 1 ♀, Kouyama-cho, Kimotsuki-gun, Kagoshima Prefecture, 5-XI-1971, H. Okuyama leg. (NSMT-Ar 14); 1 ♀, Tenda-bana, Yonaguni-jima Island, Okinawa Prefecture, 31-VII-1985, H. Yoshida leg. (CHY); 1 ♀, 1 ♀ juvenile, 28-VII-1977, 2 ♂ juvenile, 2 ♀ juvenile, 3-VIII-1977, 1 ♂, 7-IV-1979, Mt. Yangming-shan, Taipei City, Taiwan, H. Yoshida leg. (CHY); 1 ♀, 20-VII-1977, H. Yoshida leg., 1 ♀, 21-VII-1977, M. Yoshimura leg., Chihtow, Nantow County, Taiwan, (CHY); 1 ♂, 5 ♀ juvenile, Shuishe, Nantow County, Taiwan, 27-III-1979, H. Yoshida leg. (CHY); 1 ♂, 2 ♀ juvenile, Penpuchih, Nantow County, Taiwan, 27-XII-1997, H. Yoshida leg. (CHY); 1 ♀ juvenile, Tsuifeng, Nantow County, Taiwan, 23-VII-1977, H. Yoshida leg. (CHY).

*Distribution.* Japan: Honshu, Shikoku and Kyushu. China.

*Etymology.* From Latin meaning “musteline.”

*Notes.* This species was originally described under the genus *Euryopsis*, but was transferred to *Dipoena* by Yaginuma (1977). Although 1888 has been frequently used as the year of publication of this species, the present authors used 1889 following Bonnet (1956, p. 1825). This species is easily recognizable by the markings on the abdomen (Chikuni, 1989). Male palp is illustrated (Fig. 17).

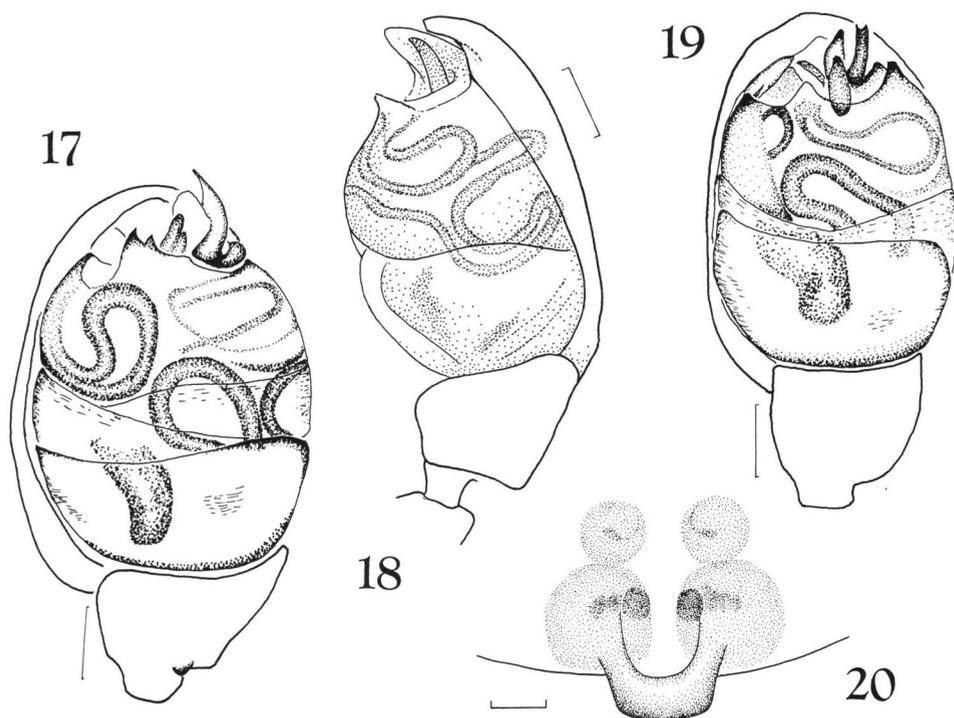
### *Dipoena flavomarginata* Bösenberg et Strand, 1906

[Japanese name: Kiberi-mijingumo]

(Figs. 18–20)

*Dipoena flavomarginata* Bösenberg et Strand, 1906, p. 151, pl. 12, fig. 297 A–E (syntypes: 1 ♀, 1 ♂, from Japan, W. Dönitz leg., SMF 3070–3071, examined). — Saito, 1941, p. 162, fig. 183 a–d; Ohno & Yaginuma, 1968, p. 27, fig. 2 (1–5); Shinkai & Takano, 1984, p. 51, 1 fig.; Yaginuma, 1986, p. 42, text-fig. 23(2), pl. 10, fig. 2; Chikuni, 1989, p. 36, fig. 33, p. 180.

*Specimens examined.* 1 ♀, 1 ♂ (syntypes), Japan, W. Dönitz leg. (SMF 3070–3071); 1 ♂ (CHY), 4-VII-1982, 1 ♀ (CHY), 11-VII-1982, 3 ♀ juvenile (CHY), 13-



Figs. 17–20. 17, *Dipoena mustelina* (Simon, 1889), 1♂ from Yamagata Prefecture (CHY); 18–20, *Dipoena flavomarginata* Bösenberg et Strand, 1906, 1♀, 1♂ syntypes from Japan (18 & 20; SMF 3071) and 1♂ from Yamagata Prefecture (19; CHY). — 17, 19, Male palps, ventral view; 18, male palp, retrolateral view; 20, epigynum, ventral view. [Scales: 0.1 mm.]

VI–1984, 1♀, 2♂, 1♀ juvenile (NSMT-Ar 4497), 2–VII–1984, 2♂ (CHY), 6–VIII–1986, Mt. Sakazuki-yama, Yamagata-shi, Yamagata Prefecture, H. Yoshida leg. (CHY); 1♀, Numata-shi, Gunma Prefecture, 13–IV–1967, B. Takei leg. (NSMT-Ar 150); 2♀ juvenile, Kinryucho, Saga-shi, Saga Prefecture, 4–V–1978, H. Yoshida leg. (CHY); 1♀, Mt. Omoto-dake, Ishigaki-jima Island, Okinawa Prefecture, 1–VIII–1985, H. Yoshida leg. (CHY); 3♀, 2♂, 3♀ juvenile, Mt. Yangming-shan, Taipei City, Taiwan, 3–VIII–1977, H. Yoshida leg. (CHY); 1♀ juvenile, Wulai, Taipei County, Taiwan, 29–VII–1977, H. Yoshida leg. (CHY); 1♂ (CHY), 23–VII–1977, 1♀, 1♂, (NSMT-Ar 4498), 31–III–1979, Nanshanchih, Nantow County, Taiwan, H. Yoshida leg.; 1♀ juvenile, Chihtow, Nantow County, 19–VII–1977, H. Yoshida leg. (CHY); 1♀ juvenile, Chihpen Spa, Taitung County, Taiwan, 15–VII–1977, H. Yoshida leg. (CHY).

*Redescription of type specimens.* Female (an adult female syntype from Japan, locality not given): Total length 2.40 mm. Carapace length 0.80 mm; width 0.76 mm; height 0.48 mm. Abdomen length 1.60 mm; width 1.20 mm; height not measured.

Table 1. Measurement of legs of *Dipoena flavomarginata* Bösenberg et Strand, 1906, based on a female syntype, SMF 3071 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 0.80  | 0.88            | 0.55       | 0.30   | 2.53  |
| II  | 0.78  | 0.83            | 0.50       | 0.30   | 2.41  |
| III | 0.75  | 0.73            | 0.43       | 0.35   | 2.26  |
| IV  | 0.88  | 1.00            | 0.50       | 0.38   | 2.76  |

Table 2. Measurement of legs of *Dipoena flavomaculata* Bösenberg et Strand, 1906, based on a male syntype, SMF 3070 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 0.75  | 0.80            | 0.55       | 0.30   | 2.40  |
| II  | 0.68  | 0.76            | 0.45       | 0.33   | 2.22  |
| III | 0.73  | 0.73            | 0.45       | 0.33   | 2.24  |
| IV  | 0.83  | 1.00            | 0.58       | 0.43   | 2.84  |

## Measurement of legs as in Table 1

Carapace not high. Labium length : width = 1 : 2. Sternum length : width = 8 : 7. Diameters of eyes in ratio, AME : ALE : PME : PLE = 6 : 5 : 6 : 5. AME seven-sixths their diameter apart and one-sixth from ALE. PME their diameter apart and four-fifths from PLE. ALE and PLE close to each other. Ratio of MOA not observed. Clypeus : AME-AME 22 : 7. Leg formula, 4, 1, 2, 3.

Abdomen globular. Female genitalia as in Fig. 20.

Coloration. All the parts of the body light yellowish white, faded.

Male (an adult male syntype from Japan, locality not given): Total length 2.04 mm. Carapace length 0.92 mm; width 0.80 mm; height 0.56 mm. Abdomen length 1.12 mm; width 0.80 mm; height not measured. Measurement of legs as in Table 2.

Carapace high. Labium length : width = 3 : 7. Sternum length : width = 1 : 1. Diameters of eyes in ratio, AME : ALE : PME : PLE = 7 : 5 : 5 : 5. AME five-sevenths their diameter apart and one-seventh from ALE. PME six-fifths their diameter apart and four-fifths from PLE. ALE and PLE close to each other. Ratio of MOA not observed. Clypeus : AME-AME 24 : 5. Leg formula, 4, 1, 2, 3.

Male palp slightly damaged is illustrated as in Fig. 18. A male palp of a fresh material is also illustrated (Fig. 19).

Abdomen globular.

Coloration. Carapace and legs light yellowish brown, faded. Abdomen light brown with markings.

*Distribution.* Japan: Honshu, Shikoku and Kyushu. Korea and China.

*Etymology.* From Latin meaning “marginated in yellow,” probably derived from the coloration of carapace.

*Notes.* This species resembles *Dipoena mustelina* (Simon, 1889), but is distinguished from the latter by the coloration and the shape of genital organs. Female carapace of *D. flavomarginata* is black and is marginated with yellow line. Legs are yellowish brown with black rings on fourth femora. Specimens collected in Taiwan have darker body and legs with many black rings.

Species Group of *Dipoena nigra*

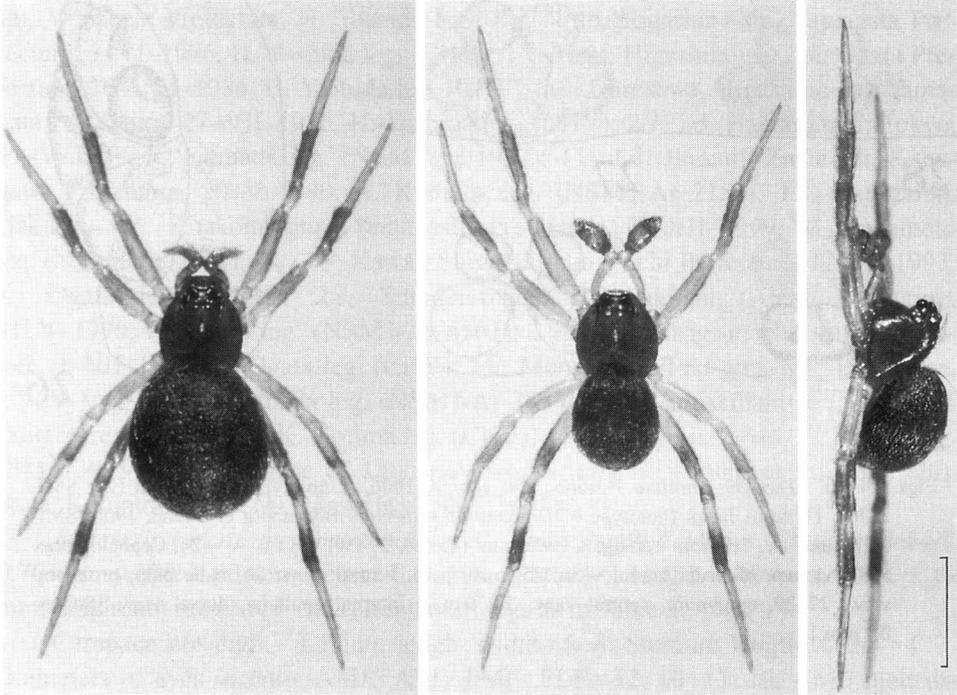
***Dipoena mutilata*** Bösenberg et Strand, 1906

[Japanese name: Ko-akakuro-mijingumo]

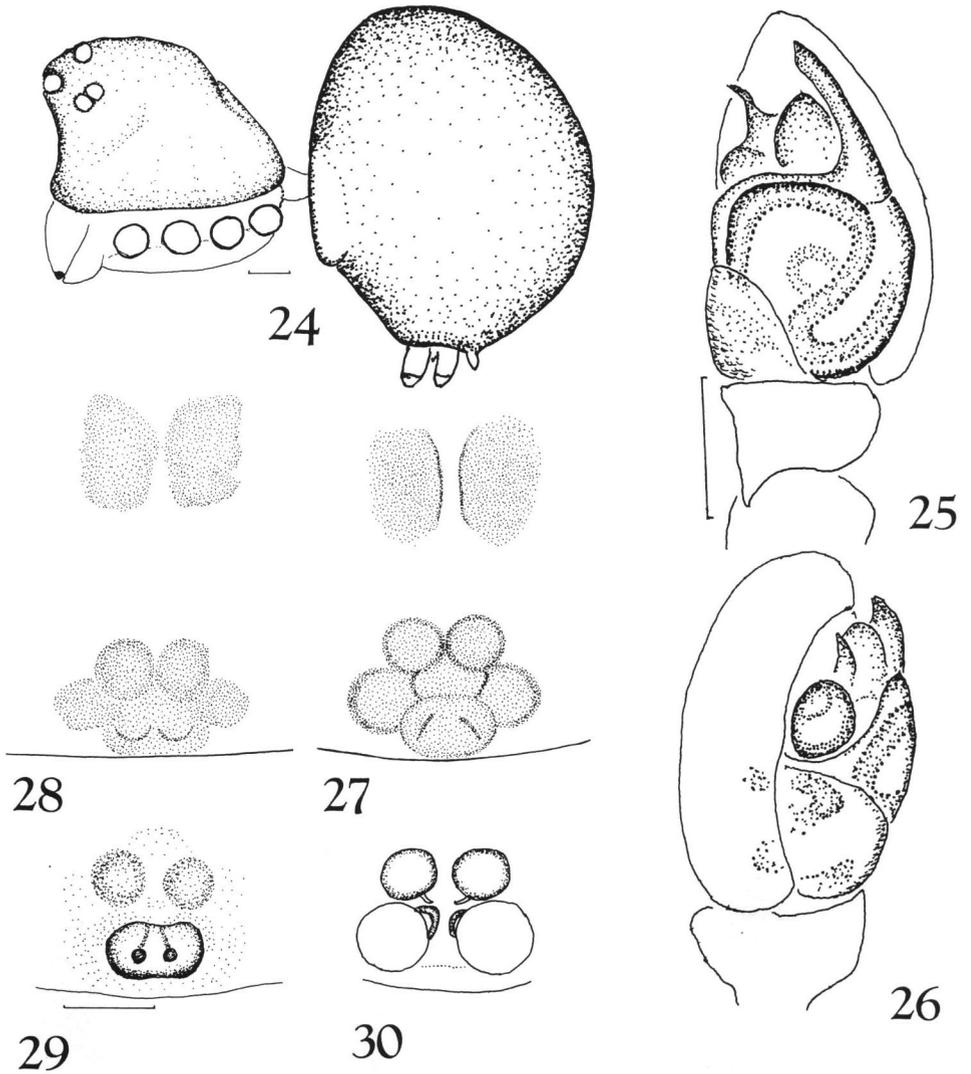
(Figs. 21–30)

*Dipoena mutilata* Bösenberg et Strand, 1906, p. 150, pl. 12, fig. 275 A–B (holotype ♀ from Japan, W. Dönitz leg. (SMF 3073), examined). — Saito, 1941, p. 163, fig. 185 a–b; Shinkai, 1977, p. 323; Shinkai & Takano, 1984, p. 51, 1 fig.; Yaginuma, 1986, p. 42.

*Dipoena longisternum* Bösenberg et Strand, 1906, p. 152, pl. 10, fig. 189 A–C (holotype ♀, Kompira, Saga, Japan, W. Dönitz leg. (SMF 3073).examined). — Saito, 1941, p.162, fig. 184 a–c; Yaginuma,



Figs. 21–23. *Dipoena mutilata* Bösenberg et Strand, 1906, 1♀, 1♂ from Yamagata Prefecture (CHY). — 21 (Left), female, dorsal view; 22 (center), male, dorsal view; 23 (right), male, lateral view. [Scale: 1 mm; photograph: Yasunosuke Chikuni.]



Figs. 24–30. *Dipoena mutilata* Bösenberg et Strand, 1906, ♀ holotype from Japan (27; SMF 3073), 1 ♀ from Japan (holotype of *Dipoena longisternum* Bösenberg et Strand, 1906, SMF 3005) and 1 ♀, 1 ♂ from Yamagata Prefecture (25–26, 29–30; CHY). — 24, Cephalothorax and abdomen of male, lateral view; 25, male palp, ventral view; 26, male palp, prolateral view; 27–29, epigynum, ventral view; 30, female internal genitalia, dorsal view. [Scales: 0.1 mm.]

Table 3. Measurement of legs of *Dipoena mutilata* Bösenberg et Strand, 1906 based on the female holotype, SMF 3073 (in mm).

| Leg   | Femur  | Patella & Tibia | Metatarsus | Tarsus | Total |
|-------|--------|-----------------|------------|--------|-------|
| I-III | absent |                 |            |        |       |
| IV    | 0.65   | 0.68            | 0.43       | 0.30   | 2.06  |

*Specimens examined.* 1 ♀, Yaken, Shimokita Peninsula, Aomori Prefecture, 18-VII-1978, H. Yoshida leg. (NSMT-Ar 4499); 3 ♀, Ominato, Mutsu-shi, Aomori Prefecture, 17-VII-1978, H. Yoshida leg. (CHY); 15 ♀, 29-VII-1981, 1 ♀, 14-VIII-1981, 1 ♀, 1 ♂, 10-VI-1985, Mukaimachi, Mogami-machi, Yamagata Prefecture, H. Yoshida leg. (CHY); 11 ♀, 1 ♂, Ohori, Mogami-machi, Yamagata Prefecture, 6-VII-1982, H. Yoshida leg. (CHY); 1 ♀, Han-ya, Mogami-machi, Yamagata Prefecture, 29-VII-1981, H. Yoshida leg. (CHY); 2 ♀, Ginzan-kaminohata, Obanazawa-shi, Yamagata Prefecture, 12-VII-1986, H. Yoshida leg. (CHY); 2 ♀, Ginzan-onsen Spa, Obanazawa-shi, Yamagata Prefecture, 13-VII-1986, H. Yoshida leg. (CHY); 4 ♀ 4 ♂, (CHY), 16-VI-1986, 4 ♀, 2 ♂ (NSMT-Ar 4500), 22-VI-1986, Takinosawa, Higashine-shi, Yamagata Prefecture, H. Yoshida leg.; 4 ♀, Nitto, Higashine-shi, Yamagata Prefecture, 3-VI-1986, H. Yoshida leg. (CHY); 1 ♀, Togo, Higashine-shi, Yamagata Prefecture, 16-VIII-1986, H. Yoshida leg. (CHY); 1 ♀, Dorosawa, Higashine-shi, Yamagata Prefecture, 27-VII-1986, H. Yoshida leg. (CHY); 2 ♀, 1 ♂, Hachioji-shi, Tokyo, 21-V-1989, K. Kumada leg. (NSMT-Ar 1942); 1 ♀, 1 ♂, Jinmuji, Zushi-shi, Kanagawa Prefecture, 20-V-1990, K. Kumada leg. (NSMT-Ar 2152); 1 ♀, Oku-daibo, Hakushu-cho, Kitakoma-gun, Yamanashi Prefecture, 23-VII-1999, M. Sadamoto leg. (NSMT-Ar 4518); 2 ♀, 1 ♂, Kawai, Shigaraki-cho, Aichi Prefecture, 12-VI-1993, K. Ogata leg. (CYH); 2 ♀, Shinden-machi, Okazaki-shi, Aichi Prefecture, 31-V-1990, K. Ogata leg. (NSMT-Ar 4501); 2 ♀, Kamiyahagi-machi, Gifu Prefecture, 1-VII-1990, K. Ogata leg. (CHY); 1 ♀, Meiwa-cho, Taki-gun, Mie Prefecture, 27-29-V-1994, K. Kumada leg. (NSMT-Ar 3630); 1 ♀, Kamisaibara-son, Okayama Prefecture, 5-VII-1990, K. Nojima leg. (CHY); 1 ♀ (holotype), Japan, W. Dönitz leg. (SMF 3073); 1 ♀ (holotype) of *Dipoena longisternum* Bösenberg et Strand, 1906), Saga, Kompira, Japan, W. Dönitz leg. (SMF 3005).

*Redescription of the female holotype.* Total length 2.24 mm. Carapace length 0.76 mm; width 0.60 mm; height 0.36 mm. Abdomen length 1.48 mm; width 1.16 mm; height not measured. Measurement of legs as in Table 3.

Carapace not high. Labium length : width = 5 : 8. Sternum length : width = 4 : 3. Diameters of eyes in ratio, AME : ALE : PME : PLE = 12 : 10 : 13 : 10. AME their diameter apart and one-sixth from ALE. PME four-fifths their diameter apart from each other and from PLE. ALE and PLE close to each other. Ratio of MOA not observed. Clypeus : AME-AME 3 : 1. Leg formula unknown. Abdomen globular. Female geni-

Table 4. Measurement of legs of *Dipoena mutilata* Bösenberg et Strand, 1906, based on the female holotype of *D. longisternum* Bösenberg et Strand, 1906, SMF 3073 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 0.68  | 0.70            | 0.38       | 0.32   | 2.08  |
| II  | 0.55  | 0.58            | 0.32       | 0.20   | 1.65  |
| III | 0.50  | 0.48            | 0.30       | 0.33   | 1.61  |
| IV  | 0.68  | 0.72            | 0.43       | 0.35   | 2.18  |

talia as in Fig. 27.

Coloration. All the parts of the body light yellowish white, faded.

*Redescription of 1 ♀* (female holotype of *Dipoena longisternum* Bösenberg et Strand, 1906). Total length 2.20 mm. Carapace length 0.72 mm; width 0.48 mm; height 0.28 mm. Abdomen length 1.48 mm; width 1.24 mm; height not measured. Measurement of legs as in Table 4.

Carapace not high. Labium length : width = 5 : 8. Sternum length : width = 8 : 3. Eyes not good in condition. Diameters of eyes in ratio, AME : ALE : PME : PLE = 6 : 5 : 6 : ?. AME their diameter apart. Clypeus : AME-AME 8 : 3. Leg formula, 4, 1, 2, 3. Abdomen globular. Female genitalia as in Fig. 28.

Coloration. All the parts of the body light yellowish white, faded.

*Description based on the material newly obtained.* Female. Total length 1.74–2.74 mm. One specimen from Mogami-machi, Yamagata Prefecture (Fig. 21): Total length 2.74 mm. Carapace length 0.84 mm; width 0.71 mm; height 0.53 mm. Abdomen length 1.97 mm; width 1.71 mm; height 1.74 mm. First leg: femur 0.74 mm; patella and tibia 0.76 mm; metatarsus 0.45 mm; tarsus 0.37 mm. Second patella and tibia 0.61 mm; third patella and tibia 0.55 mm; fourth patella and tibia 0.87 mm.

AME smaller than the others (4 : 5). AME five-fourths their diameter apart and a half from ALE. PME their diameter apart and four-fifths from PLE. Ratio of MOA, anterior width : posterior width : length = 11 : 14 : 10. Female genitalia as in Figs. 29–30.

Male. Total length 1.26–1.53 mm. One specimen from Mogami-machi, Yamagata Prefecture (Figs. 22–23): Total length 1.53 mm. Carapace length 0.68 mm; width 0.55 mm; height 0.39. Abdomen length 0.79 mm; width 0.74 mm; height 0.58 mm. First leg: femur 0.55 mm; patella and tibia 0.61 mm; metatarsus 0.37 mm; tarsus 0.32 mm. Second patella and tibia 0.53 mm; third patella and tibia 0.45 mm; fourth patella and tibia 0.66 mm.

Carapace circular, slightly longer than wide, with round thoracic groove. Diameters in ratio, AME : ALE : PME : PLE = 4 : 6 : 5 : 5. AME seven-fourths their diameter apart and a half from ALE. PME five-sixths their diameter apart and from PLE. ALE and PLE almost touching. Ratio of MOA, anterior width : posterior width : length = 14 : 15 : 12. Male palp as in Figs. 25–26. Leg formula, 4, 1, 2, 3.

**Coloration.** Basal color yellowish brown. Head region of the carapace dusky. Legs with slightly dusky flecks on patellae and distal one-third of femora and tibiae. Abdomen dusky brown.

**Distribution.** Japan: Honshu (Aomori, Yamagata, Aichi, Gifu and Okayama Prefectures) and Kyushu (Saga Prefecture).

**Etymology.** From Latin meaning "mutilated."

**Notes.** After a reexamination of type specimens of *Dipoena mutilata* and *D. longisternum*, the present authors came to the conclusion that both spiders are conspecific. The specimen of the latter species seems to be pressed from side. *Dipoena longisternum* following in page was regarded as the junior synonym. This species is frequently collected from leaf litter on the ground of forests.

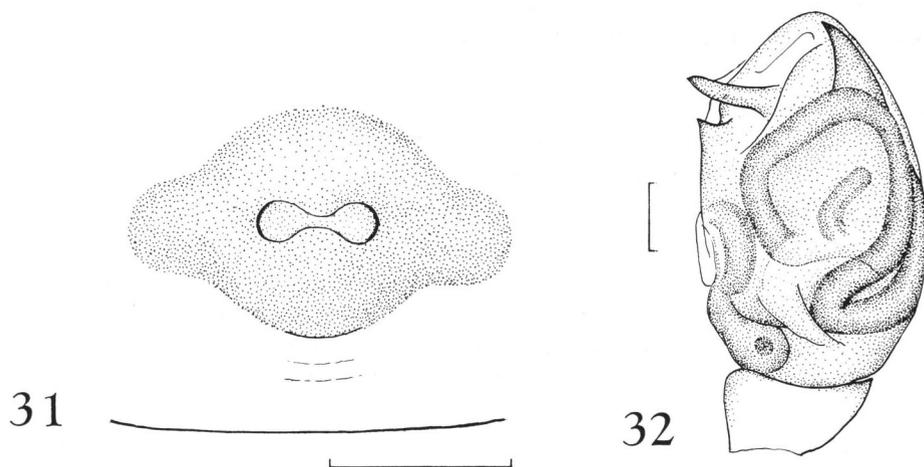
***Dipoena castrata* Bösenberg et Strand, 1906**

[Japanese name: Bokashi-mijingumo]

(Figs. 31–32)

*Dipoena castrata* Bösenberg et Strand, 1906, p. 149, pl. 5, fig. 50, pl. 12, 246, 247 A–C (syntypes: 1 ♀ and 4 juv. from Saga, Japan, the middle of June, W. Dönitz leg. (SMF 3069), examined). — Saito, 1941, p. 161, fig. 182 a–b; Yaginuma, 1968, p. 39, fig. 39(5), pl. 11, fig. 67; Yaginuma, 1977, p. 377; Shinkai & Takano, 1984, p. 50, 2 figs.; Yaginuma, 1986, p. 42, text-fig. 23(1), pl. 10, fig. 1; Chikuni, 1989, p. 36, fig. 30, p. 179; Zhu, 1998, p. 248, fig. 164.

*Dipoena uniforma* Bösenberg et Strand, 1906, p. 151, pl. 12, fig. 285 A–B (syntypes: 1 ♂ 1 juv. ♀ from Kompira, Saga, Japan, W. Dönitz leg. SMF 3075, examined). — Saito, 1941, p. 163, fig. 186 a–b. [Synonymized by Yaginuma (1977).]



Figs. 31–32. *Dipoena castrata* Bösenberg et Strand, 1906, 1 ♀ syntype from Saga Prefecture (SMF 3069) and 1 ♂ from Saga Prefecture (a syntype of *Dipoena uniforma* Bösenberg et Strand, 1906, SMF 3075, specimen damaged). — 31, Epigynum, ventral view; 32, male palp, ventral view. [Scales: 0.1 mm.]

Table 5. Measurement of legs of *Dipoena castrata* Bösenberg et Strand, 1906, based on a female syntype, SMF 3069 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 1.58  | 1.67            | 1.38       | 0.52   | 5.15  |
| II  | 1.33  | 1.33            | 1.10       | 0.45   | 4.21  |
| III | 1.20  | 1.15            | 1.05       | 0.55   | 3.95  |
| IV  | 1.58  | 1.75            | 1.45       | 0.48   | 5.26  |

*Specimens examined.* 2♀, 1♀ juvenile, Yaken, Shimokita Peninsula, Aomori Prefecture, 18–VII–1978, H. Yoshida leg. (CHY); many juvenile, Ominato, Mutsushi, Aomori Prefecture, 17–VII–1978, H. Yoshida leg. (CHY); 1♀, 2♂, 4♀ juvenile, Mt. Namidate-yama, Aomori-shi, Aomori Prefecture, 15–VII–1978, H. Yoshida leg. (CHY); 3♀, Mt. Iwate-san, Iwate Prefecture, 13–VII–1974, H. Ono leg. (NSMT-Ar 4517); 1♀, Yutorinuma, Onoda-machi, Miyagi Prefecture, 6–VIII–1988, H. Yoshida leg. (CHY); 1♀, 5♂, 8♀ juvenile, Mukaimachi, Mogami-machi, Yamagata Prefecture, 29–VII–1981, H. Yoshida leg. (CHY); 1♂, 3♀ juvenile, Ohori, Mogami-machi, Yamagata Prefecture, 10–VI–1985, H. Yoshida leg. (CHY); 1♀ juvenile, Ginzan-onsen, Obanazawa-shi, Yamagata Prefecture, 13–VII–1986, H. Yoshida leg. (CHY); 3♀ juvenile, Kanegasawa, Hosono, Obanazawa-shi, Yamagata Prefecture, 30–VI–1986, H. Yoshida leg. (CHY); 3♂, Otaki, Higashine-shi, Yamagata Prefecture, 27–VII–1986, H. Yoshida leg. (CHY); 1♂, 5♀ juvenile, Takinosawa, Magino, Higashine-shi, Yamagata Prefecture, 27–VII–1986, H. Yoshida leg. (CHY); 2♀, 1♂, (NSNT-Ar 4502), 4–VII–1982, 4♀ juvenile (CHY), 2–VII–1984, 1♂ (CHY), 6–VIII–1986, Mt. Sakazuki-yama, Yamagata-shi, Yamagata Prefecture, H. Yoshida leg.; 1♂, 28–VII–1976, 1♂, 18–VII–1982, Mt. Chitose-yama, Yamagata-shi, Yamagata Prefecture, H. Yoshida leg. (CHY); 1♀, 2♀ juvenile, Nishizao, Yamagata-shi, Yamagata Prefecture, 24–VII–1978, H. Yoshida leg. (CHY); 1♀, Zao-onsen Spa, Yamagata-shi, Yamagata Prefecture, 28–VII–1978, H. Yoshida leg. (CHY); 1♀, 3♂, 3♀ juvenile, 1♀ juvenile, Hataya, Yamanobe-machi, Yamagata Prefecture, 28–VI–1986, H. Yoshida leg. (NSMT-Ar 4503); 1♂, Mt. Omae-sen, Katsura-mura, Ibaraki Prefecture, 12–VI–1978, S. Yamazaki leg. (CHY); 1♂, Jinmu-ji, Zushi-shi, Kanagawa Prefecture, 5–VII–1980, A. Tanikawa leg. (CHY); 1♂, Todai, Nagano Prefecture, 23–VII–1972, H. Tanaka leg. (CHY); 1♂, Otaki-keikoku, Otakimachi, Toyota-shi, Aichi Prefecture, 8–VII–1987, K. Ogata leg. (CHY); 1♂, Mt. Obako-dake, Nara Prefecture, 2–VI–1978, H. Yoshida leg. (CHY); 1♀, Ashu, Kyoto Prefecture, 10–VIII–1975, H. Tanaka leg. (CHY); 1♀, Mt. Bunagatake (Mt. Hirasano), Shiga Prefecture, 5–VIII–1955, T. Yaginuma leg. (NSMT-Ar 149); 1♂, 27–VI–1976, 1♂, 25–VI–1978, Mt. Iwawaki-san, Osaka Prefecture, H. Yoshida leg. (CHY); 1♀, 4 juv. (syntypes), Saga, W. Dönitz leg. (SMF 3069); 1♂, 1 juv. ♀ (syntypes of *Dipoena uniforma* Bösenberg et Strand, 1906), Kompira, Saga, W. Dönitz leg. (SMF 3075).

Table 6. Measurement of legs of *Dipoena castrata* Bösenberg et Strand, 1906, based on a male syntype of *D. uniforma* Bösenberg et Strand, 1906, SMF 3075 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 1.00  | 1.05            | 0.80       | 0.38   | 3.23  |
| II  | 0.83  | 0.85            | 0.55       | 0.35   | 2.58  |
| III | 0.70  | 0.70            | 0.55       | 0.38   | 2.33  |
| IV  | 0.93  | absent          | absent     | absent | —     |

*Redescription of an adult female syntype from Saga Prefecture.* Total length 4.36 mm. Carapace length 1.44 mm; width 1.16 mm; height 0.76 mm. Abdomen length 2.92 mm; width 2.28 mm; height not measured. Measurement of legs as in Table 5.

Carapace not high, five setae present behind ocular area. Labium length : width = 1 : 2. Sternum length : width = 7 : 5. Anterior eye row recurved, posterior eye row procurved, respectively from above. Diameters of eyes in ratio, AME : ALE : PME : PLE = 20 : 14 : 13 : 14. AME their diameter apart and three-fifths from ALE. PME five-sevenths their diameter apart and five-thirds from PLE. ALE and PLE close to each other. Ratio of MOA not observed. Clypeus : AME-AME 19 : 5. Leg formula, 4, 1, 2, 3. Abdomen globular. Female genitalia as in Fig. 31.

Coloration. All the parts of the body light yellowish brown, faded.

*Redescription of an adult male specimen* (1 ♂ syntype of *Dipoena uniforma* Bösenberg et Strand, 1906). Male. Total length 2.40 mm. Carapace length 0.92 mm; width 0.80 mm; height 0.60 mm. Abdomen length 1.48 mm; width 1.20 mm; height not measured. Measurement of legs as in Table 6.

Carapace not high. Labium length : width = 2 : 3. Sternum length : width = 23 : 20. Anterior eye row recurved, posterior eye row straight, respectively from above. Diameters of eyes in ratio, AME : ALE : PME : PLE = 16 : 11 : 12 : 13. AME their diameter apart and seven-fourths from ALE. PME two-thirds their diameter apart and their diameter from PLE. ALE and PLE close to each other. Ratio of MOA not observed. Clypeus : AME-AME 7 : 2. Leg formula, 4, 1, 2, 3 or 1, 4, 2, 3. Male palp as in Fig. 32. Abdomen globular.

Coloration. All the parts of the body light yellowish white, faded.

*Distribution.* Japan: Hokkaido, Honshu, Shikoku and Kyushu. Korea and China.

*Etymology.* From Latin meaning “castrated.”

*Note.* This is the largest species of the genus in Japan. Body of females are usually longer than 4 mm.

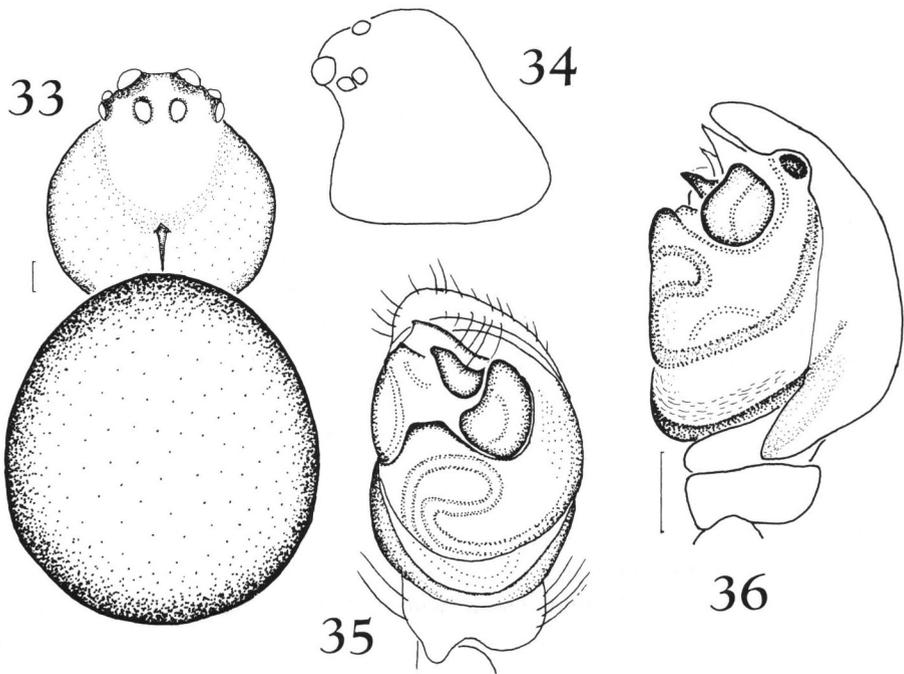
*Dipoena okinawana* sp. nov.

[Japanese name: Okinawa-mijingumo]

(Figs. 33–36)

*Dipoena amamiensis* (in part): Yoshida, 1991, p. 35, figs. 5–6; Zhu, 1998, p. 242, fig. 159 E; Song, Zhu & Chen, 1999, p. 110, fig. 53, M.

*Type specimens.* Holotype ♂, Mt. Banna-dake, Ishigakijima Island, Okinawa Prefecture, Japan, 11–VII–1976, H. Yoshida leg. (NSMT-Ar 4504). Paratype: 1 ♂,



Figs. 33–36. *Dipoena okinawana* sp. nov., ♂ holotype from Ishigakijima Island (NSMT-Ar 4504). — 33, Cephalothorax and abdomen of male, dorsal view; 34, male carapace, lateral view; 35, male palp, ventral view; 36, male palp, retrolateral view. [Scales: 0.1 mm.]

Table 7. Measurement of leg of *Dipoena okinawana* sp. nov., ♂ holotype, NSMT-Ar 4504 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 0.79  | 0.82            | 0.53       | 0.28   | 2.42  |
| II  | 0.68  | 0.71            | 0.37       | 0.24   | 2.00  |
| III | 0.58  | 0.58            | 0.47       | 0.26   | 1.89  |
| IV  | 0.79  | 0.79            | 0.53       | 0.34   | 2.45  |

Yona, Okinawajima Island, Okinawa Prefecture, Japan, 26–VI–1997, T. Sasaki leg. (NSMT-Ar 4505).

*Description.* Male (holotype). Total length 2 mm. Carapace length 0.82 mm; width 0.74 mm; height 0.74 mm. Abdomen length 1.18 mm; width 1.16 mm; height 1.32 mm. Measurement of legs as in Table 7.

Carapace circular, head region high (Fig. 34), with longitudinal thoracic groove (Fig. 33). Diameters in ratio, AME : ALE : PME : PLE = 5 : 3 : 4 : 3. AME four-fifths their diameter apart and one-fifth from ALE. PME three-fourths their diameter apart and from PLE. ALE and PLE almost touching. Ratio of MOA, anterior width : posterior width : length = 13 : 8 : 10. Leg formula, 4, 1, 2, 3. Abdomen oval. Palpal organ as shown in Figs. 35–36: tegulum with a distal projection; radix globular; median apophysis large and round.

Coloration. Carapace blackish brown. Chelicerae, maxillae, labium and sternum dusky brown. Legs brown with black flecks on the following points: distal half of first and second femora; distal two-thirds of tibiae; distal end of first, second and fourth patellae and metatarsi; flecks of third legs indistinct. Abdomen dusky brown.

Female. Unknown.

*Distribution.* Japan: Okinawajima and Ishigakijima Islands, Ryukyu Islands.

*Etymology.* The specific name is an adjective after Okinawa Prefecture, the type area.

*Notes.* This species resembles *Dipoena castrata* Bösenberg & Strand, 1906, but is distinguished from the latter by the globular radix and large median apophysis.

***Dipoena maculosa* sp. nov.**

[Japanese name: Madara-mijingumo]

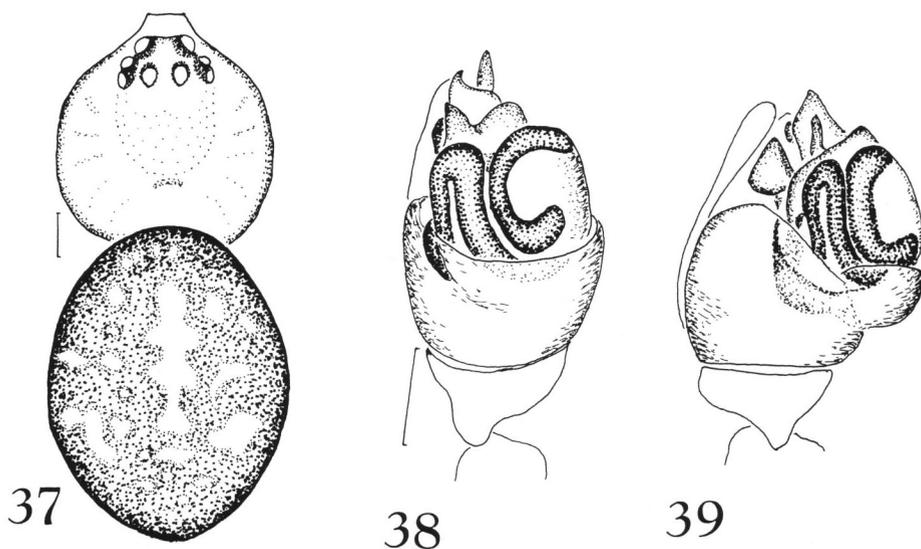
(Figs. 37–39)

*Type specimen.* Holotype ♂, Numa, Tamano-shi, Okayama Prefecture, Japan, 1–VII–1997, K. Nojima leg. (NSMT-Ar 4506).

*Description.* Male (holotype). Total length 1.32 mm. Carapace length 0.63 mm; width 0.55 mm; height 0.39 mm. Abdomen length 0.74 mm; width 0.61 mm; height 0.66 mm. Measurement of legs as in Table 8.

Carapace circular, head region high; clypeus concave, distally projecting (Fig. 37). Eyes almost equal in size. AME diameter apart and one-fifth from ALE. PME three-fifths their diameter apart and from PLE. ALE and PLE almost touching. Ratio of MOA, anterior width : posterior width : length = 16 : 12 : 15. Leg formula, 1 and 4, 2, 3. Abdomen oval. Palpal organ as shown in Figs. 38–39: tegulum ventrally projecting; subtegulum large.

Coloration. Carapace dusky brown. Chelicerae, maxillae, labium and sternum grayish dusky brown. Legs yellowish brown: femora, patellae, tibiae and metatarsi with distal dusky bands. Dorsum of the abdomen dusky with grayish flecks as shown



Figs. 37–39. *Dipoena maculosa* sp. nov., ♂ holotype from Okayama Prefecture (NSMT-Ar 4506). — 37, Cephalothorax and abdomen of male, dorsal view; 38, male palp, ventral view; 39, male palp, prolateral view. [Scales: 0.1 mm.]

Table 8. Measurement of leg of *Dipoena maculosa* sp. nov., ♂ holotype NSMT-Ar 4506 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 0.55  | 0.58            | 0.37       | 0.32   | 1.82  |
| II  | 0.45  | 0.47            | 0.29       | 0.29   | 1.50  |
| III | 0.39  | 0.45            | 0.26       | 0.29   | 1.39  |
| IV  | 0.55  | 0.61            | 0.37       | 0.29   | 1.82  |

in Fig. 37; venter almost dusky.

Female. Unknown.

*Distribution.* Japan: Known only from the type locality in Okayama Prefecture.

*Etymology.* The specific name is a Latin adjective; derived from markings of the abdomen.

*Notes.* This species resembles *Dipoena mutilata* Bösenberg et Strand, 1906, but is distinguished from the latter by the male palpus with large subtegulum and the coloration of the abdomen.

The female specimen of *Dipoena* sp. from Orchid Island, Taiwan, reported by Yoshida, Tso & Severinghaus (2000, p. 124, figs. 1–3) is closely allied to that of the present new species.

Species Group of *Dipoena sulfurica**Dipoena punctisparsa* Yaginuma, 1967

[Japanese name: Shimofuri-mijingumo]

*Dipoena punctisparsa* Yaginuma, 1967, p. 97, fig. 3 f-h (holotype ♀ from Niijima Island, Izu Islands, Tokyo, Japan, 2-VI-1967, M. Ohno leg., paratype: 1♂, from Mt. Rokko, Hyogo Prefecture, Japan, 29-IV-1966, Y. Tarumi leg., in ASEA (ASJ), not examined). — Shinkai & Takano, 1984, p. 50, 2 figs.; Yaginuma, 1986, p. 42, text-fig. 23(4). Chikuni, 1989, p. 36, fig. 31, p.179.

*Specimens examined.* 1♀, Oshidomari, Rishiri-to Island, Hokkaido, 4-VIII-1981, H. Yoshida leg. (CHY); 1♀, Mt. Takadate-yama, Tsuruoka-shi, Yamagata Prefecture, 14-VIII-1990, H. Yoshida leg. (CHY); 1♀, 25-VI-1972, 1♀, 2-VII-1984, 3♀ juvenile, 6-VII-1986, Mt. Sakazuki-yama, Yamagata-shi, Yamagata Prefecture, H. Yoshida leg. (CHY); 1♀ juvenile, Mt. Chitose-yama, Yamagata-shi, Yamagata Prefecture, 23-VII-1978, H. Yoshida leg. (CHY); 1♀, Hataya, Yamanobe-machi, Yamagata Prefecture, 28-VI-1979, H. Yoshida leg. (NSMT-Ar 4507); 1♀, Utsunomiya-shi, Tochigi Prefecture, 31-V-1964, T. Hamamura leg. (NSMT-Ar 152); 1♀, 1♂, Hachioji-shi, Tokyo, 21-V-1989, K. Kumada leg. (NSMT-Ar 1273); 1♀, Iiyama, Atsugi-shi, Kanagawa Prefecture, 31-V-1979, K. Kumada leg. (NSMT-Ar 1225); 1♀, 1♂, Tsukimino, Yamato-shi, Kanagawa Prefecture, 30-VIII-1993, A. Tanikawa leg. (CHY); 1♀, 1♂, Anjinzuka, Yokosuka-shi, Kanagawa Prefecture, 15-VIII-1996, A. Tanikawa leg. (CHY); 1♀ juvenile, Taki, Totsugawa-mura, Nara Prefecture, 26-V-1979, H. Yoshida leg. (CHY); 1♀ juvenile, Kumanogawa, Fuji-machi, Saga Prefecture, 5-V-1978, H. Yoshida leg. (CHY).

*Distribution.* Japan: Hokkaido, Honshu and Kyushu.

*Etymology.* From Latin punctus+parsus derived from the abdomen with many white spots on dorsum.

*Notes.* This species resembles *Dipoena melanogaster* (C. L. Koch, 1837), the type species of the genus *Dipoena* from Europe and *D. sulfurica* Levi, 1953 from North America. The species group of *Dipoena sulfurica* composed of these three species.

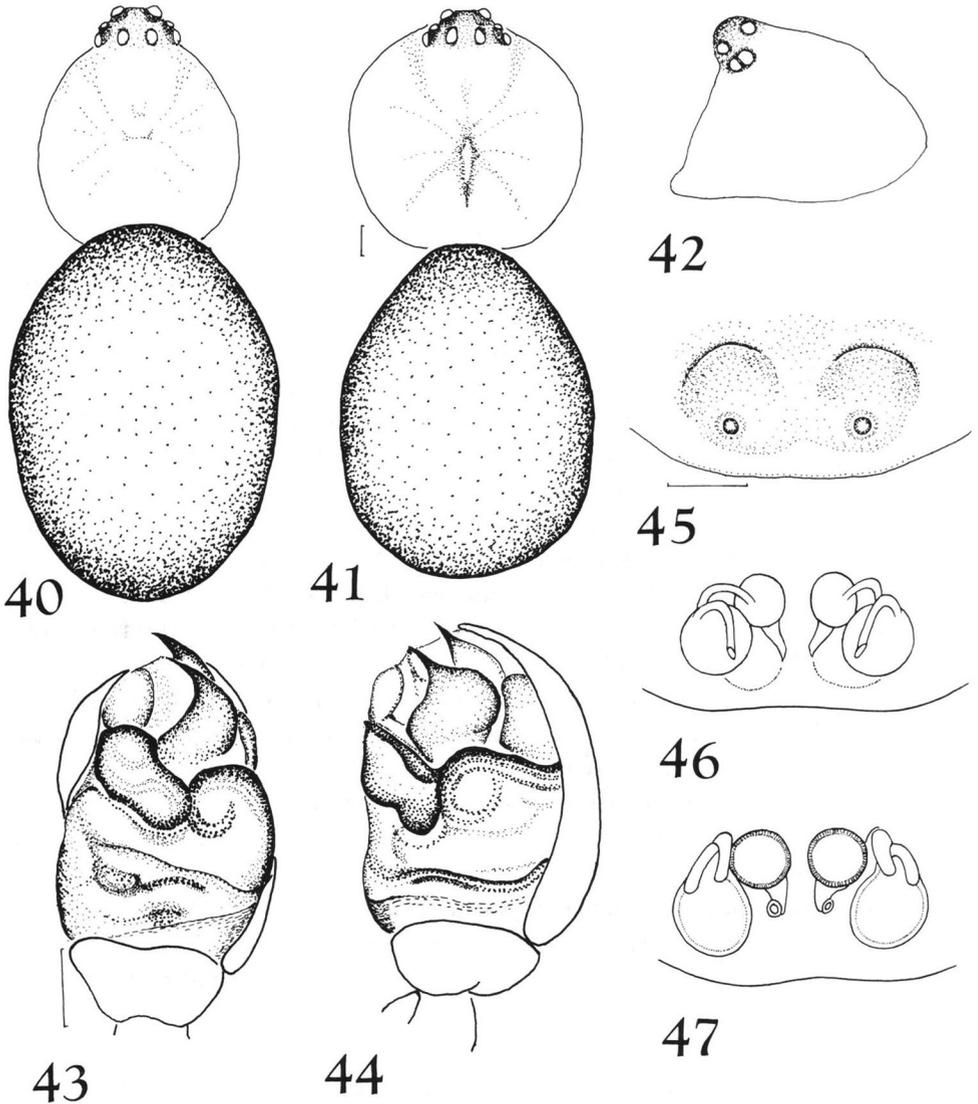
Species Group of *Dipoena prona**Dipoena prona* (Menge, 1868)

[Japanese name: Aichi-mijingumo]

(Fig. 40-47)

*Specimens examined.* 1♀, 1♂, Shinbayashicho, Chiryu-shi, Aichi Prefecture, Japan, 17-IV-1993, K. Ogata leg. (NSMT-Ar 4510-4511).

*Description based on the above Japanese material.* Female (Fig. 40). Total length 2.08 mm. Carapace length 0.87 mm; width 0.7 mm; height 0.39 mm. Abdomen length 1.21 mm; width 1.03 mm; height 1.18 mm. Measurement of legs as in Table 9.



Figs. 40–47. *Dipoena prona* (Menge, 1868), 1♀, 1♂ from Aichi Prefecture (NSMT-Ar 4510–4511). — 40. Cephalothorax and abdomen of female, dorsal view; 41, cephalothorax and abdomen of male, dorsal view; 42, male carapace, lateral view; 43, male palp, ventral view; 44, male palp, retrolateral view; 45, epigynum, ventral view; 46, female internal genitalia, ventral view; 47, female internal genitalia, dorsal view. [Scales: 0.1 mm.]

ALE smaller than the others (4 : 5). AME eight-fifths their diameter apart and two-fifths from ALE. PME their diameter apart and three-fifths from PLE. Ratio of MOA, anterior width : posterior width : length = 8 : 7 : 7. Thoracic grooves indistinct.

Table 9. Measurement of leg of *Dipoena prona* (Menge, 1868), 1 ♀ from Aichi Prefecture, NSMT-Ar 4511 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 0.71  | 0.82            | 0.53       | 0.34   | 2.40  |
| II  | 0.63  | 0.71            | 0.47       | 0.34   | 2.15  |
| III | 0.55  | 0.61            | 0.45       | 0.32   | 1.93  |
| IV  | 0.82  | 0.89            | 0.63       | 0.34   | 2.68  |

Table 10. Measurement of leg of *Dipoena prona* (Menge, 1868), 1 ♂ from Aichi Prefecture, NSMT-Ar 4510 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 0.71  | 0.87            | 0.61       | 0.34   | 2.53  |
| II  | 0.61  | 0.66            | 0.53       | 0.34   | 2.14  |
| III | 0.53  | 0.58            | 0.39       | 0.29   | 1.79  |
| IV  | 0.79  | 0.87            | 0.61       | 0.34   | 2.61  |

Genital organ as shown in Figs. 45–47: epigynum with two distinct pits, which are far distant each other.

Male. Total length 2.05 mm. Carapace length 0.87 mm; width 0.75 mm; height 0.53 mm. Abdomen length 1.18 mm; width 0.92 mm; height 0.95 mm. Measurement of legs as in Table 10.

Carapace circular, slightly longer than wide, with longitudinal thoracic groove (Fig. 41); head region high, clypeus concave distally projecting (Fig. 42). Diameters in ratio, AME : ALE : PME : PLE = 6 : 4 : 5 : 5. AME seven-sixths their diameter apart and one-third from ALE. PME four-fifths their diameter apart and from PLE. ALE and PLE almost touching. Ratio of MOA, anterior width : posterior width : length = 16 : 13 : 13. Leg formula, 4, 1, 2, 3. Abdomen globular, longer than wide and high. Palpal organ as shown in Figs. 43–44: radix large, the tip pointing to the left; median apophysis large.

Coloration. Cephalothorax grayish dusky brown, eye region black. Palp grayish brown; tibiae and tarsi blackish brown. Legs grayish brown with dusky flecks on the following parts: lateral and ventral sides of femora; distal half of patellae and tibiae. Abdomen blackish brown.

*Distribution.* Japan: Known only from Aichi Prefecture, Honshu. Europe and North America.

*Etymology.* From Latin meaning “sloping.”

*Note.* This species is distributed in Europe and North America, and newly recorded in Japan.

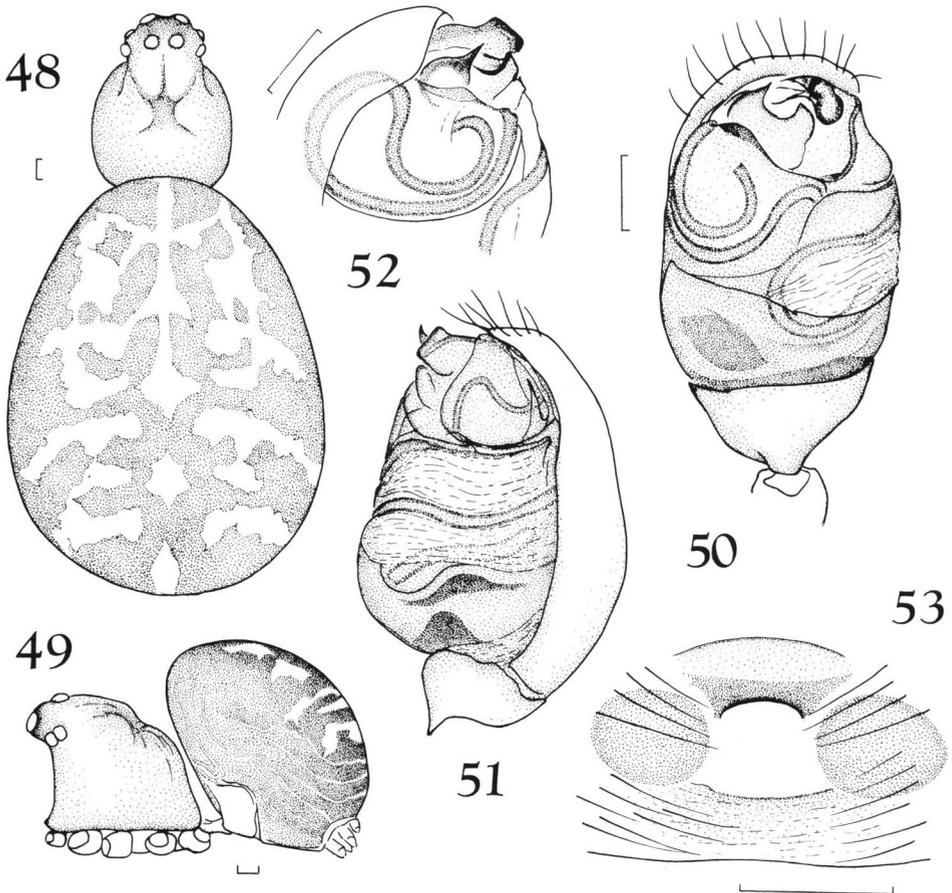
*Dipoena yoshidai* Ono, 1991

[Japanese name: Yoshida-mijingumo]

(Figs. 48–53)

*Dipoena yoshidai* Ono in Ono et al., 1991, p. 91, figs. 2–8 (holotype ♂ and allotype ♀ from Koetoi, 20 m alt., Wakkanai-shi, Hokkaido, Japan, 10–VII–1990, H. Ono leg., paratype: 1 ♂ from Midori, 20 m alt., Wakkanai-shi, Hokkaido, NSMT-Ar 2098–2100, examined).

*Specimens examined.* 1 ♀ (allotype), 1 ♂ (holotype), Koetoi, 20 m alt., Wakkanai-shi, Hokkaido, Japan, 10–VII–1990, H. Ono leg. (NSMT-Ar 2098–2099); 1 ♂ (paratype), Midori, 20 m alt., Wakkanai-shi, Hokkaido, 10–VII–1990, H. Ono leg. (NSMT-Ar 2100); 1 ♂, Mt. Monbetsu-san, Monbetsu-shi, Hokkaido, 17–VI–1985, N.



Figs. 48–53. *Dipoena yoshidai* Ono, 1991, 1 ♀, 1 ♂ from Chiba Prefecture (NSMT-Ar 4516). — 48, Cephalothorax and abdomen of female, dorsal view; 49, cephalothorax and abdomen of male, lateral view; 50, male palp, ventral view; 51, male palp, retrolateral view; 52, distal part of male palp, prolateral view; 53, epigynum, ventral view. [Scales: 0,1 mm.]

Tsurusaki leg. (CHY); 3 ♀, 1 ♂, Kenmin-no-mori, Misaki, Funabashi-shi, Chiba Prefecture, Japan, 18-V-1997, M. Sadamoto leg. (NSMT-Ar 4516); 1 ♀, Kurami, Kamomachi, Okayama Prefecture, 10-V-1990, K. Nojima leg. (CHY); 1 ♀, 2 ♀ juvenile (CHY), 20-II-1988, 1 ♂ (CHY), 21-II-1988, 1 ♂ (NSMT-Ar 4508), 30-XII-1990, Yamaguchi University, Yoshida, Yamaguchi-shi, Yamaguchi Prefecture, H. Yoshimura leg.

*Distribution.* Japan: Hokkaido and Honshu.

*Etymology.* Dedicated to Hajime Yoshida, Yamagata.

*Notes.* This spider was originally described from the northern part of Hokkaido, but has been found from a wide area of Hokkaido and Honshu. Specimens from Chiba Prefecture are illustrated (Figs. 48–53).

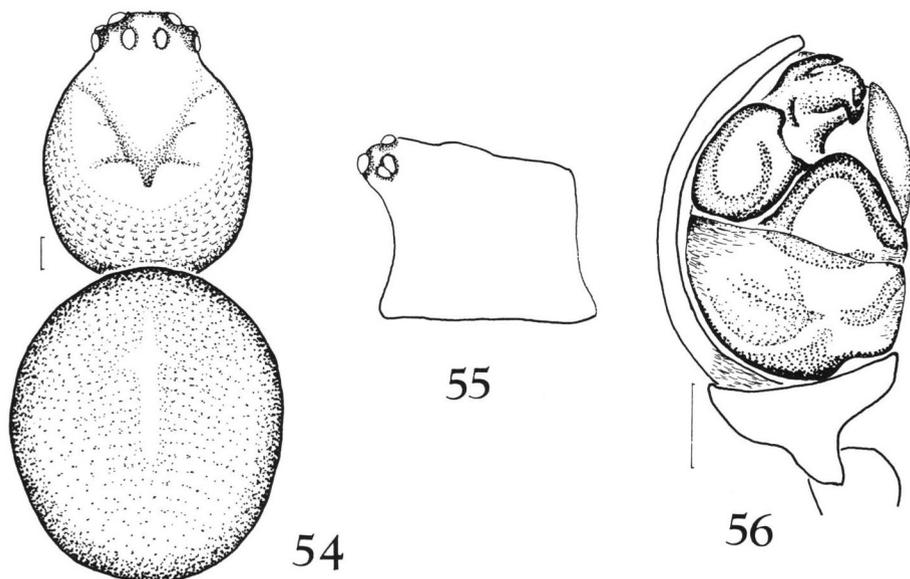
***Dipoena yona* sp. nov.**

[Japanese name: Yona-mijingumo]

(Figs. 54–56)

*Type specimen.* Holotype ♂, Yona (Enshurin), Okinawa-jima Island, Okinawa Prefecture, Japan, 28-III-1997, A. Tanikawa leg. (NSMT-Ar 4509).

*Description.* Male (holotype). Total length 1.66 mm. Carapace length 0.92 mm; width 0.66 mm; height 0.66 mm. Abdomen length 1.03 mm; width 0.87 mm;



Figs. 54–56. *Dipoena yona* sp. nov., ♂ holotype from Okinawajima Island (NSMT-Ar 4509). — 54, Cephalothorax and abdomen of male, dorsal view; 55, male carapace, lateral view; 56, male palp, prolatero-ventral view. [Scales: 0.1 mm.]

Table 11. Measurement of leg of *Dipoena yona* sp. nov., ♂ holotype, NSMT-Ar 4509 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 0.76  | 0.79            | 0.50       | 0.32   | 2.37  |
| II  | 0.63  | 0.61            | 0.39       | 0.32   | 1.95  |
| III | 0.50  | 0.61            | 0.37       | 0.29   | 1.77  |
| IV  | 0.71  | 0.79            | 0.47       | 0.32   | 2.29  |

height 0.92 mm. Measurement of legs as in Table 11.

Carapace oval and high (Fig. 54–55), with thoracic groove as shown in Fig. 54. Eyes almost equal in size. AME their diameter apart and two-fifths from ALE. PME two-fifths their diameter apart and one from PLE. ALE and PLE almost touching. Ratio of MOA, anterior width : posterior width : length = 4 : 3 : 3. Leg formula, 1, 4, 2, 3. Abdomen oval. Palpal organ as shown in Fig. 56: radix large and projecting, overhanging the tegulum.

Coloration. Carapace dusky brown. Chelicerae, maxillae and labium yellowish brown. Sternum yellowish dusky brown. Palp yellowish brown; tarsi blackish brown. Legs yellowish brown without flecks. Abdomen dusky with dorsal median grayish flecks.

Female. Unknown.

*Distribution.* Japan: Known only from the type locality in Okinawajima Island, Ryukyu Islands.

*Etymology.* The specific name is a noun in apposition after the type locality.

*Notes.* This species resembles *Dipoena yoshidai* Ono, 1991, but is distinguished from the latter by the shape of thoracic grooves and the large radix.

### Japanese spiders misplaced in the genus *Dipoena*

#### *Theridion subpallens* Bösenberg et Strand, 1906

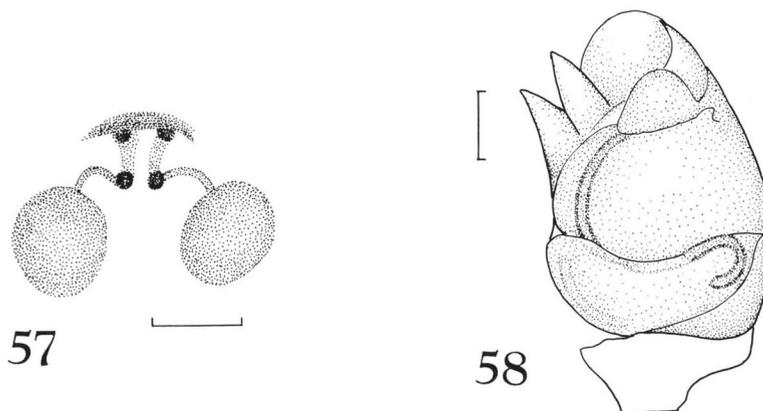
[Japanese name: Haiiro-himegumo]

(Figs. 57–58)

*Theridium subpallens* Bösenberg et Strand, 1906, p. 139, pl. 12, fig. 293 A–C (holotype ♀ from Japan, "Fundort unbekannt, aber wahrscheinlich Saga," W. Dönitz leg., SMF, not examined).

*Dipoena caninotata* Bösenberg et Strand, 1906, p. 150, pl. 12, fig. 266 A–D (syntypes: 1 ♀, 1 ♂, Saga (on the label), Japan, W. Dönitz leg. (SMF 3068), examined). — Saito, 1941, p. 160, fig. 181 a–d; Yaginuma, 1986, p. 42, text-fig. 23(8). [Synonymized by Yoshida (1988).]

*Theridion subpallens*: Saito, 1934, p. 300, pl. 14, fig. 52 a–c; Saito, 1941, p. 191, fig. 223 a–c; Saito, 1959, p. 71, pl. 7, fig. 69 a, pl. 8, fig. 69 b–d; Shinkai, 1971, p. 27, 1 fig.; Shinkai, 1978, p. 87, pl. 1, figs. 3–4; Shinkai & Takano, 1984, p. 41, fig.; Yaginuma, 1986, p. 38; Yoshida, 1988, p. 25; Chikuni, 1989, p. 44, fig. 65, p. 186.



Figs. 57–58. *Theridion subpallens* Bösenberg et Strand, 1906, 1♀, 1♂ from Saga Prefecture (syntypes of *Dipoena caninotata* Bösenberg et Strand, 1906; SMF 3068, specimens damaged). — 57, Epigynum, ventral view; 58, male palp, ventral view. [Scales: 0.1 mm.]

Table 12. Measurements of legs of *Theridion subpallens* Bösenberg et Strand, 1906, based on 1♂ syntype of *Dipoena caninotata* Bösenberg et Strand, 1906, SMF 3068 (in mm).

| Leg | Femur | Patella & Tibia | Metatarsus | Tarsus | Total |
|-----|-------|-----------------|------------|--------|-------|
| I   | 1.05  | 1.03            | 1.77       | 0.35   | 4.20  |
| II  | 0.82  | 0.82            | 0.58       | 0.33   | 2.55  |
| III | 0.63  | 0.67            | 0.50       | 0.33   | 2.13  |
| IV  | 0.95  | 0.90            | 0.65       | 0.38   | 2.88  |

*Specimens examined.* 1♀, 1♂ (syntypes of *Dipoena caninotata*), Saga, Japan, W. Dönitz leg. (SMF 3068).

*Redescription* of the male syntype of *Dipoena caninotata* from Saga Prefecture. Total length 2.28 mm. Carapace length 0.84 mm; width 0.72 mm; height 0.40 mm. Abdomen length 1.44 mm; width 1.40 mm; height not measured. Measurement of legs as in Table 12.

Carapace not high. Labium length : width = 7 : 16. Sternum length : width = 1 : 1. Diameters of eyes in ratio, AME : ALE : PME : PLE = 5 : ? : 6 : ?. AME five-sixths their diameter apart. PME six-sevenths their diameter apart. Clypeus : AME-AME 8 : 3. PME damaged, unable to observe. Leg formula, 1, 4, 2, 3. Male palp as in Fig. 58. Abdomen globular.

*Coloration.* All the parts of the body white and faded.

Female specimen damaged. Female genitalia illustrated as shown in Fig. 57.

*Note.* The synonymy by Yoshida (1988) was considered after a reexamination of type specimens *Dipoena caninotata*.

*Thymoites chikunii* (Yoshida, 1988)

[Japanese name: Aka-sasahimegumo]

*Dipoena chikunii* Yoshida, 1988, p. 26, figs. 1–6, 12–14 (holotype ♂ from Lake Misuzu-ko, Matsumoto-shi, Nagano Prefecture, Japan, 4–VII–1977, Y. Chikuni leg., allotype ♀ from same locality as for the holotype, 9–VII–1976, Y. Chikuni leg., many ♀ ♂ paratypes from Nagano, Yamagata and Hokkaido Prefectures, Japan, collected by Y. Chikuni, N. Tsurusaki and H. Yoshida, holotype and allotype in ASEA (ASJ) and paratypes in CHY, examined). — Chikuni, 1989, p. 37, fig. 34, p. 180.

*Thymoites chikunii*: Yoshida, 1995, p. 114.

*Note.* This species was originally described under *Dipoena*, but was transferred by the senior author to the genus *Thymoites* (Yoshida, 1995).

*Thymoites okumae* (Yoshida, 1988)

[Japanese name: Kuro-sasahimegumo]

*Dipoena okumae* Yoshida, 1988, p. 28. Fig. 7–11, 15–17 (holotype ♂ from Mt. Hikosan, Fukuoka Prefecture, Japan, 13–15–V–1959, C. Okuma leg., allotype ♀ from Susado, Horigane-mura, Minamiazumi-gun, Nagano Prefecture, Japan, 30–VI–1976, Y. Chikuni leg., 8 ♀ 4 ♂ paratypes from Aomori, Yamagata, Miyagi Prefectures, Japan, collected by Y. Chikuni, A. Tanikawa and H. Yoshida, holotype and allotype in ASEA (ASJ) and paratypes in CHY, examined). — Chikuni, 1989, p. 37, fig. 35, p. 180.

*Thymoites okumae*: Yoshida, 1995, p. 114.

*Note.* This species was also transferred to *Thymoites* from *Dipoena* (Yoshida, 1995).

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