Six newly recorded spiders of the genera *Araneus, Larinia, Eriophora, Thanatus, Portia* and *Dolichognatha* (Araneae: Araneidae, Philodromidae, Salticidae and Tetragnathidae) from Taiwan

Yung-Hau Chang¹ & I-Min Tso¹,²*

¹ Department of Biology, Tunghai University, Taichung 407, Taiwan, R. O. C.
² Division of Zoology, National Museum of Natural Science, Taichung 404, Taiwan, R. O. C.
E-mail: spider@mail.thu.edu.tw

Abstract — Six new records of the spiders from Taiwan are reported, which are, *Araneus viridiventris* Yaginuma 1969, *Larinia fusiformis* (Thorell 1877), *Eriophora plumiopedella* (Yin, Wang & Zhang 1987) comb. nov. (Araneidae); *Thanatus miniacus* Simon 1880 (Philodromidae); *Portia fimbriata* (Doleschall 1859) (Salticidae) and *Dolichognatha umbrophila* Tanikawa 1991 (Tetragnathidae). The genera *Portia, Thanatus* and *Dolichognatha* are reported from Taiwan for the first time.

Key words — Araneae viridiventris, Larinia fusiformis, Eriophora plumiopedella, Thanatus miniacus, Portia fimbriata, Dolichognatha umbrophila.

Introduction

In this paper we describe and illustrate six newly recorded spiders collected from Yangmingshan National Park and various areas in Taiwan. Three species are members of the family Araneidae, which include, *Araneus viridiventris* Yaginuma 1969, *Larinia fusiformis* (Thorell 1877) and *Eriophora plumiopedella* (Yin, Wang & Zhang 1987) comb. nov. The other species are *Thanatus miniacus* Simon 1880 (Philodromidae); *Portia fimbriata* (Doleschall 1859) (Salticidae) and *Dolichognatha umbrophila* Tanikawa 1991 (Tetragnathidae). Tanikawa (2000) transferred some Japanese Zilla species to Eriophora by the following characters: 1) male palp of Eriophora with a paramedian apophysis, but absent in Zilla, 2) male palp of Zilla with a subterminal division, but absent in Eriophora. Judging from the figures of male palp made by Song et al. (1999), Zilla plumiopedella have the same features with Eriophora, so we transfer the Z. plumiopedella to the genus Eriophora in the present paper. The genera Portia, Thanatus and Dolichognatha are reported from Taiwan for the first time.

All the specimens used in this study are preserved in 75% ethanol and deposited in the National Museum of Natural Science, Taichung, Taiwan (NMNS). The abbreviations used in this paper are as follows: AME—anterior median eye; ALE—anterior lateral eye; PLE—posterior lateral eye; PME—posterior median eye; AME-AME—distance between AMEs; ALE—distance between AME and ALE; PME-PME—distance between PMEs; PME-PLE—distance between PME and PLE; ALE-AME—distance between AMEs; PLE-PLE—distance between PLEs; MOA—median ocular area. Leg measurements are shown as total length (femur + patella + tibia + metatarsus + tarsus). All measurements are given in millimeters (mm).

Taxonomic accounts

Family Araneidae

*Araneus viridiventris* Yaginuma 1969
(Figs. 1–4)

*Araneus viridiventris* Yaginuma, in Ohno & Yaginuma 1969, p. 21, figs. 3 a-f; Yaginuma 1986, p. 101, pl. 244, fig. 54.1; Chikuni 1989, p. 69, fig. 24; Yin et al. 1990, p. 22, figs. 51-57; Kim, et al. 1995, p. 88, figs. 1-2; Yin et al. 1997, p. 142, figs. 57 a-h; Song, Zhu & Chen 1999, p. 242, figs. 141 J-K, N, 145 D, 149 M.


*Description* [based on ♂ (NMNS-4211-001) / ♀ (NMNS-4211-003) from Ilan County]. Total length 3.60/5.80. Prosoma length 1.80/2.30, width 1.60/1.85. Chelicerae with 2/3 promarginal and 2/3 retromarginal teeth. Clypeus height 0.12/0.14. Eye diameters and interdistances: AME 0.12/0.14, ALE 0.09/0.10, PME 0.11/0.13, PLE 0.09/0.10; AME-AME 0.16/0.16, ALE-AME 0.16/0.22, PME-PME...
0.14/0.14, PME-PLE 0.24/0.30; MOA length 0.34/0.39, anterior width 0.36/0.40, posterior width 0.34/0.40. Labium length 0.24/0.30, width 0.34/0.45. Sternum length 0.70/1.00, width 0.66/0.85. Leg measurements: I 7.10/9.10 (2.30/2.90 + 0.85/1.10 + 1.80/2.30 + 1.60/2.10 + 0.55/0.70); II 6.45/8.05 (2.05/2.50 + 0.75/1.10 + 1.60/2.05 + 1.50/2.00 + 0.55/0.40); III 3.44/4.30 (1.25/1.50 + 0.50/0.70 + 0.62/0.80 + 0.65/0.80 + 0.42/0.50); IV 4.93/6.30 (1.65/2.20 + 0.60/0.80 + 1.00/1.25 + 1.23/1.55 + 0.45/0.50). Opisthosoma length 2.10/3.65, width 1.60/4.10. The median apophysis of male palp forked at the apex; palpal patella with a long thick bristle; embolus large (Figs. 1-2). Epignym scleoritised with a U-shaped hood; introvittent orifices sitted at both sides of hood; spermatic globular (Figs. 3-4).

Coloration and markings. Male and female: Carapace, chelicerae, sternum, palps and legs reddish brown; maxillae and labium reddish brown with whitish anterior margins. Dorsum of opisthosoma green, anterior margin dark brown; venter grayish brown.

Distribution. Taiwan (new record), China, Japan (Song, Zhu & Chen 1999).

Larinia fusiformis (Thorell 1877)
(Figs. 5-8)

Meta fusiformis Thorell 1877, p. 431.
Larinia fusiformis: Roewer 1942, p. 770; Bonnet 1957, p. 2349;
Tanikawa 1989, p. 35, figs. 8-14; Okuma et al. 1993, p. 23, figs. 20 C-D; Barrion & Litsinger 1995, p. 612, figs. 384 a-e, 385 a-b.

Larinopa fusiformis: Grasshoff 1970, p. 231, figs. 15 a-b, 16 a-e.

Specimens examined. 1♀, Tunghai University, Taichung City, Taiwan, 30-IV-2002, Y.-H. Chang (NMNS-4211-006); 1♂ and 1♀, Hsinpi Junior High School, Chienkung-tsun, Hsinpi-hsiang, Pingtung County, Taiwan, 29-IV-2003, Y.-H. Chang (NMNS-4211-007—NMNS-4211-008).

Description [based on the ♀ (NMNS-4211-007) / ♂ (NMNS-4211-008) from Pingtung County]. Total length 6.30/10.22. Prosoma length 2.70/3.27, width 1.80/1.98. Chelicerae with 4/4 promarginal and 3/3 retromarginal teeth. Clypeus height 0.06/0.12. Eye diameters and interdistances: AME 0.16/0.14, ALE 0.12/0.11, PME 0.12/0.11, PLE 0.12/0.11; AME-AME 0.18/0.22, AME-ALE 0.16/0.22, PME-PME 0.02/0.03, PME-PLE 0.26/0.38; MOA length 0.40/0.42, anterior width 0.42/0.48, posterior width 0.24/0.28. Labium length 0.20/0.40, width 0.34/0.45. Sternum length 1.28/1.40, width 0.76/0.87. Leg measurements: I 13.85/15.45 (3.25/3.40 + 1.55/1.90 + 3.45/3.80 + 4.35/5.05 + 1.25/1.30); II 12.05/13.80 (3.10/3.35 + 1.30/1.65 + 3.00/3.45 + 3.60/4.20 + 1.05/1.15); III 6.55/7.75 (2.15/2.45 + 0.75/0.95 + 1.45/1.60 + 1.50/1.80 + 0.70/0.95); IV 10.85/13.20 (3.25/3.80 + 1.00/1.35 + 2.65/3.25 + 3.15/3.80 + 0.80/1.00). Opisthosoma length 3.60/6.96,

Fig. 1-4. Araneus viridiventris Yaginuma 1969: 1-2, ♀ from Shuanglieni, Ilan County (NMNS-4211-001); ♂ from same locality (NMNS-4211-003) — 1, left male palp, retrolateral view; 2, same, prolateral view; 3, epigynum, ventral view; 4, female internal genitalia, dorsal view. Scales: 0.1 mm.

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width 1.40/2.56. The median apophysis of male palp scoope-like and projected prolaterally; terminal apophysis beak-like; palpal patella with two long thick bristle (Figs. 5–6). Epigynum lobe-like; introemittent canal short; spermaphema reniform in dorsal view (Figs. 7–8).

Coloration and markings. Male: Carapace yellowish white, with a dark brown patch at the posterior part of cephalic region, thoracic groove dark brown. Chelicerae and maxillae yellowish white; labium pale brown with pale distal margin; sternum yellowish white; palps and legs yellowish white. Dorsum of opisthosoma yellowish white, with six pairs of black spots; venter yellowish white, with a white median band bordered by a V-shaped dark brown marking.

Female: Same as in male, except that dorsum of opisthosoma yellowish white, with a black discontinuous median band bordered by six pairs of black spots.


Eriophora plumopedella (Yin, Wang & Zhang 1987)  
comb. nov.  
(Figs. 9–10)


Specimens examined. 1♀, Shuanglieni, Ilan County, Taiwan, 14-V-1997, Y.-H. Chang (NMNS-4211-009); 1♀, Yangmingshuhwu, Yangmingshan National Park, Taipei City, Taiwan, 17-V-2003, Y.-H. Chang (NMNS-4211-010); 1♀, same locality and collector, 25-V-2003 (NMNS-4211-011).

Description [based on the ♀ (NMNS-4211-011) from Taipei City]. Total length 14.34. Prosoma length 5.68, width 4.62. Chelicerae with 3 promarginal and 3 retromarginal teeth. Clypeus height 0.20. Eye diameters and interdistances: AME 0.21, ALE 0.18, PME 0.21, PLE 0.18; AME-AME 0.60, AME-ALE 1.10, PME-PME 0.60, PME-PLE 1.30; MOA length 0.65, anterior width 0.65, posterior width 0.70. Labium length 0.70, width 1.00. Sternum length 2.30, width 2.00. Leg measurements: I 21.90 (6.50 + 2.60 + 5.30 + 5.50 + 2.00); II 19.90 (6.00 + 2.40 + 4.80 + 4.80 + 1.90); III 11.15 (3.45 + 1.50 + 2.40 + 2.40 + 1.40); IV 20.00 (6.10 + 2.20 + 4.80 + 5.30 + 1.60). Opisthosoma length 8.95, width 5.54. Epigynum well sclerotized; median septum short; spermaphema oval (Figs. 9–10).

Coloration and markings. Female: Carapace pale brown, cephalic region with a dark brown V-shaped patch, thoracic region with a dark brown median band and dark brown lateral margin. Chelicerae pale brown, distal part reddish brown; maxillae and labium dark brown with pale brown.
anterior margin; sternum dark brown; palps pale brown; legs pale brown with reddish brown bands, tibia and metatarsus of leg IV bear numerous hairs. Dorsum of opisthosoma greenish brown, dorsum with a yellowish white patch, lateral margin mottled with yellowish white spots; venter dark brown, bordered by yellowish white band, with a pair of yellowish white spots in front of spinnerets.

**Distribution.** Taiwan (new record), China (Yin, Wang & Zhang 1987).

**Family Philodromidae**

*Thanatus miniaceus* Simon 1880
(Figs. 11–14)

*Thanatus miniaceus* Simon 1880, p. 110; Yaginuma 1986, p. 215, fig. 120. 1; Song 1987, p. 269, figs. 225 A-D; Wu & Song 1987, p. 34, figs. 16 A-B; Chikuni 1989, p. 133, fig. 1; Feng 1990, p. 191, pl. 78,169, figs. 169. 1-2; Chen & Zhang 1991, p. 284, figs. 295. 1-3; Song & Zhu 1997, p. 204, figs. 146 A-D; Song, Zhu & Chen 1999, p. 478, figs. 271 S, 273 1; Kim & Jung 2001, p. 205, figs. 69-72.

**Specimens examined.** 1♂, Chingtienkang, Yangmingshan National Park, Taipei City, Taiwan, 19-IV-2003, Y.-H. Chang (NMNS-4211-012); 1♀, same locality and collector, 23-V-2003 (NMNS-4211-013); 1♀, same locality and collector, 30-VII-2003 (NMNS-4211-014).

**Description** [based on the ♀ (NMNS-4211-012) / ♂ (NMNS-4211-014) from Taipei City]. Total length 4.40/4.80. Prosoma length 2.20/2.30, width 2.10/2.10. Chelicerae with 2/2 promarginal. Clypeus height 0.30/0.30. Eye diameters and interdistances: AME 0.08/0.08, ALE 0.10/0.10, PME 0.08/0.08, PLE 0.10/0.10, AME-AME 0.14/0.16, AME-ALE 0.04/0.06, PME-PME 0.26/0.28, PME-PLE 0.24/0.26, MOA length 0.38/0.42, anterior width 0.30/0.34, posterior width 0.40/0.46. Labium length 0.30/0.30, width 0.35/0.35. Sternum length 1.18/1.25, width 1.08/1.10. Leg measurements: I 6.50/5.80 (1.90/2.00 + 0.90/0.50 + 1.50/1.55 + 1.25/0.75 + 0.95/1.00); II 7.50/7.50 (2.15/2.25 + 1.00/1.05 + 1.70/1.75 + 1.55/1.40 + 1.10/1.05); III 6.65/6.50 (2.00/2.00 + 0.85/0.90 + 1.50/1.45 + 1.40/1.25 + 0.90/0.90); IV 7.70/7.45 (2.15/2.25 + 0.80/0.95 + 1.85/1.75 + 1.80/1.50 + 1.10/1.00). Opisthosoma length 2.30/2.70, width 11.40/1.70. Male palp with a retrolateral tibial apophysis; bulb simple, without tegular apophysis; embolus short, spiniform and curved (Figs. 11–12). Epigynum with a wide median septum, intromittent orifices situated at both sides of the septum; spermatheca reniform; gland of spermatheca globular (Figs. 13–14).

**Coloration and markings.** Male and female: Carapace dark brown, with a pale brown median band. Chelicerae brown; maxillae and labium brown with pale brown anterior margin; sternum reddish brown; palps and legs dark brown. Dorsum of opisthosoma pale brown with a diamond-like patch; venter dark brown.

**Distribution.** Taiwan (new record), China, Korea, Japan (Yaginuma 1986; Song 1987; Kim & Jung 2001).

**Family Salticidae**

*Portia fimbrata* (Doleschall 1859)
(Figs. 15–18)

*Salticus fimbratus* Doleschall 1859, p. 22, pl. 5, fig. 8.

*Sinis fimbratus* Thorell 1878, p. 269.

*Linus fimbratus* Peckham & Peckham 1886, p. 289; Peckham.
Fig. 15–18. Portia fimбриata (Doleschall 1859): ♀ from Yangmingshuhu, Yangmingshan National Park, Taipei City (NMNS-4211-016); ♂ from Luchiaokeng Reserve Area, Yangmingshan National Park, Taipei City (NMNS-4211-015) – 15, left male palpus, ventral view; 16, same, retrolateral view; 17, epigynum, ventral view; 18, female internal genitalia, dorsal view. Scales: 0.1 mm.

& Peckham 1901, p. 342, pl. 25, fig. 5; Simon 1901, p. 411, figs. 435-443; Sherriffs 1939, p. 196, pl. 24, fig. 2; Chrysanthus 1968, p. 49, figs. 1-6; Prószyński 1971, p. 385. Portia fimбриata: Wanless 1978, p. 99, figs. 7 A-G, 8 A-F, pl. 3 a-f, 4 c-f, 5 c-d, f; Davies & Zabka 1989, p. 194, pl. 3; Chikuni 1989, p. 157, fig. 50; Jastrzebski 1997, p. 711, figs. 26-30.

Specimens examined. 1♂, Yangmingshuhu, Yangmingshan National Park, Taipei City, Taiwan, 19-IV-2003, Y.-H. Chang (NMNS-4211-016); 1♀, Luchiaokeng Reserve Area, Yangmingshan National Park, Taipei City, Taiwan, 17-V-2003, Y.-H. Chang (NMNS-4211-015).

Description [based on the ♀ (NMNS-4211-016) / ♂ (NMNS-4211-015) from Taipei City]. Total length 7.90/8.00. Prosoma length 3.90/4.00, width 2.95/3.10. Chelicerae with 2/3 promarginal and 4/4 retromarginal teeth. Clypeus height 0.55/0.62. Eye diameters and interdistances: AME 0.75/0.75, ALE 0.38/0.35, PLE 0.25/0.27, PLE 0.35/0.37; eyes arranged in four rows, AME-AME 0.08/0.10, ALE-AME 1.62/1.65, PME-PMI 1.67/1.63, PME-PME 1.70/1.65; eye area length 2.02/2.05, width 2.30/2.30, widest on second row. Labium length 0.40/0.55, width 0.55/0.65. Sternum length 1.50/1.65, width 1.22/1.30. Leg measurements: I 14.10/10.60 (3.50/3.00 + 1.60/1.40 + 3.50/2.40 + 3.90/2.50 + 1.60/1.30); II 10.55/8.80 (2.95/2.50 + 1.40/1.40 + 2.30/1.90 + 2.70/1.90 + 1.20/1.10); III 8.80/8.10 (2.60/2.30 + 1.00/1.20 + 1.80/1.55 + 2.40/1.95 + 1.00/1.10); IV 14.10/12.50 (3.80/3.40 + 1.40/1.30 + 3.10/2.80 + 4.50/3.80 + 1.30/1.20). Opisthosoma length 4.30/4.00, width 2.00/2.40. Male palpus with ventral tibial apophysis, intermediate tibial apophysis and retrolateral tibial apophysis; embolus long, spiniform, projected retrolaterally (Figs. 15–16). Epigynum well sclerotized with a short and narrow median septum, intromittent orifice situated at the both sides of the septum; spermatheca oval, intromittent canal short and soft (Figs. 17–18).

Coloration and markings. Male: Carapace dark brown with white bands on thoracic groove and lateral margin. Chelicerae reddish brown; maxillae and labium reddish brown with white anterior margin; sternum dark brown; palps dark brown bear white hairs; legs dark brown. Dorsum of opisthosoma dark brown mottled with white spots; venter dark brown. Female: Carapace dark brown. Chelicerae reddish brown; maxillae and labium reddish brown with white anterior margin; sternum dark brown; palps dark brown, bearing white hairs; legs dark brown. Dorsum of opisthosoma dark brown, mottled with white spots; venter dark brown.

Distribution. Taiwan (new record), Nepal, Sri Lanka to Australia (Platnick 2004).

Family Tetragnathidae

Dolichognatha umbrophila Tanikawa 1991
(Figs. 19–22)


Specimens examined. 1♂, Luchiaokeng Reserve Area, Yangmingshan National Park, Taipei City, Taiwan, 19-IV-2003, Y.-H. Chang (NMNS-4211-017); 1♀, same locality and collector, 12-IV-2003 (NMNS-4211-018).

Description [based on the ♀ (NMNS-4211-017) / ♂ (NMNS-4211-018) from Taipei City]. Total length 3.60/3.35. Prosoma length 1.95/1.75, width 1.30/1.25. Chelicerae with 2/3 promarginal and 4/4 retromarginal teeth. Clypeus height 0.08/0.06. Eye diameters and interdistances: AME 0.14/0.14, ALE 0.10/0.09, PLE 0.10/0.09, PLE 0.10/0.09; AME-AME 0.12/0.08, AME-AME 0.11/0.08, PME-PMI 0.01/0.01, PME-PME 0.21/0.21; MOA length 0.46/0.40, anterior width 0.36/0.36, posterior width 0.20/0.18. Labium length 0.23/0.22, width 0.34/0.30. Sternum length 0.80/0.74, width 0.74/0.70. Leg measurements: I 10.30/7.40 (3.25/2.30 + 0.95/0.75 + 2.80/1.95 + 2.45/1.65 + 0.85/0.75); II 7.75/5.75 (2.50/1.85 + 0.85/0.70 + 1.90/1.35 + 1.80/1.25 + 0.70/0.60); III 3.65/3.20 (1.20/1.00 + 0.55/0.50 + 0.65/0.60 + 0.80/0.70 + 0.45/0.40); IV 4.18/3.85 (1.50/1.40 + 0.50/0.45 + 0.75/0.70 + 1.00/0.85 + 0.43/0.45). Opisthosoma length 1.90/1.70, width 1.45/1.70. Embolus distally spiniform (Figs. 19–20). Epigynum poorly sclerotized; spermatheca tubular (Figs. 21–22).

Coloration and markings. Male and female: Carapace

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pale brown, cephalic region dark brown, lateral margins of thoracic region and thoracic groove dark brown. Chelicerae reddish brown; maxillae and labium reddish brown with yellowish white anterior margins; sternum pale brown, with several dark brown patches; palps and legs reddish brown with dark brown band. Opisthosoma dark brown, mottled with yellowish white spots.

**Distribution.** Taiwan (new record), Japan (Tanikawa 1991).

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