

**THREE NEW SPECIES OF *SERROMYIA* (DIPTERA:  
CERATOPOGONIDAE) FROM SRI LANKA, WITH  
NEW RECORDS AND A KEY TO THE ORIENTAL  
AND AUSTRALASIAN SPECIES**

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*Abstract.*—Three new species of *Serromyia* are described from Sri Lanka: *heveli*, *maculipennis*, and *punctata*. A key is given for separation of the six known Oriental and Australasian species of the genus. New Oriental records are *S. esakii* Tokunaga from the Philippines and Sabah, and *S. pendleburyi* Macfie from Vietnam. Notes are given on the hitherto unknown female of *S. pendleburyi*.

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The genus *Serromyia* Meigen is well represented in the Northern Hemisphere with about two dozen species known from the temperate Holarctic Region (Wirth et al., 1974). It extends into the African continent with five species (de Meillon and Wirth, 1981), but elsewhere it is absent or poorly represented. No species have been reported from the Neotropical Region (Wirth, 1974), only two from the Australasian Region (Debenham, 1970), and only one heretofore described Oriental species (Wirth, 1973). The purpose of this study is to report three new species from Sri Lanka, to describe the hitherto unknown female of *S. pendleburyi* Macfie (1934) from Vietnam, and to report new records of *S. esakii* Tokunaga (1940) from Southeast Asia.

In this manuscript the first values given are those of the holotype followed by the range of variation of the paratypes in parenthesis. The methods of measurements and ratios used are those of Debenham (1970).

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KEY TO THE ORIENTAL AND AUSTRALASIAN SPECIES OF *SERROMYIA*

1. Hindfemur and hindtibia dark brown, unbanded; mesonotum dark brown ..... 2
  - Hindfemur and hindtibia yellowish with brown bands or other markings; mesonotum yellowish, at least on sides ..... 3
2. Large species, wing 2.2–2.6 mm long; female hindfemur armed ventrally with about 40 strong black spines in at least 3 series; costa long, costal ratio 0.75; male 9th tergum long and slender distally; halter infuscated ..... *pendleburyi* Macfie
  - Smaller species, wing 1.0 mm long; female hindfemur armed ventrally with 20 strong spines in 2 series; costa shorter, costal ratio 0.69 in female, 0.60 in male; male 9th tergum short and bluntly rounded distally; halter pale ..... *reyei* Debenham
3. Wing with small black spot midway in anal cell (mesonotum and legs yellowish with numerous small brown punctations at the setal bases; fore- and midfemora and tibiae with narrow brown bases, hindfemur with narrow brown base and broad brown apical band, hindtibia brown on bent basal knee portion, with broad subbasal and narrow apical brown bands; spermathecae pale yellowish; halter slightly infuscated, posterior side of knob whitish) .. *maculipennis*, new species
  - Wing without small black spot midway in anal cell on vein 1A .... 4
4. Legs yellowish, apices of tibiae brownish, hindtibia brown at base, hind femur brown, only moderately swollen and bearing 20 strong ventral spines; halter slightly infuscated; spermathecae pale brown; costal ratio 0.75 ..... *esakii* Tokunaga
  - Legs with prominent dark brown bands or punctations; hindfemur markedly swollen and bearing 20–28 strong ventral spines; costal ratio about 0.70 ..... 5
5. Mesonotum and legs yellow, with prominent brown punctations at setal bases; apices of tibiae narrowly brown; hindfemur with subapical and tibia with subbasal, narrow brown bands; spermathecae pale yellowish ..... *punctata*, new species
  - Mesonotum brown in broad midportion; fore- and midlegs pale brownish; hindfemur dark brown with broad yellow band in midportion; hindtibia dark brown proximally, yellow on distal 1/3; spermathecae dark brown ..... *heveli*, new species

*Serromyia esakii* Tokunaga

*Serromyia esakii* Tokunaga, 1940: 218 (♀; Caroline Islands; fig. wing, antenna); Tokunaga and Murachi, 1959: 402 (♂, ♀; Caroline Islands, fig. male palpus, genitalia).

Distribution.—Caroline Islands, Philippines, Sabah.

New records.—PHILIPPINES: Balabac, Dalawan Bay, 9 Oct. 1961, at mercury light, Noona Dan Exped., 1 ♀. SABAH: Labuan I., Borneo, Sept.–Oct., 1948, March 1950, D. H. Colless, at light, 1 ♂, 1 ♀; March 1952; sweeping, 1 ♀.

*Serromyia pendleburyi* Macfie

*Serromyia pendleburyi* Macfie, 1934: 280 (♂; Malaysia; fig. genitalia); Debenham, 1970: 165 (compared with *C. reyei*).

Distribution.—Malaysia, Vietnam.

New record.—Vietnam, Dalat, 26–27 Sept. 1960, J. L. Gressitt, 2 ♀.

Notes.—The female of this species has not been described before. The Vietnam females have the wing length 2.2 mm; costal ratio 0.75; hindfemur with 40 ventral spines in at least 3 series, hindclaw  $1.28\times$  as long as 5th tarsomere, the short, slender basal barb only  $0.15\times$  as long as claw. This species resembles the Northern Hemisphere species in its large size and uniformly dark brown color with only the tarsi and the four anterior legs yellowish.

*Serromyia heveli* Giles and Wirth, NEW SPECIES

Fig. 1

Female holotype.—Wing length 1.07 mm, breadth 0.43 mm.

*Head*: Yellowish brown, setae long and strong. Eyes bare, separated by distance equal to 3 facets. Antenna (Fig. 1a) pale, apices of segments 3–10 light brown, segments 11–15 darker brown; verticils well developed on all segments; lengths of flagellar segments in proportion of 36-21-24-26-28-28-30-30-42-40-50-52-66, antennal ratio 1.12. Palpus (Fig. 1b) pale; 3rd segment moderately swollen from base with long capitate sensilla irregularly clumped on distal  $\frac{1}{3}$ ; palpal ratio 2.36. Proboscis brown, moderately long, P/H ratio 0.56; mandibular teeth 9 (8), large and coarse.

*Thorax*: Yellowish; scutum dark brownish mesally, yellowish on sides; pleuron yellowish with brown blotches dorsad, ventral areas darker brown; thorax with strong setae, scutellar setae slightly longer than hindclaw. Legs (Fig. 1d–f) brownish; fore- and midtrochanters yellowish, hindcoxa yellowish subdorsally, hindtrochanter dark brownish; forefemur and tibia yellowish brown; midfemur with dark brownish base, distal  $\frac{2}{3}$  and tibia pale brown; hindfemur yellowish brown, basal  $\frac{1}{3}$  dark brown except for small yellowish area at junction of trochanter, distal  $\frac{1}{5}$  dark brown; hindtibia yellowish brown, basal  $\frac{2}{3}$  dark brown. Hindfemur swollen, measuring 0.63 by 0.14 mm, bearing 20 (21) strong ventral spines, the basal one weaker and lighter in color; hindtibia arcuate, with comb of 6 (8) spines. Tarsi pale; hindtarsal ratio 2.03; fore- and midleg with claws small and equal, each with well-developed teeth, ratio of length of claw to 5th tarsomere on 1st leg

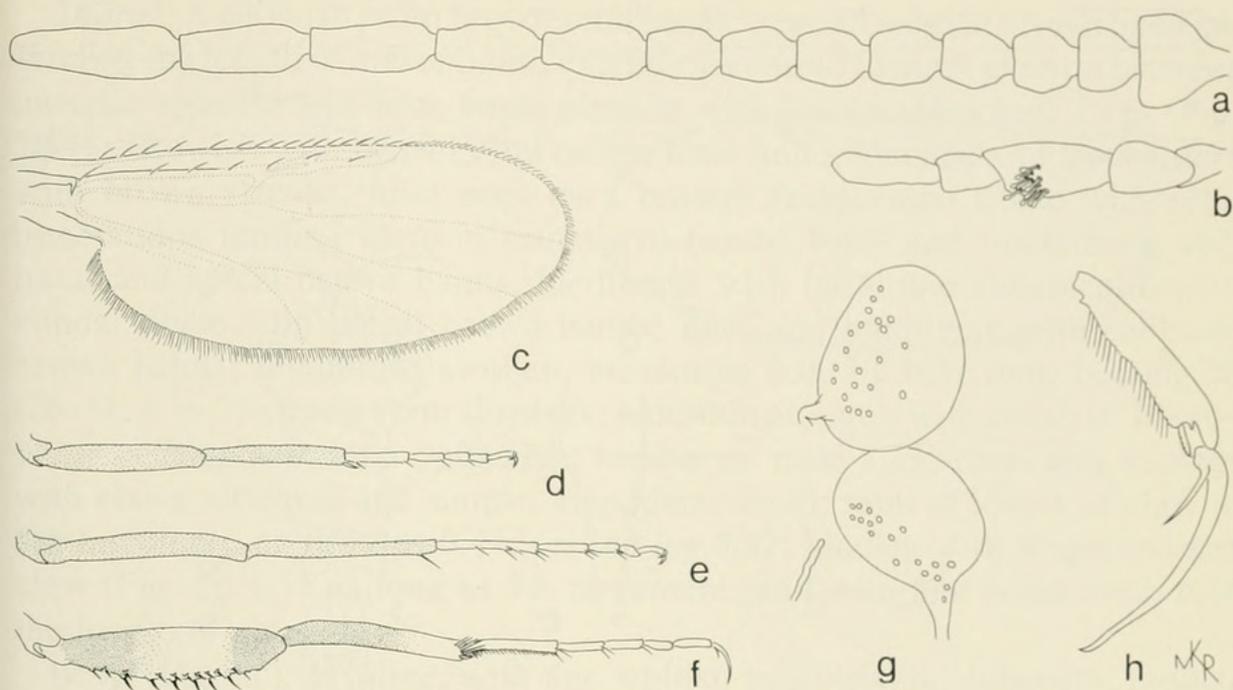


Fig. 1. *Serromyia heveli*, ♀ holotype. a, Antenna. b, Palpus. c, Wing. d, Foreleg. e, Midleg. f, Hindleg. g, Spermathecae. h, 5th tarsomere and claw of hindleg.

0.45, on 2nd leg 0.50, hindleg with single claw (Fig. 1h) 1.10 as long as 5th tarsomere and with fine basal tooth 0.29 the length of claw.

*Wing* (Fig. 1c): Milky white, with fine microtrichia; base of veins Rs and 1A brownish; 1st and 2nd radial cells slightly yellowish; 22 short setae along costa to tip of 2nd radial cell, 7 on radius; vein R4+5 obliquely meeting costa; radial cells with lumens poorly developed; 1st and 2nd radial cells respectively 0.122 by 0.019 mm and 0.169 by 0.026 mm; vein M2 obsolescent only a short distance at base; cell M4 extending from level of base of r-rm crossvein to a level past tip of 2nd radial cell; costal ratio 0.66. Halter yellowish.

*Abdomen*: Yellowish with faint segmental dark bands, terminal segments brownish. Spermathecae (Fig. 1g) 2, dark brown with minute hyaline perforations; slightly unequal, measuring 0.094 by 0.055 mm and 0.087 by 0.062 mm; necks arising obliquely, long and tapering; rudimentary spermatheca present.

*Male*.—Unknown.

*Distribution*.—Sri Lanka.

*Type*.—On slide in phenol balsam. Holotype ♀, Sri Lanka, Mannar District, 4 mi NW Mannar, UV light, 100 ft, 3 Nov. 1976, coll. Hevel et al. (Type no. 76579, USNM).

*Discussion*.—This species is named for Gary F. Hevel of the Smithsonian Institution in appreciation of his interest and assistance in the collection of Sri Lanka Ceratopogonidae.

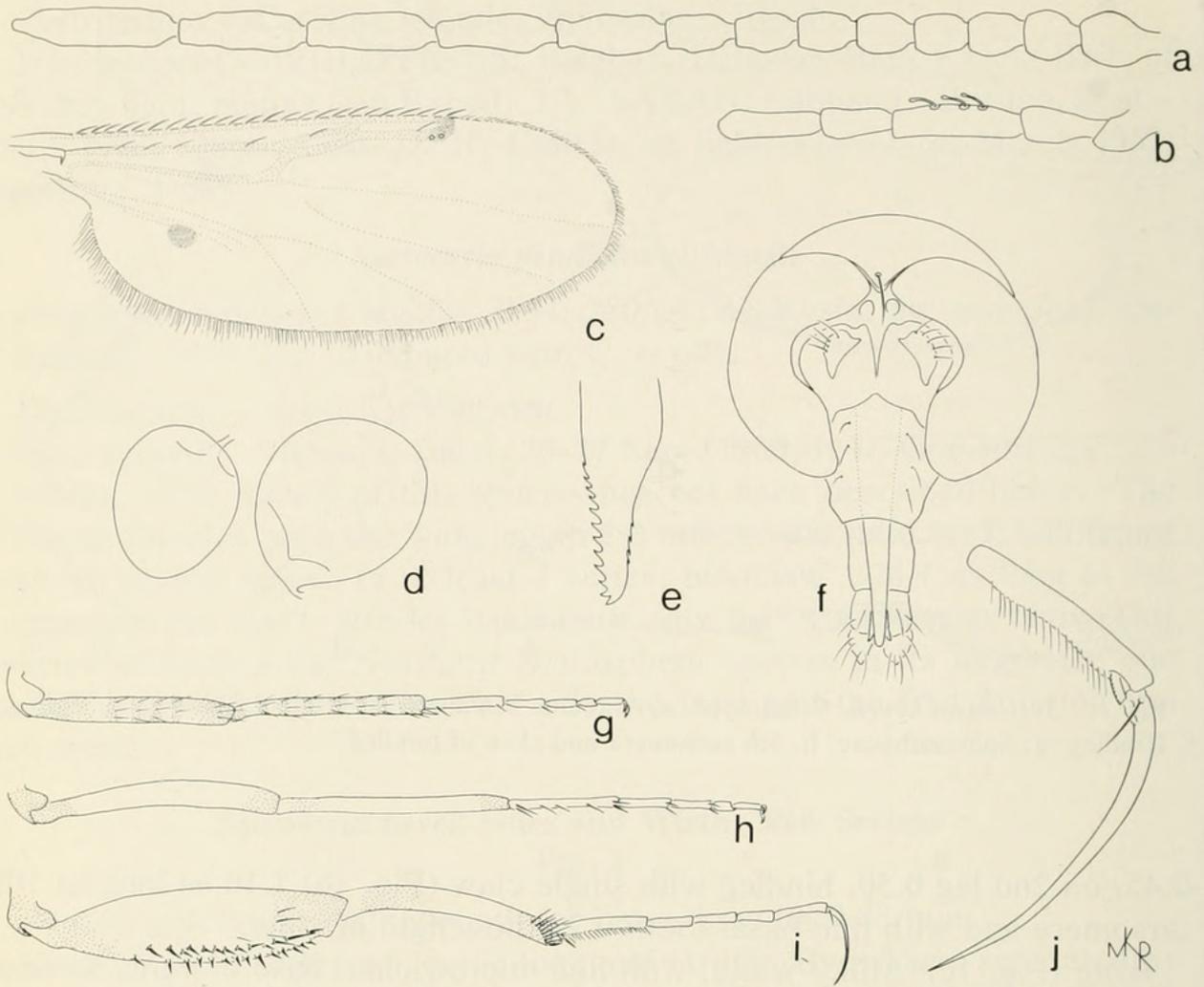


Fig. 2. *Serromyia maculipennis*, ♀ holotype. a, Antenna. b, Palpus. c, Wing. d, Spermathecae. e, Mandible. f, Head, anterior view. g, Foreleg. h, Midleg. i, Hindleg. j, 5th tarsomere and claw of hindleg.

*Serromyia maculipennis* Giles and Wirth, NEW SPECIES

Fig. 2

Female holotype.—Wing length 1.44 (1.34–1.66,  $n = 7$ ) mm; breadth 0.58 (0.51–0.60,  $n = 7$ ) mm.

*Head*: Yellowish with brown dots at setal bases. Eyes (Fig. 2f) bare, separated by a distance equal to 2 facets. Antennal segments 3–10 stramineous, 11–15 pale brown, verticils well developed on all segments; flagellar segments (Fig. 2a) with lengths in proportion of 42-34-34-32-34-32-34-36-59-62-70-74-94, antennal ratio 1.38 (1.20–1.38,  $n = 4$ ) mm. Palpus (Fig. 2b) pale yellow; 1st, base of 2nd, and tip of 5th segments darkest; lengths of segments in proportion of 20-47-74-40-60; 3rd segment cylindrical with sensilla scattered on surface; palpal ratio 3.70 (3.40–4.44,  $n = 7$ ). Proboscis brown, moderately long, P/H ratio 0.57 (0.51–0.65,  $n = 7$ ); mandibular teeth (Fig. 2e) 11 (10–13,  $n = 7$ ), large and coarse.

*Thorax*: Yellowish, with brown setal bases; a broad median brown band extending the length of mesonotum, extending ventrad to meet pleuron between anterior spiracle and wing base; pleuron with brown splotches. Legs (Fig. 2g-i) yellowish with brown setal bases; fore- and midcoxae and trochanters with brown streaks, hind ones dark brown; femora and tibiae with setal punctations tending to form transverse bands; fore- and midfemora with basal and apical brown bands, hindfemur with basal and subapical brown bands; tibiae with apical brown bands; mid- and hindtibiae with subbasal brown bands; hindfemur swollen, measuring 0.09 by 0.21 mm, bearing 28 (26-34,  $n = 7$ ) strong ventral spines; hindtibia arcuate, with comb of 10 (10-12,  $n = 7$ ) spines; tarsi yellowish; hindtarsal ratio 2.13; fore- and midlegs with claws subequal and simple, empodium small; ratio of length of claw to 5th tarsomere on first leg 0.44, on 2nd leg 0.47; hindleg with single striated claw (Fig. 2j) 1.55 as long as 5th tarsomere, and with fine basal tooth 0.16 the length of claw.

*Wing* (Fig. 2c): Hyaline, with fine whitish microtrichia; subcosta, radius, and M1+2 strong, yellowish, tip of vein R4+5 darker; large setae numerous the length of costa to end of 2nd radial cell, 7 setae scattered along radius; 1st radial cell measuring 0.197 by 0.035 mm, 2nd radial cell 0.254 by 0.054 mm with tip quadrate; vein M2 interrupted at base; cell M4 extending from level of a line  $\frac{1}{2}$  the length of r-m crossvein proximad of the crossvein distally to the level of end of 2nd radial cell; a spot on vein 1A at midlength of anal cell composed of densely packed long microtrichia, the spot brownish with a small green area iridescent in some lights; costal ratio 0.70 (0.68-0.72,  $n = 7$ ). Halter pale brownish, posterior portion of knob white.

*Abdomen*: Yellowish, setal bases and terga brown, posterior segments tending to darken; spermathecae (Fig. 2d) pale brownish, 2, ovoid with short, slender, oblique necks; unequal, measuring 0.166 by 0.123 mm and 0.129 by 0.104 mm.

Male.—Unknown.

Distribution.—Sri Lanka.

Types.—All on slides in phenol balsam. Holotype ♀ Sri Lanka, Jaffna District, Chundikkulam Sanctuary, 25 ft, UV light, 7 Nov. 1976, coll. G. F. Hevel, R. E. Deitz IV, S. Karunaratne, and D. W. Balasooriya (Type no. 76580, USNM). Paratypes, 26 ♀, same data as holotype. Holotype and 24 paratypes deposited in USNM; one paratype will be deposited in the Colombo National Museum, Colombo, Sri Lanka, and another in the National Museum at the University of Sri Lanka at Peradeniya. Paratype ♀, Sri Lanka, Mannar District, 4 mi NW Mannar, UV light, 100 ft, 3 Nov. 1976, coll. Hevel et al. (deposited in USNM).

Discussion.—*Serromyia maculipennis* derives its name from the prominent dark spot in the anal cell. It can readily be identified since all others in this genus have clear wings.

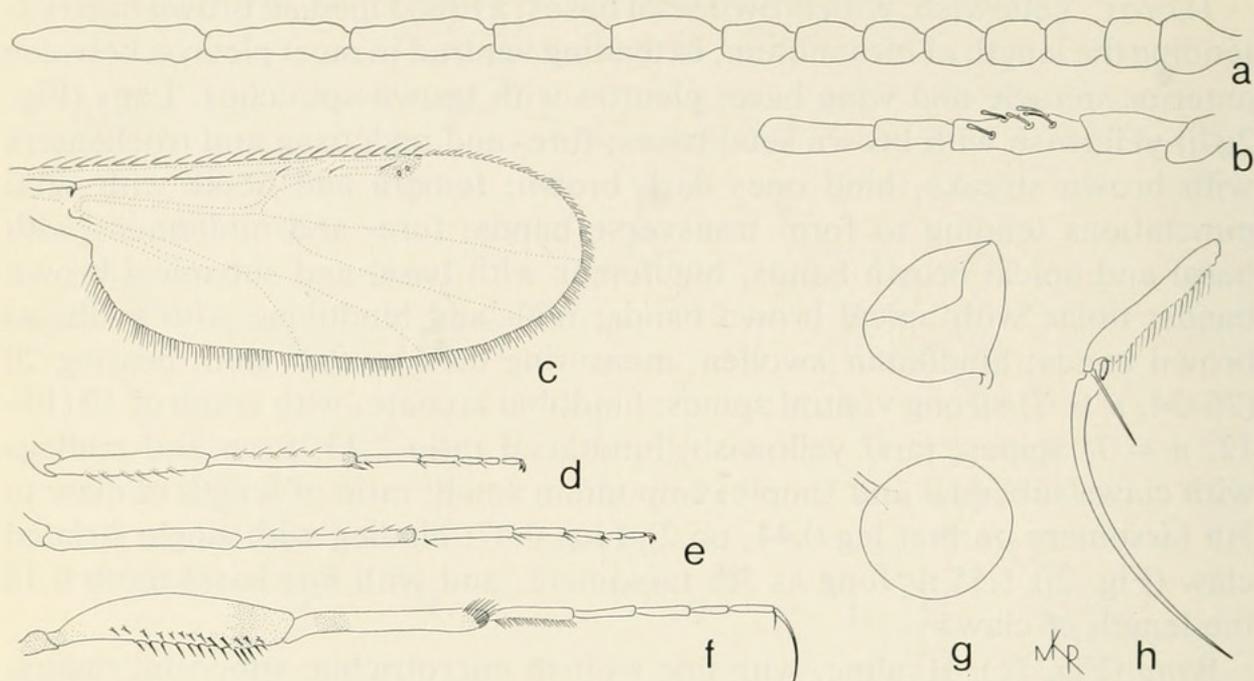


Fig. 3. *Serromyia punctata*, ♀ holotype. a, Antenna. b, Palpus. c, Wing. d, Foreleg. e, Midleg. f, Hindleg. g, Spermathecae. h, 5th tarsomere and claw of hindleg.

***Serromyia punctata* Giles and Wirth, NEW SPECIES**

Fig. 3

Female holotype.—Wing length 1.20, breadth 0.48 mm.

*Head*: Yellowish brown. Eyes bare, contiguous for a distance equal to 1 facet. Antenna (Fig. 3a) with segments 3–10 pale yellow, 11–15 becoming progressively darker brown; length of flagellar segments in proportion of 34-26-26-26-28-26-28-30-46-48-58-60-71, antennal ratio 1.26. Palpus (Fig. 3b) pale, segments 1 and 5 brownish; lengths of segments in proportion of 11-29-50-29-36, 3rd segment slightly swollen from base, with long capitate sensilla scattered on surface; palpal ratio 3.1. Proboscis brown, moderately long, P/H ratio 0.63; mandibular teeth 12 (13), large and coarse.

*Thorax*: Yellowish with brown setal bases; pleuron with brown blotches. Legs (Fig. 3d–f) yellowish with brown setal bases; foreleg with coxa brown, trochanter yellowish, femur with faint brownish basal band, small brown blotches on flexor surface, tibia with small brown blotches on extensor surface and narrow apical brown band; midleg with coxa and trochanter light brown, femur with narrow base brown, tibia with small brown blotches on extensor surface and narrow apical brown band; hindleg with coxa brown on distal ½, trochanter brown, femur with irregular brown basal area, narrow brown supapical band and irregular brown splotches throughout, tibia with irregular brown areas distally, brown subbasal band, and brown blotches on extensor surface; hindfemur swollen, measuring 0.69 by 0.16 mm, bearing 27 (28) strong ventral spines; hindtibia arcuate, with 9 spines in

tibial comb. Tarsi yellowish; hindtarsal ratio 1.37; fore- and midlegs with claws small and equal, empodium small; ratio of length of claw to 5th tarsomere 0.45 on foreleg, 0.40 on midleg; hindleg with single striated claw (Fig. 3h)  $1.72\times$  as long as 5th tarsomere, with fine basal tooth (paratype—tooth  $0.25\times$  as long as claw).

*Wing* (Fig. 3c): Milky white, with fine microtrichia; base of radius, and 1A, and tip of vein R4+5 dirty yellowish, costa, M1+2, r-m crossvein and distal  $\frac{1}{2}$  of Rs yellowish; 30 short setae scattered the length of costa to tip of 2nd radial cell, only 3 setae on radius; vein R4+5 with beadlike swelling distally; 1st and 2nd radial cells measuring respectively 0.080 by 0.024 mm and 0.221 by 0.038 mm; tip of 2nd radial cell quadrate; costal ratio 0.68; cell M4 extending from level of base of r-m crossvein to a level opposite tip of 2nd radial cell. Halter pale brownish.

*Abdomen*: Pale yellowish; a pair of brownish spots on each tergum. Spermathecae (Fig. 3g) 2, pale yellowish scarcely discernible; oval with short slender necks; unequal, measuring 0.156 by 0.104 mm and 0.115 by 0.071 mm.

Male.—Unknown.

Distribution.—Sri Lanka.

*Types*.—All on slides in phenol balsam. Holotype ♀, Sri Lanka, Puttalam District, Wilpattu National Park, 14–15 Feb. 1979, coll. K. V. Krombein, T. Wijesinhe, S. Siriwardane, and T. Gunawardane (Type no. 76581, USNM). Paratype ♀, Sri Lanka, Jaffna District, Chundikkulam Sanctuary, 25 ft. UV light, 7 Nov. 1976, coll. G. F. Hevel, R. E. Deitz IV, S. Karunaratne, and D. W. Balasooriya (USNM).

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