



## ***Draposa*, a new wolf spider genus from South and Southeast Asia (Araneae: Lycosidae)**

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### **Abstract**

*Draposa* **gen. nov.** is proposed for eight wolf spider species from the Indomalayan Region, all of which were previously placed in the genus *Pardosa*: *Draposa atropalpis* (Gravely, 1924) **comb. nov.**, *D. lyrivulva* (Bösenberg & Strand, 1906) **comb. nov.** (= *Pardosa leucopalpis* Gravely, 1924 **syn. nov.**), *D. nicobarica* (Thorell, 1891) **comb. nov.**, *D. oakleyi* (Gravely, 1924) **comb. nov.**, *D. porpaensis* (U. A. Gajbe, 2004) **comb. nov.**, *D. subhadrae* (Patel & Reddy, 1993) **comb. nov.**, *D. tenasserimensis* (Thorell, 1895) **comb. nov.**, and *D. zhanjiangensis* (Yin, Wang, Peng & Xie, 1995) **comb. nov.** Species of *Draposa* share synapomorphies in the copulatory organs, *inter alia* a complex subpaleal sclerite in the terminal part of the male bulbus. The presence of *D. lyrivulva* in Japan is put in doubt and the species should be excluded from the list of spiders in that country. *Draposa nicobarica* (type species) and *D. tenasserimensis* are redescribed and illustrated for the first time from the type material. *Draposa atropalpis* is redescribed from material from India and Sri Lanka, *D. lyrivulva* and *D. subhadrae* (first record outside India) from material collected in Sri Lanka and *D. oakleyi* from material from India and Bangladesh.

**Key words:** Taxonomy, *Pardosa*, Indomalayan region

### **Introduction**

The world-wide spider family Lycosidae Sundevall, 1833 (wolf spiders) comprises 2367 currently recognised species, of which 526 species (with 22 additional intraspecific taxa) are assigned to the genus *Pardosa* C. L. Koch, 1847 (Platnick 2010). Among the South Asian species hitherto allocated to this genus, many remain poorly known and await morphological scrutiny of their copulatory organs in order to facilitate identification as well as further comparative systematic analyses.

Species of the speciose and heterogeneous genus *Pardosa sensu lato* have been described from all continents except Antarctica. Several of these species are placed in separate informal species groups, some of which are based on putative synapomorphies. The breakup of this vast assemblage of species commenced with the erection of the genus *Wadicosa* Zyuzin, 1985, preliminarily encompassing several species formerly placed in *Pardosa* or *Lycosa* Latreille, 1804 in the Old World (cf. Kronstedt 1987). Of the few species in Australia originally assigned to *Pardosa*, only *P. pexa* Hickman, 1944 remains in this genus (Platnick 2010). The original illustration of the palp of this species, however, shows it to belong to the subfamily Lycosinae Sundevall, 1833. Consequently, the genus *Pardosa sensu lato* is absent from Australia. Among the numerous African species formerly assigned to *Pardosa*, *P. foveolata* Purcell, 1903, along with some related species, were recently separated by Russell-Smith *et al.* (2007) in the genus *Foveosa* Russell-Smith, Alderweireldt & Jocqué, 2007. Also recently, the genus *Bogdocosa* Ponomarev & Belosludtsev, 2008 was erected for a newly described lycosid species from the Astrakhan area in Russia (Ponomarev *et al.* 2008). Further Asian species, currently placed in *Pardosa*, are candidates for transfer to *Bogdocosa* (T. Kronstedt & Y.M. Marusik, unpublished data).

The genus *Pardosa* has traditionally been placed in the subfamily Pardosinae Simon, 1898. Dondale (1986) defined this subfamily by two characters: 'terminal apophysis toothlike, situated retrolaterally on palea surface, with tip directed toward tip of embolus and of conductor' and 'conductor shaftlike, lying transversely along basal margin of palea'. These characters certainly define the genus *Pardosa sensu stricto* [type species: *Lycosa alacris* C. L. Koch, 1833 (Kronstedt *et al.* 2002)]. Dondale added that these characters may require 'modification when the other genera traditionally assigned to the subfamily are examined'. A comparison of different lycosid subfamilies based on morphological characters in the copulatory organs was given by Zyuzin (1993). For Pardosinae, the following characters in the male palp were emphasised: 'small depression in tegulum as bed for tip of resting embolus' and 'conductor consisting of thick well-sclerotised basal part of palea concealed by tegulum'. These characters also conform to genus *Pardosa sensu stricto*. Most recently, by analysing molecular data from an array of different lycosids, including a heterogeneous assemblage of species in *Pardosa sensu lato*, Murphy *et al.* (2006) questioned the validity of Pardosinae, which nested as a monophyletic clade within traditional members of the Lycosinae. Following this, *Pardosa* with phyletic allies should form a taxon on a subordinate intrafamilial level and Lycosinae be redefined. Here I refrain from placing *Draposa* gen. nov. in any of the currently accepted subfamilies pending further research in the higher phylogeny of wolf spiders.

Several years ago I collected material in Sri Lanka that I initially identified as *Pardosa leucopalpis* Gravely, 1924. Years later, Tanaka (1993) redescribed the female holotype of *Pardosa lyrivulva* (Bösenberg & Strand, 1906) said to have been collected in Japan and originally described as belonging in *Lycosa* Latreille, 1804. Although the epigyne had been illustrated earlier (Yaginuma 1986), Tanaka's more precise drawing was essential for the recognition of this species. The very characteristic configuration of the epigyne was found to coincide with that of the specimens that I collected in Sri Lanka.

When studying the type series of *Lycosa nicobarica* Thorell, 1891 and *L. tenasserimensis* Thorell, 1895, as well as material from Sri Lanka fitting the description of *Pardosa subhadrae* Patel & Reddy, 1993, it became evident that all these species are allied to *P. lyrivulva* based on morphological grounds. *Pardosa atropalpis* Gravely, 1924 and *P. oakleyi* Gravely, 1924 also share characters with the aforementioned species, although they are both considerably smaller in size compared with the rest.

The configuration of certain parts of the copulatory organs in *P. lyrivulva* and its abovementioned allies differs from that of corresponding parts in species of *Pardosa sensu stricto*, motivating a transfer to a separate new genus. Some years ago an allied species, viz. *P. zhanjiangensis* Yin, Wang, Peng & Xie, 1995, was described from southern China. It is obvious from details given in the original description that the latter species is also a member of this new genus.

## Material and methods

Material from the following collections has been studied:

BMNH	Natural History Museum, London, United Kingdom
MZLU	Zoological Museum, University of Lund, Lund, Sweden [material collected during the Lund University Ceylon Expedition in 1962 by P. Brinck, H. Andersson & L. Cederholm (for description of localities see Brinck <i>et al.</i> 1971)]
NHRS	Swedish Museum of Natural History, Stockholm, Sweden
SMF	Senckenberg Museum, Frankfurt/M., Germany
ZMUC	Zoological Museum, University of Copenhagen, Copenhagen, Denmark
ZMUT	Zoological Museum, University of Turku, Turku, Finland

Some material will be deposited in the following collection:

ZMUM	Zoological Museum, University of Moscow, Moscow, Russia
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Material deposited in the National Zoological Collection, Kolkata (India), was not examined. Gravely (1924) did not specify any type material, only added 'type' to one of his collection localities. Sinha (1951) listed the lycosid material, including the type material of *Pardosa atropalpis* Gravely, 1924, *P. leucopalpis* Gravely, 1924 and *P. oakleyi* Gravely, 1924, which was then present in the National Zoological Collection at Kolkata. This type material was also reported ("in spirit in good condition") in Tikader & Malhotra (1980). Only syntypic material housed in BMNH of species described by Gravely (1924) was examined here.

SEM micrographs were taken by the author with a Hitachi S-4300 scanning electron microscope at the Swedish Museum of Natural History. Some of the digital photographs of specimens in ethanol were taken by Y.M. Marusik using an Olympus SZX12 stereomicroscope and an Olympus Camedia C-5050 camera at the Zoological Museum in Turku when I visited in March 2009; others were taken by the author using an identical stereomicroscope with an Olympus DP70 camera at the Department of Entomology at the Swedish Museum of Natural History.

Measurements refer to specified individuals and are given in mm except for the eyes. Eyepiece micrometer units (given for eyes) can be converted to mm by dividing by 80. Eye row distances are as in Kronstedt (1975).

*Comment on terminology.* The use of descriptive terms for details in the terminal part of the male copulatory organ in lycosids has met with difficulties (Marusik *et al.* 2003). Functional terms like 'conductor' and topological terms like 'terminal apophysis' may refer to non-homologous structures in different genera. There is no controversy in the use of the terms embolus and palea, although varying apophyses and processes originating from the latter may not be homologous between genera. For comments on the descriptive terms introduced here, see the Description of the new genus below.

In describing the spermatheca, I rely on terms used by Sierwald (2000), *viz.* head of spermatheca (Fig. 30), recognized by its pores (Fig. 39), stalk of spermatheca (Fig. 30), and base of spermatheca. For two of the species (*Draposa nicobarica* and *D. tenasserimensis*) epigynes were not prepared as only original type series material was at hand.

*Abbreviations* (in italics used in figures). ALE, anterior lateral eye(s); AME, anterior median eye(s); *a.pr.*, anterior subpaleal process; *cav.*, central cavity (=atrium); Cy, cymbium; *emb.*, embolus; Fe, femur; *hs.*, head of spermatheca, *la.el.*, lateral elevation; Mt, metatarsus; *pa.ap.*, paleal apophysis; Pt, patella; PLE, posterior lateral eye(s); PME, posterior median eye(s); *p.pr.*, posterior subpaleal process; *sep.*, septum; *ss.*, stalk of spermatheca; *sa.pt.*, subapical protrusion on tegular apophysis; Ta, tarsus; *tg.ap.*, tegular apophysis; Ti, tibia.

## Taxonomy

### Family Lycosidae Sundevall, 1833

#### *Draposa* gen. nov.

Type species: *Lycosa nicobarica* Thorell, 1891.

**Etymology.** The name is an anagram of the name *Pardosa*. The gender is feminine.

**Diagnosis.** Males of *Draposa* gen. nov. differ from other lycosids by the presence of a subpaleal sclerite with two processes partly hidden by the palea in the terminal part of the bulb, as well as by the tegular apophysis being transverse with wide basal part carrying variously shaped projections and narrow distal part carrying small subapical protrusion before evenly curved tip (e.g., Figs 13 & 16); females differ by the epigyneal cavity being only partly divided by a tongue-like septum (e.g., Figs 19 & 40).

**Description.** Lycosid spiders of small to medium size (carapace length approx. 2.00–4.55).

Carapace brownish with light brownish to yellowish median and lateral bands. Eye row I considerably shorter than eye row II. Eye row I slightly procurved, anterior median eyes slightly larger than anterior laterals ( $\emptyset\text{AME}/\emptyset\text{ALE}$  1.15–1.25). Chelicerae with rows of three retromarginal and three promarginal teeth, distal-most tooth in latter row small and knob-like (Fig. 36). Labium slightly wider than long. Leg lengths

IV>I>II>III or IV>I>III>II. Mt IV as long as or shorter than Pt + Ti IV (measured dorsally). Ti I with three pairs of ventral spines (of which three are placed in an oblique line prolaterally). Male palp with subtegulum covered by wrinkled integument confluent with basal haematodocha (no lunar plate). Tegular apophysis prominent, transverse, without anteriorly directed branch as present in *Pardosa sensu stricto*. [A transverse tegular apophysis is also present in other *Pardosa sensu lato* groups, like the speciose Old World *Pardosa nebulosa*-group (Alderweireldt & Jocqué 1992, Yin *et al.* 1997). In the latter, it differs from that of *Draposa* by being shorter and without protrusions as well as by terminating in a sclerotised hook-like tip]. Wide basal half of tegular apophysis with variously shaped projections, in several species tooth-like and more or less pointed. Narrow distal part with small subapical protrusion (e. g., Figs 13 & 16) and distally tapering into narrow evenly curved tip. [A conductor as recognized in *Pardosa* (Kronstedt 1975; Dondale 1986; Dondale & Redner 1990) is not present in *Draposa*.] Palea with retrolateral paleal apophysis (Fig. 12; topological term not implying homology with somewhat similar condition, e.g., in *Acantholycosa* Dahl, 1908 cf. Marusik *et al.* 2003). Palea more or less covering subpaleal sclerite protruding into two prominent processes (Fig. 12), presumably unique feature for *Draposa*. Epigyne with deep central cavity (e. g., Figs 19 & 40). Lateral elevations partly protruding over central cavity (in ventral view). Tongue-like septum protruding from in front into epigyneal cavity. Bottom of cavity extending laterad, covering all or most of spermathecae (in dorsal view: Figs 20, 22, 41, 43).

Species of *Draposa* **gen. nov.** have a 'pardosoid' appearance (i. e. being thin-legged, agile and diurnal, similar to species of *Pardosa sensu stricto*).

**Remarks.** Published illustrations indicate that there are species other than those treated in detail in this paper, which may qualify for transfer to *Draposa*: the males of both *Pardosa aciculifera* Chen, Song & Li, 2001 (figs 4–7) from Hainan (China), and *P. burasantiensis* Tikader & Malhotra, 1976 (fig. 12; Tikader & Malhotra 1980, fig. 186) from West Bengal (India) apparently possess a subpaleal sclerite with apophyses mostly hidden by the palea in the terminal part of the bulbus as well as the shape of the tegular apophysis that is characteristic for species now placed in *Draposa* **gen. nov.** [The species referred to as *P. burasantiensis* from Yunnan and Hunan (China) in Yin *et al.* (1997: 239, fig. 112 ♂♀) and Song *et al.* (1999: fig. 194C ♀), however, appears to belong to some species in the *Pardosa nebulosa*-group.] *Pardosa amkhasensis* Tikader & Malhotra, 1976 (fig. 2; Tikader & Malhotra 1980, fig. 177) and *P. minutus* Tikader & Malhotra, 1976 (fig. 4; Tikader & Malhotra 1980, fig. 147), both known only from females, should also be studied from the aspect of belonging in *Draposa* **gen. nov.**

**Distribution.** Indomalayan region: Pakistan, India, Sri Lanka, Bangladesh, Myanmar, China, Malaysia, Indonesia.

### *Draposa atropalpis* (Gravely, 1924) **comb. nov.**

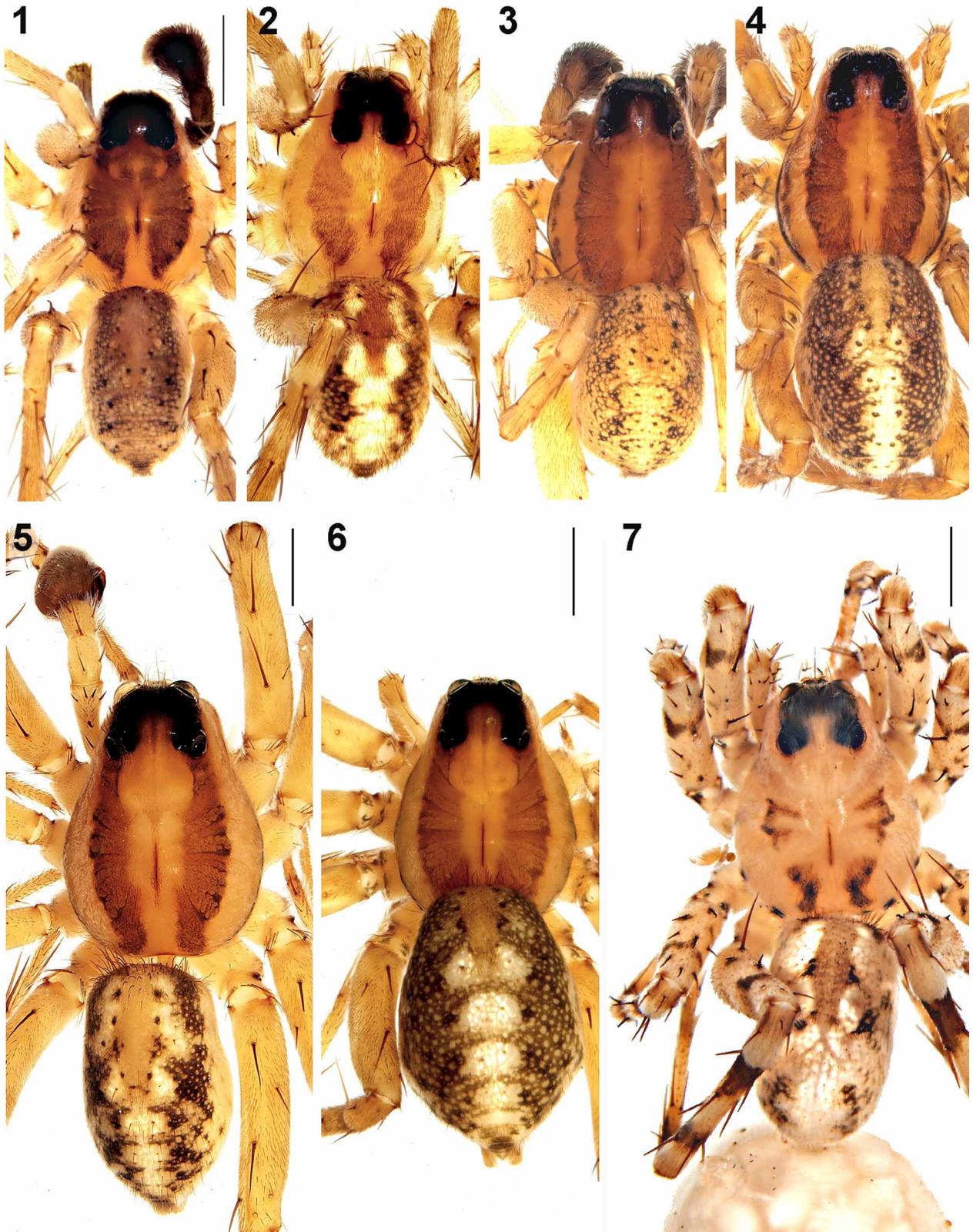
Figs 1, 2, 8, 9, 12–14, 19, 20, 23, 29

*Pardosa atropalpis* Gravely, 1924: 610, fig. 5B (♂♀). Tikader & Malhotra 1980: 325–326, figs 153–156 (♂♀).

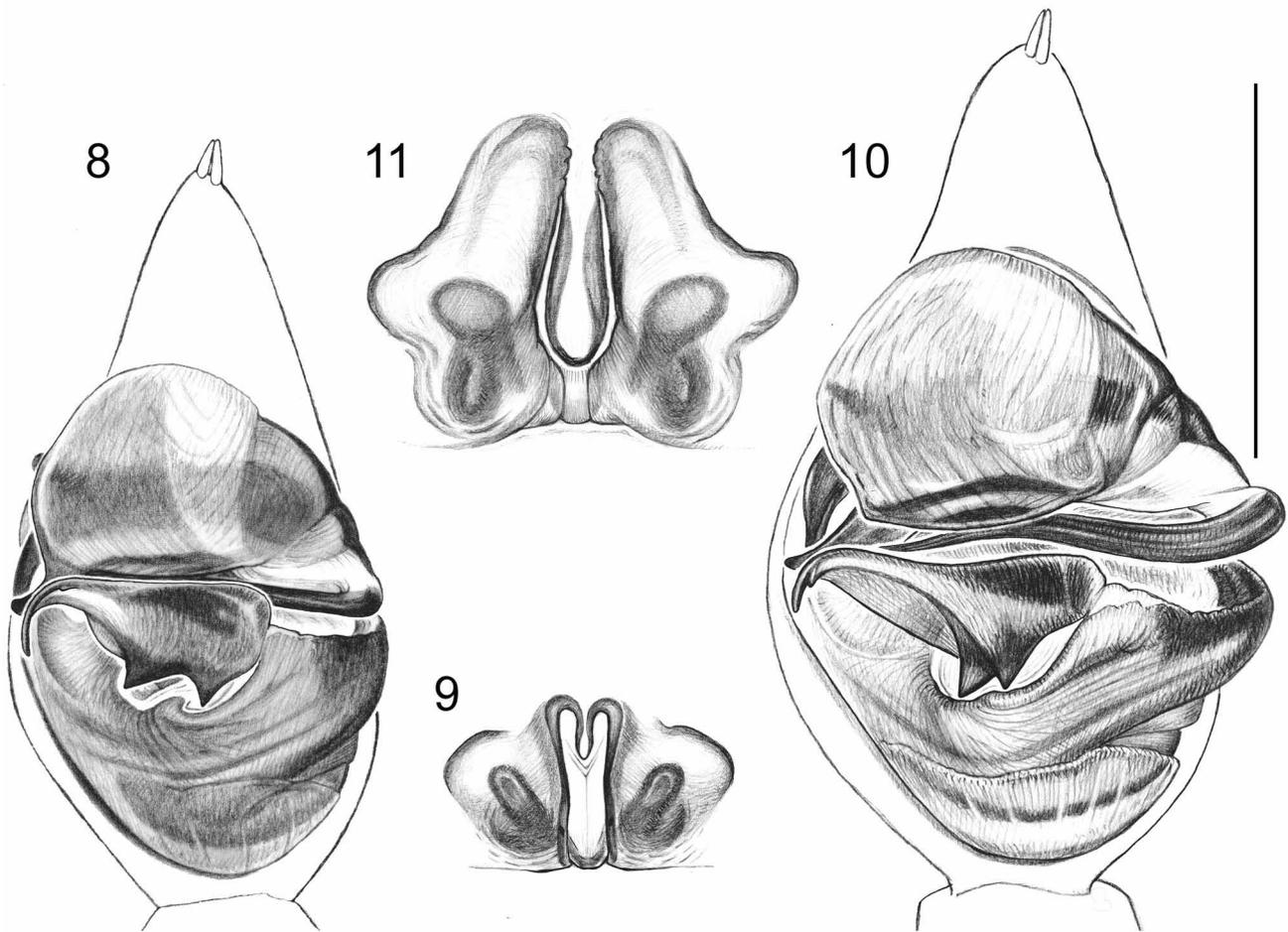
**Type material.** *Syntypes* of *Pardosa atropalpis* Gravely, 1924: 1♂, 1♀, India, Tamil Nadu, Madras City (13°04'N 80°17'E) (National Zoological Collection, Kolkata), not examined; 1♂, 1♀, India, Madras (ex Madras Museum, BM 1924.V.13.18–19) (BMNH), examined.

**Other material examined.** SRI LANKA. *Eastern:* Kuchchaveli, 20 mi NW Trincomalee (8°49'N 81°06'E), under branch on sandy ground, 10 February 1962 (loc. 60, Lund University Ceylon Expedition, MZLU), 1♀. *Southern:* Hambantota (6°07'30"N 81°07'10"E), dry grazed grassy area (short grass with scattered bushes), 23 February 1974 (T. Kronstedt, NHRS), 6♂ 9♀; E of Hambantota (6°08'05"N 81°08'30"E), dry ground with very short vegetation and scattered bushes close to salt channel, 22 January 1974 (T. Kronstedt, NHRS), 3♂ 1♀.

**Diagnosis.** Male distinguished by configuration of palp, notably shape of tegular apophysis with two acute protrusions wide apart (Fig. 8; cf. *D. oakleyi*: Fig. 10); female by shape of epigyne, notably short median septum in front (Fig. 9; cf. *D. oakleyi*: Fig. 11).



**FIGURES 1–7.** Habitus, dorsal view. 1, 2. *Draposa atropalpis* (Gravely) ♂ (1) and ♀ (2) from Sri Lanka: Hambantota. 3, 4. *D. oakleyi* (Gravely) ♂ (3) and ♀ (4) from India: Ootacamund. 5, 6. *D. lyrivulva* (Bösenberg & Strand) ♂ (5) and ♀ (6) from Sri Lanka: Matara (♂) and Ranna (♀). 7. *D. subhadrae* (Patel & Reddy) from Sri Lanka: Kuchchaveli. Scale line 1 mm (same for 1–4).



**FIGURES 8–11.** Right male palp (8, 10) and epigyne (9, 11). 8, 9. *Draposa atropalpis* (Gravely) from Sri Lanka: Hambantota. 10, 11. *Draposa oakleyi* (Gravely) from India: Ootacamund. Scale line 0.5 mm.

**Description. Male** (from Hambantota, Sri Lanka). Total length 4.1. Carapace 2.20 long, 1.70 wide.

*Prosoma* (Fig. 1). Dorsum brown with yellow median band from fovea, widening backwards. Lateral bands yellow, wide, posteriorly confluent with median band. Marginal bands absent, only weak greyish spots above each leg coxa. Brown sides of thoracic part with pubescence of short dark and recumbent light hairs. Lateral bands mainly with recumbent whitish pubescence. Clypeus yellowish except for dusky brown spot below each ALE. Chelicerae yellowish, each with a longitudinal dusky brown stripe in front, confluent with dark spot on clypeus. Sternum light yellow, with recumbent white hairs and scattered erect greyish hairs.

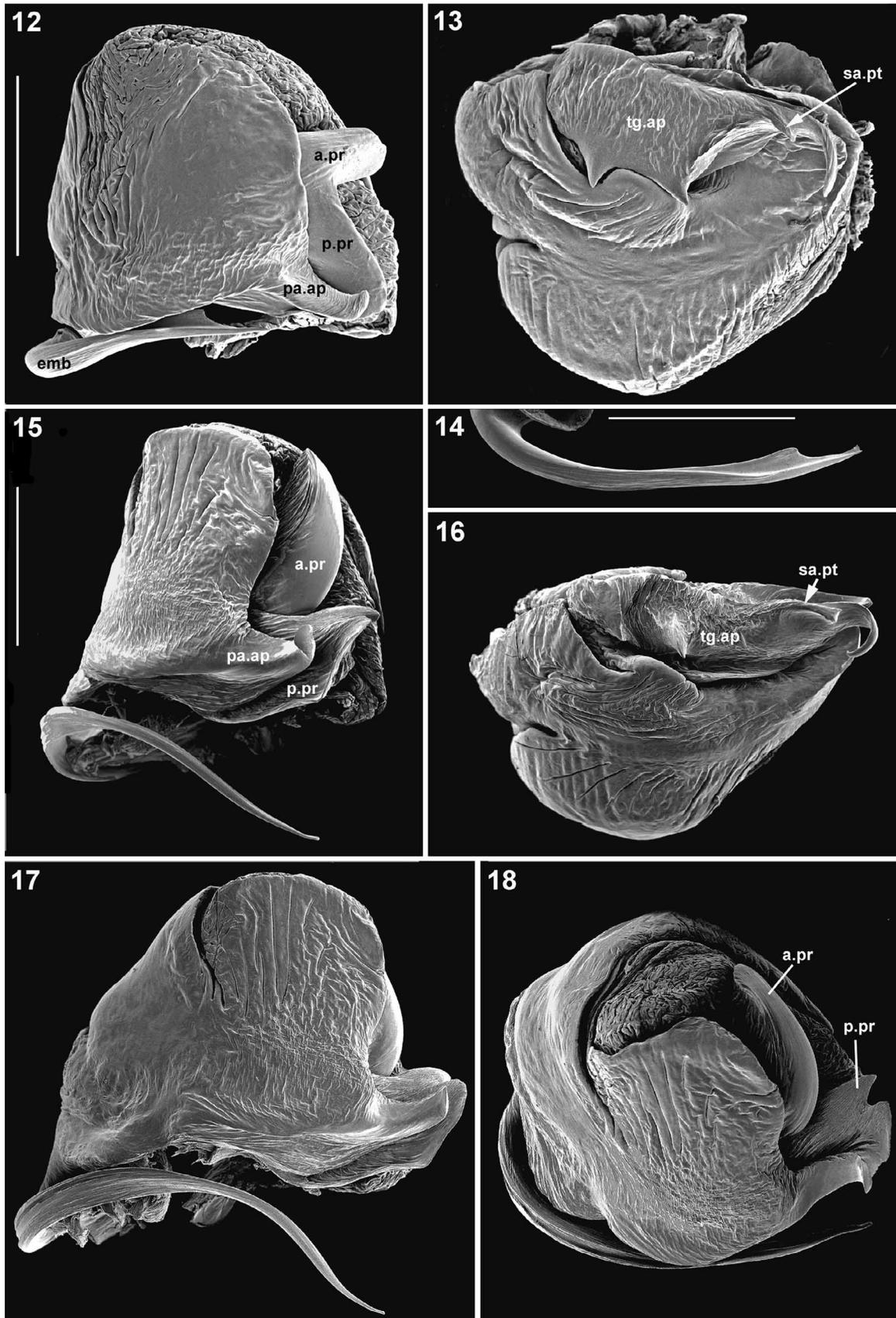
*Eyes*. Width of row I 39, row II 59, row III 70, row II–III 58. Diameter of AME 10, ALE 7, PME 21, PLE 18. Distance between AME 5, between AME and ALE 2.

*Opisthosoma* (Fig. 1). Dorsum mottled in greyish and brownish shades with symmetrical pattern of scattered black dots. Lanceolate stripe indistinct, greyish-brown. Dorsum with dark erect and recumbent light hairs. Sides and venter yellowish with light pubescence (erect as well as recumbent hairs).

*Legs* (Table 1). Yellow, without annulation. Hairiness of leg I as in the other legs. Ti I with two retrolateral spines.

*Palp* (Figs 8, 12–14). Pt 0.45, Ti 0.50, Cy 1.10. All segments dusky brown with dark pubescence (hairs of varying length). Cymbium and bulbus comparatively narrow. Tegular apophysis with two well-separated and pointed projections (Fig. 13, cf. *D. oakleyi*: Figs 48, 49) and subapical protrusion (Fig. 13; latter hardly visible in ventral view). Protruding processes of subpaleal sclerite specific in shape (Fig. 12). Embolus widened in distal part before tapering to apex (Fig. 14).

**Female** (from Hambantota, Sri Lanka). Total length 4.5. Carapace 2.40 long, 1.80 wide.



**FIGURES 12–18.** Parts of left male palp of *Draposa atropalpis* (Gravely) from Sri Lanka: Hambantota (12–14) and *D. lyrivulva* (Bösenberg & Strand) from Sri Lanka: Inamaluwa (15–18). 12, 15, 17, 18. Terminal part in ventral (12, 17), obliquely retrolateral (15) and frontal (18) view. 13, 16. Tegulum in ventral view. 14. Embolus. Scale lines 200  $\mu\text{m}$  (12–14, same for 12 & 13), 300  $\mu\text{m}$  (15–18, same for all).

*Prosoma and opisthostoma* (Fig. 2). Carapace with yellowish median band widening in front behind PLEs. Thoracic flanks lighter brown than in male. Lateral bands yellowish, wide, at margin with darker spots above coxae. Opisthosoma dorsally with wide median light brownish lanceolate spot, edges indented. Dorsal median band, sides and venter of opisthosoma light yellowish, with numerous whitish guanocytes visible through the cuticle. Sides of dorsum more or less brownish with scattered black dots.

*Eyes*. Width of row I 43, row II 64, row III 78, row II–III 63. Diameter of AME 10, ALE 7, PME 23, PLE 20. Distance between AME 6, between AME and ALE 2.

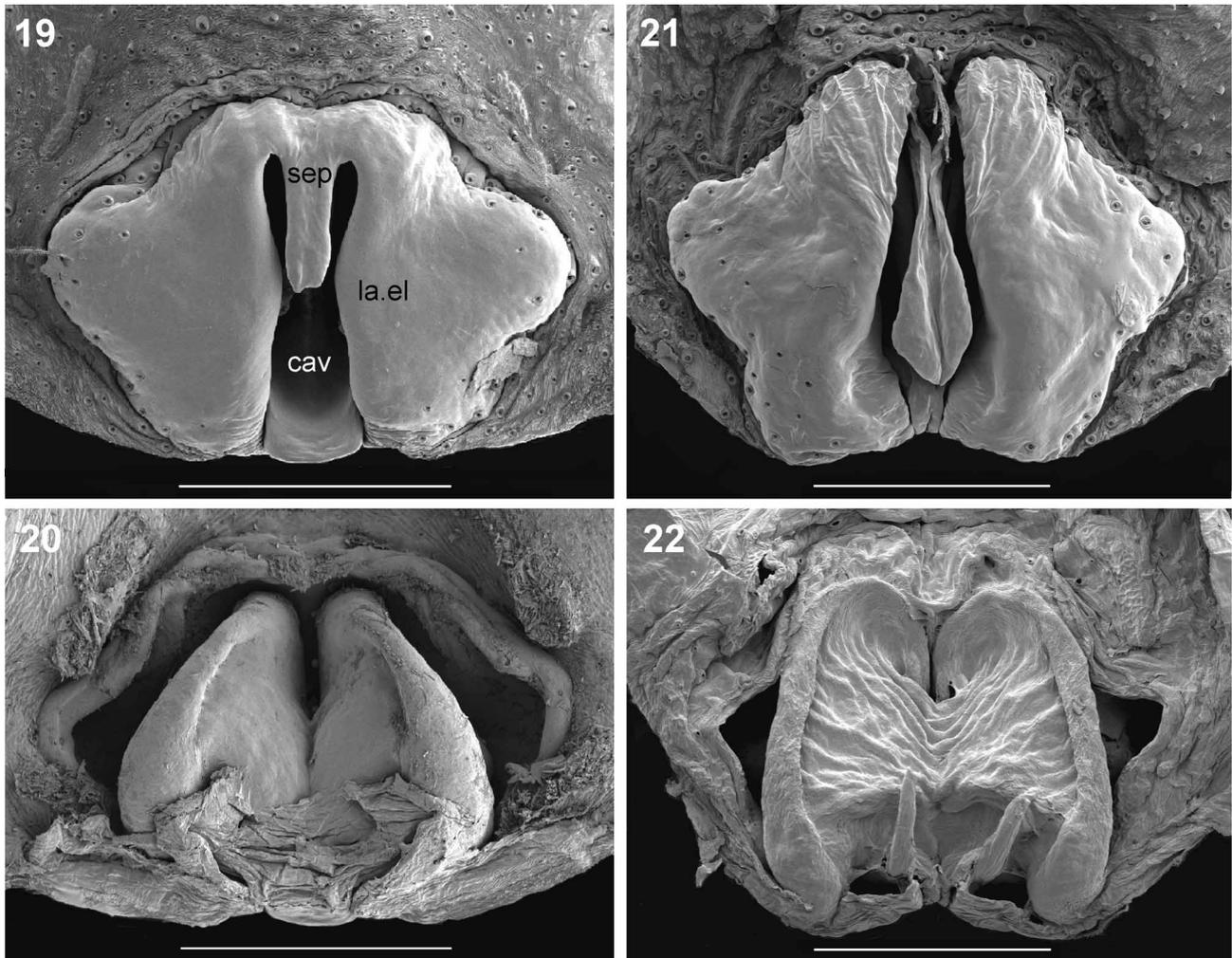
*Legs* (Table 1). Colour and spines as in male, Mt IV usually with dark brown ring apically.

*Epigyne* (Figs 9, 19, 20, 23, cleared Fig. 29). Median cavity opening comparatively narrow, in front divided by short narrow septum. Head of spermatheca close to base of spermatheca. Bottom of cavity characteristically shaped when seen in dorsal view (Fig. 20).

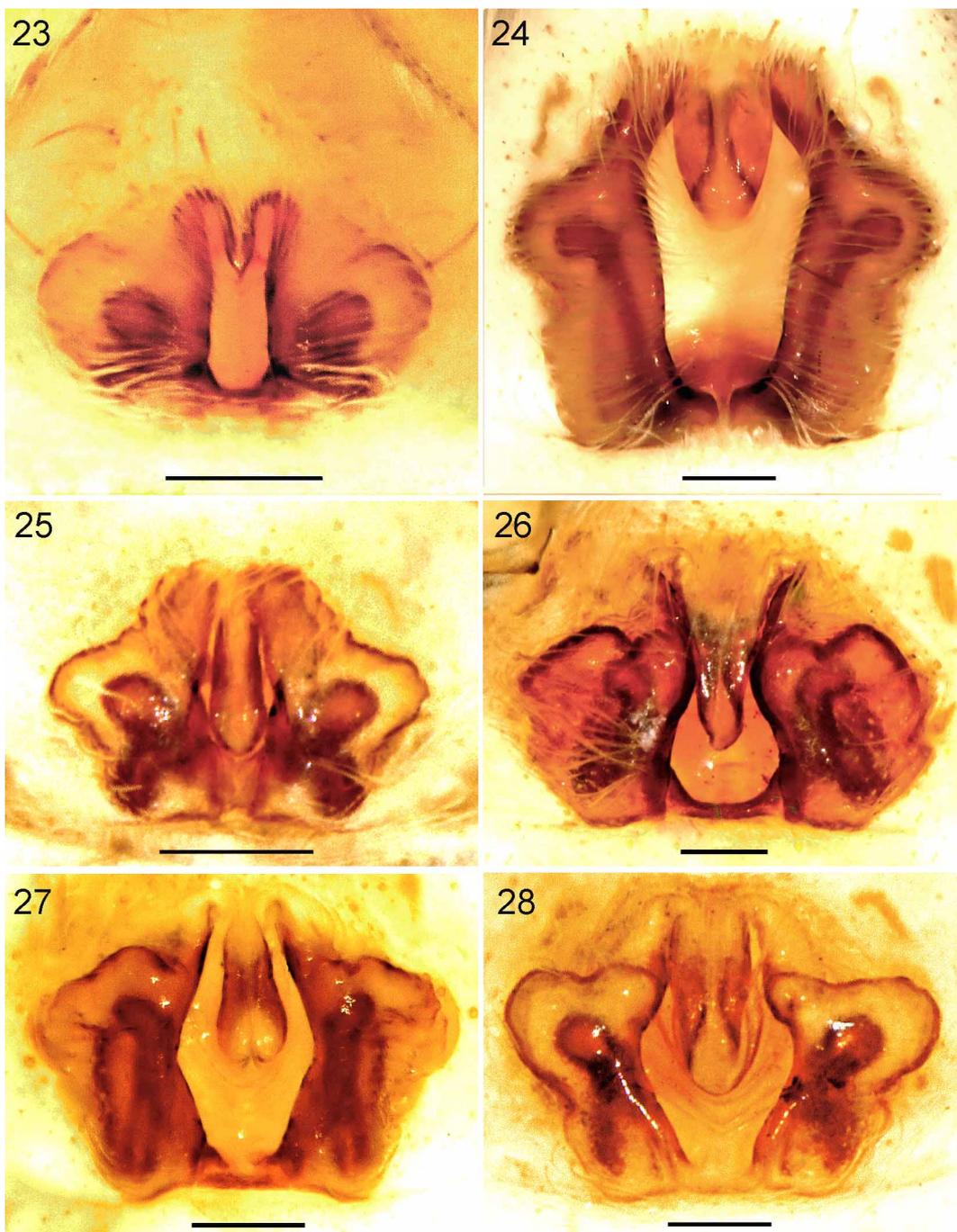
**Size variation.** Carapace length in males 2.00–2.35 (n=9), in females 2.15–2.50 (n=10); tibia I vs. carapace length in Fig. 50.

**Remarks.** Gravely (1924) neither illustrated nor documented any particular details of the male apart from mentioning that "the palps [...] appear black throughout in spirit, but have the upper surface of the femora covered with ash-coloured pile, which shows only on drying". Tikader & Malhotra (1980) did illustrate the male palp, but without showing enough specific details.

**Distribution.** India, Sri Lanka (Tikader & Malhotra 1980).



**FIGURES 19–22.** Epigynes in ventral (19, 21) and dorsal (20, 22) view. 19, 20. *Draposa atropalpis* (Gravely) from Sri Lanka: Hambantota (same epigyne in both views). 21, 22. *D. oakleyi* (Gravely) from India: Ootacamund (same epigyne in both views). Scale lines 250  $\mu$ m.



**FIGURES 23–28.** Epigynes in ventral view. 23. *Draposa atropalpis* (Gravely) from Sri Lanka: Hambantota. 24. *D. lyrivulva* (Bösenberg & Strand) from Sri Lanka: Hambantota. 25. *D. oakleyi* (Gravely) syntype. 26. *D. nicobarica* (Thorell) from Nicobar Is., Nancowry. 27. *D. subhadrae* (Patel & Reddy) from Sri Lanka: Kuchchaveli. 28. *D. tenasserimensis* (Thorell) from Myanmar: Southern Tenasserim. Scale lines 0.2 mm.

***Draposa lyrivulva* (Bösenberg & Strand, 1906) comb. nov.**

Figs 5, 6, 15–18, 24, 30, 33–41

*Lycosa lyrivulva* Bösenberg & Strand, 1906: 326 (♀).

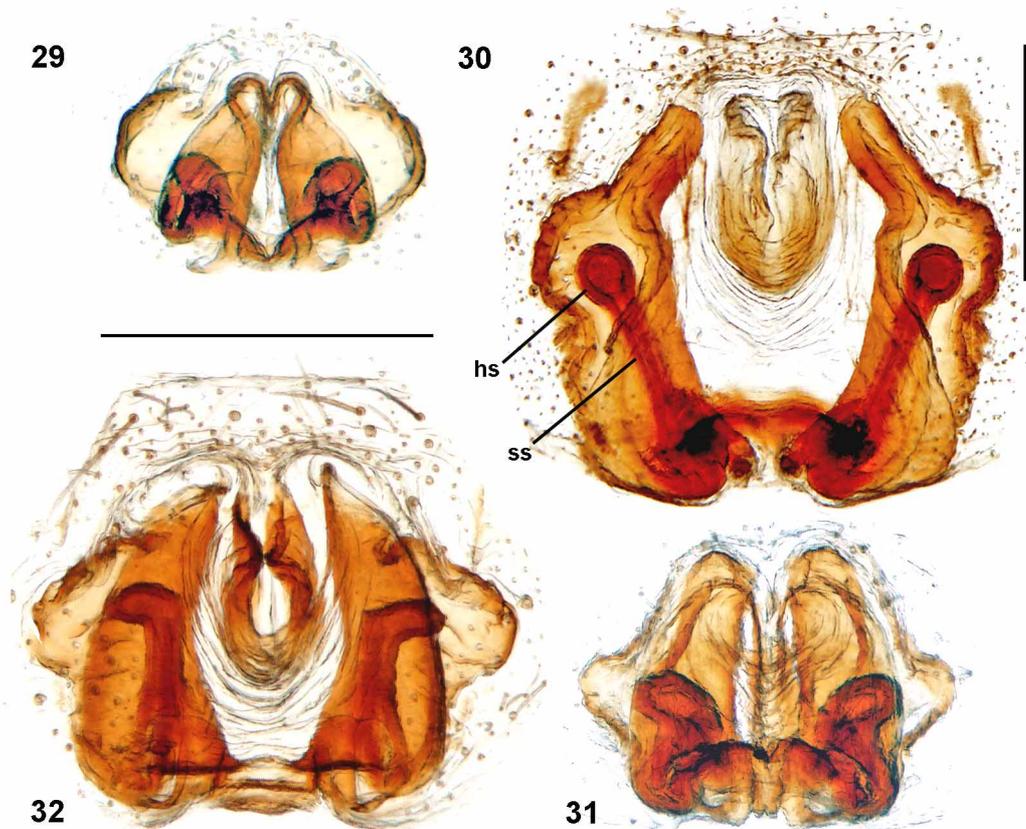
*Pardosa lyrivulva*: Yaginuma 1986: 165, fig. 90.10 (♀); Tanaka 1993: 176–177, fig. 5 (♀); Tanaka 2009: 248, fig. 149 (♀, identical to previous reference).

*Pardosa leucopalpis* Gravely, 1924: 609–611, fig. 5D (♂♀). Tikader & Malhotra 1980: 349–351, figs 203–206 (♂♀).

**Syn. nov.**

**Type material.** *Holotype* of *Lycosa lyrivulva* Bösenberg & Strand, 1906: ♀, Japan, Kyushu, Saga, Kompira (labelled 'Japan, Saga, W. Dönitz S') (33°19'28"N 130°17'53"E) (SMF 2312), examined. Cf. Remarks below.

*Syntypes* of *Pardosa leucopalpis* Gravely, 1924: 1♂, 1♀, India, Tamil Nadu, Madras City (13°04'N 80°17'E) (National Zoological Collection, Kolkata), not examined.

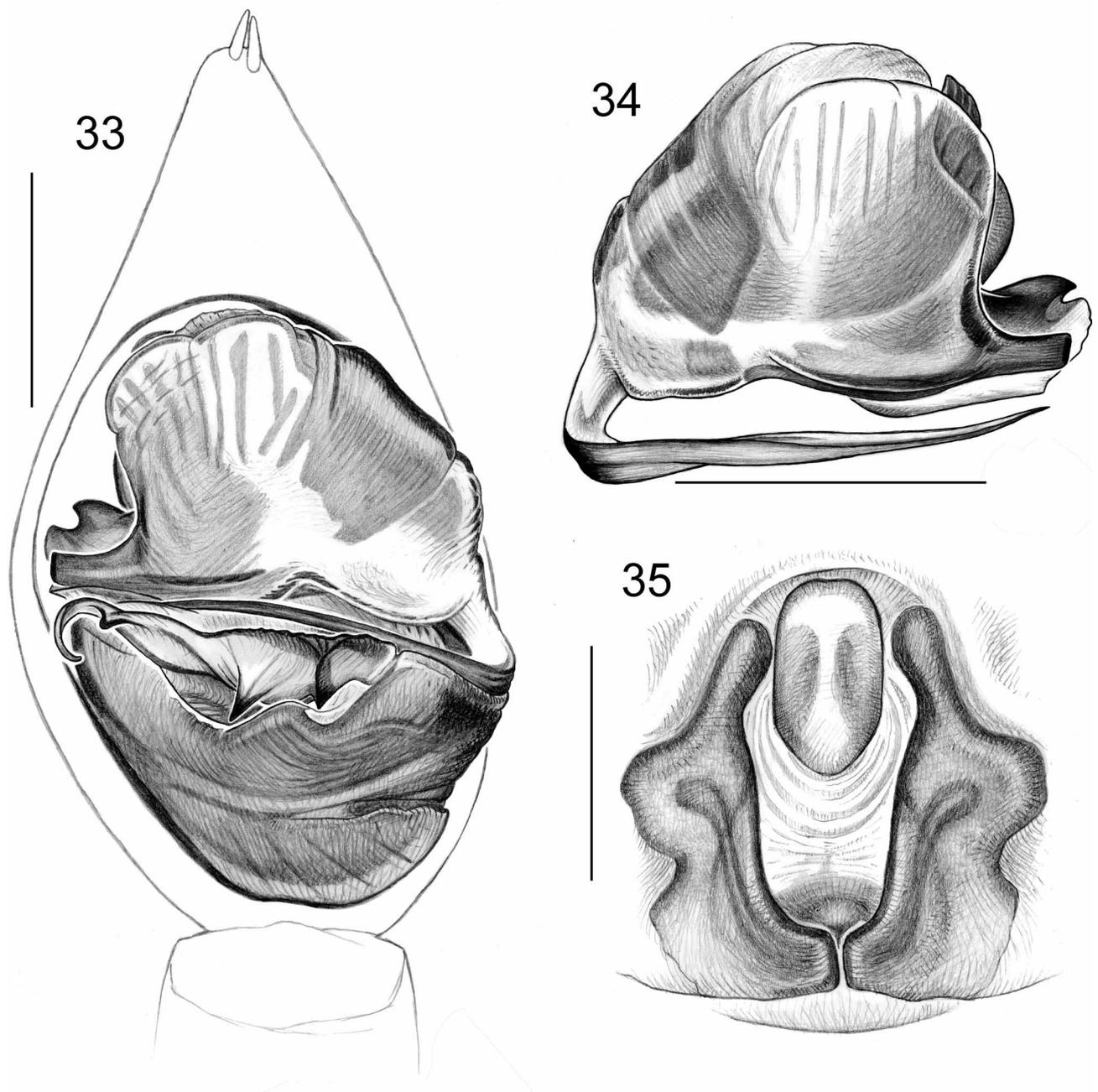


**FIGURES 29–32.** Epigynes, cleared, in dorsal view. 29. *Draposa atropalpis* (Gravely) from Sri Lanka: Hambantota. 30. *D. lyrivulva* (Bösenberg & Strand) from Sri Lanka: Hambantota. 31. *D. oakleyi* (Gravely) from India: Ootacamund. 32. *D. subhadrae* (Patel & Reddy) from Sri Lanka: Kuchchaveli. Scale lines 0.5 mm (vertical line refers to Fig. 30, horizontal to remaining figures).

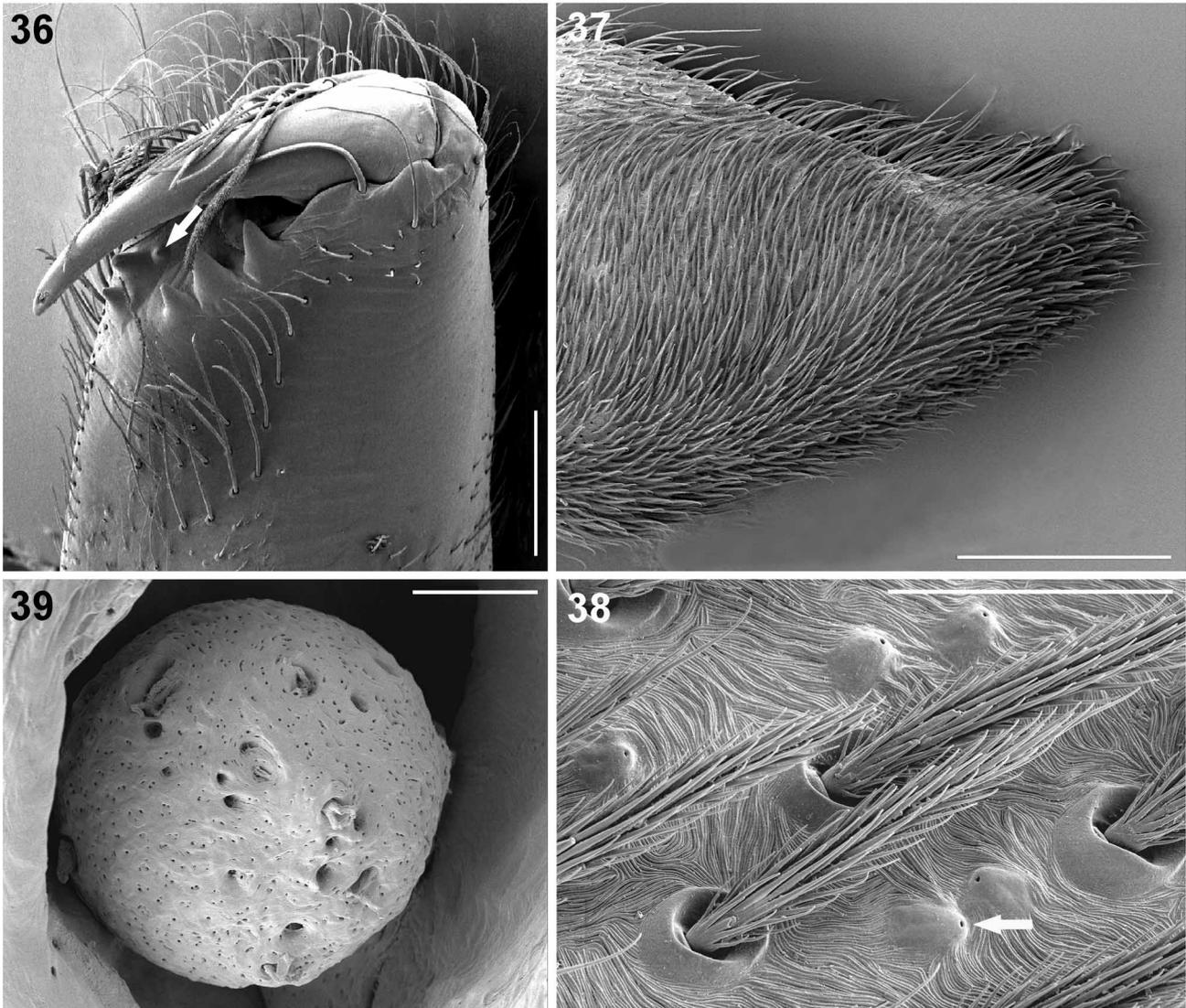
**Other material examined.** SRI LANKA. *Central:* Inamaluwa (7°55'40"N 80°40'45"E), moist grazed grassland, 19 February 1974 (T. Kronstedt, NHRS), 3♂ 3♀. *Western:* Kalutara, 25 mi SSE Colombo (6°34'45"N 79°57'40"), sandy beach, under stones, 25 January 1962 (loc. 19, Lund University Ceylon Expedition, MZLU), 2♀; Stream 10 mi NNE Colombo (7°04'40"N 79°53'40"E), 11 January 1962 (loc. 7, Lund University Ceylon Expedition, MZLU), 1♀; Negombo (7°12'30"N 79°50'E), 24–26 November 1973 (M. Senaratne & J. Haapasaari, ZMUT AA 8.035), 1♀. *North Central:* Minneriya Tank (8°02'N 80°54'E), moist grazed grassland, 19 February 1974 (T. Kronstedt, NHRS), 1♂ 5♀. *Northern:* Giant's Tank, 10 mi SE Mannar (8°52'N 80°02'E), grassland (under stone), and in tin on beach, 15 February 1962 (loc. 83, Lund University Ceylon Expedition, MZLU), 2♀; Nay Aru at Pallamadu, at shore of stream, 10 mi E Mannar (9°01'N 80°03'E), 15 February 1962 (loc. 86, Lund University Ceylon Expedition, MZLU), 1♂ 4♀. *Northwestern:* Salt Pan, 3 mi N Puttalam (8°04'N 79°49'E), under vegetable detritus, 1 February 1962 (loc. 41, Lund University Ceylon Expedition, MZLU), 4♀; Kadaimparu, 15 mi N Negombo (7°26'N 79°48'40"E), sandy beach, 31 January 1962 (loc. 36), 2♀. *Uva:* Badulla district, Senanayake Samudra (7°13'N 81°32'E), sandy slope, 21 November–17 December 1972 (P. Lehtinen & L. Yapagedera, ZMUT AA 8.037), 2♂ 1♀; Badulla district, Inginiyagala (7°13'N 81°32'E), 20 November–20 December 1972 (S. Farook, ZMUT AA 8.034), 1♀. *Southern:* Galle (6°02'N 80°13'E), May 1907 (Bainbrigge-Fletcher, BM 1910.4.10.4–8, BMNH), 1♂ 4♀; Yoda Wewa at Tissamaharama (6°17'10"N 80°13'E), 22 March 1962 (loc. 169, Lund University

Ceylon Expedition, MZLU), 1♀; Tissamaharama (6°17'N 81°17'10"E), at the tank, moist grassy area, 22 February 1974 (T. Kronestedt, NHRS), 3♀; E of Hambantota (6°08'05"N 81°08'30"E), partly moist sandy sea shore, 22 February 1974 (T. Kronestedt, NHRS), 2♂ 7♀; W of Hambantota (6°07'30"N 81°07'E), moist grazed grassy area at waterhole, 22 February 1974 (T. Kronestedt, NHRS), 6♀; Between Tangalla and Ranna (6°02'50"N 80°48'40"E), at small water, 21 February 1974 (T. Kronestedt, NHRS), 4♀; Matara (5°56'30"N 80°32'50"E), sea shore with boulders, 30 March 1973 (E. Kronestedt, NHRS), 1♂ 2♀.

**Diagnosis.** Male distinguished by palp appearing a bit skew; by configuration of palp, notably shape of tegular apophysis, with two well separated pointed protrusions in proximal half (Fig. 33), as well as by oblique orientation of hairs on cymbium (Fig. 37; character shared with *tenasserimensis*); female distinguished by shape of epigyne (e. g., Figs 35 & 40), including corrugation of epigynal cavity bottom as seen from inside (dorsal view: Fig. 41), and long spermathecal stalks (Fig.30).



**FIGURES 33–35.** *Draposa lyrivulva* (Bösenberg & Strand) from Sri Lanka: Hambantota (33, 35) and Minneriya Tank (34). 33. Right male palp, ventral view. 34. Terminal part of left male palp, ventral view. 35. Epigyne. Scale lines 0.5 mm.



**FIGURES 36–39.** *Draposa lyrivulva* (Bösenberg & Strand) from Sri Lanka: Hambantota. 36. Male chelicera (arrow points at small knob-like tooth in promarginal row). 37. Distal half of cymbium, note orientation of hairs. 38. Part of cymbium with numerous pores (arrow points at one pore). 39. Head of spermatheca with remains of channels opening into the lumen. Scale lines: 250  $\mu\text{m}$  (36), 500  $\mu\text{m}$  (37), 30  $\mu\text{m}$  (38, 39).

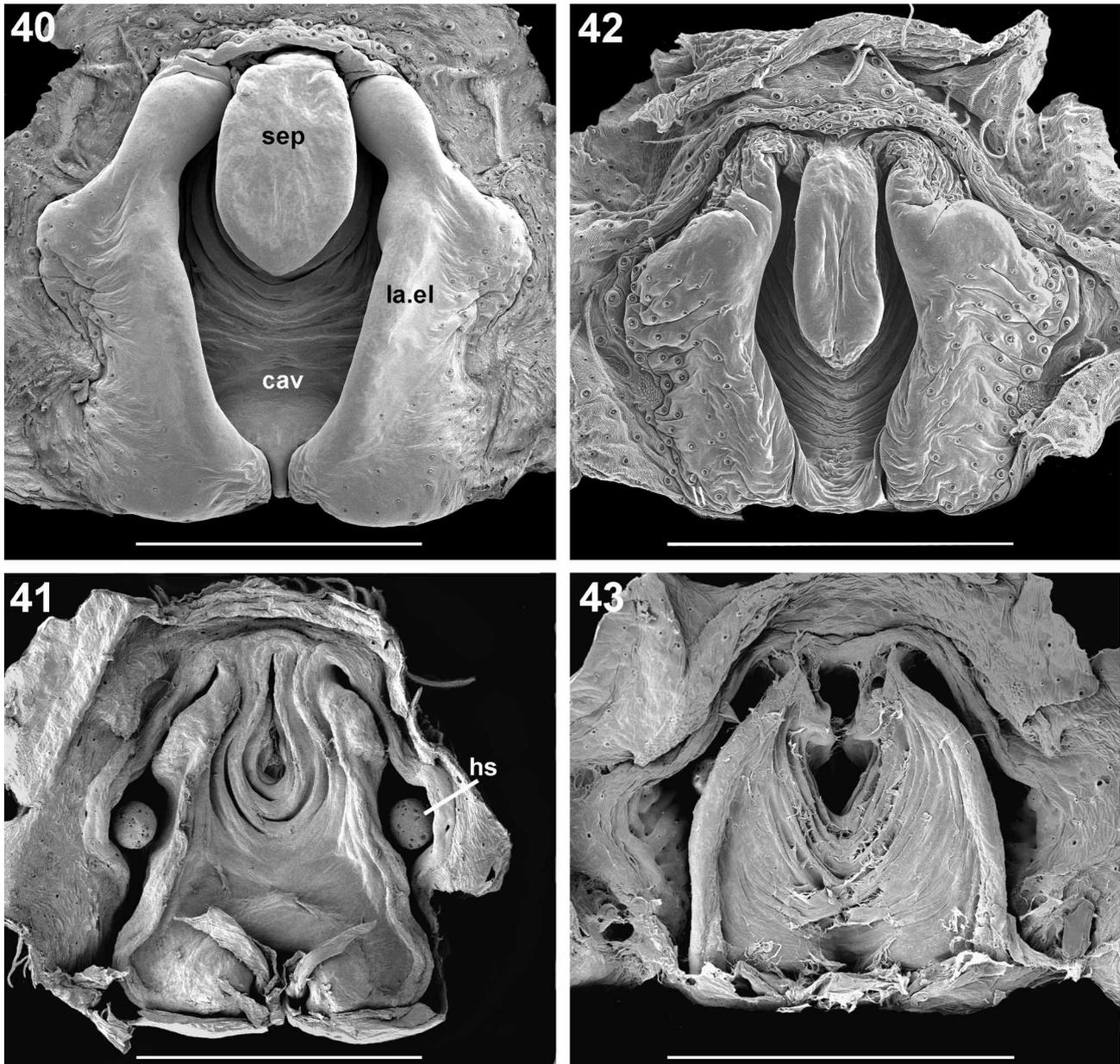
**Description. Male** (from Hambantota, Sri Lanka). Total length 7.8. Carapace 4.25 long, 3.20 wide.

*Prosoma* (Fig. 5). Dorsum brown with distinct yellowish median band and wide distinct yellowish lateral bands, margins brownish. Median band with recumbent short dark and whitish hairs; sides dark-veined and with recumbent short dark and greyish hairs, lateral bands with whitish hairs. Clypeus more or less brownish below eye row I, otherwise yellowish. Chelicerae yellowish brown (sometimes with longitudinal faintly greyish brown markings) and furnished with scattered long dark hairs and numerous long pale thin hairs. Sternum light yellow, with scattered erect dark hairs and numerous more recumbent light hairs.

*Eyes*. Width of row I 65, row II 96, row III 123, row II–III 94. Diameter of AME 15, ALE 12, PME 38, PLE 32. Distance between AME 8, between AME and ALE 3.

*Opisthosoma* (Fig. 5). Dorsum pigmented in dark greyish with numerous yellowish dots. Lanceolate stripe greyish-brown. Posteriorly a row of yellowish spots beginning with a pair of spots at posterior end of lanceolate stripe. Dorsum covered with numerous long and short dark hairs and thin recumbent light hairs. Venter light yellowish with scattered light greyish and numerous recumbent whitish hairs.

*Legs* (Table 1). Yellowish, faintly tinged in greyish. Sometimes with very faint traces of annulation on tibiae and metatarsi. Hairiness of leg I as in the other legs. Ti I with two retrolateral spines.



**FIGURES 40—43.** Epigynes in ventral (40, 42) and dorsal (41, 43) view. 40, 41. *Draposa lyrivulva* (Bösenberg & Strand) from Sri Lanka: Hambantota. 42, 43. *D. subhadrae* (Patel & Reddy) from Sri Lanka: Kuchchaveli (same epigyne in both views). Scale lines 500  $\mu$ m.

*Palp* (Figs 15–18, 33, 34, 37, 38). Pt 0.80, Ti 0.70, Cy 1.90. Femur, patella and tibia yellowish, cymbium brownish. Entire palp appears a bit skew (Fig. 33) as reflected in oblique orientation of dorsal hairs on cymbium (Fig. 37). Widest part of cymbium somewhat flattened in retrolateral part. Cymbium, notably retrolateral part, and tibia with numerous pores of type described by Kronstedt (1986) and further studied by Juberthie-Jupeau *et al.* (1990) (Fig. 38).

**Female** (from Hambantota, Sri Lanka). Total length 7.1 (carried egg sac). Carapace 3.65 long, 2.80 wide. *Prosoma* and *opisthosoma* (Fig. 6). Similar to male in colouration and hairiness.

*Eyes*. Width of row I 60, row II 84, row III 108, row II–III 81. Diameter of AME 14, ALE 12, PME 32, PLE 26. Distance between AME 6, between AME and ALE 2.

*Legs* (Table 1). Yellowish, faintly tinged in greyish, sometimes with pronounced and distinct annulation.

*Epigyne* (Figs 24, 35, 40, 41, cleared Fig. 30). Conspicuous deep median cavity, opening longer than wide, divided only in front by tongue-like septum. Lateral elevations with rims protruding over epigynal

cavity; rims posteriorly converging, leaving narrow opening in between (cf. *P. subhadrae*). Bottom of cavity corrugated in a pattern as shown in dorsal view (Fig. 41). Spermathecae with very long stalk and small, globular head (Fig. 30).

**Size variation.** Carapace length in males 3.15–4.55 (n=8), in females 2.75–3.95 (n=20); tibia I vs. carapace length in Fig. 50. The variation in size is unusually wide.

**Remarks.** Gravely (1924) neither illustrated nor documented any particular details of the male apart from describing the pilosity of the palp. Tikader & Malhotra (1980) did illustrate the male palp, but without showing sufficient specific details.

It is remarkable that *Pardosa lyrivulva* has not been recorded in Japan since it was described based on a single female said to have been collected on Kyushu (Bösenberg & Strand 1906). If widely distributed in SE Asia, it should have been taken at least in some more localities. I perceive its occurrence in Japan as erroneous. This is the only lycosid species newly described in Bösenberg & Strand (1906) without illustration. According to Strand (in Bösenberg & Strand 1906: 326) the illustrations pertaining to this species seemed to have been lost. Maybe there is a possibility that the locality label and the holotype mismatch due to some confusion long ago. According to the preface by E. Strand (Bösenberg & Strand 1906), he studied the material collected in the 1880s by W. Dönitz in Japan while staying in the 'Königliches Naturalien-Kabinett' in Stuttgart (Germany). At that time, Strand also treated other spider material housed in the same museum among which was a collection of spiders from Sri Lanka collected by Redemann (Strand 1907, 1909). It is very unlikely that the record from Japan is due to an unintentional introduction.

Although no syntypes have been examined, it is clear from illustrations and other available material that *Pardosa leucopalpis*, with its very characteristic configuration of the epigyne, is conspecific with *P. lyrivulva* and here considered a junior synonym of the latter.

**Distribution.** Pakistan, India, Sri Lanka (record from Japan doubtful, see Remarks above).

### ***Draposa nicobarica* (Thorell, 1891) comb. nov.**

Figs 26, 51, 52

*Lycosa nicobarica* Thorell, 1891: 5, 68 (♂♀).

*Pardosa nicobarica*: Roewer 1955: 183.

**Type material.** *Lectotype* (here designated) of *Lycosa nicobarica* Thorell, 1891: ♂, India, Nicobar Islands, Kar Nikobar (9°10'N 92°46'E) (ZMUC), examined. *Paralectotypes* of *Lycosa nicobarica* Thorell, 1891: 1♂, India, Nicobar Islands, Pulo Milu (7°24'N 93°41'20"E) (ZMUC); 1♀, India, Nicobar Islands, Teressa (8°15'N 93°06'E)(ZMUC); 1♀, India, Nicobar Islands, Nancowry [Nanchovry] (7°58'N 93°33'E)(Collectio Thorell No. 245/1538, NHRS), all examined.

The syntype material was collected by the Danish expedition travelling aboard the corvette 'Galathea' (circumnavigation 1845–1847). The Nicobar Islands were held by Denmark in periods between 1756 and 1868, and the 'Galathea' expedition visited the islands in the beginning of 1846.

**Diagnosis.** Male distinguished by palp being comparatively wide and by configuration of palp, notably length and shape of tegular apophysis, with one conspicuous tooth-like projection at about half its length (also so in *D. tenasserimensis* but latter species with comparatively shorter tegular apophysis); female by shape of epigyne, with septum comparatively long and wide at base and opening to cavity widening posteriad.

**Description. Male** (from Pulo Milu, Nicobar Is., India): Total length 6.8. Carapace 3.90 long, 2.90 wide.

*Prosoma.* Both examined males discoloured by poor preservation.

*Eyes.* Width of row I 62, row II 88, row III 114, row II–III 85. Diameter of AME 14, ALE 12, PME 35, PLE 29. Distance between AME 6, between AME and ALE 2.

*Opisthosoma.* Both original males more or less discoloured by poor preservation.

*Legs* (Table 1). Unicolorous yellow (discoloured). Two retrolateral spines on TiI.

*Palp* (Fig. 51). Pt 0.70, Ti 0.60, Cy 1.80. Dorsal hairs on cymbium running lengthwise, as is usual in lycosids (not obliquely as in *D. lyrivulva* and *D. tenasserimensis*). Palp comparatively broad, tegular

apophysis long, with conspicuous tooth-like projection at about half its length. Embolus narrow, evenly tapering to tip.

**Female** (from Teresa, Nicobar Is.): Total length 7.2. Carapace 3.90 long, 3.00 wide.

*Prosoma*. Discoloured but pattern discernible: wide yellowish median band, brownish thoracic sides and wide yellowish lateral bands extending to carapace edge.

*Eyes*. Width of row I 63, row II 92, row III 120, row II–III 90. Diameter of AME 14, ALE 12, PME 36, PLE 30. Distance between AME 8, between AME and ALE 3.

*Opisthosoma*. Discoloured, dorsum with discernible lanceolate stripe.

*Legs* (Table 1). As male.

*Epigyne* (Figs 26, 52). Conspicuous median cavity deep, opening widening backwards, more so in female from Nancowry (Fig. 26). Median septum wide, long, extending backwards to about 2/3 of the cavity length. In female from Nancowry (Fig. 26), median septum widening more anteriorly than in epigyne of female from Teresa (Fig. 52). Spermathecae elongated, visible through cuticle of lateral elevations.

**Size variation**. Carapace length of lectotype male 4.20, of female from Nancowry 4.00.

**Remarks**. The spider fauna of the Nicobar Islands has been documented by Thorell (1891) and Tikader (1977). The lycosid species recorded by Thorell (1891) were *Pardosa* (sub *Lycosa*) *nicobarica* and *P.* (sub *L.*) *thalassia* (Thorell, 1891), both so far known as endemic to these islands [none of them were recorded by Tikader (1977)]. *Pardosa thalassia* (syntypes: 1♂ 1♀ in NHRS, 3♂ 3♀ in ZMUC, examined) belongs to a separate species group including, among others, *Pardosa annandalei* (Gravely, 1924) and *Pardosa pseudoannulata* (Bösenberg & Strand, 1906).

**Distribution**. India: Nicobar Islands.

#### ***Draposa oakleyi* (Gravely, 1924) comb. nov.**

Figs 3, 4, 10, 11, 21, 22, 25, 31, 44–49

*Pardosa oakleyi* Gravely, 1924: 610, fig. 5C (♂♀). Tikader & Malhotra 1980: 337–338, figs 179–182 (♂♀); Okuma *et al.* 1993: 51, fig 45B (♀).

*Pardosa lahorensis* Dyal, 1935: 145–146, pl. 13 figs 43–44 (♂♀). Sadana 1971: 107, fig. 3 (♂). Synonymy established in Tikader & Malhotra (1980).

**Type material**. *Syntypes* of *Pardosa oakleyi* Gravely, 1924: 1♂, 1♀, India, Tamil Nadu, Ootacamund (ca 11°24'N 76°41'E) (National Zoological Collection, Kolkata), not examined. 1♀, India, Nilgiris, Ootacamund, 6400–8000 ft, 20–30 May 1921 (Gravely, BM 1924.V.13.20–21) (BMNH, ex Madras Museum), examined.

*Syntypes* of *Pardosa lahorensis* Dyal, 1935: depository unknown.

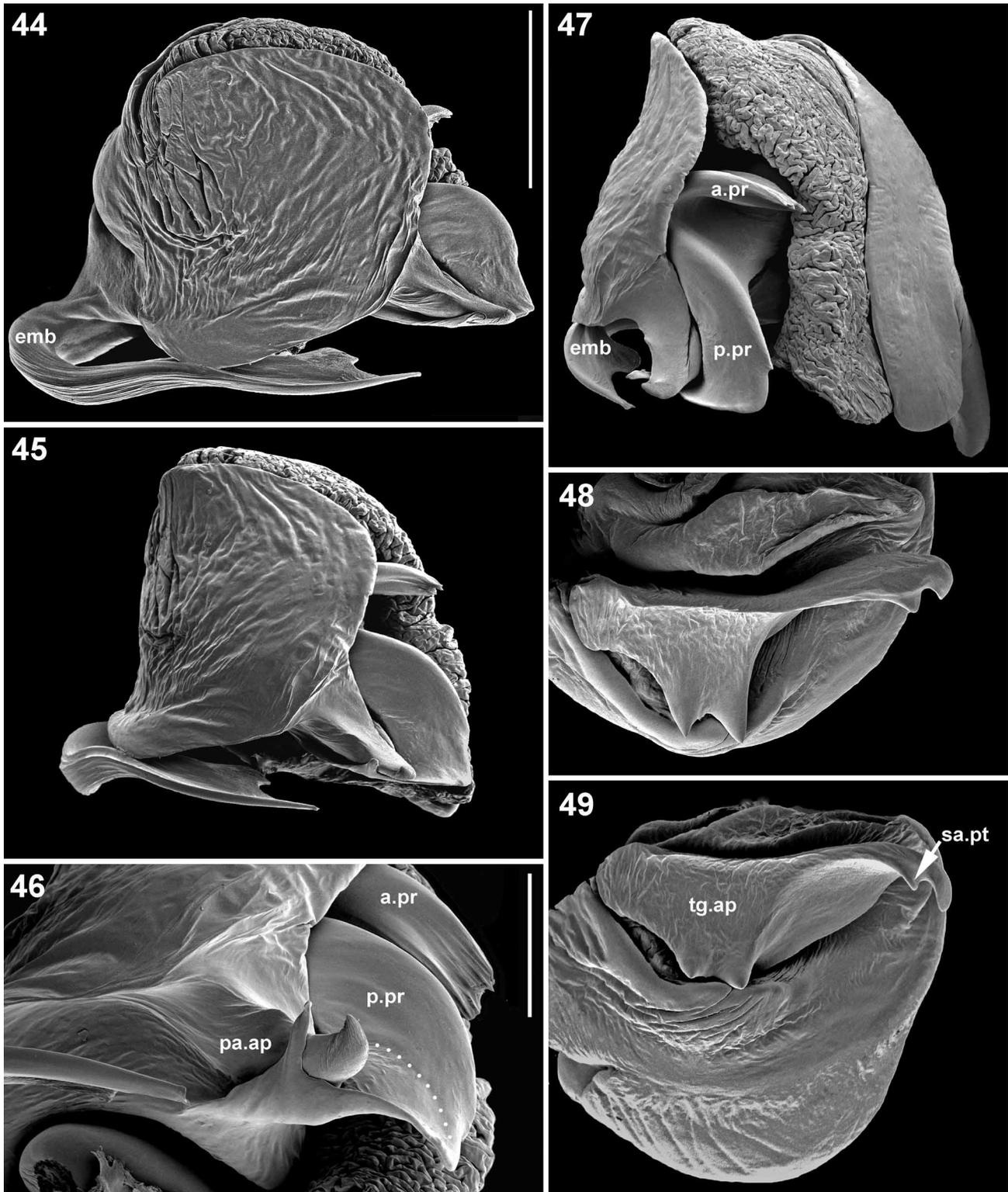
**Other material examined**. INDIA. *Chandigarh*: Chandigarh (ca 30°44'N 76°46'E), from grassy ground, 14 October 1965 (BMNH), 2♂ 2♀. *Punjab*: Ludhiana (ca 30°54'N 76°51'E), 10 April 1974 (G. L. Sadana. NHRS), 1♀; Patiala City (30°21'N 76° 27'E), University Campus, 3–8 May 1999 (Y. M. Marusik, NHRS, ZMUM), 8♂ 6♀; d.o, 24–25 June 1999 Y. M. Marusik, ZMUM), 2♂. *Tamil Nadu*: Nilgiris, Ootacamund (ca 11°24'N 76°41'E), 2450 m asl, grassy mountain slope, 22 April 1979 (P. T. Lehtinen, NHRS, ZMUT), 2♂ 7♀. BANGLADESH.: *Rajshahi*: Rajshahi (ca 24°23'N 88°37'E), grassy dry lawn, 4 November 1973 (A. Islam, ZMUT), 4♀.

**Diagnosis**. Male distinguished by configuration of palp, notably shape of tegular apophysis with two close acute protrusions (Fig. 10; cf. *D. atropalpis*: Fig. 8); female by shape of epigyne, notably long median septum almost covering opening of median cavity (Fig. 11; cf. *D. atropalpis*: Fig. 9).

**Description**. **Male** (from Ootacamund, India). Total length 4.4, carapace 2.55 long, 1.90 wide.

*Prosoma* (Fig. 3). Dorsum brown with yellow median and lateral bands, marginal bands brownish grey, more or less broken into blotches. Margin black. Clypeus yellowish, with white pubescence. Chelicerae yellowish with greyish brown longitudinal stripes. Sternum yellowish, slightly greyish brown.

*Eyes*. Width of row I 42, row II 61, row III 77, row II–III 60. Diameter of AME 10, ALE 8, PME 24, PLE 18. Distance between AME 6, between AME and ALE 2.



**FIGURES 44–49.** *Draposa oakleyi* (Gravely), male, from India: Ootacamund. 44. Terminal part with embolus in ventral view (note widened embolus). 45. Ditto in oblique retrolateral view. 46. Retrolateral portion of terminal part showing anterior and posterior subpaleal processes; dotted line marking extension of sclerotized part (above line) and non-sclerotized part of posterior subpaleal process. 47. Terminal part in retrolateral view. 48. Tegulum with tegular apophysis in frontal view. 49. Same in ventral view. Scale lines 200  $\mu\text{m}$  (44, 45, 47–49), 100  $\mu\text{m}$  (46).

*Opisthosoma* (Fig. 3). Dorsum with yellowish-grey lanceolate stripe bordered with few dark dots. Median light yellowish band behind lanceolate stripe with row of pairwise arranged dark dots, situated at each side of

midline, continuing backwards. Dorsum on each side of light median band more or less speckled with black. Sides and venter yellowish, sides with few dark dots.

*Legs* (Table 1). Light brownish-yellow without annulation. TiI with two retrolateral spines.

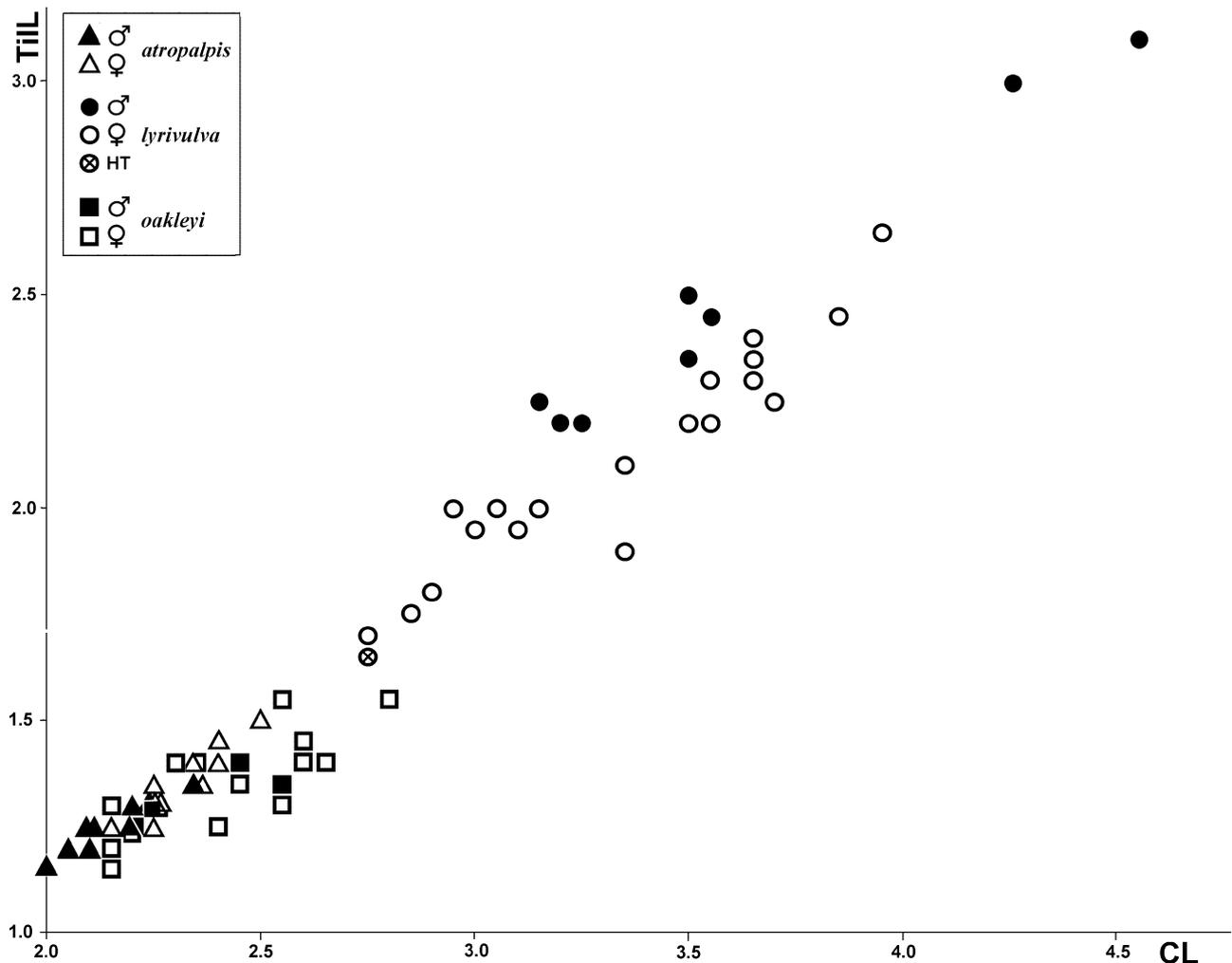
*Palp* (Fig. 10, 44–49). Pt 0.50, Ti 0.50, Cy 1.15. Most of Fe, entire Ti and most of Cy greyish-brown. Apical part of Fe, most of Pt and Cy apically yellowish. All segments with dark hairs; yellowish parts of Fe and Pt in addition with whitish hairs (most of which missing in males examined; cf. Gravely's statement cited in Remarks below). Bulbus at level of embolus comparatively wide. Tegular apophysis with two acute projections in basal half (Figs 48, 49, cf. *D. atropalpis*: Fig. 13). Posterior subpaleal process large (Figs 45–47), only anterior portion (portion above dotted line in Fig. 46) sclerotised, posterior portion membranous, with pointed process partly surrounding paleal apophysis (Fig. 46). Embolus with laminar extension along inner side terminating in a process distally (Figs 44, 45).

**Female** (from Ootacamund, India). Total length 4.80, carapace 2.55 long, 1.90 wide.

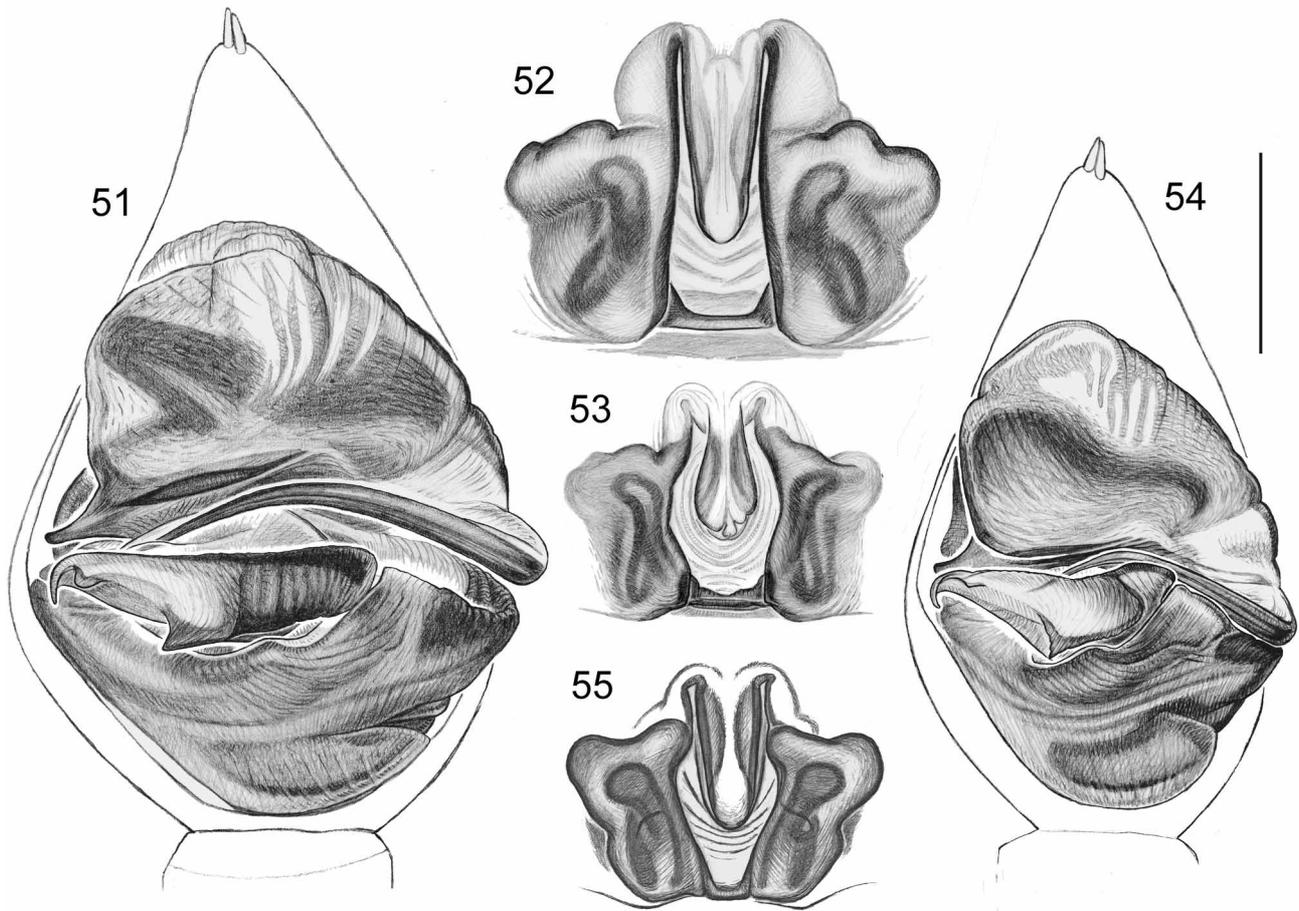
*Prosoma* and *opisthosoma* (Fig. 4). Similar to male in colouration. Dorsal light yellowish median band on opisthosoma, with row of black dots in pairs posterior to lanceolate stripe, more distinct than in male because sides laterad to median band more dark.

*Legs* (Table 1). As in male but sometimes with very weak indistinct darker annulation.

*Eyes*. Width of row I 41, row II 60, row III 76, row II–III 60. Diameter of AME 10, ALE 8, PME 23, PLE 18. Distance between AME 5, between AME and ALE 2.



**FIGURE 50.** Tibia I length (TiIL)/carapace length (CL) in adult males (filled symbols) and adult females (open symbols) of *Draposa atropalpis* (Gravely), *D. lyrivulva* (Gravely) and *D. oakleyi* (Gravely). HT: holotype.



**FIGURES 51–55.** Right male palp, ventral view (51, 54), epigyne (52, 53, 55). 51, 52. *Draposa nicobarica* (Thorell) (51 ♂ lectotype, 52 ♀ paralectotype from Nicobar: Teressa). 53. *D. subhadrae* (Patel & Reddy) (from Sri Lanka: Kuchchaveli). 54, 55. *D. tenasserimensis* (Thorell) (54 ♂ lectotype, 55 ♀ paralectotype in NHRS). Scale line 0.5 mm.

*Epigyne* (Figs. 21, 22, 25, cleared Fig. 31). Opening of median cavity narrow, most of it covered by a median septum. Each side with lateral elevation extending into a more or less triangle-shaped sclerite covering the receptacle. Bottom of median cavity corrugated, with characteristic shape in dorsal view (Fig. 22).

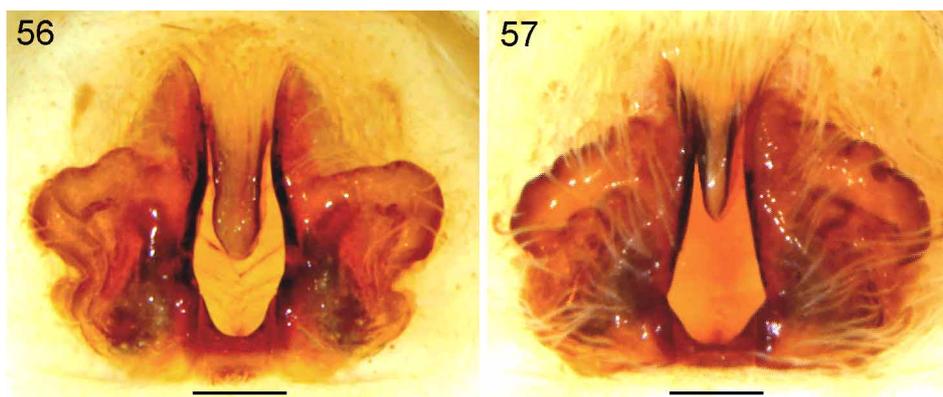
**Size variation.** Carapace length: males 2.20–2.55 (n=4), females 2.15–2.80 (n=15); tibia I vs. carapace length in Fig. 50.

**Remarks.** Gravely (1924) neither illustrated nor documented any particular details of the male apart from mentioning (p. 610) that "the male can be distinguished by the purer white pile on the upper surface of the femora of the palps, and by the continuance of this pile on to the inner side of the patella".

Tikander and Malhotra (1980) placed *Pardosa lahorensis* Dyal, 1935 (from Pakistan) as a synonym to *P. oakleyi* but this was not considered in Mathew *et al.* (2009) or listed in Platnick (2010). I support this synonymy from studying material identified as *Pardosa lahorensis* collected in NW India (Ludhiana), only about 150 km from Lahore. *Pardosa oakleyi* has repeatedly (e. g., Mushtaq *et al.* 2003) been reported as a common species in fields of various crops in Pakistan.

Sadana (1971) illustrated an inflated bulbus, which he ascribed to *P. lahorensis*. Although this illustration is somewhat crude, it depicts a tegular apophysis (named 'conductor'), which is characteristic in shape as for *P. oakleyi*, as well as a subpaleal sclerite (named 'terminal apophysis').

**Distribution.** Pakistan, India, Bangladesh. A record from Vietnam (Pham Din *et al.* 2007) could not be verified as part of this study.



**FIGURES 56 & 57.** Epigynes in ventral view. 56. *Draposa* cf. *zhanjiangensis* (Yin, Wang, Peng & Xie) from Malaysia: Sarawak, Bako National Park. 57. *Draposa* sp. from Indonesia: Sumatra. Scale lines 0.2 mm.

***Draposa porpaensis* (U. A. Gajbe, 2004) comb. nov.**

*Pardosa porpaensis* U. A. Gajbe, 2004: 16 figs 17–19 (♀).

**Type material. Holotype:** ♀, India, Chhattisgarh, Bastar District (formerly in Madhya Pradesh), Porpa village near Jagdalpur (ca 19°5'N 82°01'E) (U. A. Gajbe) (National Zoological Collection, Kolkata), not examined.

**Remarks.** The description and illustrations of *Pardosa porpaensis* hints at conspecificity with *D. atropalpis*. The shape of the epigyne, with a median short narrow septum in front (Gajbe 2004: fig. 18) as well as the colour pattern of prosoma and opisthosoma (Gajbe 2004: fig. 17) is very similar to those in *D. atropalpis*. Awaiting further study, *P. porpaensis* is here transferred to *Draposa*.

***Draposa subhadrae* (Patel & Reddy, 1993) comb. nov.**

Figs 7, 27, 32, 42, 43, 53

*Pardosa subhadrae* Patel & Reddy, 1993: 128 fig. 5 (♂♀).

**Type material. Holotype:** ♀, India, Andhra Pradesh, Prakasam District, Chirala (15°46'30"N 80°23'10"E) (T. S. Reddy, National Zoological Collection, Kolkata), not examined. Patel & Reddy (1993) mentioned 3♂ 7♀ paratypes and a second, but not precise, locality in Visakhapatnam District, Andhra Pradesh.

**Material examined.** SRI LANKA. *Eastern:* Kuchchaveli, 20 mi NW Trincomalee (8°49'N 81°06'E), sandy ground, 9–10 February 1962 (loc. 60, Lund University Ceylon Expedition, MZLU, NHRS), 5♀.

**Diagnosis.** Female most closely related to *D. lyrivulva* and can be distinguished by the shape of the epigyne (Fig. 53): lateral elevations posteriorly being considerably apart and connected by sclerotised crest, and septal tongue relatively narrow (Figs 27, 42, 53), as well as by configuration of epigynal cavity bottom as seen from inside (dorsal view: Fig. 43).

**Description. Female** (from Kuchchaveli, Sri Lanka). Total length 6.4 (carried egg sac). Carapace 3.35 long, 2.55 wide.

*Prosoma* (Fig. 7). Dorsum very light yellowish. Each side, between wide median and wide lateral band, with an irregular brownish area (dark-veined), in some specimens more or less dissolved into patches. Margins light yellow with small blackish spots (with a few dark hairs) above each leg coxa. Dark hairs in brownish parts, white hairs in light areas. Clypeus yellowish with two dark spots below first eye row. Chelicerae light brownish, frontally darker. Sternum whitish-yellow.

*Eyes.* Width of row I 56, row II 82, row III 98, row II–III 81. Diameter of AME, 14, ALE 10, PME 32, PLE 26. Distance between AME 6, between AME and ALE 2.

*Opisthosoma* (Fig. 7). Dorsally mostly whitish (due to guanocytes); in front with yellowish brown lanceolate stripe at about half length flanked by conspicuous blackish spot at each side. (One of the females less whitish, with fewer guanocytes visible and larger spots patterned in reticulated blackish.) Dorsum with short white pubescence and stout erect, rather short dark (brownish) hairs (numerous in lanceolate stripe). Sides whitish, with or without blackish markings. Venter whitish to light yellowish with white pubescence and scattered slender, erect dark hairs.

*Legs* (Table 1). Very light yellowish-brown. Femora with blackish spots, in distal half with incomplete blackish ring; patellae basally dark; tibiae with wide dark basal ring and another one in distal half; metatarsi with dark basal ring and faint darkenings at the middle and distally.

**TABLE 1.** Leg I–IV measurements (in mm) of species of *Draposa* **gen. nov.**

	Fe	Pt	Ti	Mt	Ta	Total
<i>Draposa atropalpis</i>						
Male						
I	1.60	0.70	1.30	1.30	0.90	5.80
II	1.60	0.70	1.25	1.30	0.85	5.70
III	1.60	0.65	1.20	1.50	0.80	5.75
IV	2.20	0.80	1.80	2.65	1.20	8.65
Female						
I	1.75	0.80	1.40	1.30	0.90	6.15
II	1.70	0.80	1.25	1.30	0.90	5.95
III	1.65	0.75	1.25	1.60	0.85	6.10
IV	2.35	0.90	1.90	2.80	1.25	9.20
<i>Draposa lyrivulva</i>						
Male						
I	3.45	1.55	3.00	2.95	1.80	12.75
II	3.40	1.50	2.75	2.80	1.65	12.10
III	3.15	1.40	2.55	3.05	1.50	11.65
IV	4.20	1.65	3.50	5.00	2.10	16.45
Female						
I	2.85	1.35	2.30	2.20	1.35	10.05
II	2.80	1.25	2.10	2.15	1.30	9.60
III	2.60	1.15	2.00	2.40	1.20	9.35
IV	3.60	1.40	3.05	4.30	1.75	14.10
<i>Draposa nicobarica</i>						
Male						
I	2.90	1.40	2.50	2.40	1.40	10.60
II	2.90	1.40	2.35	2.40	1.30	10.35
III	2.75	1.25	2.20	2.50	1.20	9.90
IV	3.60	1.45	3.00	4.05	1.65	13.80
Female						
I	3.00	1.40	2.50	2.30	1.40	10.60
II	2.95	1.40	2.30	2.30	1.35	10.30
III	2.75	1.25	2.10	2.50	1.20	9.80
IV	3.60	1.50	3.00	4.20	1.70	14.00
<i>Draposa oakleyi</i>						
Male						
I	1.65	0.80	1.35	1.40	1.00	6.20
II	1.60	0.80	1.20	1.30	0.90	5.80

continued next page

TABLE 1. (continued)

	Fe	Pt	Ti	Mt	Ta	Total
III	1.60	0.75	1.15	1.50	0.80	5.80
IV	2.20	0.90	1.70	2.50	1.15	8.45
Female						
I	1.65	0.85	1.30	1.25	0.90	5.95
II	1.65	0.80	1.20	1.25	0.85	5.75
III	1.60	0.75	1.20	1.50	0.80	5.85
IV	2.25	0.90	1.90	2.70	1.20	8.95
<i>Draposa subhadrae</i>						
Female						
I	2.60	1.20	2.25	2.10	1.40	9.55
II	2.60	1.20	2.10	2.15	1.35	9.40
III	2.55	1.15	2.10	2.45	1.25	9.50
IV	3.50	1.35	3.10	4.35	1.70	14.00
<i>Draposa tenasserimensis</i>						
Male						
I	2.95	1.40	2.55	2.50	1.55	10.95
II	2.90	1.35	2.40	2.45	1.50	10.60
III	2.75	1.25	2.20	2.60	1.30	10.10
IV	3.60	1.50	3.10	4.40	1.85	14.45
Female						
I	2.45	1.15	2.00	1.85	1.20	8.65
II	2.35	1.10	1.85	1.85	1.15	8.30
III	2.25	1.05	1.70	2.05	1.05	8.10
IV	3.10	1.20	2.60	3.60	1.50	12.00

*Epigyne* (Figs 27, 32, 42, 43, 53). Conspicuous deep median cavity divided in front by a septum. Rims of lateral elevations posteriorly apart, with a wider sclerotized crest in between them (cf. *P. lyrivulva*). Cavity bottom corrugated, of characteristic shape in dorsal view. Spermathecal stalks long, anteriorly terminating in head of spermatheca bent outwards (Fig. 32).

**Size variation.** Carapace length 2.85–3.35 (n=5).

**Remarks.** This species was described from both sexes. The description and illustrations of the male, however, do not show enough specific details.

From the original description of the female sex, notably the shape of the epigyne and the annulation of the legs, I ascribe the material at hand from Sri Lanka to *D. subhadrae* rather than to an undescribed species.

**Distribution.** India, Sri Lanka.

#### *Draposa tenasserimensis* (Thorell, 1895) comb. nov.

Figs 28, 54, 55

*Lycosa tenasserimensis* Thorell, 1895: 239–242.

*Pardosa tenasserimensis*: Roewer 1955: 184.

**Type material.** *Lectotype* (designated here) of *Lycosa tenasserimensis* Thorell, 1895: ♂, Myanmar "Tenasserim meridionali" (Oates, Collectio Thorell No. 247/1559, NHRS), examined. *Paralectotypes* of *Lycosa tenasserimensis* Thorell, 1895: 1♂, 1♀, same data as lectotype; 2♂, 2♀, Myanmar, "Southern Tenasserim" (Oates, BM 1898.9.21.795-798, BMNH), all examined.

**Diagnosis.** Males may be distinguished by configuration of tegular apophysis, with one acute protrusion in proximal half (Fig. 54), but considerably shorter in length compared with *D. nicobarica* (cf. Fig. 51);

females by shape of opening to epigyneal cavity, being wide in anterior part and gradually narrowing posteriad (Figs 28 & 55).

**Description. Male** (lectotype). Total length 7.2 mm. Carapace 3.80 mm long, 2.80 mm wide.

*Prosoma*. Dorsum brownish, with yellowish median and lateral bands. Median band dilated in postocular area and in this part with two brownish stripes or spots at each side of midline. Lateral bands wide, with 2–3 brownish spots at carapace margin. Median band with short dark hairs and recumbent white pubescence, brownish sides and marginal spots with short dark hairs, lateral bands with whitish pubescence. Clypeus yellowish (traces of darker coloration below ALEs). Chelicerae yellowish brown. Sternum yellowish.

*Eyes*. Width of row I 59, row II 85, row III 109, row II–III 83. Diameter of AME 13, ALE 10, PME 34, PLE 28. Distance between AME 8, between AME and ALE 3.

*Opisthosoma*. Dorsum brownish, medially with a regular pattern of yellowish spots surrounding lanceolate stripe and continuing backwards. Lanceolate stripe yellowish, margined by grey brownish dots and elongated patches. Sides and venter yellowish.

*Legs* (Table 1). Light yellowish (bleached) with faint traces of annulation. TiI with two retrolateral spines.

*Palp* (Fig. 54). Pt 0.70, Ti 0.60, Cy 1.70. Cymbium somewhat flattened towards retrolateral side. Orientation of dorsal hairs on cymbium similar to condition in *D. lyrivulva* (cf. Fig. 37). Tegular apophysis moderately long, with one acute tooth-like projection in basal half. Embolus long and narrow.

**Female** (from "Tenasserim meridionali", Myanmar). Total length 6.0 mm (carried egg sac). Carapace 3.30 mm long, 2.40 mm wide.

*Prosoma and opisthosoma*. Coloration and pattern essentially as in male.

*Eyes*. Width of row I 52, row II 76, row III 96, row II–III 74. Diameter of AME 12, ALE 9, PME 30, PLE 25. Distance between AME 6, between AME and ALE 3.

*Legs* (Table 1). Yellowish with light brown annulation. TiI with 2 retrolateral spines.

*Epigyne* (Figs 28, 55). Septum extending to more than half the length of epigynal opening and epigynal opening widest in anterior half, with lateral elevations converging posteriad. Rounded heads of spermathecae and stalks of spermathecae visible through cuticle of lateral elevations.

**Size variation**. Carapace length: males 3.55–3.80 (n=4), females 3.10–3.35 (n=3).

**Distribution**. Myanmar. The records from Indonesia [Sumatra (Reimoser 1927), Java (Reimoser 1931), sub *Lycosa tenasserimensis*] are uncertain. Other species of *Draposa* are present in Malaysia and Indonesia (cf. Remarks under *D. zhanjiangensis* below).

### ***Draposa zhanjiangensis* (Yin, Wang, Peng & Xie, 1995) comb. nov.**

*Pardosa zhanjiangensis* Yin, Wang, Peng & Xie, 1995: 74, 77, figs 18–22 (♂♀). Yin *et al.* 1997: 281, fig. 133 (♂♀, identical with previous reference). Song *et al.* 1999, figs 199Q, 200B (♂♀ from Yin *et al.* 1995).

**Type material. Holotype** ♀: China, Guangdong Province, Zhanjiang City (21°12'N

110°24'E) (together with 1♂ 1♀ paratypes) in Hunan Biology Research Institute, Changsha, not examined.

**Diagnosis**. Male may be distinguished by shape of tegular apophysis, notably the somewhat squared projection in the basal half (Yin *et al.* 1995, fig. 22; Yin *et al.* 1997, fig. 133e) [acute projection(-s) in the other known congeners], female by shape of epigyne, notably size and form of tongue-like septum (Yin *et al.* 1995, fig. 19; Yin *et al.* 1997, fig. 133b; Song *et al.* 1999, fig. 200B).

**Remarks**. The illustrations supplied with the original description show details typical for the genus *Draposa*, e. g., the shape of the tegular apophysis and the presence of a subpaleal sclerite in the male palp as well as the shape of the epigyne, with a tongue-like septum, in the female (Yin *et al.*: references above)

Material of a congener from Malaysia [Sarawak, Bako National Park (1° 44'N 110°28'E), grassy patch on sandy seashore, 17 October 1979 (K. & B. Bremer), 1♂ 4♀ (Fig. 56)] and Indonesia [Belitung (2°50'S 107°55'E), sandy seashore, 27 August 1899 (C. Aurivillius), 1♂ 2♀] is present in NHRS. This is very close to or conspecific with *Draposa zhanjiangensis*. Norma-Rashid & Li (2009) reported specimens identified as *D. zhanjiangensis* from the island of Tioman off the east coast of Peninsular Malaysia. Comparison with Chinese specimens should be undertaken in order to confirm conspecificity. Two females of *Draposa* in NHRS from

Indonesia [Sumatra, Medan (3°35'N 98°40'E), 1920 (E. Mjöberg)] have epigynes with a considerably shorter tongue-like septum (Fig. 57) compared with *D. zhanjiangensis* from China (Yin *et al.*: references above) and the material from Sarawak (Fig. 56); these specimens may belong to a close, presumably undescribed species.

**Distribution.** China: Guangdong (but see Remarks above).

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