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THE OCHYROCERATIDAE OF THE INDO-PACIFIC REGION (ARANEAE)

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ABSTRACT. - The family Ochyroceratidae is divided into three subfamilies on the base of the respiratory system, the cheliceral teeth, carapace shape and genital organs. In Asia, the Theotiminae include the genera *Theotima* and *Speocera*; the genera *Psiloderces*, *Merizocera*, *Leclercera* and *Althepus* together compose the Psilodercinae. The range of the monogeneric subfamily Ochyroceratinae covers the New World tropics and the Pacific. Fifty-four new species, one new genus and one new subgenus are described: 20 species in the genus *Psiloderces*, two in *Merizocera*, five in the new genus *Leclercera*, 10 in *Althepus* and 17 in *Speocera*. The genus *Psiloderces* is split into nine species groups. The new subgenus *Complicicera* has been erected to accommodate *Theotima javana* and *Speocera bosmansi*. Identification keys have been constructed to the Indo-Pacific ochyroceratid genera and to the *Speocera* species. *Simonicera* is synonymized with *Speocera*. *Simonicera chamarro* is synonymized with *Theotima minutissima*. *Althepus stellatus* is moved to *Merizocera*, *Althepus machadoi* to *Leclercera*, *Althepus mulcatus* to *Psiloderces*, *Merizocera elastica* to *Psiloderces*, *Theotima javana* to *Speocera* (*Complicicera*), *T. microphthalma* to *Speocera*. The total number of known species in the region considered is now 26 for *Psiloderces*, eight for *Merizocera*, six for *Leclercera*, 16 for *Althepus*, one for *Ochyrocera*, one for *Theotima*, 26 for *Speocera*, two for *Complicicera*. Nearly half of the species has been collected in caves. The female genital organ is illustrated for the first time for *Merizocera picturata*, *M. crinata*, *M. stellata*, *Speocera* (*Complicicera*) *javana*, *S.* (*Speocera*) *microphthalma* and *S.* (*S.*) *karkari*. The male of *S.* (*C.*) *javana* is described and illustrated for the first time. Emendations are given to the descriptions of *Psiloderces longipalpis*, *Althepus suhartoi*, *A. lehi*, *A. tibiatus*, *Speocera (S.) microphthalma*, *S. (C.) bosmansi*, *S. (C.) javana*, *S. (S.) karkari* and *S. (S.) krikkeni*. Some aspects of zoogeography, cave colonisation and adaptation are discussed. Where possible, ecological data have been provided.

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INTRODUCTION

Ochyroceratidae are small, web-spinning haplogyne spiders. The family is cosmotropic, albeit no representatives have been recorded from Australia. Large numbers of these spiders occur in leaf litter, many of the species described here were collected in caves.

Major systematic and anatomical studies have been devoted to ochyroceratids by Fage (1912) and de Barros Machado (1951). Fage did not study the female genital organ, whereas the latter author had only African species at his disposal, so that the ochyroceratid fauna of S. E. Asia remained very little known. Minor, more recent papers, mainly by Brignoli (1973a,b,c, 1975, 1976, 1977, 1979, 1980, 1981, 1986) and Baert (1980, 1984, 1988) describe new Asian species, but these species constitute only an infinitesimal portion of the actual ochyroceratid fauna.

It was originally intended that the present paper should describe the Ochyroceratidae collected by F.D.Stone in 1973-1986 in caves in Thailand, but in the course of the work important material of cave-dwelling spiders from Thailand and Sulawesi was sent to me by L. Deharveng and P. Leclerc. Extensive additions to the ochyroceratid material, often in primary rainforest, were made by S. Djojosudharmo in Indonesia and by myself in Indonesia, Malaysia and Thailand. I decided to include all this material in order to make the work more comprehensive and thereby enhance its systematic and zoogeographic value. Minor contributions came from the British expedition to Mulu, N. Borneo, collected by P. Chapman (1978), P. R. Deeleman's collecting in the Philippines, (1979, 1982), the Cambridge Sumatra Cave expedition, collected by D. Agranoff (1984), the Oxford University Expedition to the Togian Islands, collected by D. Bilton (1987), P. Schwendinger's collections made during his work in Thailand (1987-1988), Marietta Dekking's trip to Java (1989) and the Belgian-Dutch Philippine cave expedition to the island Negros, collected by T. van Es (1989-1990). In the following pages, this material is described; the previously described species are listed and redescriptions and illustrations of hitherto unknown male or female genitalia of earlier described species are also included.

METHODS AND MATERIAL

Specimen depositories are symbolized by the following codes: AMNH = American Museum of Natural History, New York; BMNH = British Museum of Natural History, London; BPBM = Bernice P. Bishop Museum, Honolulu; CD = author's collection; KBIN = Royal Belgian Institute of Natural Sciences, Brussels; MCSNG = Museo civico Storie Naturale, Genova; MHNG = Muséum d'Histoire Naturelle, Genève; MNHN = Muséum National d'Histoire Naturelle, Paris; SMF = Senckenberg Institut und Museum, Frankfurt; ZIMH = Zoologisches Institut und Museum Hamburg.

Scales (0.5 mm) are given at the end of the last plate; in the figure captions at the end of each number they are referred to in brackets by any of the letters a-e.

The female genitalia are for the greater part internal and the abdomen has to be dissected and cleared to make examination possible. They are often necessary in identifying an adult female to species.

A smaller portion (the figures without magnification scale) has been done from microscopic preparations, but the majority of vulvae studied has been done so by means of a stereomicroscope with oculars 20 x and objective 10 x; this minimizes the risk of losing the vulvae, both in manipulation and storage. The disadvantage of somewhat reduced resolution power compared with a microscopic preparation is, in my opinion, outweighed by the possibility of putting the object in any desired position and probing the spatial structure of the organ.

Measurements are given in mm. Leg segments were measured on their dorsal side. The bulb is measured from base to tip, not including the apical appendages. In many species the ratio carapace/clypeus is given; this indicates the length of the thorax with head, measured from the front line of the eye-group, and the clypeus.

Usually, measurements are given for one male and one female per species. Leg length variation is considerable and may vary as much as 35% within a population; length ratio of leg segments, however, proved to be quite stable.

ECOLOGICAL DATA

In the tropics, the Ochyroceratidae constitute one of the ecological counterparts of the Linyphiidae of the northern temperate zone.

The spiders construct small webs in or above the litter layer. Outside caves, representatives of the family are found in great numbers in shaded forests, both primary and secondary. They are frequent in bamboo leaf litter, where they often are dominant in number. This ecological preference possibly stems from the fact that due to the spiky stems and leaves in bamboo, this kind of litter is quite loose, offering suitable sites for web construction. *Althepus* species prefer dark, shady and humid spots and are frequently found among tree buttresses, river embankments and cave entrances. Short-legged species such as *Speocera* are often encountered in humus. In Gombak Research Station, Malaysia, *Merizocera* was found living in bamboo internodes (D. Kovac, personal communication).

Most genera are frequently met in caves, yet most of them do not show any morphological adaptations. Only in a few *Speocera* and *Psiloderces* species, the eyes are reduced or lost, the colour is faded and the legs are lengthened; in the very long-legged *Althepus* species however, which frequently live in caves, no cave adaptations such as thinning of the tegument, loss of pigment and eyes, was observed.

Ochyroceratid webs are either irregular structures or finely mazed sheet webs; the latter, constructed by psilodercines, are constructed well above the substratum and the spider can be seen hanging on the underside. *Speocera* constructs tiny irregular webs inside a dead curved leaf or a bamboo stem or among debris; the spiders have been observed sitting in their web guarding an egg-sack held between chelicerae, palps and sternum. The larger species (*Althepus* and *Leclercera*) often have very long legs and show morphological and behavioural affinities to the Pholcidae.

DISTRIBUTION

The genera *Psiloderces*, *Merizocera*, *Leclercera* and *Althepus*, harbouring the larger species in the family and united in the subfamily Psilodercinae are confined to the Oriental region. They appear to be poor dispersers. The great majority of species was found in one locality only and the range of each genus seems partitioned over numerous allopatric small-range species, resulting in a checkerboard of species of different lineages. Paradoxically, it is among the tiny, short-legged *Speocera* and *Theotima* that larger distribution areas are found. *Theotima minutissima* even has an intercontinental distribution. *Speocera karkari* appears to be dispersed over a large distance in the western Pacific, *Speocera krikkeni* now is recorded over a distance of 1300 km in Sumatra and Java. *Speocera stellafera* was found near Kuala Lumpur and also in a number of scattered localities through Thailand, 1300 km northwards up to Saraburi Province.

SYSTEMATICS

The Oriental Ochyroceratidae fall apart into 2 clearly separate groups. Four endemic genera of long-legged Ochyroceratidae now are known in the region: *Psiloderces, Merizocera, Leclercera* and *Althepus*; they are united here into a new subfamily, the Psilodercinae. They form a monophyletic group without close affinities with the short-legged, pantropic *Theotima* and *Speocera* and the closely related African genera *Dundocera* de Barros Machado and *Lundacera* de Barros Machado. The great morphological divergence among two groups of Ochyroceratidae has been stressed as early as 1951 by Fage & de Barros Machado, who suggested a division into subfamilies or even families. Recently, the latter genera have been assigned to a new subfamily, ("new subfamily", Lehtinen 1986), here referred to as Theotiminae.

The association of the Oriental long-legged genera with the genus *Ochyrocera* proposed by Lehtinen is highly disputable and at variance with the grouping proposed by Fage & de Barros Machado. The genus *Ochyrocera* indeed takes in several respects an intermediate position between the two groups. The nominate genus *Ochyrocera* (Neotropics and Polynesia) cannot be included in either of the two subfamilies; it shares the respiratory system and the cheliceral dentition with the Theotiminae, but the carapace shape and the long legs, similar to those in the Psilodercinae, reflect an entirely different way of life; this genus will be at

present the only genus in the nominate subfamily Ochyroceratinae with close affinity to the Theotiminae. It shares two synapopmorphies with the *Theotima* group: the respiratory system is very different from that commonly found in Scytotoidea, with the tracheal opening shifted anteriorly to a position midway between epigastric fold and spinnerets, and the booklungs have been replaced by tracheae. Secondly, the scytodoid conformation of the cheliceral dentition has been modified by the presence of a row of denticles. The male and female genital organs are autapomorph.

Ochyroceratid species can be distinguished by the genital organs and sometimes by the carapace pattern. The pattern may be variable in depth of colour within a species, but the various elements of the pattern are distinguishable in the majority of specimens and are found to be specific and thus of recognitory value.

Genital organs in both males and females were found to be quite diverse in structure within genera, particularly in the Psilodercinae. Rather than creating a multitude of new genera for closely related taxa, which procedure would obscure their relationship, I prefer to treat the classification of this group in a conservative way: only one new subgenus (*Complicicera*) is created on the base of a conspicuously deviating genital morphology. The genus *Merizocera* Fage, based primarily on genital morphology, has been maintained. The genus *Psiloderces* has provisionally been divided into nine species groups based on genital morphology; they represent monophyletic units. The new genus *Leclercera*, based both on somatic and genital characters is rather fragmentary known and may be polyphyletic.

OCHYROCERATIDAE

Body length 0.6 mm - 3 mm. Carapace in the epigean species with dark brown to violettish pattern. Abdomen globular or elongate, maximum length 2 times width. Booklungs preserved in Psilodercinae, replaced by tracheae in Ochyroceratinae and Theotiminae (Fage and de Barros Machado 1951 and own observation in *Psiloderces, Leclercera* and *Althepus*); posterior tracheal opening halfway between epigastric fold and spinnerets (Ochyroceratinae and Theotiminae) or close to spinnerets (Psilodercinae). Median margin of chelicerae slanting, proximal part of slant marked by a lamina, distal to which 0-3 teeth on promargin (Psilodercinae) or 7 equal teeth (Ochyroceratinae and Theotiminae); retromargin with 2 small teeth, which may be lacking in *Ochyrocera, Psiloderces* and *Merizocera*. Carapace as long as wide, with large slanting clypeus (Psilodercinae and Ochyroceratinae), or oval (Theotiminae); eyes 6, composed of a straight transverse row of 4 eyes, the medians connate, and 2 posteriors, connate with the anterior laterals. Maxillae longer than wide, converging over the labium. Tip of labium excised (Ochyroceratinae and Theotiminae) or rounded (Psilodercinae). Anterior spinnerets the longest, with a short distal segment, posterior spinnerets bearing numerous spigots; colulus 2 times longer than wide, half as long as the anterior spinnerets. Genital organs very diverse, usually simple, male palp often with incrassate tibia and always a distinct embolus located apically on the bulb; sometimes a second appendage, called here conductor, is present. The females usually lack an external chitinized epigyne. In the Psilodercinae the internal part (vulva) is often reminescent of that in mygalomorph spiders. In many Theotiminae a pair of chitinized ducts run along the surface from a separate copulatory opening towards the spermathecae. Legs most often spineless, in the genus *Speocera* spines may be borne on posterior tibiae and metatarsi.

Autospasy between coxa and trochanter.

It has been demonstrated that in some species of African Theotiminae females reproduce normally without males (de Barros Machado 1964). The data presented here do not suggest the existence of parthenogenesis in Asian Ochyroceratidae, with the exception of *Theotima minutissima*.

KEY TO INDO-PACIFIC GENERA OF OCHYROCERATIDAE

1 Promargin chelicerae with row of 6-7 teeth. Labium incised. Tracheal stigma halfway between epigastric fold and spinnerets 2

– Promargin chelicerae with lamina and 0-2 teeth. Labium not incised. Tracheal stigma closer to spinnerets than to epigastric fold; bulb apically or subapically on cymbium ..... Psilodercinae 5

2 (1) Carapace as long as wide, abruptly narrowing anteriorly,clypeus slanting, at least 1/4th of carapace length. Male palp: embolus elongate, flexed at base and projected forward (Tropical America, Polynesia) ..... Ochyroceratinae

– Carapace longer than wide, gradually narrowing anteriorly, with radiating pattern of H- or U-shaped streaks; clypeus almost vertical. Male palp: bulb placed proximally or centrally in the alveolus, apple- or pear-shaped or round, rarely elongate, embolus not projected forward ..... Theotiminae 3

3 (2) Female genital organ with copulatory pore situated lateral or anterior to epigastric fold at the end of a superficial chitinous duct; male palpal tibia without apophysis (Tropical Africa, Asia and America) 4

– Copulatory pore in lateral down-curved lobe, without chitinous duct (no males known in the Indo-Pacific region) ..... *Theotima minutissima* (Petrunkevitch)

4 (3) Female genital organ with superficial chitinous copulatory duct situated lateral or anterior to epigastric fold; male palpal embolus and conductor together not longer than bulb (tropical Africa, Asia and America) ..... *Speocera (Speocera)* Berland

– Superficial copulatory duct looping backward, posterior to epi gastric fold; male palpal embolus and conductor large and complex, together longer than bulb, transverse (Java, Flores, Sulawesi) ..... *Speocera (Complicicera)* new subgenus

5 (1) Retromargin of chelicerae toothless, maxillae mesodistally acuminate; male palpal tibia without lateral protrusions 6

– Retromargin with 2 teeth or denticles, maxillae mesodistally rounded; male palpal tarsus and/or tibia with lateral protrusion 7

6 (5) Male palpal bulb with embolus and conductor separated at the base; female genital organ an unpaired atrium with or without distinct spermathecae (Sri Lanka, Thailand, Malaysia, Indonesia) ..... *Merizocera* Fage

– Male palpal bulb with embolus, with or without conductor, but if both present, not separated at the base; bulb inserted apically or subapically on the cymbium; female genital organ with 1 or 2 pair of "spermathecae" (Sri Lanka to Luzon) ..... *Psiloderces* Simon

7 (5) Thorax with short fovea or depression; ratio carapace/clypeus $2^1/_2$-3:1; carapace rounded behind; embolus and conductor not widely separated (Nepal to Philippines) ..... *Leclercera* new genus

– Thorax with deep groove extended to posterior border; ratio carapace/clypeus more than 3; carapace truncated behind, widest at posterior border; short bulb with embolus and conductor widely separated at base (India to Sulawesi) ..... *Althepus* Thorell

Subfamily Ochyroceratinae

Diagnosis.- Promargin of chelicerae with row of 6-7 denticles, retromargin with 2. Tracheal stigma in the middle between epigastric fold and spinnerets; booklungs replaced by tracheae. Carapace as long as wide, clypeus large and slanting; tip of labium excised; legs long, femur I much longer than carapace. Bulb with long embolus, flexed forward near base over almost 180". Vulva with paired spermathecae and an unpaired element in the middle.

Ochyrocera Simon

Ochyrocera Simon, 1891: 566, pl. 42 fig.10.
Ceruleocera Marples, 1955: 462.

Ochyrocera ransfordi (Marples)

Ceruleocera ransfordi Marples, 1955: 462, pl.56, fig.11,15 (male, female, Western Samoa).
Ochyrocera ransfordi: Brignoli, 1979: 598.

Material examined.- None.

Subfamily Psilodercinae, new subfamily

Subfamily Ochyroceratinae Lehtinen, 1986: 156

Diagnosis.- Promargin of chelicerae with lamina and 0-3 denticles, retromargin with 0-3 denticles. Booklungs present, tracheal stigma nearer to spinnerets than to epigastric fold. Carapace as long as wide, clypeus large and slanting; tip of labium rounded; legs long, femur I much longer than carapace.

Psiloderces Fage

Psiloderces Simon, 1892a: 40 (type species *P. egeria* Simon, Luzon).- Fage, 1912: 140, fig.99-108 (redescription of the type).

Diagnosis.- Chelicerae with lamina and 0-3 denticles on the promargin, lacking teeth on the retromargin; in the male, syringiform bulb inserted subapically or apically on the tarsus, bulb usually longer than wide, with apical embolus with or without conductor, the latter connivent; vulva with one or two pairs of spermethecae.

Description.- Carapace round, with large protruding clypeus, fovea an oval depression which is not extended to the posterior border of thorax. Ratio carapace/clypeus $2^1/_2$:1 - 3:1. Distal and mesal margin of maxillae flattened with acute meso-distal angle and subapical bundle of thick "multifid" setae (fig.68,90,111) (see also Fage 1912: 101, 105, fig.84); labium not longer than wide, distally without incision. Leg formula normally I>IV>II>III, in the type species and in *P. howarthi* n.sp. however I>II>IV>III; this may be an adaptation to cave life. Tibiae in the anterior legs slightly longer than metatarsi and femora (in some troglobitic species metatarsus I longer than tibia I), in third leg pair and sometimes also in fourth pair

tibia as long as metatarsus. Length femur I at most 5 times the carapace. Posterior spiracle fig. 53. Booklungs on either side of genital fold. Species-specific characters are in the genital organs, the pattern on the carapace and abdomen.

The genus can be divided into 9 species groups based on the genitalia. This classification is provisional.

I. *Egeria* group

Vulva with large paired pore plates and short sausage-like spermathecae without peduncle. Male unknown. Only known specimen with reduced pigmentation of body and eyes and lengthened legs.

Species included.- *P. egeria* Simon, Luzon.

II. *Longipalpis* group

Vulva with a single pair of sessile spermathecae. Bulb of male palp constricted in the middle, embolus distally curved, concavity lightly sclerotized. Possibly identical with *egeria* group.

Species included.- *P. longipalpis* Baert, *P. nasicornis* Baert, *P. torajanus*, new species, *P. leclerci*, new species, Sulawesi, *P. kalimantan*, new species, E. Kalimantan.

III. *Septentrionalis* group

Vulva with 2 pairs of sessile sausage-like spermathecae; male palp with simple syringiform bulb.

Species included.- *P. septentrionalis*, new species, *P. suthepensis*, new species, *P. vulgaris*, new species, *P. albostictus*, new species, *P. fredstonei*, new species, Thailand, *P. djojosudharmoi*, new species, Sumatra.

IV. *Leucopygius* group

Vulva with 2 pairs of pedunculate spermathecae, male palp with simple syringiform bulb with or without protrusion at the base of the embolus.

Species included.- *P. leucopygius*, new species, *P. vallicola*, new species, *P. rimbu*, new species, *P. limosa*, new species, Sumatra, *P. coronatus*, new species, Java, *P. penaeorum*, new species, S. Thailand.

V. *Mulcatus* group

Vulva with one pair of pedunculate spermathecae, attached to a paired plate. Male unknown.

Species included.- *P. mulcatus* Brignoli, Nepal, ? *P. elasticus* (Brignoli), Sri Lanka.

VI. *Ligula* group

Vulva with one pair of saugage-like spermathecae, paired pore plate, ducts with sack-like extension; male with coiled embolus and spatula-shaped tip.

Only species included.- *P. ligula* Baert, Sulawesi.

VII. *Enigmatus* group

Vulva with one pair of spermathecae situated lateral to genital opening. Male clypeus with projection ornated with long spines and tarsus with laminate projection (in the Bornean species).

Species included.- *P. enigmatus*, new species, *P. pulcher*, new species, Borneo, *P. tesselatus*, new species, Java.

VIII. *Althepoides* group

Vulva with one pair of large sessile spermathecae, provided with a cork-screw projection; male palpal bulb pear-shaped, with tapering embolus; in only known species legs very long.

Only species included.- *P. althepoides*, new species, Borneo.

IX. *Howarthi* group

Vulva with large lamelliform membranous projection with guiding ridges and one pair of saugage-like sessile spermathecae, attached to a paired plate posterior to genital opening. Male palp with simple syringiform bulb, situated apically on tarsus.

Only species included.- *P. howarthi*, new species, Thailand.

I. *Egeria* group

Psiloderces egeria Simon
(Fig. 1, Map 1)

Psiloderces egeria Simon, 1892a: 40, fig.1 (female, Calapnitan cave). - Fage, 1912: 140, fig. 99-108 (redescription of the type). - Brignoli, 1979: 601, fig.6 (female type material).

Diagnosis.- A relatively large species showing morphological adaptations to life in caves in the form of reduced size of eyes and long legs and probably absence of colour pattern. Vulva illustrated by Brignoli (1979, fig.6) with large paired pore plates and one pair of short sausage-like spermathecae without peduncle.

Redescription.- FEMALE (holotype). Type and only adult specimen in poor condition. Carapace fig. 1. Ratio carapace/clypeus $2^1/_2$:1. Measurements in mm: carapace 1.1 long, 1.0 wide.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	-	-	-	-	-	-
II	-	-	-	-	-	-
III	2.0	0.3	2.1	1.9	1.0	8.3
IV	2.9	0.3	3.1	2.8	1.0	9.4

Second, non-adult specimen in tube: carapace 7.0 mm.

I	2.8	0.3	3.3	2.7	1.0	10.1
II	2.3	0.3	2.6	2.4	1.0	8.6
III	1.7	0.3	1.7	1.6	0.7	6.0
IV	-	-	-	-	-	-

Type data.- Holotype female, PHILIPPINES: LUZON, Prov. Camarines-Sur, Libmanac, grotte de Calapnitan, 1890 (MNHN), examined.

II. *Longipalpis* group

Psiloderces longipalpis Baert
(Figs. 2-6, Map 1)

Psiloderces longipalpis Baert, 1988: 11, fig.1-6 (male, female, N. Sulawesi, Dumoga Bone National Park).

Diagnosis.- Distinctive pattern of carapace and abdomen. Bulb of male palp with flange at the base of the embolus; palpal segments greatly lengthened.

Redescription.- MALE. The specimens studied conform the original description. Carapace pattern as the female, sternum pale brown with light wedge-shaped area in the middle, dorsum of abdomen fig.2, with a black band around the spinnerets and a pair of characteristic white spots on the rear, venter dark with broad white transverse band between epigastric fold and spinnerets, legs dark, white rings around tibial-metatarsal and metatarsal-tarsal joint. Palp fig.4 and 5.

FEMALE, Pattern fig. 2. Ventral side of abdomen fig. 3. Vulva fig.6.

Measurements in mm in both sexes:

	Car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.8	0.7	0.9	6.0	4.7	3.5	5.2
Female	0.7	0.6	0.9	5.2	4.3	3.1	5.0

Male palp	femur 0.8	patella 0.2	tibia 0.4	tarsus 0.5	bulb 0.3
Female palp	femur 0.4	patella 0.1	tibia 0.25	tarsus 0.45	

All figures are a little below the holotype as given by Baert. Legs in average 15% higher than given for the female in Baert's description, abdomen 30 % shorter.

Material examined.- INDONESIA: N.SULAWESI: 3 males and 3 females, Dumoga National Park near Doloduo, various kinds of leaf litter, 27-30.vii.1982 (P.R. and C.L.Deeleman) (MHNG and CD).

Psiloderces nasicornis Baert
(Map 1)

Psiloderces nasicornis Baert, 1988: 13, fig. 7-11 (male, N. Sulawesi, Dumoga Bone National Park).

Only one specimen of this species was collected at an elevation of 1800 m. The male bears an unpaired clypeal horn. Palp of the type of *P. longipalpis*, palp segments not lengthened.

Material examined.- None.

Psiloderces torajanus, new species
(Figs. 7-10, Map 1)

Diagnosis.- Distinguished by the nearly absence of pigmentation on the head, the abdominal dorsal and ventral pattern. Bulb of male palp ventrally concave.

Description.- MALE. Pattern of carapace as the female, but lighter, sternum as in *longipalpis*, pattern of dorsum of abdomen characteristic as in fig. 7, with a black ring around the spinnerets, in front of which a dorsal semicircular white band, venter pale, with a vague median dark band, legs pale brown, with white rings as in *longipalpis*. Cheliceral lamina large. Palp fig. 8 and 9.

FEMALE. Pattern of carapace and abdomen fig. 7. Vulva fig. 10, very ill-defined, the specimen probably only just matured.

Measurements in mm in holo- and paratype:

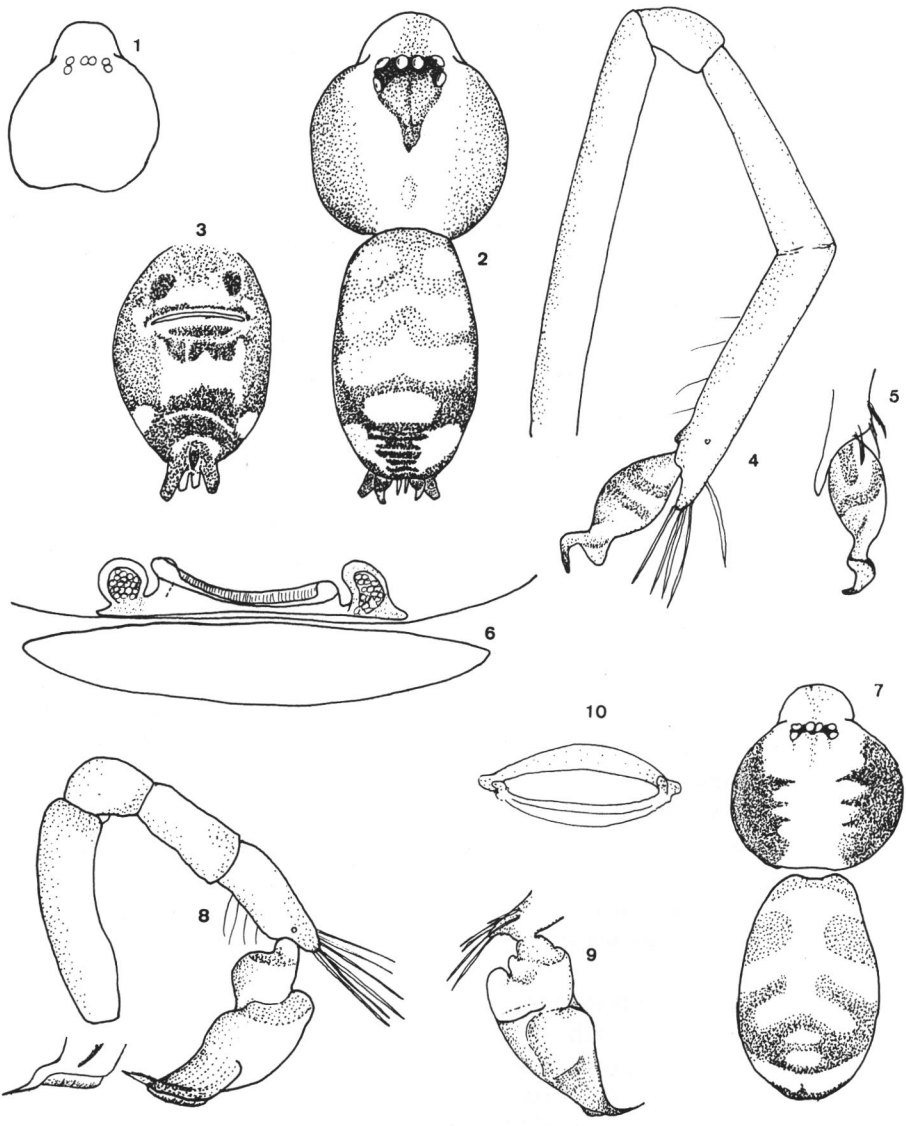
	Car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.7	0.6	0.9	6.0	-	3.7	5.3
Female	0.7	0.6	0.9	4.0	3.2	2.6	3.8

Male palp	femur 0.4	patella 0.2	tibia 0.2	tarsus 0.25	bulb 0.3
Female palp	femur 0.3	patella 0.1	tibia 0.15	tarsus 0.3	

Type data.- Holotype, male, INDONESIA: C. SULAWESI: S. of Palu, Lore Lindu Reserve near Marena, bamboo litter near river, 23-24.vii.1982 (P.R. and C.L.Deeleman) (MHNG), 1 female paratype, same data (MHNG).

Etymology.- *torajana* refers to the name of the tribe, Toraja, living in the area.

Remark.- In the specimens studied the tarsi of the legs are very long relative to the other species: metatarsi : tarsi 4:3, it is not known whether this is an incidental variation.



Figs. 1-10: Fig. 1. *Psiloderces egeria* Simon female: carapace (c). Figs. 2-6. *Psiloderces longipalpis* Baert: 2. Female, carapace and abdomen, dorsal (c). 3. Female, venter (c). 4. Male right palp, retrolateral (d). 5. bulb, prolateral (d). 6. Vulva (e). Figs. 7-10. *P. torajanus*, new species: 7. Female, carapace and abdomen, dorsal (c). 8. Male, right palp, retrolateral (d). 9. Left palp, bulb, prolateral (d). 10. Vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Psiloderces leclerci, new species
(Figs. 11-15, Map 1)

Diagnosis.- Male palpal embolus with hooked tip. Epigyneal area anteriorly with paired transverse strips, epigyne bordered with "collar".

Description.- MALE. Whole spider pale yellow, eyes circled with thin black lines.

Promargin of chelicerae with large lamina, denticles small. Strong setae on anterior surface. Palp fig. 12,13.

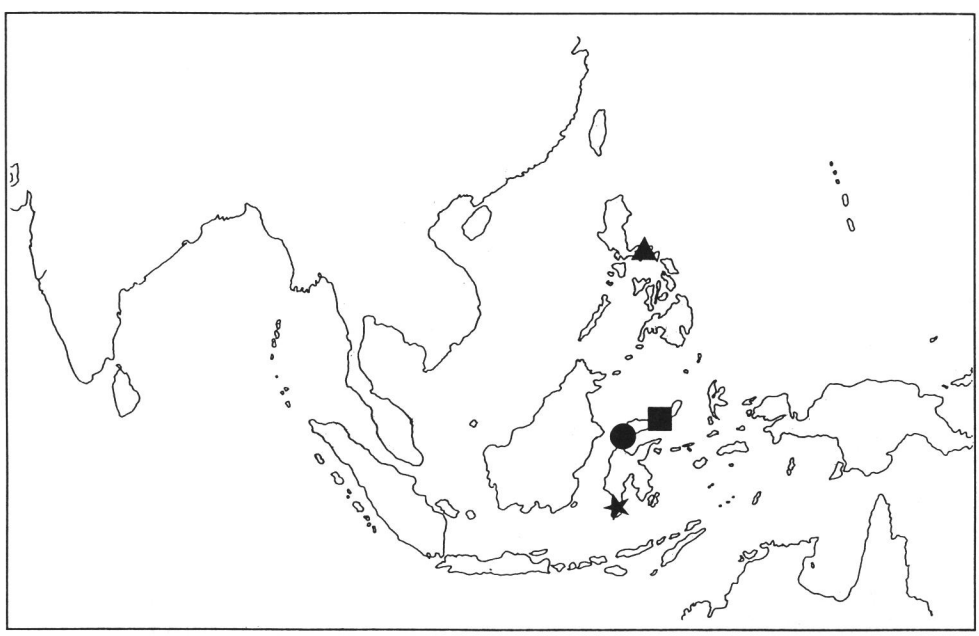
FEMALE. Pale yellow, carapace with faint markings (fig. 11), abdomen dorsally fig. 11, sternum, venter of abdomen and legs colourless. Vulva (fig. 14,15) situated in a concavity, consisting of an anterior part, which is a replicated prolongation of the anterior margin of the epigastric fold and a posterior part, which is a replicate fold of the posterior margin. Spermathecae on very short peduncles. Most salient part of the anterior part of vulva constituted by a pair of elongate oval strips on the outer cuticula, which may serve for anchoring the male palp.

Measurements in mm of the male holotype: carapace 0.7 long, 0.6 wide, abdomen 0.9.

	Fe	Pa	Ti	Mt	Ta	Tot.
I	3.0	0.3	3.1	3.0	1.3	10.7
II	-	-	-	-	-	-
III	1.7	0.2	1.7	1.7	0.7	6.0
IV	-	-	-	-	-	-
palp	0.4	0.1	0.2	-	0.3	bulb 0.3

Female (in brackets figures for the female from forest from Maros): carapace 0.7 (0.7) long, 0.6 (0.6) wide, abdomen 1.1 (1.0).

Leg I	2.0 (1.8)	0.3 (0.2)	2.3 (2.0)	2.0 (1.6)	1.1 (1.0)	7.7 (6.6)
II	1.6	0.2	1.9	1.7	0.9	6.3
III	1.3 (1.0)	0.2 (0.2)	1.3 (1.1)	1.2 (1.0)	0.7 (0.6)	4.7 (3.9)
IV	1.7 (1.6)	0.3 (0.2)	1.9 (1.7)	1.6 (1.4)	0.9 (0.9)	6.4 (5.8)
palp	0.4 (0.4)	0.1 (0.1)	0.25 (0.2)		0.4 (0.4)	



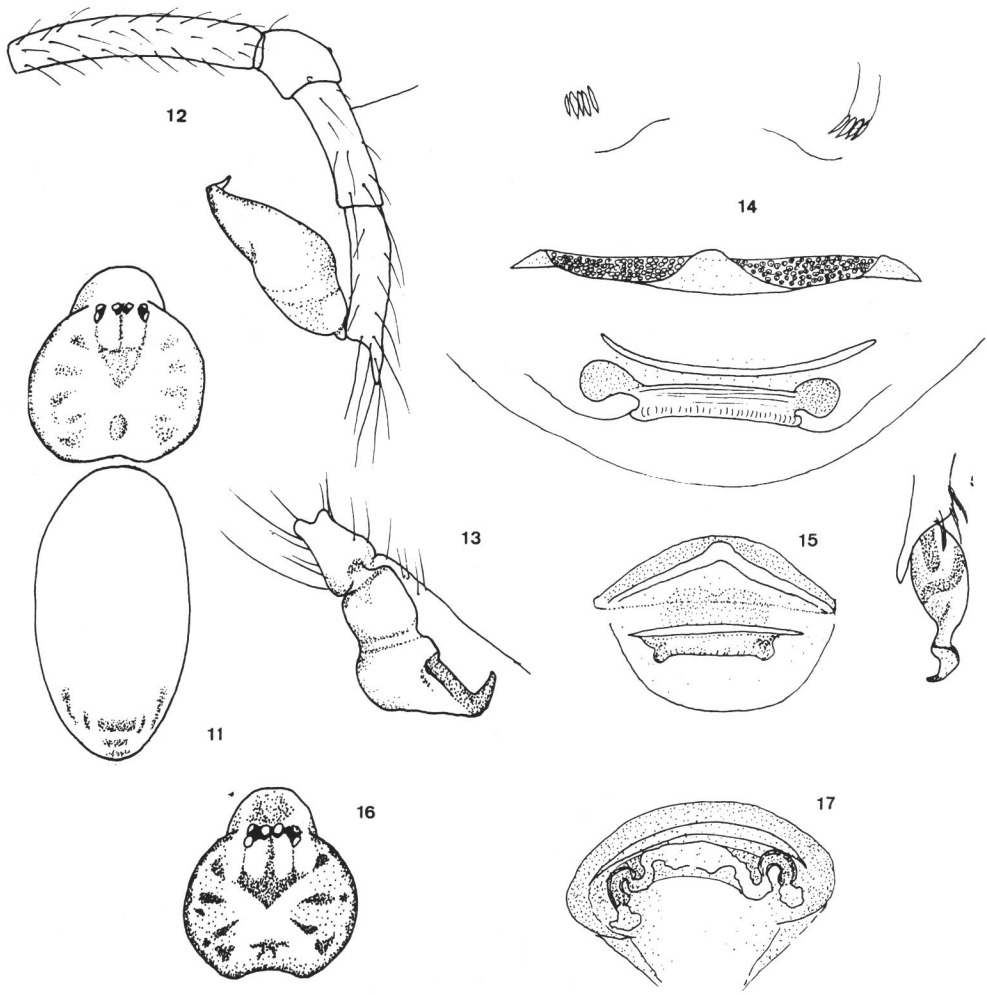
Map 1. Triangle - *Psiloderces egeria*, square - *P. longipalpis, P. nasicornis*, circle - *P. torajanus*, asterisk - *P. leclerci.*

Type data.- Holotype, male, INDONESIA: S.W.SULAWESI, Maros, Kappang, Gua (Cave) K 9, 11.vii.1986 (P.Leclerc, code INDO 128) (MHNG), 1 female paratype, same data (MHNG), 1 male paratype, Gua (Cave) Salukkan Kallang, 21.vii.1986 (Leclerc) (BPBM).

Other material examined.- S.W.SULAWESI: Gua (Cave) B2 in Bantimurung, 2 females, 8.vii.1986 (Leclerc) (CD). One female, much deeper in colour, from forest litter in the Maros district, 9.viii.1980 (C. L. Deeleman) (CD) can probably be attributed to this species.

Etymology.- In honour of the discoverer, the French biospeologist Philippe Leclerc.

Remark.- The specimen taken outside the cave has about 15% shorter legs than the specimens from the cave (see "measurements").



Figs. 11-17: Figs. 11-15. *Psiloderces leclerci*, new species: 11. Female, carapace and abdomen, dorsal, (c). 12. Male, right palp, retrolateral, (Gua Salukkan) (d). 13. Id., bulb, prolateral (d). 14. Vulva, microscopic preparation, (Bantimurung). 15. Vulva (Gua 9) (e). Figs. 16-17. *P. kalimantan*, new species, female: 16. Carapace, dorsal (c). 17. Vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Psiloderces kalimantan, new species
(Figs. 16-17, Map 2)

Diagnosis.- Distinct by carapace pattern, dark sternum and genital organ.

Description.- FEMALE. Pattern of carapace fig.16, sternum dark, chelicerae pale, maxillae and labium dark, dorsum of abdomen pale, venter dark, epigastric area crescent-shaped, white, behind this area a pair of light longitudinal bars; legs violet, tip of femora and tibiae white. Cheliceral margin with small lamina and some granulations only. Vulva fig.17, spermathecae laterally with thin-walled appendix (gland ?).

MALE unknown.

Measurements in mm of the holotype:

	car length	car width	abd	leg I	leg II	leg III	leg IV
Female	0.7	0.6	0.8	-	5.0	3.9	5.6
palp	femur 0.4	patella 0.1	tibia 0.25	tarsus 0.35			

Type data.- Holotype, female, BORNEO: E.KALIMANTAN, 40 km N.of Balikpapan, in stand of primary dipterocarp lowland rain-forest ("Sepaku"), in leaf litter, 2.viii.1980 (P.R. and C.L.Deeleman); 1 female paratype, same data, 23.vii.1982, (CD).

Etymology - Named after the Indonesian part of the island Borneo. Used as a noun in apposition.

III. *Septentrionalis* group

The four species described below are closely related and probably allopatric. It may be assumed that they are, or once were, connected by populations with intermediate morphology. The species are distinguished mainly by details in the genital organs and abdominal pattern.

Psiloderces septentrionalis, new species
(Figs. 18-21, Map 2)

Diagnosis.- Characterized by long male palpal tibia and shape of tip of embolus.

Description.- MALE. Carapace fig. 18, sternum uniform light chocolate brown, abdomen dorsally without a definite pattern, or with a series of white median patches on a dark background as in fig. 18, depth of colour and extent of pattern variable, venter dark with a pair of thin parallel light lines, lung covers partly light, legs pale brown, without annulations. Palp fig. 19. In the material from the type locality, the tibia is incrassate and clearly thicker than the bulb. Distal drawn-out part of bulb 2/3 of length of proximal part.

FEMALE. Colour as the male. Vulva fig. 20.

Measurements in mm of the male holotype (in brackets: male from forest, Doi Inthanon): carapace 0.9 (0.9) long, 0.8 wide, abdomen 1, 2.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	2.3 (2.7)	0.2 (0.2)	3.4 (3.0)	3.2 (2.5)	1.4 (1.3)	10.5 (9.7)
II	2.2 (2.1)	0.2 (0.2)	2.2 (2.3)	2.4 (1.8)	1.0 (1.1)	7.8 (7.5)
III	1.7 (1.6)	0.2 (0.2)	1.8 (1.6)	1.6 (1.3)	0.7 (0.7)	6.0 (5.4)
IV	2.3 (2.0)	0.2 (0.2)	2.7 (2.2)	2.4 (1.9)	1.0 (1.1)	8.6 (8.4)

palp femur 0.5, patella 0.1, tibia 0.35, tarsus 0.17, bulb 0.4

Female paratype (in brackets: female from forest, Doi Inthanon): carapace 0.9 (0.9) long, 0.8 wide, abdomen 1.1.

Leg I	2.1 (1.8)	0.2 (0.2)	2.3 (1.9)	2.0 (1.7)	1.1 (1.0)	7.7 (6.6)
II	1.6 (1.4)	0.2 (0.2)	1.7 (1.6)	1.5 (1.3)	0.8 (0.7)	5.8 (5.2)
III	1.3 (1.1)	0.2 (0.2)	1.3 (1.2)	1.3 (1.0)	0.7 (0.7)	4.8 (4.2)
IV	1.9 (1.5)	0.2 (0.2)	2.1 (1.7)	1.8 (1.4)	1.0 (0.9)	7.0 (5.7)

palp femur 0.5, patella 0.1, tibia 0.25, tarsus 0.4.

Leg lengths in the female from Tham Ku Kan cave agree with those from Tham Pla cave.

Type data.- Holotype, male, N.THAILAND: Changwat Chiang Rai: Amphoe Mae Sai, Tham Pla Cave (20°20'N, 99°52'E), 420 m, 21.vii.1986 (F.Stone, sample PLA 1E) (BPBM); 3 male, 16 female paratypes, several juveniles, same data as holotype (Stone, samples 3B, 6B, 7B, 13C, 14C, 16G). 2 males and 8 female paratypes in BPBM, 2 males, 5 females in MHNG and CD.

Other material examined.- N.THAILAND: 1 male, Changwat Chiang Mai: Doi Inthanon, Chom Thong, in forest, 2590 m, 23.vi.1986 (P.Leclerc); Doi Inthanon, 1 male, 2530 m, pitfall trap 16.ii - 18.iv.1987, 2 females, 2300 m, pitfall trap 14.vii.-20.viii.1987 (P.Schwendinger) (BPBM); 1 female, Changwat Mae Sai, Tham Ku Kan, Ban Tham, 24.vi.1986 (Leclerc) (MHNG and CD).

Etymology.- *septentrionalis* (Lat.) = the northern locality.

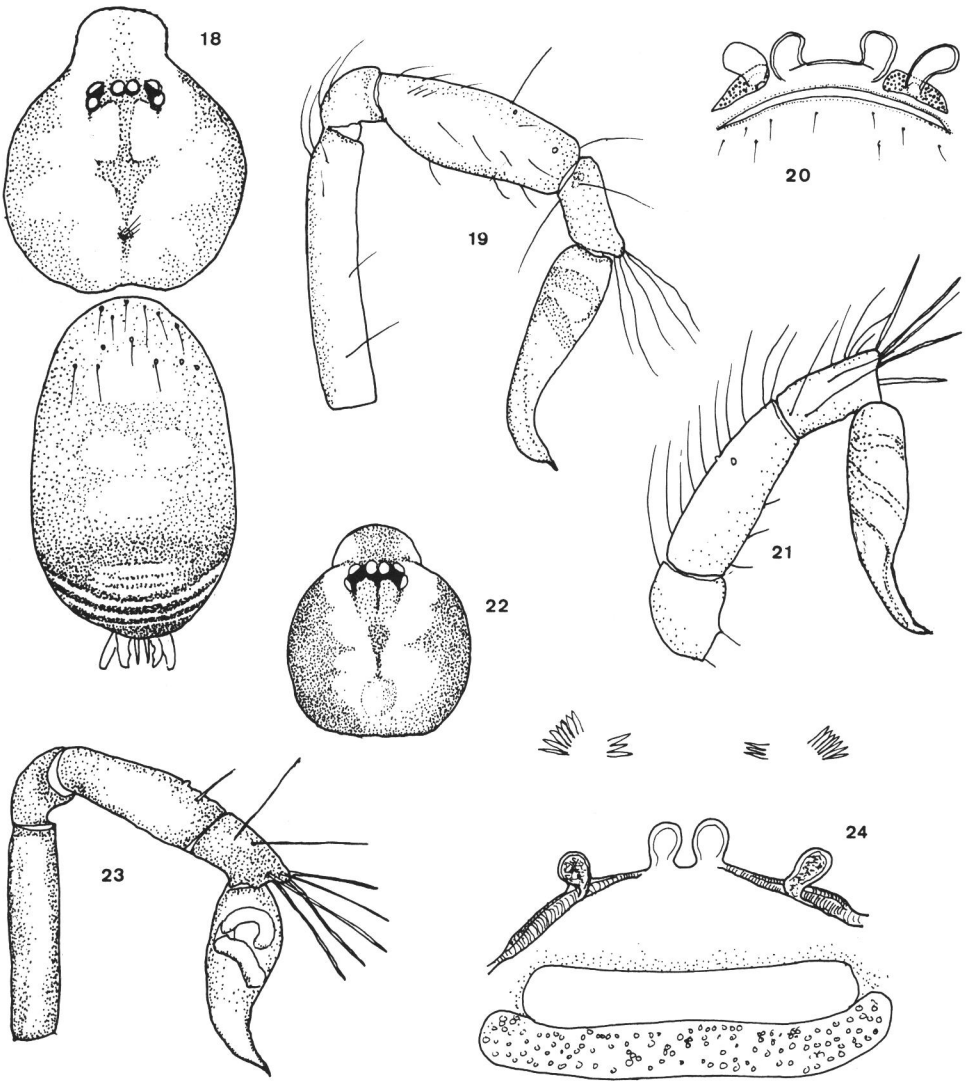
Remarks.- The specimens from Doi Inthanon have been placed in this species, although the male palp differs from that of the type locality by the less incrassate tibia, not thicker than the bulb (Fig. 21). The tip of the bulb agrees with those from the specimens from Tham Pla.

Psiloderces suthepensis, new species
(Figs. 22-24, Map 2)

Diagnosis.- Distinguished by shape of male palpal bulb and female genital organ.

Description.- MALE. Carapace pattern as in fig. 22, sternum uniform dark, abdomen variable in colour, dorsum unicoloured or with a series of lighter transverse bars, venter uniform, with a pair of longitudinal white lines only. Legs yellow, in dark specimens brownish. Sternum with slight bulges adjacent to coxae. Palp fig. 23, differing from that of *P. septentrionalis* by shorter segments and tibia thinner than the bulb, the distal drawnout part of the bulb being only 1/2 of the proximal part.

FEMALE. Somatic characters as in the male. Vulva fig. 24.



Figs. 18-24: Figs. 18-21. *Psiloderces septentrionalis*, new species: 18. Male, carapace and abdomen, dorsal (c). 19. Male, right palp, retrolateral (d.). 20. Vulva (e); 21. Male, right palp, (Doi Inthanon) (d). Figs. 22-24. *P. suthepensis*, new species: 22. Male, carapace (c). 23. Male, right palp, retrolateral (d). 24. Vulva, microscopic preparation. Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Measurements in mm in male holotype and female paratype:

	Car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.8	0.7	0.9	6.7	4.9	3.9	5.8
Female	0.8	0.7	1.0	4.8	3.9	3.2	4.5

Male palp	femur 0.4	patella 0.1	tibia 0.2	tarsus 0.2	bulb 0.3
Female palp	femur 0.3	patella 0.1	tibia 0.2	tarsus 0.8	

Type data.- Holotype, male, N.THAILAND: Changwat Chang Mai: Doi Suthep National Park, 1180 m, pitfall trap 2.vii - 2.viii 1987, (P. Schwendinger) (MHNG), 5 male paratypes, same data as holotype, months i, ii, iii, vi, vii, viii and xii 1987-1988, 4 female paratypes, months i, ii, vi, viii and xii, 960 - 1180 m, pitfall traps. Paratypes in BPBM, MHNG and CD.

Etymology.- Derived from Doi Suthep, the beautiful mountain and National Park, overlooking the city of Chiang Mai.

Psiloderces albostictus, new species
(Figs. 25-29, Map 2)

Diagnosis.- Distinctive pattern of carapace and abdomen and that of sternum and further by shape of male palpal bulb and vulva.

Description.- MALE. Carapace pattern fig. 25, sternum dark, anteriorly with a median white wedge-shaped area, dorsum of abdomen fig. 25, anteriorly with light, anchor-shaped area in the middle and posteriorly with a black ring, in front of which a pair of white lateral spots; venter dark with thin parallel lines, lung covers light. Legs uniform pale. Chelicerae with large two-tined lamina, no further teeth apparent. Palp fig. 27, tip of embolus drawn out into a longitudinal needle, about 1/10 of the length of the bulb.

FEMALE. Somatic characters as the male, sternum with a dark median line all across; venter fig. 26, lung covers dark. Vulva fig. 28.

Measurements in mm of male holotype and a female:

	car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.7	0.6	0.8	6.2	5.7	4.9	-
Female	0.8	0.7	1.0	6.2	3.8	-	5.8

Male palp	femur 0.3	patella 0.1	tibia 0.2	tarsus 0.2	bulb 0.3
Female palp	femur 0.4	patella 0.1	tibia 0.3	tarsus 0.3	

Type data.- Holotype, male, C. W. THAILAND: Changwat Ban Mae Sot, Amphoe San Chao Pho Phawo, under decaying log, 4.vii.1987 (P. Leclerc) (MHNG).

Other material examined.- W. THAILAND: Changwat Kanchanaburi, 1 female (all legs lost), Sai Yok National Park, Kaew cave, in fissure in clay floor, 18.iii.1986 (C. L. Deeleman).

Etymology.- *albus* (Lat.) = white and *stictus* (Lat.) = dotted.

Remark.- I am not certain that the female is conspecific with the male. The locality where it was found lies 200 km to the south of that of the male. Both are situated on the east side of the mountain range which marks the border of Thailand and Burma.

Psiloderces vulgaris, new species
(Figs. 29-32, Map 2)

Diagnosis.- Distinct from former species by ringed legs and details in genital organs.

Description.- MALE. Colour very pale, with dark transverse bands on the abdomen. Palp (fig. 31) similar to that in *P. albostictus*, but with bent tip.

FEMALE. Colour: darker than male, pattern of carapace and abdomen as in fig. 29, sternum dark, slightly lighter in the middle, venter of abdomen (fig. 30) uniform dark with a white

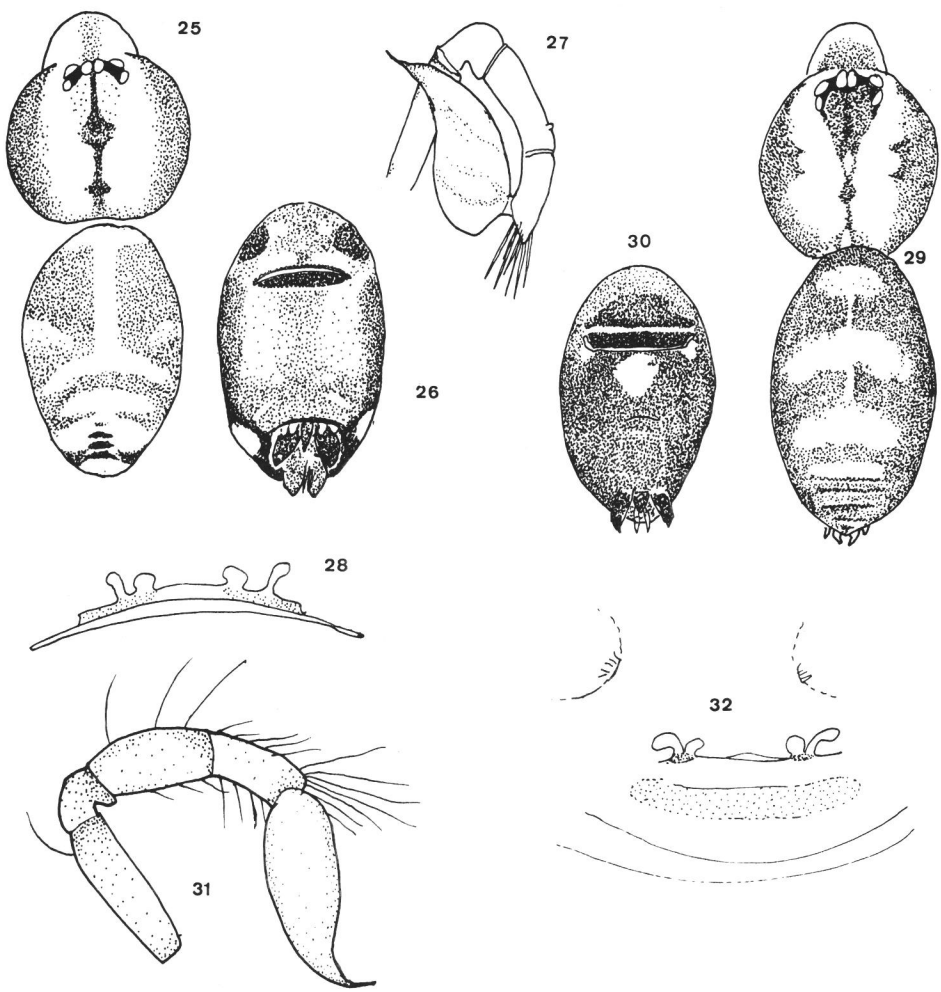
post-genital spot, legs dark with light apical rings on the tibiae. Vulva fig. 32, similar to that in *P. septentrionalis*, *P. suthepensis* and *P. albostictus*, the relative distance of the four spermathecae is different in each species.

Measurements in mm of the male holotype and female paratype:

	car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.7	0.6	1.0	-	-	-	5.4
Female	0.9	0.8	1.0	5.6	4.5	3.7	5.3

Male palp	femur 0.35	patella 0.15	tibia 0.25	tarsus 0.15	bulb 0.35
Female palp	femur 0.4	patella 0.1	tibia 0.25	tarsus 0.35	

Type data.- Holotype, male, THAILAND: Changwat Nakhon Nayok, bamboo litter near the Sarika waterfalls, 27.iv.1982 (P. R. Deeleman) (MHNG); paratype female, Changwat Nakhon Nayok, Khao Yai National Park, 800 m, in leaf litter in evergreen forest, 24.x.1985 (Deeleman) (MHNG).



Figs. 25-32: Figs. 25-28. *Psiloderces albostictus*, new species: 25. Male, carapace and abdomen, dorsal (c). 26. Female, venter (c). 27. Male, right palp, retrolateral (d). 28. Vulva (e). Figs. 29-32. *P. vulgaris*, new species: 29. Female, carapace and abdomen, dorsal (c). 30. Female, venter (c). 31. Male, right palp, retrolateral (d). 32. Vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Etymology.- *vulgaris* (Lat.) = plain, undistinguished, referring to the stereotyped morphology common to a number of species in Thailand.

Remark.- I am not certain that the ventral abdominal white area is a specific character.

Psiloderces fredstonei, new species
(Figs. 33-37, Map 2)

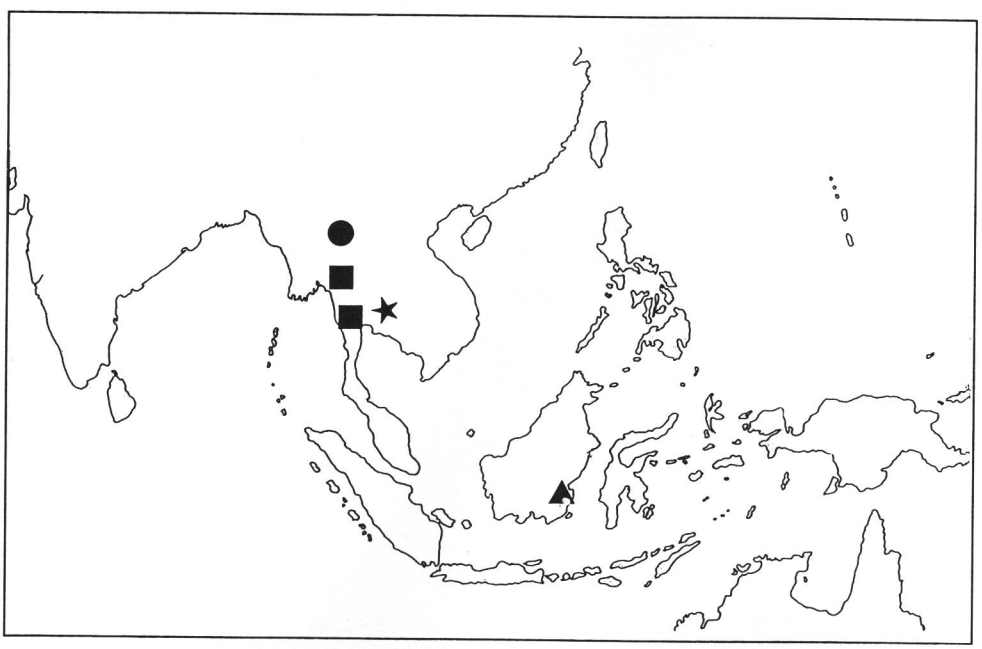
Diagnosis.- Large troglomorph species with conspicuous bristles on the head and a tapering sinuous bulb.

Description. - MALE. Carapace, sternum, abdomen and legs very pale yellow, eyes pigmentless, slightly reduced in size. Carapace and clypeus with longitudinal rows of long bristles in the middle (fig. 33, 34). Chelicerae (fig. 37) with large lamina. Palp fig. 35, 36.

FEMALE. Unknown.

Measurements in mm of the holotype: carapace 1.1 long, 1.0 wide, abdomen 1.2.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	4.8	0.4	5.1	5.3	1.8	17.4
II	3.4	0.4	3.6	3.5	1.2	12.1
III	2.7	0.3	2.9	2.6	0.9	9.4
IV	3.6	0.4	4.0	3.7	1.2	12.9
palp	0.4	0.2	0.3	0.1	-	-



Map 2. Triangle - *P. kalimantan*, squares - *P. albostictus*, circle -*P. septentrionalis, P. suthepensis*, asterisk - *P. vulgaris, P. fredstonei.*

Type data.- Holotype, male, C.THAILAND: Changwat Saraburi, Amphoe Kaeng Khoi, Thap Kwang cave, 14°34'N, 101°093, in web in stream passage, 27.v.1973 (F. D. Stone) (BPBM).

Etymology.- Named for Fred Stone, who collected this and many other species: in recognition of his confidence when trusting me with his interesting, voluminous spider material; also for his patience.

Psiloderces djojosudharmoi, new species
(Figs. 38-42, Map 3)

Diagnosis.- Typical carapace markings and male palpal bulb distinctly thicker than the other palpal segments.

Description.- MALE. Pattern of carapace as in the female (fig. 38), colour faint, sternum uniform dark, abdomen without apparent pattern. Chelicerae (fig. 40) with a few granulate teeth in addition to the lamina. Sternum with bulges adjacent to coxae. Palp fig. 41.

FEMALE. Somatic characters as in the male, pattern more distinct (fig. 38, 39). Vulva fig. 42.

Measurements in mm of the male holotype and a female paratype:

	car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.7	0.6	1.0	5.7	4.3	3.7	5.6
Female	0.7	0.7	1.0	4.9	4.1	3.6	4.9

Male palp	femur 0.4	patella 0.1	tibia 0.2	tarsus 0.2	bulb 0.2
Female palp	femur 0.3	patella 0.1	tibia 0.2	tarsus 0.4	

Type data.- Holotype, male, INDONESIA: W.SUMATRA, Kerinci Seblat National Park, 800 m, primary forest near river, in leaf litter, 21-30.vii.1988 (Suharto Djojosudharmo) (MHNG). 4 male and 6 female paratypes, same data (3 females in MHNG, other paratypes in BPBM and CD).

Etymology.- Called after my friend the primatologist Suharto Djojosudharmo, who collected this and many other species.

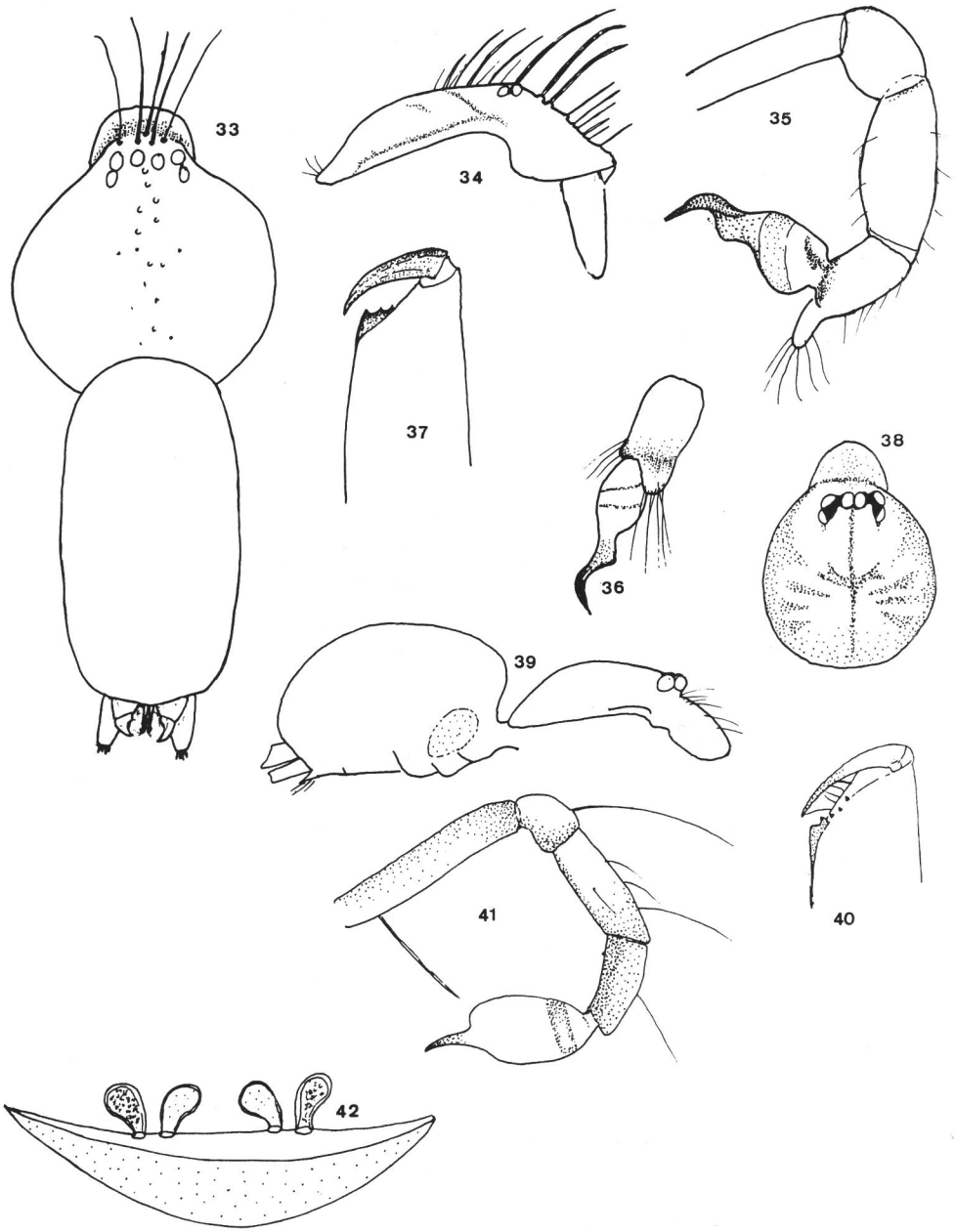
III. *Leucopygius* group

Psiloderces leucopygius, new species
(Figs. 43-47,111, Map 3)

Diagnosis.- Distinctive by the conspicuous white mark dorsally in front of the spinnerets. Thin transverse embolus.

Description.- MALE. Pattern of carapace fig. 43, sternum uniform pale brown, dorsum of abdomen fig. 43, with a rather large white patch distally, venter uniform pale brown with faint parallel lines, legs uniform pale violet-brown. Chelicerae fig. 44; maxilla fig. 111; spinnerets fig. 46. Palp fig. 45.

FEMALE. Pattern of carapace and abdomen as in the male, colour darker. Vulva fig. 47.



Figs. 33-42: Figs. 33-37. *Psiloderces fredstonei*, new species, male, holotype: 33. Carapace and abdomen (c). 34. Carapace, profile (c). 35. Male, right palp, retrolateral (d). 36. Tarsus and bulb, dorsal (d). 37. Chelicer (d). Figs. 38-42. *P. djojosudharmoi*, new species: 38. Female, carapace, dorsal (c). 39. Female, carapace and abdomen, profile (c). 40. Chelicer (e). 41. Male, right palp, retrolateral (d). 42. Vulva, microscopic preparation. Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Measurements in mm of the holotype: carapace 0.8 long, 0.7 wide, abdomen 1.1.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	2.0	0.2	2.1	1.9	1.0	7.2
II	1.5	0.2	1.6	1.4	0.8	5.3
III	1.2	0.2	1.2	1.2	0.6	4.4
IV	1.8	0.2	1.9	1.8	0.9	6.6
palp	0.35	0.1	0.3	-	0.2 bulb 0.25	

There is a variability of 10-15%.

Female: carapace 0.7 long, 0.65 wide, abdomen 1.1.

Leg I	1.4	0.2	1.7	1.6	0.9	5.8
II	1.1	0.2	1.3	1.2	0.7	4.5
III	1.0	0.2	1.0	1.0	0.6	3.8
IV	1.4	0.2	1.5	1.4	0.4	4.9
palp	0.4	0.1	0.2	-	0.4	

Type data.- Holotype, male, INDONESIA: N.SUMATRA, Gunung Leuser National Park, Bohorok, primary forest (Dipterocarpaceae, Meliaceae) in leaf litter on the bank of the Bohorok river, 12.ii.1983 (P. R. Deeleman and S. Djojosudharmo) (MHNG); numerous male and female paratypes in various litter-habitats in primary forest around the border of the park at Bohorok at altitudes of 200 - 400 m throughout the year 1983, at all seasons (P.R. and C.L.Deeleman, Djojosudharmo) (BPBM, MHNG and CD).

Etymology.- leuco and pygio (Gr.)=with white rump.

Psiloderces vallicola, new species

(Figs. 48-53, Map 3)

Diagnosis.- Carapace with complete dark median bands and two lateral bands; male palp with bulb of same length as tarsus, provided with subapical projection below the embolus.

Description.- MALE. Carapace pattern fig. 48, median band extended over whole length of carapace, sternum uniform pale brown, abdomen without pattern, pale brown, underside with a pair of faint light lines, legs pale, not annulated. Mouthparts fig. 49, palp fig. 50, 51.

FEMALE. Colour as in the male, but darker. Posterior tracheae fig. 53. Vulva fig. 52. Booklungs examined, consisting of three leaves.

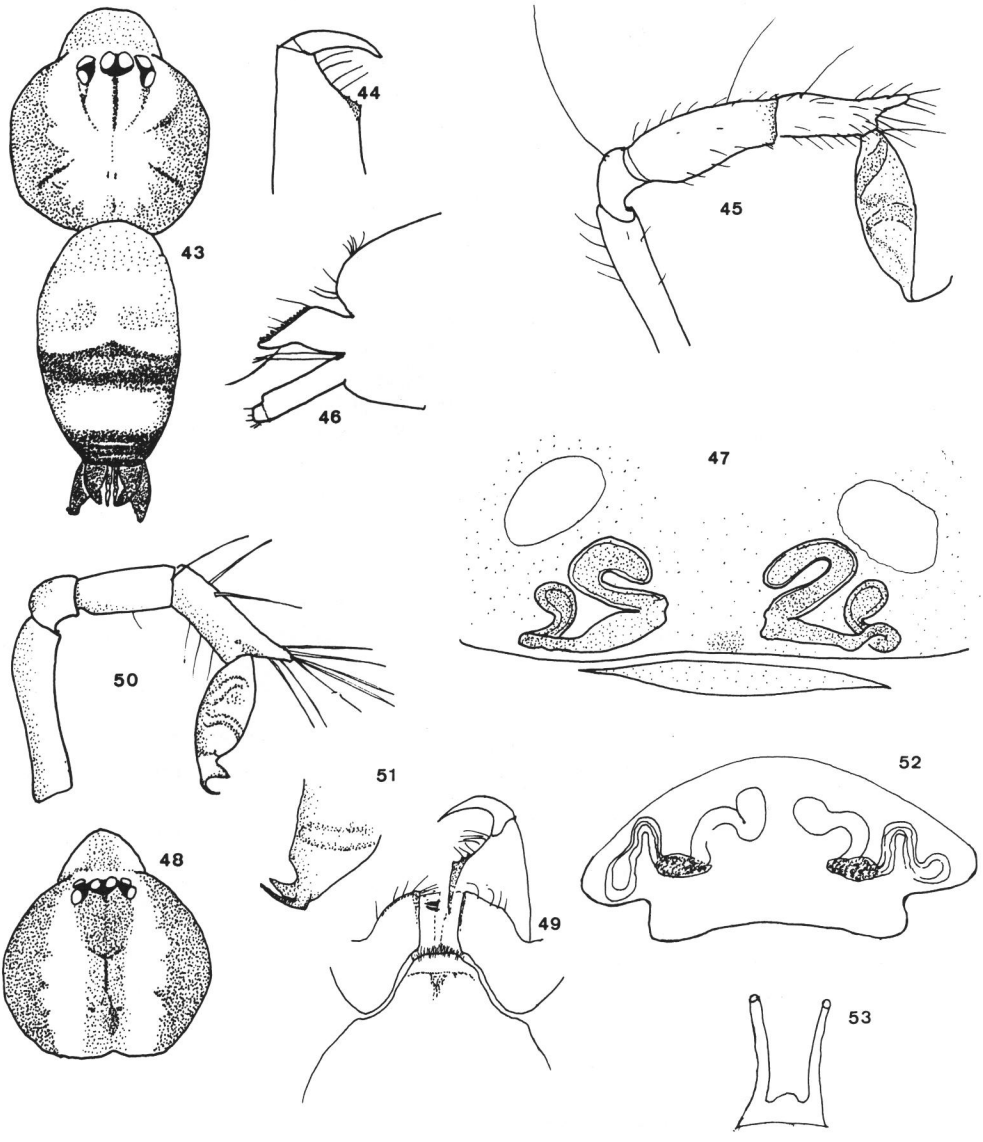
Measurements in mm of the male holotype and a female paratype:

	car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.8	0.7	0.8	6.2	4.6	3.7	5.5
Female	0.7	0.6	0.9	5.3	4.5	3.5	4.9

Male palp	femur 0.4	patella 0.15	tibia 0.25	tarsus 0.2	bulb 0.2
Female palp	femur 0.4	patella 0.1	tibia 0.2	tarsus 0.3	

Type data.- Holotype, male, INDONESIA: N.SUMATRA: ACEH, Gunung Leuser National Park, Ketambe, primary lowland forest, trail 1.1, 7.vii.1985, by sifting leaf litter, 2.viii.1985, (Suharto Djojosudharmo, Daud and Suyono) (MHNG); numerous male and female paratypes, same data, 1985-1986, adults of both sexes in all seasons (BPBM, MHNG and CD).

Etymology.- *vallicola* (Lat) = inhabitant of the valley, used as a noun in apposition.



Figs. 43-53: Figs. 43-47. *Psiloderces leucopygius*, new species: 43. Male, carapace and abdomen, dorsal (c). 44. Male, chelicer (e). 45. Male, right palp, retrolateral (d). 46. Male, spinnerets (d). 47. Vulva (microscopic preparation). Figs. 48-53. *Psiloderces vallicola*, new species: 48. Male, carapace, dorsal (c). 49. Male, chelicer, maxilla and labium (d). 50. Male, right palp, retrolateral (d). 51. Tip of bulb, prolateral (e). 52. Vulva, microscopic preparation. 53. Female, posterior tracheae (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

***Psiloderces rimbu*, new species**
(Figs. 54-55, Map 3)

Diagnosis.- Differs from *P. vallicola* by lack of entire dark median band on carapace, in male palp tibia relatively longer, bulb longer and more voluminous than tarsus.

Description.- MALE. Carapace pattern as in *leucopygius*, but paler, central dark line not reaching beyond midpoint, sternum with dark radiating streaks, slight bulges adjacent to coxae; pattern of abdomen indistinct. Cheliceral dentition as in *P. vallicola*. Palp Fig. 54.

FEMALE. Pattern as in male. Vulva Fig. 55.

Measurements in mm of the male holotype and a female paratype:

	car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.6	0.6	0.8	5.4	4.4	-	4.9
Female	0.7	0.6	0.9	5.6	4.4	3.7	-

Male palp	femur 0.3	patella 0.1	tibia 0.3	tarsus 0.17	bulb 0.3
Female palp	femur 0.3	patella 0.1	tibia 0.2	tarsus 0.35	

Type data.- Holotype, male, INDONESIA: W.SUMATRA, Rimba Panti Reserve (N. of Lebuksikaping, "Padangse Bovenlanden"), lowland rainforest, by sifting leaf litter, 3-5.viii.1982 (P.R. and C.L.Deeleman) (MHNG); 2 male and 2 female paratypes, same data (BPBM and CD).

Etymology.- After the Indonesian word *Rimbu* = jungle, used as a noun in apposition.

Relationships.- This species is close to *P. vallicola*, it can be distinguished by the carapace having the median dark stripe limited to the cephalic part, in the male palp by the relatively longer tibia, the tarsus lacking the dorsodistal prolongation and in the bulb by the different shape of the subapical lobe.

***Psiloderces limosa*, new species**
(Figs. 56-57, Map 3)

Diagnosis.- Characterized by the shape of the bulb.

Description.- MALE. Pattern of carapace fig. 56, sternum, abdomen and legs uniform pale violet. Chelicerae as in the other species. Sternum smooth. Palp fig. 57.

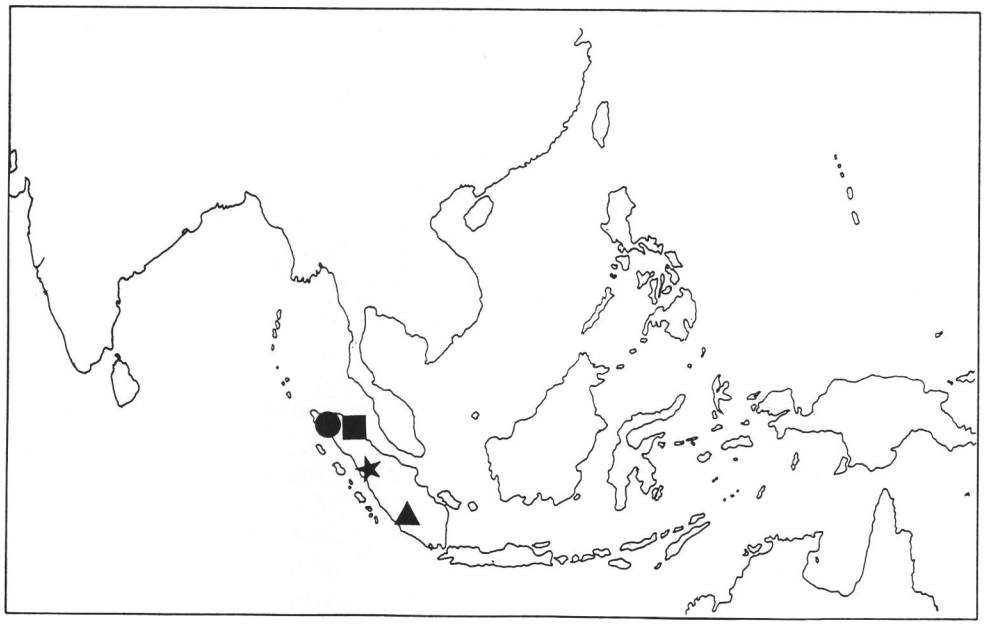
FEMALE unknown.

Measurements in mm:

	car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.6	0.5	0.7	-	6.5	4.7	5.5

palp	femur 0.3	patella 0.1	tibia 0.2	tarsus 0.15	bulb 0.25

Type data.- Holotype, male, INDONESIA: W.SUMATRA, Kerinci Seblat National Park, 800 m, primary forest near river, in leaf litter, 21-30.vii.1988 (S. Djojosudharmo) (MHNG).



Map 3. Triangle - *P. djojosudharmoi, P. limosa*, square - *P. leucopygius*, circle - *P. vallicola*, asterisk - *P. rimbu*.

Etymology.- Named for the European bird *Limosa*, the godwit, because the shape of the bulb resembles the head of this bird, which has a long, straight beak.

Psiloderces coronatus, new species

(Figs. 58-61, Map 4)

Diagnosis.- Species with diagnostic carapace pattern; palpal tarsus relatively short, shape of bulb and vulva also distinctive.

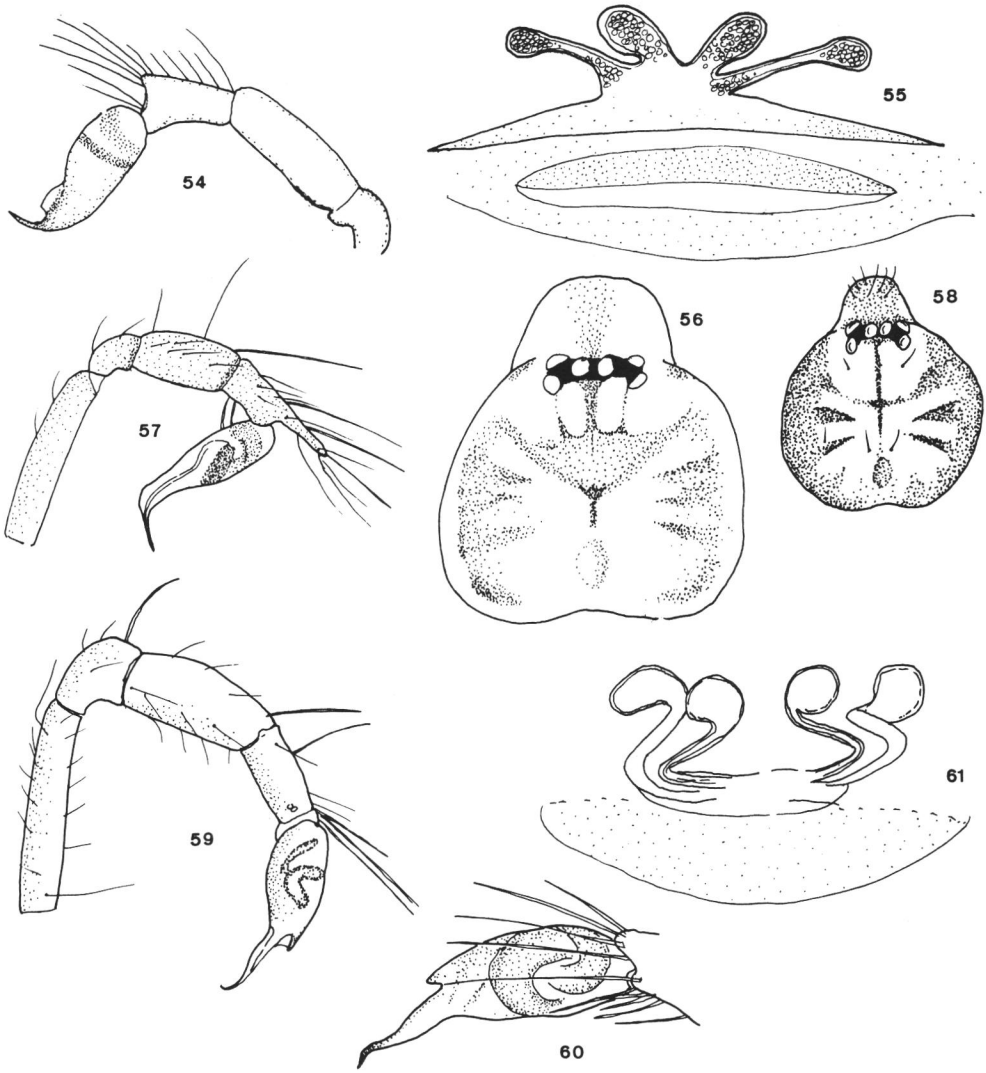
Description.- MALE. Carapace fig. 58, with dark streaks radiating from the fovea; sternum uniform dark, dorsum of abdomen anteriorly without pattern, posteriorly with a series of dark short transverse bars, flanked by a distinct white spot on either side, venter dark with a pair of ill-defined light lines, legs pale brown, without annulations, sometimes a white ring at the base of the tibiae. Palp fig. 59 and 60.

FEMALE. Colour as in the male. Vulva fig. 61.

Measurements in mm of the male holotype and a female paratype:

	car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.7	0.65	0.9	5.9	4.9	3.9	5.8
Female	0.8	0.6	0.10	5.5	4.5	3.7	5.3

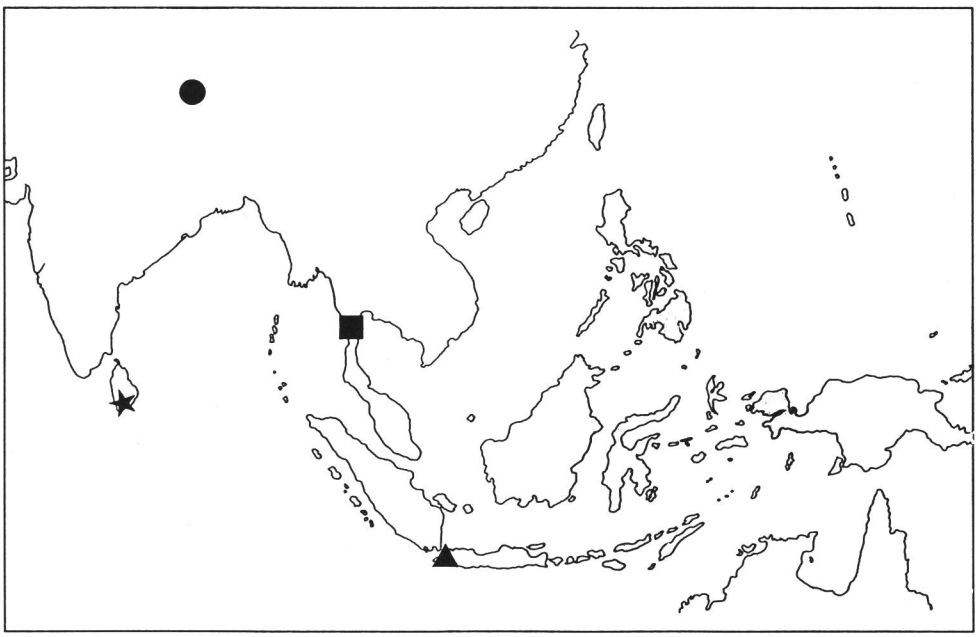
Male palp	femur 0.3	patella 0.1	tibia 0.25	tarsus 0.2	bulb 0.3
Female palp	femur 0.3	patella 0.1	tibia 0.2	tarsus 0.3	



Figs. 54-61: Figs. 54-55. *Psiloderces rimbu*, new species: 54. Male, left palp, retrolateral (d). 55. Vulva (e). Figs. 56-57. *P. limosa* new species, male holotype: 56. Carapace, dorsal (d). 57. Right palp, retrolateral (d). Figs. 58-61. *Psiloderces coronatus*, new species: 58. Male, carapace, dorsal (c). 59. Male, right palp, retrolateral (c). 60. Bulb, prolateral (d). 61. Vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Type data.- Holotype, male, INDONESIA: W.JAVA, Udjung Kulon Reserve, by sifting leaf litter, 14-25.xi.1986 (S. Djojosudharmo) (MHNG). 6 male, 10 female paratypes, same data (MHNG and CD).

Etymology.- *coronatus* (Lat.) = radiating streaks on the carapace.



Map 4. Triangle - *P. coronatus*, square - *P. penaeorum*, circle - *P. mulcatus*, asterisk - *P. elasticus*.

VI. *Ligula* group

Psiloderces ligula Baert
(Map 5)

Psiloderces ligula Baert, 1988: 13, fig.12-17 (male, female, Sulawesi, Dumoga Bone Nat.Park, elevation 1050 m).

The genital organs of this species seem rather aberrant, the male palp's bulb ends in a coiled embolus with broadened tip, the vulva is complex.

Material examined.- None.

VII. *Enigmatus* group

Psiloderces enigmatus, new species
(Figs. 66-72, Map 5)

Diagnosis.- Distinctive by shape of clypeal projection in male, pattern of sternum, annulated legs and peculiar palpal tarsus.

Description.- MALE. Carapace fig. 66, 67, protrusion of clypeus with a pair of apical spines in prolongation of it and a subapical pair pointing ventrally, sternum with a lighter V-shaped area in the middle, slight bulges adjacent to the coxae, legs pale violet, segments distally darkened, apex white, abdomen without distinct pattern. Chelicerae fig. 68, maxillae fig. 68, with 3 multifid setae proximally on the mesal margin. Palp fig. 69, 70, with a flattened straight spine subapically on the distal, rod-shaped part of the cybium.

Psiloderces penaeorum, new species
(Figs. 62-65, Map 4)

Diagnosis.- Species with characteristic carapace pattern and very long sinuous spermathecal ducts.

Description.- FEMALE. Colour: pattern carapace and sternum as in fig. 62, 63, clypeus with a large dark central area, abdomen almost uniform pale brown-violet, underside darker, with a pair of parallel white lines behind the epigastric furrow. Pulmonary plates very dark, legs pale without annulations. Chelicerae fig. 64, vulva fig. 65.

MALE unknown.

Measurements in mm of the male holotype:

	car length	car width	abd	leg I	leg II	leg III	leg IV
	0.7	0.65	1.0	-	5.0	3.9	-

palp	femur 0.35	patella 0.1	tibia 0.2	tarsus 0.4

Type data.- Holotype, male, THAILAND: Changwat Hua Hin, Ban Hua Lap, Tham Mai Laplae Cave, 28.vii.1987 (P. Leclerc) (MHNG), 1 paratype female, same data (CD).

Etymology.- After *Penaeus*, prawns which are cultivated so extensively in the former mangrove in the area.

V. *Mulcatus* group

Psiloderces mulcatus (Brignoli), new combination
(Map 4)

Althepus mulcatus Brignoli, 1973b: 160, fig.7-9 (female, Nepal, SMF 28283).

The figures of maxillae, chelicerae and vulva and the leg dimensions justify inclusion of this species in *Psiloderces* rather than *Althepus*.

Material examined.- None.

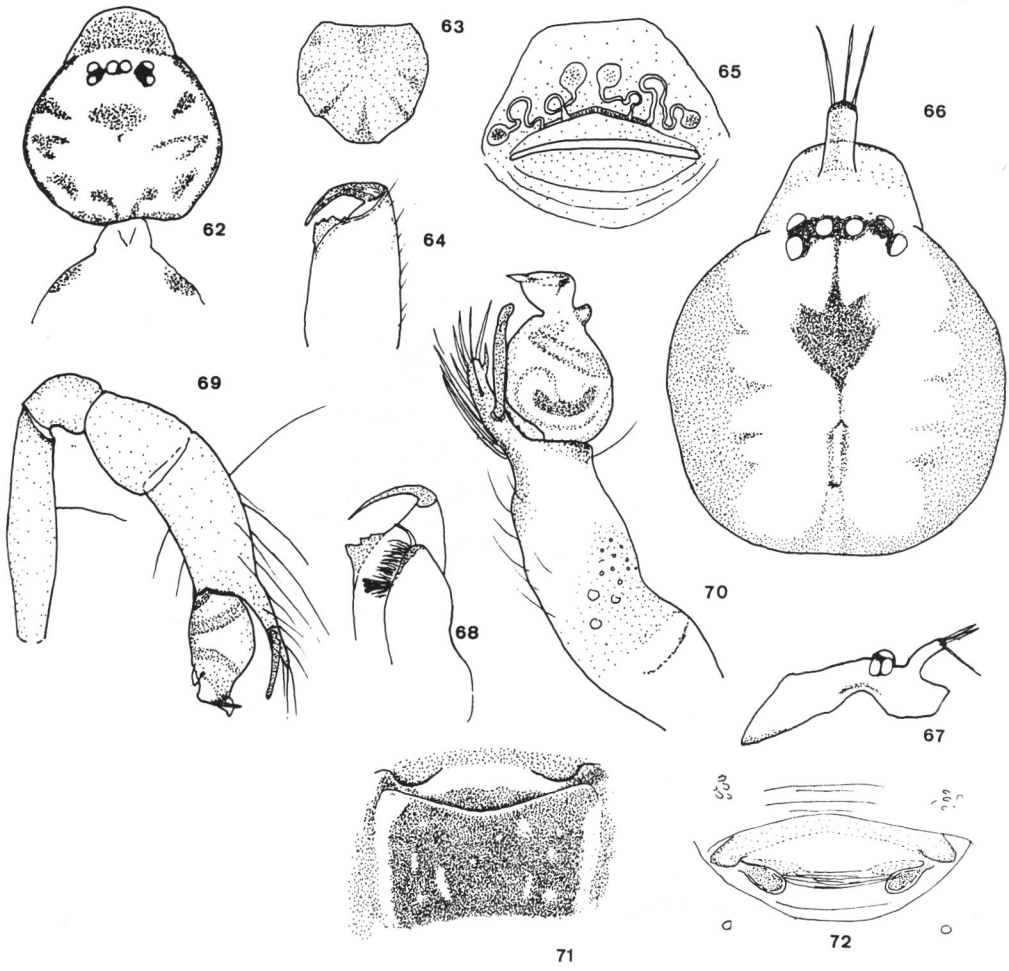
Psiloderces elasticus Brignoli, new combination
(Map 4)

Merizocera elastica Brignoli, 1975: 237, fig.8-10, 14b (female, Sri Lanka, Southern Province).

Fig. 10 shows a vulva having the characteristics of the *mulcatus* group rather than of *Merizocera*.

Habitat.- Forest reserve, bordered by rubber and rice plantations. Elevation 40 m.

Material examined.- None.



Figs. 62-72: Figs. 62-65. *Psiloderces penaeorum*, new species, female holotype: 62. Carapace, dorsal (c). 63. Sternum (c). 64. Chelicer (d). 65. Vulva (e). Figs. 66-72. *P. enigmatus*, new species: 66. Male, carapace, dorsal (d). 67. Id., profile (c). 68. Male, chelicer and maxilla (e). 69. Male, right palp, retrolateral (d). 70. Id., dorsal-retrolateral (e). 71. Female, epigastric area (d). 72. Vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

FEMALE. Carapace pattern as in the male, no clypeal projection, abdomen underside darker than upperside, with a pair of parallel white lines (fig. 71). Genital area with a pair of lateral protruding lobes. Vulva fig. 72.

Measurements in mm of the holotype: carapace 0.7 long, 0.6 wide, abdomen missing.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	missing					
II	1.4	0.2	1.5	1.5	0.8	5.4
III	1.1	0.15	1.1	1.2	0.6	4.1
IV	missing					
palp	0.4	0.1	0.4	-	0.1	bulb 0.2

Female: carapace 0.7 long, 0.6 wide, abdomen 1.0.

leg I	1.6	0.3	1.8	1.9	0.7	6.3
II	1.3	0.25	1.3	1.2	0.7	4.7
III	1.1	0.25	1.0	1.1	0.6	4.0
IV	1.5	0.25	1.8	1.6	1.0	6.1
palp	0.3	0.1	0.2	-	0.4	

Type data.- Holotype, male, MALAYSIA: W. SARAWAK, Matang (Mt.Serapi), 400 feet, wet leaf litter in forest after heavy rain, 12.i.1984 (P. R. and C. L. Deeleman) (BPBM); female paratype, W.SARAWAK, Semengoh Arboretum S.W of Kuching, forest, by sieving leaf litter, 4-10.i.1984 (P.R. and C.L.Deeleman) (CD).

Etymology.- From the Greek *ainigma*, a riddle.

Psiloderces pulcher, new species
(Figs. 73-79)

Diagnosis.- Beautiful orange coloured, eyeless species with ornated clypeus and long legs.

Description.- MALE. Carapace (fig. 72, 73), sternum and legs pale orange, abdomen white. Eyes absent. Protrusion of clypeus longer than in *enigmatus*, with a pair of flattened straight spines in prolongation of it and a pair of round curved spines on the sides. Mouthparts and sternum as in *P. enigmatus*. All metatarsi longer than tibiae. Palp fig. 74, 75, tibia and tarsus less incrassate than in *enigmatus*, the distal prolongation of the tarsus longer, the flattened appendage wide and incurvate.

FEMALE. Colour as male. Legs shorter than in male, metatarsi not longer than tibiae. Abdomen fig. 76, Genital area fig. 77, vulva fig. 78.

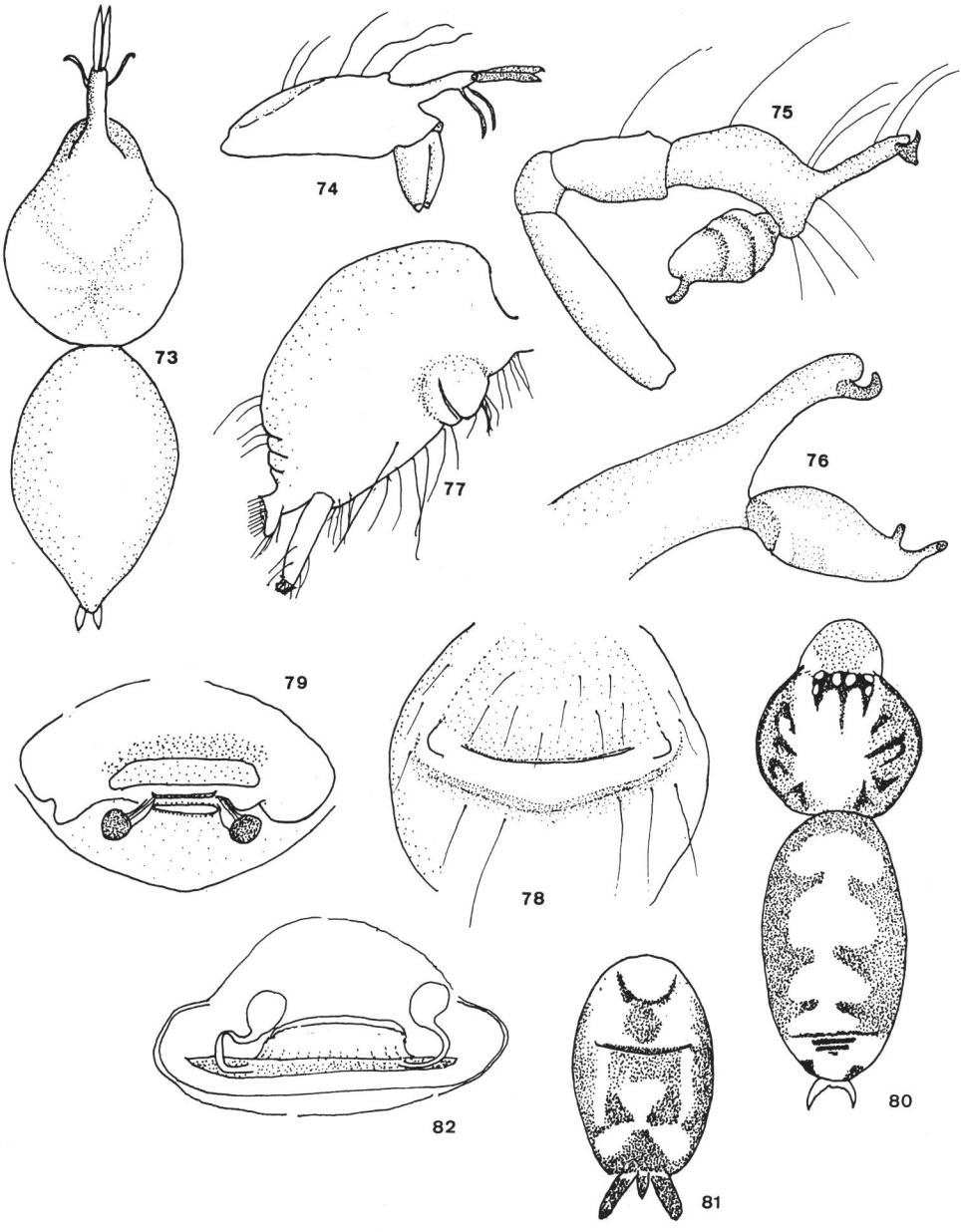
Measurements in mm of the holotype: carapace 0.7 long, 0.6 wide, abdomen 1.0.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	2.9	0.2	3.0	3.2	1.2	10.5
II	2.0	-	-	-	-	7.8
III	1.4	-	-	-	-	5.4
IV	2.2	0.2	2.4	2.5	2.2	9.5
palp	0.5	0.1	0.24	-	0.4	bulb 0.2

Female (Snake cave): carapace 0.8 long, 0.7 wide, abdomen 1.2.

Leg I	2.3	0.2	2.4	2.2	1.0	8.1
leg II-IV	missing					
palp	0.5	0.15	0.25	-	0.4	

Type data.- Holotype, male, MALAYSIA: E. SARAWAK, Mulu National Park, Snake cave (Gua Siput), no date (P. Chapman) (BMNH, code MULU, ARAN. 21). 1 female paratype, same data, in BMNH.



Figs. 73-82: Figs. 73-79. *Psiloderces pulcher*, new species: 73. Male, carapace and abdomen, dorsal (c). 74. Id., profile (c). 75. Male, right palp, retrolateral (d). 76. Id., tarsus and bulb, dorsal (e). 77. Female, abdomen, profile (Siput) (c). 78. Id., epigastric area (d). 79. Vulva (e). Figs. 80-82. *P. tesselatus*, new species, female, holotype: 80. Carapace and abdomen (c). 81. Venter (c). 82. Vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Other material examined.- 1 female, 1 subadult male, several juveniles, Guar watercave (Gua Terangair), guano patches, inflation passage, 14.iv.1978 (Chapman) (BMNH, code MULU Aran.20).

Etymology.- *pulcher* (Lat.) = beautiful.

Relationships.- Closely related to *P. enigmatus*.

Remark.- The adult female from Guar watercave has considerably longer legs than that from the Snake Cave: leg I total 11.6, leg II total 8.8, other legs missing.

Psiloderces tesselatus, new species
(Figs. 80-82, Map 5)

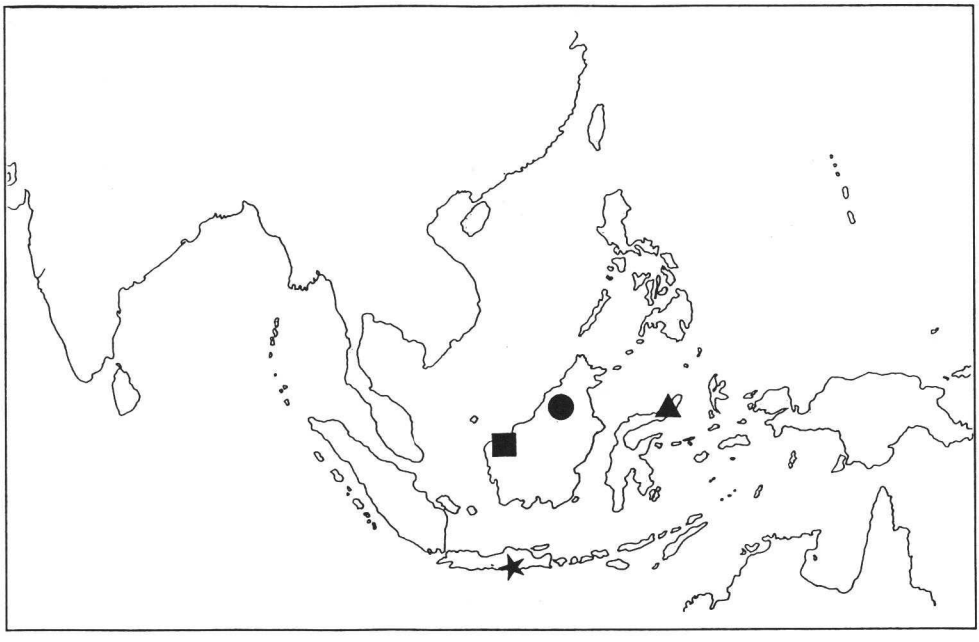
Diagnosis.- Species with all leg segments annulated; female genital area with wide epigastric opening, bordered with "collar".

Description.- FEMALE. Pattern of carapace and abdomen as in fig. 80, venter fig. 81, sternum dark with lighter center, coxae striped, femora dark with two white bands and a white apex, other segments essentially dark with light apex. Cheliceral margin with small lamina and some granulations. Genital area strongly bulging. Vulva fig. 82. Epigastric fold very wide. Centrally a transverse flange arising from the posterior margin, doubled by a similarly shaped lamella from the anterior margin, together forming a sort of sleeve, possibly to guide eggs in the process of being laid. The width corresponds with the diameter of eggs found in the abdomen.

MALE unknown.

Measurements in mm of the holotype: carapace 0.7 long, 0.6 wide, abdomen 1.0.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	1.1	0.2	1.3	1.2	0.8	4.6
II	1.0	-	-	-	-	3.8
III	0.8	-	-	-	-	3.2
IV	1.1	0.2	1.2	1.2	0.7	4.4
palp	0.2	0.1	0.15	-	0.25	



Map 5. Triangle - *P. ligula*, square - *P. enigmaticus*, circle - *P. pulcher*, asterisk - *P. tesselatus*.

Type data.- Holotype, female, INDONESIA: C.JAVA, Karang Bolong near the south-coast, in bamboo litter, 5.vii.1979 (P. R. and C. L. Deeleman) (BPBM); female paratype, holding 3 eggs with her chelicerae, same data (CD).

Etymology.- *tesselatus* (Lat.) refers to the checkered appearance of the femora and the venter.

VIII. *Althepoides* group

Psiloderces althepoides, new species
(Figs. 83-87, Map 6)

Diagnosis.- Very long-legged species, with distinctive colour pattern and genital organs.

Description.- MALE. Pattern of carapace as in the female, sternum with a wide central band, dorsum of abdomen as in the female (fig. 83), venter dark, genital area and lung covers white, a pair of white parallel lines and posteriorly a narrow transverse band, legs very pale, almost transparent, some segments with a dark distal seam. Cheliceral lamina and teeth small; maxillae and labium fig. 84. Palp fig. 85, 86.

FEMALE. Colour: carapace, sternum, abdomen fig. 83, legs lightly coloured, tips of the femora white, segments of palps with dark brown tips. Genital area in the middle between pedicel and spinnerets, bulging, slightly longer than wide. Vulva fig. 87.

Measurements in mm of the male: carapace 0.6 long, 0.6 wide, abdomen 0.8.

	Fe	Pa	Ti	Mt	Ta	Tot.
I	2.7	0.2	3.0	2.8	1.1	9.8
II	1.9	-	-	-	-	6.5
III	1.5	-	-	-	-	5.1
IV	2.3	0.2	2.3	2.1	0.8	7.7
palp	0.2	0.1	0.1	-	0.2	bulb 0.2

Female: carapace 0.6 long, 0.5 wide, abdomen 0.9.

Leg I	1.7	0.2	1.4	1.4	0.8	5.5
II	1.1	-	-	-	-	4.2
III	0.9	-	-	-	-	3.0
IV missing						
palp	0.3	0.1	0.1	-	0.2	

Type data.- Holotype, male, MALAYSIA: SABAH, Kota Kinabalu, Park in town, on slope, from finely mazed horizontal sheet web, 27.vii.1980 (C. L. Deeleman) (MHNG); 1 female paratype, same data (MHNG).

Other material examined.- W.SABAH, Tamparuli, 1 female, in rubber plantation, 1.vii.1979 (P. R. and C. L. Deeleman) (CD).

Etymology.- *althepoides* = similar to *Althepus*; its long legs and its habits recall this genus.

Remark.- The species was not taken from litter as most other forest-dwelling *Psiloderces*,

but from a dense, *Lepthyphantes*-like sheet web just above the substratum, which is characteristic for *Althepus*.

Relationships.- No close relationships.

IX. *Howarthi* group

Psiloderces howarthi, new species

(Figs. 88-93, Map 6)

Diagnosis.- Troglomorph spider with long slender male palp, with short tarsus and apically placed long thin bulb; epigyne very deviant, shaped as a finger-like projection.

Description.- MALE. Pale, long-legged spider, eyes as in the female (fig. 89), median eye diad slightly in front of the lateral diads, median and lateral diad at least one eye diameter apart. Somatic characters as the female. Abdomen with some strong setae ventrally. Palpal tibia (fig. 91) provided with a row of 4 retrolateral spines in distal half, the two middle ones curved distally, the distalmost the longest and strongest; dorsally a straight row of hairs and apically a strong spine. Palpal tarsus lacking distal prolongation over the alveolus; bulb syringiform, placed apically on the tarsus, simple, petering to the slightly curved tip.

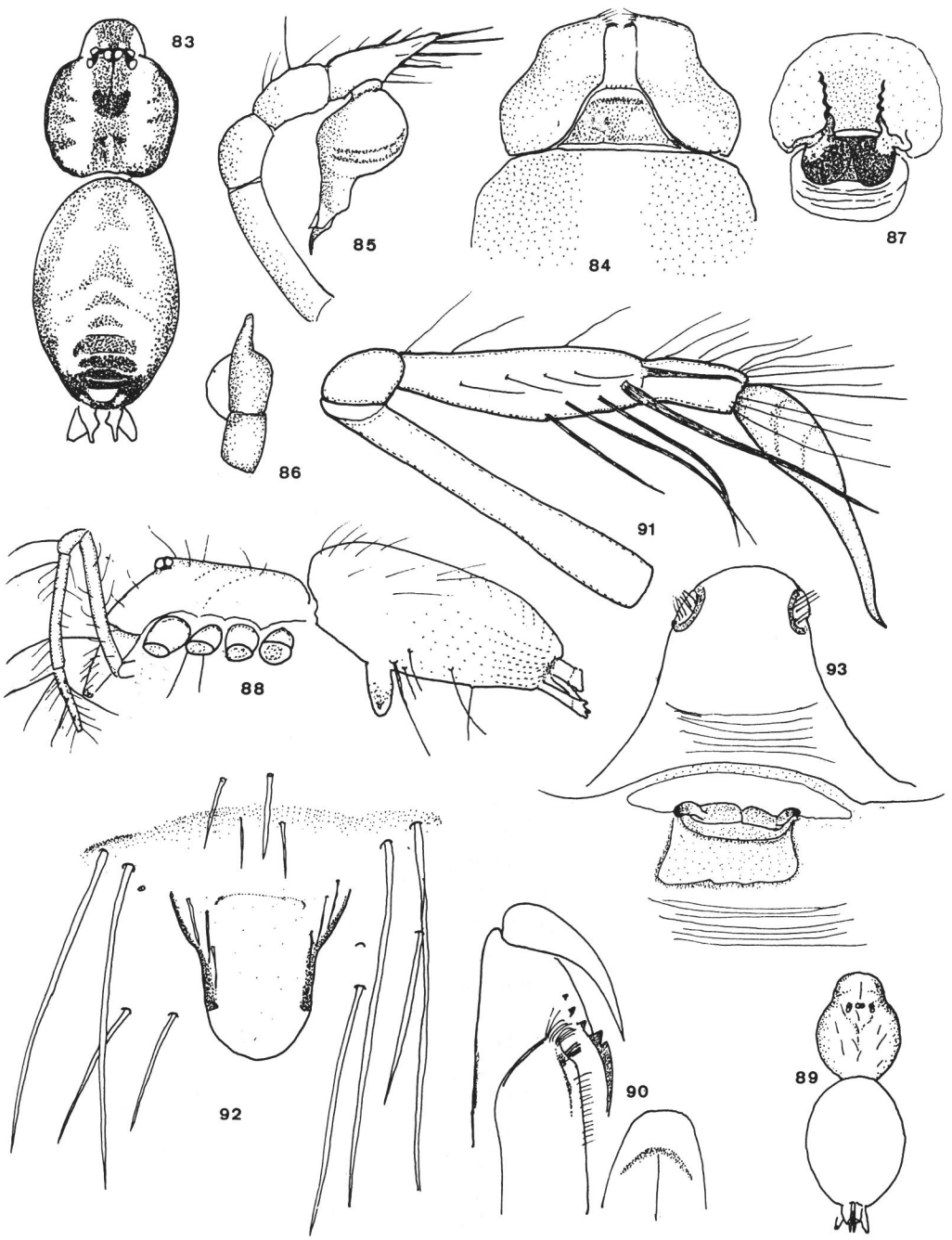
FEMALE (fig. 88, 89). Whole spider pale yellow, eyes colourless. Sternum and venter with strong stiff setae, border of sternum with bulge adjacent to each coxa. Labium longer than wide, distinctly rebordered (fig. 90), maxillae less acuminate than in most other species, with parallel margins. Chelicerae (fig. 90) with large lamina and 3 teeth on promargin, none on retromargin. Anterior spinnerets bearing ventrally, near the base, some strong conspicuous setae, posterior spinnerets with appr. 20 spigots. Vulva very peculiar, with large central projection over the epigastric furrow, sticking out perpendicularly, consisting of soft tissue; lateral border of projection lined with a chitinized strip and a row of setae. This structure is not connected with the spermathecae and may constitute a guiding device for the male. Spermathecae on a membranous replicate prolongation of the posterior border of the genital opening. Lateral and distal to the epigynal projection some very long strong setae.

Measurements of the male in mm: carapace 1.1 long, 1.0 wide, abdomen 1.5.

	Fe	Pa	Ti	Mt	Ta	Tot.
leg I and II missing						
III	3.0	0.3	3.5	2.7	1.0	10.5
IV	4.8	0.3	5.0	4.5	1.5	16.1
palp	0.77	0.15	0.72	-	0.20	bulb 0.62

Female holotype: carapace 1.1 long, 0.9 wide, abdomen 1.8.

Leg I	5.3	0.3	5.4	5.5	1.7	18.2
II	3.9	0.35	4.1	3.8	1.4	13.5
III	2.4	0.3	2.6	2.2	0.9	8.4
IV	3.9	0.4	4.0	3.5	1.2	13.0
palp	0.8	0.15	0.6	-	0.5	



Figs. 83-93: Figs. 83-87. *Psiloderces althepoides*, new species: 83. Female, carapace and abdomen, dorsal (c). 84. Male, maxillae and labium (e). 85. Male, right palp, retrolateral (e). 86. Id., dorsal (d). 87. Vulva (e). Figs. 88-93. *Psiloderces howarthi*, new species female: 88. Profile (c). 89. Dorsal (a). 90. Chelicer, maxilla and labium (e). 91. Male, right palp, dorsal-retrolateral (d). 92. Female, external projection of vulva (d). 93. Vulva, from behind (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Type data.- Holotype, female, THAILAND: Changwat Ratburi, Amphoe Muang, Ban Huay Ta Kaeng, Phraya Prap cave, 13°35'N,99°45'E, in web in dark part, 26.vii.1981 (F. D. Stone, P. Round and B. Dobias) (BPBM), 1 female paratype, same data (BPBM), 1 male, 2 female paratypes, same data, 10.iii.1986 and 2 female paratypes, 20.iii.1986 (P. R. and C. L. Deeleman) (MHNG and CD).

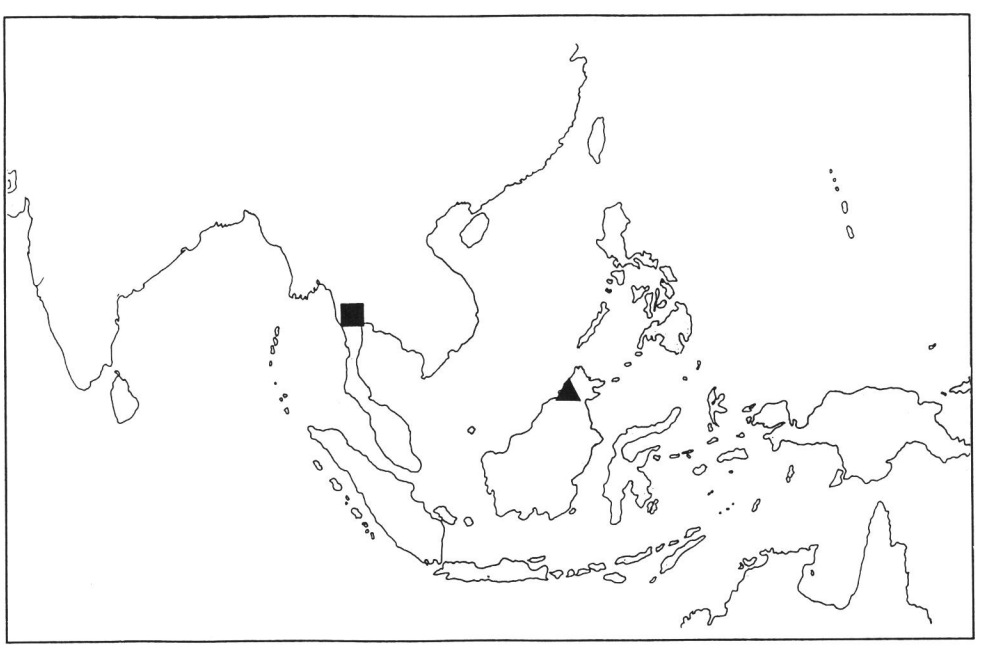
Etymology.- In recognition of Francis Howarth, who stimulated me to start this study.

Relationships.- No close relationships; female genital organ different from all other species by the huge perpendicular projection over the spermathecae. The large size, pale colour, long legs and long labium are probably adaptations to cave life. This is the only *Psiloderces* species which shares with the type species *egeria* the character leg II longer than leg IV. According to the structure of the male palp, the closest relatives are the clustered species described from northern Thailand: *P. septentrionalis*, *P. suthepensis*, *P. albostictus* and *P. vulgaris*.

Remark.- A juvenile specimen was kept alive and put in a glass jar with some humus on the bottom and fed on *Drosophila* and collembolans. It constructed a sheetweb 5-10 cm above the substratum and positioned itself upside down under the web, with the abdomen vertically upward, *Pholcus*-fashion. It was seen approaching a fly caught in the web and biting it several times; the prey was not wrapped.

The spider passed through the subultimate moult in captivity one month after capture, but died before the final moult.

Remark on the type locality. - The cave is situated in a small, isolated limestone outcrop, rising from the plain. The whole formation is only a few kilometres long and at present is being quarried by the cement industry. It is to be feared that if this activity is continued, the whole outcrop will disappear, and this highly interesting species along with it.



Map 6. Triangle - *P. althepoides*, square - *P. howarthi.*

Merizocera Fage, 1912

Merizocera Fage, 1912: 134, fig.82-98

Type species. - *Ochyrocera cruciata* Simon.

Diagnosis.- Bulb with embolus and chitinous apophysis, the bases of which separated. Female genital organ distinct by the absence of well-defined spermathecae: vulva consisting of an unpaired atrium and an arched chitinized structure. In profile, height of head less than half the length of carapace (clypeus not included). Chelicerae as in *Psiloderces*.

The genus has the somatic characters of *Psiloderces*, but there are fundamental differences in male and female genital organs. It shares with this genus the tibiae which are longer than the metatarsi (except in species with very long legs such as *M. mus* and *M. stellata*, where metatarsi are longest).

Fage (1912) reports the absence of a bunch of "multifid setae" in the maxillae in *Merizocera*. I found however such a bunch to be present in all species examined. Fage indicates furthermore that the two genera differ by the shorter clypeus in *Merizocera* and the longer labium. The material examined by myself confirms this distinction, however it is not conclusive as there is considerable overlap in the two genera. He also describes in *Merizocera* a row of granulations on the upper cheliceral margin in continuation of the crest, whereas in *Psiloderces* there are 2-3 denticles. This is in accordance with my observations, but this state is also found in some *Psiloderces* species. Fage & Barros de Machado (1951) report the presence of booklungs.

Web-construction.- Bristowe (1952) observed *M.crinita* from "... fine-textured sheet web, in an inverted position on the lower side". In accordance to this, *M. mus* was found on the underside of a large, very finely-mazed sheet between big stones in a cave.

Misplaced species. - *M. elastica* Brignoli, 1975 seems to be a *Psiloderces*.

Merizocera cruciata (Simon)
(Fig. 109, Map 7)

Ochyrocera cruciata Simon, 1893b: 247 (description male and female, Sri Lanka, Nuara Elyia). - Simon, 1893c: 282, fig. 245

Merizocera cruciata: Fage, 1912: 135, fig.82-91 (redescription male and female of the type material). - Brignoli, 1975: 234, fig. 5, 6, 7, 14a (females from various localities in Sri Lanka).

The figure of the vulva by Brignoli shows an unpaired structure, no spermathecae are apparent. The palps of the male examined by me and other features are conform that figured by Fage. The only female available to me has not been dissected. Anterior face of maxilla Fig. 109.

Type data.- The type locality Nuara Elyia is at 1800 m on the Central High Plateau of Sri Lanka and *cruciata* evidently is a high-altitude spider. Brignoli records females of this species from a.o. the Western Province of Sri Lanka at altitudes of 100-300 m. Environmental conditions, flora and fauna in the High Central Plateau are very different from those in the surrounding lowland and it would be surprising if they harbour the same species.

Material examined.- SRI LANKA: 1 male, 1 female, Central Province, Horton Plains, south of Nuara Eliya, 2200 m, in leaf litter, 13-15.viii.1981 (P. R. and C. L. Deeleman) (CD).

Merizocera cf. *picturata* (Simon)
(Figs. 94-96, Map 7)

Ochyrocera picturata Simon, 1893b: 247 (female, Sri Lanka: Kandy, Maturata)
Merizocera picturata Fage, 1912: 138, fig. 92-98 (redescription of the type).

The two females examined agree with Fage's description. Measurements of the Ratnapura female: carapace length 0.6 mm, width 0.6 mm, ratio carapace/clypeus 3:1, legs missing, palp femur 0.3, patella 0.1, tibia 0.2, tarsus 0.3. Carapace and abdomen fig. 94, chelicerae light, maxillae dark, sternum violet with dark edge, lighter in the centre; genital area light, behind that a dark area flanked by a pair of longitudinal light bars. Palpal femur white, patella and tarsus dark, tibia proximally white, distally dark. Vulva fig. 95, 96.

Material examined.- SRI LANKA: Ratnapura, 1 female, forest below tennis court, elevation 300 m, in leaf litter, 21+ 22.viii.1981 (P. R. and C. L. Deeleman); Kandy, 1 adult and 1 subadult female, bamboo litter, elevation 600 m, 17.viii.1981 (P.R. and C.L. Deeleman) (CD).

Merizocera brincki Brignoli
(Map 7)

Merizocera brincki Brignoli, 1975: 235, fig.1-4, 14c (male, Sri Lanka, Uva Province).

Habitat.- Along cascading stream in partly wooded ravine near tea plantation, elevation 1100 m.

Material examined.- None.

Merizocera oryzae Brignoli
(Map 7)

Merizocera oryzae Brignoli, 1975: 237, fig.11-13, 14d, 15 (male, Sri Lanka, Southern Province).

Habitat.- Under stones near stream from paddy fields, elevation 30 m.

Material examined.- None.

Merizocera cf. *crinata* (Fage)
(Fig. 97, Map 7)

Psiloderces crinitus Fage, 1929: 14 (3-4): 361 fig.5+6 (female, Batu cave, Malaysia, 300 m from the entrance).- Bristowe, 1952: 702, fig. 8 (male from Batu cave).
Psiloderces crinita: Roewer, 1942: 332.
Merizocera crinita: Brignoli, 1979: 598.

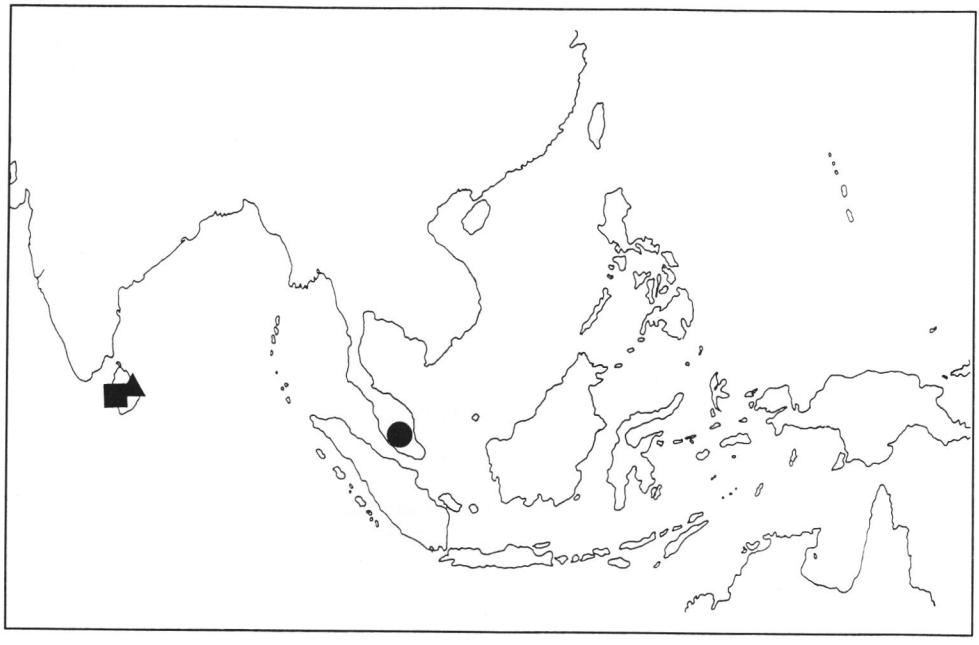
Description.- The total length of the specimens from Templer's Park studied is only 1.1 - 1.4 mm, which is much smaller than the type which is reported to be 2.5 mm long. The leg dimensions are strongly disparate from that in the cave material (see remarks). The vulva presents an unpaired rod (fig. 97) as in *cruciata* (Brignoli, 1975: fig. 7), which is external and can be seen protruding on the abdominal surface. The male palp seems identical with that illustrated by Bristowe.

Measurements in mm: female (Templer's Park), total length 1.20, carapace 0.48 long.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	0.92	0.14	1.10	1.03	0.55	3.74
palp	-	-	-	-	-	0.50
Largest female, total length 1.37, carapace 0.55.						
Leg I	1.10	0.17	1.23	1.14	0.69	4.33

Material examined.- MALAYSIA: 1 male, 3 females, Templer's Park near Kuala Lumpur, in litter on dark shaded slope, 21.iii.1985 (P. R. and C. L. Deeleman) (MHNG and CD).

Remarks.- The absolute length of the legs in the type material is not given: they are only reported to be "remarkably long and fine, with tarsi with false articulations". I could not observe any such articulations in the specimens from the forest. In the type, the metatarsus I is longer than the tibia and femur I is $2^1/_2$ times longer than the body length and therefore differs considerably from the forest material. It should be borne in mind that the type locality is a cave and leg length is a feature that is easily transformed (see *Althepus stonei* and *A. javanensis*); gigantism in caves is a well-known phenomenon. As the male palp agrees with the Batu cave specimens, I am inclined to consider, with some reserve, the material from the Park, which is at short distance from the Batu caves, to be conspecific with the cave form.



Map 7. Triangle - *Merizocera cruciata, M. brincki*, square - *M. picturata, M. oryzae*, circle - *M. crinata*.

Merizocera mus, new species

(Figs. 98-103, Map 8)

Diagnosis.- The hairy protrusion on the male clypeus is conspicuous; further distinct by the large size (perhaps associated with cave-life) and the genital organs.

Description.- MALE. Carapace, sternum, mouthparts, legs and ventral side of abdomen uniform pale violettish yellow, base of femora and bands around joints darkenend, dorsal and lateral sides of abdomen darkened; clypeus projected as a hairy snout (fig. 98, 99). Chelicerae (fig. 100) with large lamina. Palp fig. 101.

FEMALE. Colour as male. Clypeal projection absent, clypeus darkened in the middle, mouthparts as in male. Epigastric area fig. 102, vulva fig. 103.

Measurements in mm of the male holotype and female paratype: carapace 1.0 long, 0.9 wide, ratio carapace/clypeus 15:7, abdomen 1.1. Female (Tham Kaeo): carapace 0.8 long, 0.85 wide, ratio carapace/clypeus 15:6, abdomen 1.3.

Male:

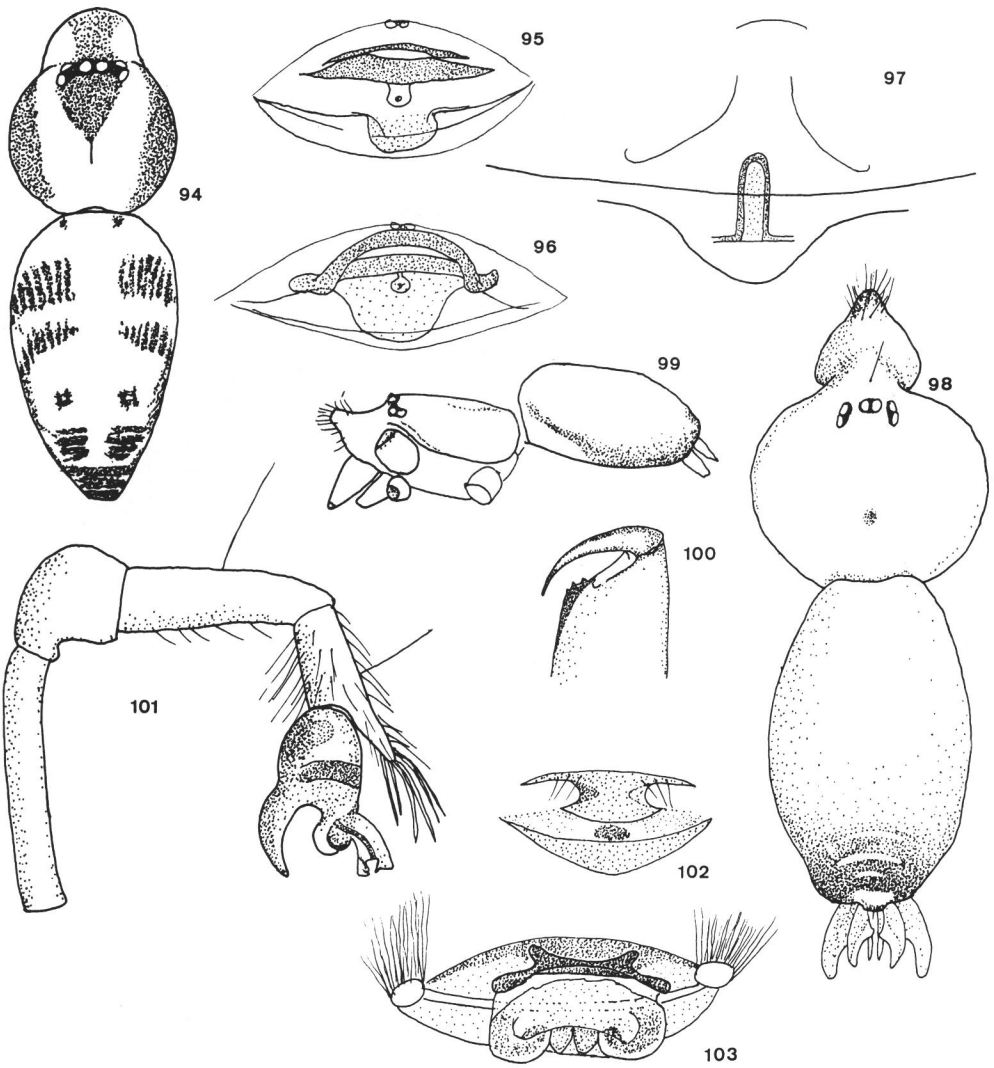
	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	5.3	0.3	5.5	6.7	1.6	19.4
II	3.5	0.3	3.6	4.0	1.1	12.5
III	2.8	0.3	2.8	3.0	1.0	9.9
IV missing						
palp	0.5	0.2	0.4	-	0.3	

Female:

Leg I	4.2	0.2	4.3	5.3	1.4	15.4
II	2.7	0.3	2.9	3.4	1.4	10.7
III	2.4	0.3	2.1	2.5	0.8	8.1
IV	3.4	0.3	3.5	3.8	1.1	12.1
palp	0.5	0.15	0.25	-	0.4	

Type data.- Holotype, male, THAILAND: Changwat Hua Hin, Amphoe Pranburi, Khao Sam Roi Yot National Park, Tham Sai Cave, 26.vii.1987 (P.Leclerc) (MHNG); 1 female paratype, and 2 juveniles, same data (MHNG); 2 male and 1 female paratypes, same data, in large fine sheet-webs, 7.xii.90 (C.L.Deeleman); 1 female paratype, 1 juvenile, same locality, Kaeo cave, in the middle, moist part of the cave on a slope in a concavity of the wall, 3.i.1989 (A.P.B. and C.L.Deeleman and Y.Roerink) (CD).

Etymology.- *Mus* (Lat.) = mouse, referring to the snout-like clypeus in the male. Used as a noun in apposition.



Figs. 94-103: Figs. 94-96. *Merizocera* cf. *picturata* (Simon) female: 94. Carapace and abdomen (Ratnapura) (c) 95. Vulva, ventral (e). 96. Id., anteroventral (e). Fig. 97. *M.* cf. *crinita* (Fage) female: vulva (microscopic preparation). Figs. 98-103. *M. mus*, new species: 98. Male, carapace and abdomen (c). 99. Id., profile (b). 100. Male, chelicer (e). 101. Male, right palp, retrolateral (d). 102. "Epigyne" (d). Fig. 103. Vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Merizocera stellata (Simon), new combination
(Figs. 104-108, 110, Map 8)

Ochyrocera stellata Simon, 1905: 22 (2): 59 (female Java, Buitenzorg = Bogor)
Althepus stellatus Fage, 1912: 5 (10) 2: 147, fig.123-129 (redescription of the type).

Diagnosis.- Relatively large species with contrasting pattern on body and legs. Sternum with four pairs of bulges.

Redescription.- FEMALE. Colour in type faded, in specimen from Karang Bolong: pattern carapace, sternum and abdomen fig. 104, 105, chelicerae predominantly white, maxillae basally white, leg IV femur violet with subapical and apical white ring between which a dark band, patellar base white, distally dark, tibia base dark, with subapical and apical white ring; metatarsus and tarsus white, palp annulated. Cheliceral margin with small basal lamina and one strong tooth distally (fig. 106). Maxilla fig. 110. Sternum with bulges opposite coxae. Epigastric area bulging, vulva (fig. 107, 108) large, framed by a faintly darkened sclerotized ridge, composed dorsally of a concave sclerotized arch, on whose ventral surface is inserted a pair of spermathecae and which is connected with a ventral roughly triangular plate, traversed by an unpaired coiled sack.

MALE unknown.

Measurements in mm of the holotype: carapace long 0.9, wide 0.8, abdomen 1.2.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	lost					
II	2.25	0.25	2.2	2.4	0.8	7.9
III	1.7	0.25	1.6	1.7	-	-
IV	2.6	-	-	-	-	-
palp	0.3	0.1	0.3	-	0.25	-

Female from Karang Bolong: carapace long 0.9, wide 0.8, abdomen 1.2.

Leg I-III	lost					
IV	2.4	0.3	2.5	2.5	0.8	8.5
palp	0.4	0.1	0.2	-	0.3	

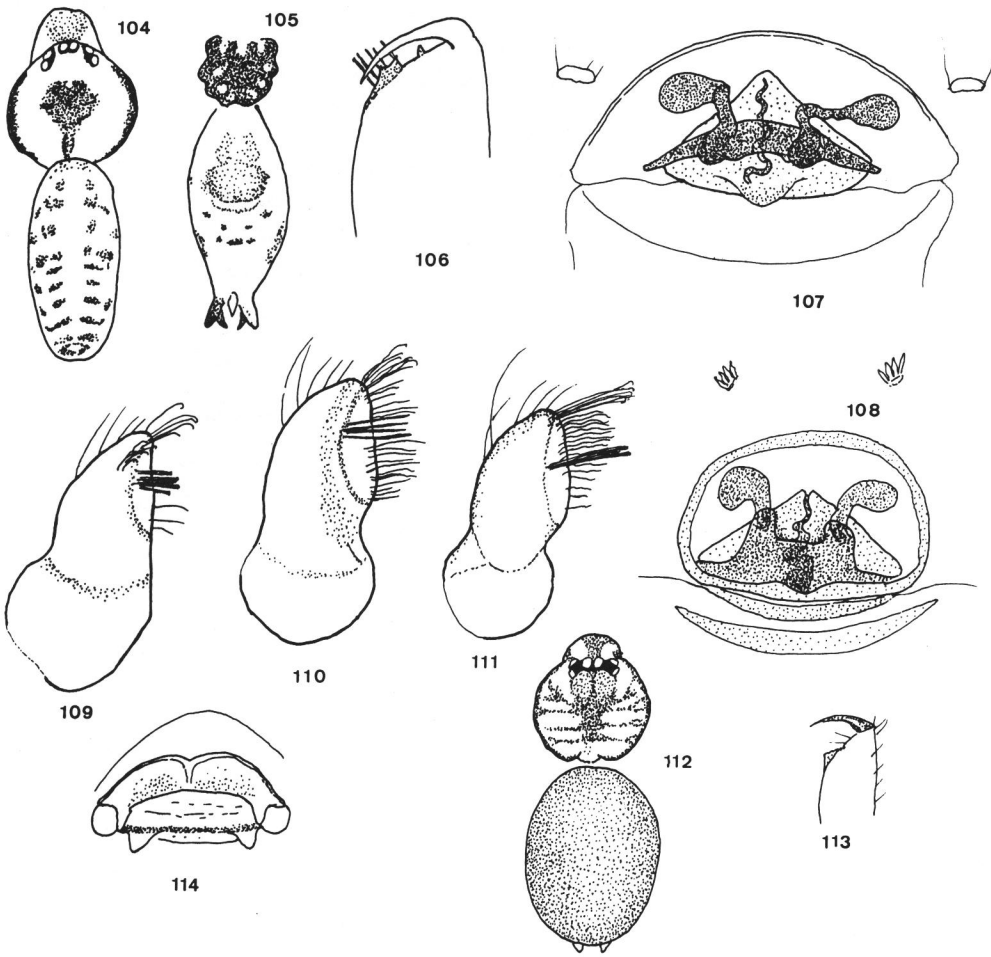
Type data.- Holotype, female, INDONESIA: W.JAVA, Bogor, 24.ii - 12.iii.1904 (K.Kraepelin) (ZIMH), examined.

Other material examined.- INDONESIA: S.JAVA, Karang Bolong, in bamboo litter, 1 female, 1 juvenile, 5.vii.1979 (P. R. and C. L. Deeleman) (MHNG); ? 2 juveniles, E. Java, Pudjon Pass east of Malang, 800 m, leaf litter, 18.vii.1982 (P. R. and C. L. Deeleman) (CD).

Remark.- This species has been assigned to the genus *Merizocera* by me on the base of the structure of the vulva, viz. the presence of a sclerotized arch, a framing ridge around the vulval plate, and the unpaired sac. As knowledge in the Ochyroceratidae of the functioning of the various elements of the female genital organ is an untouched field, there is as yet no firm base for their classification. This species seems to hold an intermediate position between *Merizocera* and *Leclercera*.

Merizocera pygmaea, new species
(Figs. 112-114, Map 8)

Diagnosis and description.- FEMALE. Holotype very small. Pattern of carapace as in fig. 112, sternum dark with light central area in front, abdomen and legs uniform dark. Chelicerae fig. 113. Vulva fig. 114.



Figs. 104-114: Figs. 104-108. *M. stellata* (Simon): 104. Female, carapace and abdomen (Karang Bolong (b). 105. Id., sternum and abdomen (b). 106. Id., chelicer (e). 107. Id., vulva (e). 108. Female holotype, vulva (e). Figs. 109-111. Right maxilla, anterior face. 109. *M. cruciata* (Simon), male, (Horton Plains) (e). 110. *M. stellata*, holotype, female (e). 111. *Psiloderces leucopygius*, new species, male (e). 112-114. *M. pygmaea*, new species, female, holotype: 112. Carapace and abdomen, dorsal (c). 113. Id., chelicer (e). 114. Id., vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Measurements in mm of the holotype: carapace 0.4 long, 0.35 wide, abdomen 0.6.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	-	-	-	-	-	2.3
II	missing					
III	-	-	-	-	-	1.8
IV	0.6	0.1	0.7	0.6	-	-
palp	0.14	0.05	0.08	-	0.15	

Type data.- Holotype, female, THAILAND: Changwat Hua Hin, Amphoe Pranburi, Sam Roi Yot National Park, in leaf litter in secondary forest on limestone, 31.xii.1988 (P. R. and C. L. Deeleman) (CD).

Etymology.- *Pygmaea* refers to the spider being small and dark.

Leclercera, new genus

Type species. - *Leclercera khaoyai*, new species.

Diagnosis.- Chelicerae with double teeth-row, in combination with rounded posterior margin of thorax and shallow thoracic groove. Male palp with retrolateral apophysis on either the tibia or the tarsus.

Species of this genus can be separated from *Psiloderces* and *Merizocera* by the presence of teeth on the retromargin of the chelicerae, the rounded maxillae, the longer labium; the cheliceral lamina has a tendency to reduction. Moreover, the spiders generally are larger, their abdomen is more elongated and their legs long and thin, *Pholcus*-like. *M. stellata* holds an intermediate position between *Merizocera* and *Leclercera*.

Leclercera species can be separated from species of *Althepus* by the rounded posterior margin of the carapace, the longer clypeus, smaller size and shorter legs and in the male palp by the smaller and less complex conductor. The fovea is shallow and does not reach the posterior thoracic margin. The structure of the vulva is diverse. In some species, males have a stridulatory device on the pedicel and the abdomen.

Habitat.- *Leclercera ocellata* was taken from large, finely-mazed sheetwebs under roots of big trees and in riverbanks.

Etymology.- The genus is named for Philippe Leclerc, in recognition of his "third eye" in detecting and collecting these frail tiny spiders through the years in Thailand and Sulawesi caves and donating them.

Leclercera khaoyai, new species
(Figs. 115-119, Map 8)

Diagnosis.- Characteristic light and dark pattern; male with stridulatory wings on pedicel; distinctive male and female genital organs.

Description.- MALE. Carapace, sternum and dorsal and ventral side of abdomen fig. 115, 116. Legs pale, femoral base and tip darkened. Ratio carapace/clypeus 3:1. Chelicerae with small lamina. Pedicel with a pair of club-shaped lateral sclerotized projections, situated opposite a pair of cup-shaped plates on the abdomen (stridulatory organ). Palp fig. 117, 118.

FEMALE. Pattern as in male, femora with white proximal band, patella dark. Ratio carapace/clypeus 3:1. Stridulatory organ absent. Vulva fig. 119, surface finely striped; no spermathecae or ducts apparent.

Measurements in mm of the male holotype and a female paratype:

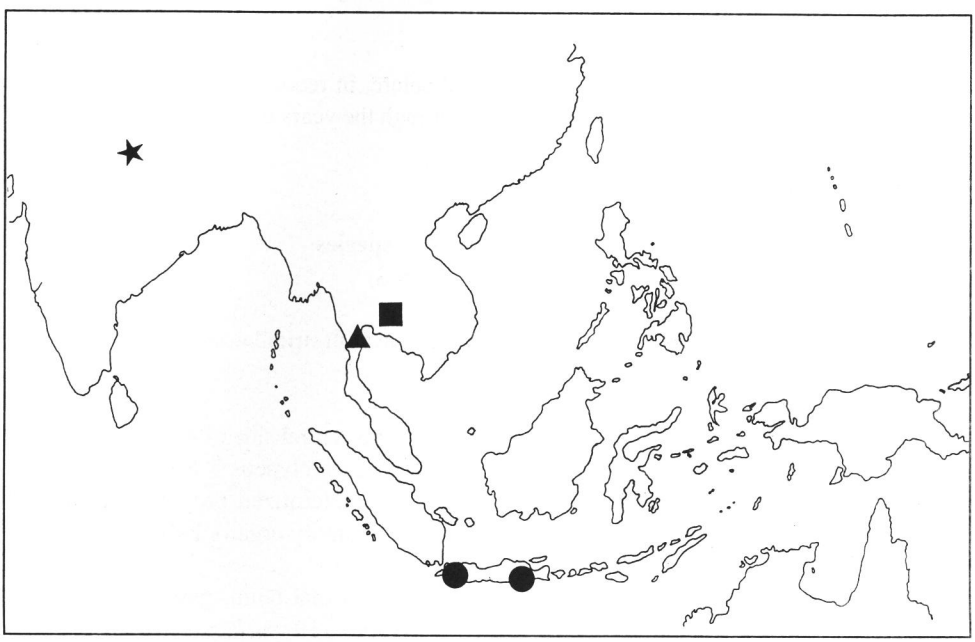
	car length	car width	abd	leg I	leg II	leg III	leg IV
Male	0.9	0.8	1.5	6.5	5.4	4.3	6.8
Female	0.9	0.8	1.2	6.1	4.9	3.8	5.9

Male palp	femur 0.5	patella 0.1	tibia 0.3	tarsus 0.2	bulb 0.2
Female palp	femur 0.4	patella 0.1	tibia 0.2	tarsus 0.3	

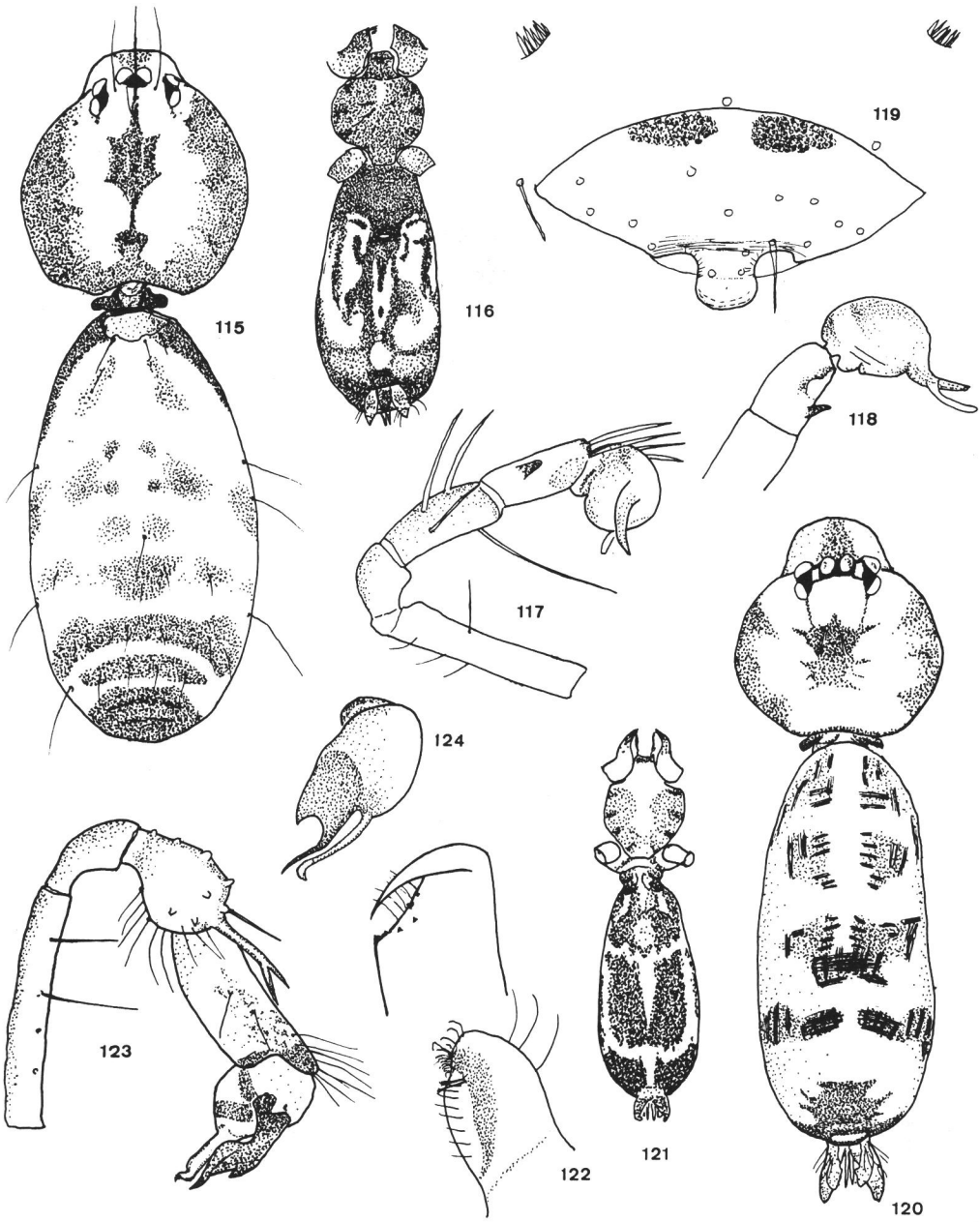
Type data.- Holotype male, C. THAILAND: Changwat Sakhon Nayok, Khao Yai National Park, 800 m, motor lodge area, in litter in secondary forest near pool, 8.xi.1987 (P.R. and C.L. Deeleman) (MHNG); 3 female paratypes, same data (MHNG); 1 female, same data, 6.iii.1986; 1 female paratype, same data, open area in evergreen forest, with egg sack held between chelicerae, palps and sternum, 4.xi.1987 (Deeleman and Deeleman) (CD).

Relationships.- The species is closely related to *L. machadoi* Brignoli. It is distinguished by the simple, cylindrical male palpal tibia, the smaller apophysis on the male palpal tarsus, lacking a laminar appendage and the different pattern of the carapace. The vulvae of the two species are of a similar type. Brignoli does not mention the presence of a stridulatory organ in the male of *machadoi.*

Remark.- The author visited and collected in Khao Yai in various seasons; nearly all adults were found in November. This suggests seasonal reproduction.



Map 8. Triangle - *Merizocera mus, L. pygmaea*, square - *Leclercera khaoyai*, circles - *Merizocera stellata*, asterisk - *Leclercera negros.*



Figs. 115-124: Figs. 115-119. *Leclercera khaoyai*, new species: 115. Male, carapace and abdomen (c). 116. Id., sternum and venter (b). 117. Id., right palp, retrolateral (d). 118. Id., dorsal (d). 119. Vulva (e). Fig. 120-124. *L. longiventris*, new species, male: 120. Carapace and abdomen (c). 121. Id., underside (b). 122. Chelicer and maxilla (e). 123. Right palp, retrolateral (d). 124. Bulb, prolateral (d). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Leclercera machadoi (Brignoli)
(Map 8)

Althepus machadoi Brignoli, 1973b: 157, fig.1-6 (male, female, Nepal).

This species seems to be closely related to *L. khaoyai*, see that species.

Material examined.- None.

Leclercera longiventris, new species
(Figs. 120-124, Map 9)

Diagnosis and description.- MALE. Pattern of carapace, sternum and abdomen as in fig. 120, 121. Cheliceral lamina small (fig. 122). Pedicel with a similar stridulatory organ as in *khaoyai*. Palp fig. 123, 124.

FEMALE. Unknown.

Measurements in mm of the holotype: carapace 0.8 long, 0.7 wide, abdomen 1.3.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	2.6	0.3	1.9	2.9	0	9.4
II	-	-	-	-	-	7.3
III	missing					
IV	-	-	-	-	-	7.6
palp	0.5	0.15	0.2	-	0.35	bulb 0.3

Type data.- Holotype male, THAILAND: Changwat Phangnga, Tham Rusit, in litter, 11.viii.1985 (P.Leclerc) (MHNG).

Etymology.- Referring to the long thin abdomen in the holotype.

Leclercera ocellata, new species
(Figs. 125-127, Map 9)

Diagnosis.- Colour pattern, leg length and posterior position of genital fold are diagnostic.

Description.- FEMALE. Carapace pattern as in fig. 125, clypeus with a pair of light patches bordered with dark lines; this pattern is not clear in the paratype. Ratio carapace/clypeus $2^1/_2$:1. Chelicerae light, labium and maxillae dark brown, sternum dark with light patch anteriorly in the middle, dorsum of abdomen fig. 125, venter light brown with laterally a row of lighter areas, genital area dark brown, legs violettish, femora in distal half with up to 6 white rings, tibiae with white tip and two light rings, metatarsi and tarsi pale violet to white. Maxillae and chelicerae fig. 126. Sternum with bulges opposite coxae. Vulva fig. 127, situated in the middle between pedicel and spinnerets.

Measurements in mm of the female holotype:

	car length	car width	abd	leg I	leg II	leg III	leg IV
	1.0	0.9	1.6	17.1	12.6	9.2	13.1
palp	femur 0.55	patella 0.15	tibia 0.3	tarsus 0.5			

Type data.- Holotype female, MALAYSIAN BORNEO: SABAH, Kinabalu National Park, 1550 m, in sheet web on riverbank, 25.vii.1980 (P.R. and C.L.Deeleman) (MHNG); one female paratype, same data, on forested ridge (CD).

Etymology.- The name refers to the false eyes on the clypeus.

Leclercera spinata, new species
(Figs. 128-137, Map 9)

Diagnosis.- Long-legged species with large clypeus; dark head contrasting against creamy thorax. No other known ochyroceratid species has spines on the male palpal femur.

Description.- MALE. Carapace creamy white with black head (fig. 128, 129), sternum white, in the centre a vague violet triangle, dorsum of abdomen fig. 128, venter white, legs violet, coxae and apex of segments white. Ratio carapace/clypeus 2:1. Chelicerae fig. 131, covered with profuse hair on the anterior surface. Sternum with bulges. Stridulatory wings on the pedicel absent. Palp fig. 133, 134, femur and tibia dark with large white band.

FEMALE. Pattern of carapace and colouring as the male except that the dorsal pattern of the abdomen is different, cf. fig. 135 and 136. Chelicerae with an additional granulate tooth on the retromargin. Vulva fig. 137, proximal margin of genital fold replicated inward.

Measurements in mm of the holotype male: carapace 1.1 long, 1.2 wide, abdomen 1.5. Female: carapace 1.3 long, 1.1 wide, abdomen 2.8.

Male:

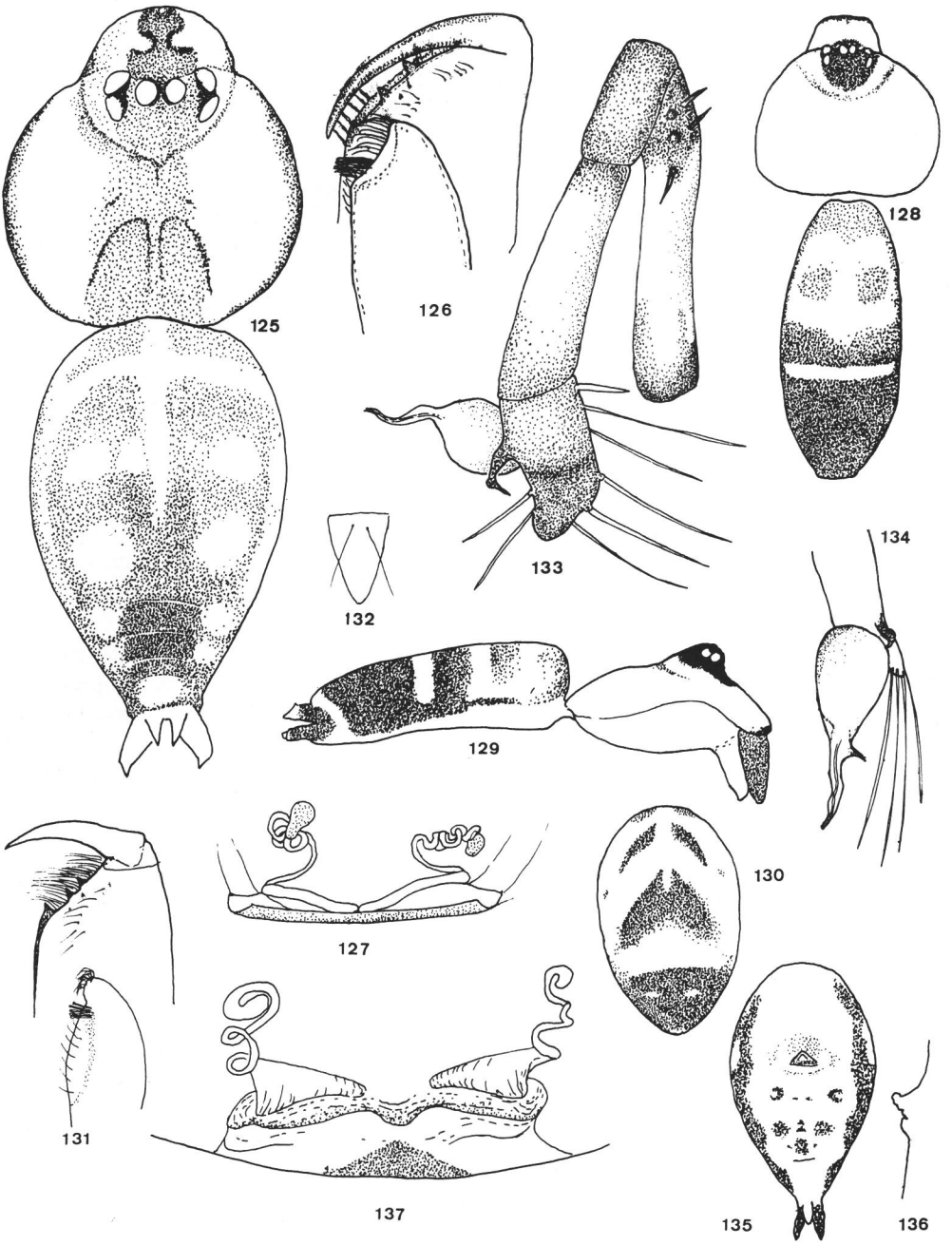
	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	13.4	-	-	-	-	-
II	missing					
III	6.3	0.4	5.9	6.9	1.5	21.0
IV	8.6	0.4	9.4	-	-	-
palp	0.7	0.2	0.45	-	0.4 bulb	0.45

Female:

Leg I	10.8	0.35	11.3	15.0	2.61	40.0
II	6.6	0.35	6.5	8.0	2.0	23.4
III	4.6	0.35	4.6	5.1	1.4	16.0
IV	7.2	0.35	7.2	7.8	1.7	24.3
palp	0.7	0.2	0.45	-	0.5	

Type data.- Holotype male, INDONESIA: SULAWESI, Maros, forest on limestone karst 55 km N.E. of Udjung Pandang, in small cave, in twilight, 14.vii.1980 (C.L.Deeleman) (MHNG); 1 female paratype, Maros, Pangkajene, Matampsa, Gunung Atas, in cave, 12.viii.1985 (L.Deharveng) (CD).

Etymology.- The name refers to the spines in the femur of the male palp, an unusual character in the Ochyroceratidae.



Figs. 125-137: Figs. 125-127. *Leclercera ocellata*, new species, female: 125. Holotype, carapace and abdomen (c). 126. Id., chelicer and maxilla (e). 127. Paratype, vulva (e). Fig. 128-137. *L. spinata* new species: 128. Male, carapace and abdomen, dorsal (b). 129. Id., profile (b). 130. Female, abdomen (a). 131. Male, chelicer and maxilla (e). 132. Id., colulus. 133. Id. right palp, dorsal (d). 134. Id. tarsus and bulb, ventral-retrolateral (d). 135. Female, abdomen, ventral (a). 136. Id., profile (a). 137. Vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Remark.- The localities of the 2 specimens are separated by about 20 km. The abdominal pattern and the chelicerae in the female differ slightly from that in the male.

Leclercera negros, new species
(Figs. 138-141, Map 9)

Diagnosis.- Pattern on carapace and sternum and genital organ distinctive.

Description.- FEMALE. Carapace, sternum and abdomen fig. 138, 139, mouth parts bicoloured, palps with segment's base creamy white, distal part dark brown, femora dark with subapical light area, tibiae light with dark base and dark tip. Chelicerae and maxillae fig. 140. Conical elevations on sternum crowned with a very strong hair opposite coxae, abdomen underside with about 20 similar hairs of various length, arising from pigmented areas; femora swollen at the base which is three times wider than in the distal half. Genital opening narrow, vulva fig. 141, spermathecae on proximal margin of genital fold replicated inward.

Measurements in mm of the female holotype:

	car length	car width	abd	leg I	leg II	leg III	leg IV
	1.0	0.9	1.8	-	8.8	5.6	9.6

Palp: femur 0.5 patella 0.15 tibia 0.35 tarsus 0.40

Type data.- Holotype female, PHILIPPINES: NEGROS, Mabinay, Cayazo Cave, Old Namangko, entrance in collapse doline, in daylight, 28.xi.1989 (Belgian-Dutch Philippine cave expedition, Theo van Es) (CD).

Leclercera species

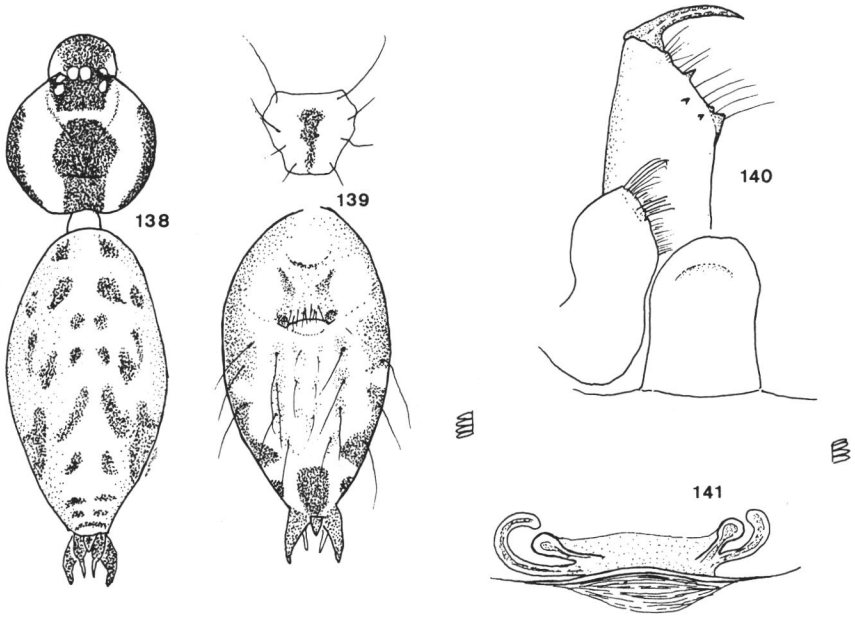
A juvenile specimen, with carapace all creamy white but for black clypeus and eye region, femur I 3 x carapace length, leg I 11 x carapace was found by the author in a relatively large sheet web, with catching lines above, in leaf litter in Templer's Park, N. of Kuala Lumpur, Malaysia.

Althepus Thorell

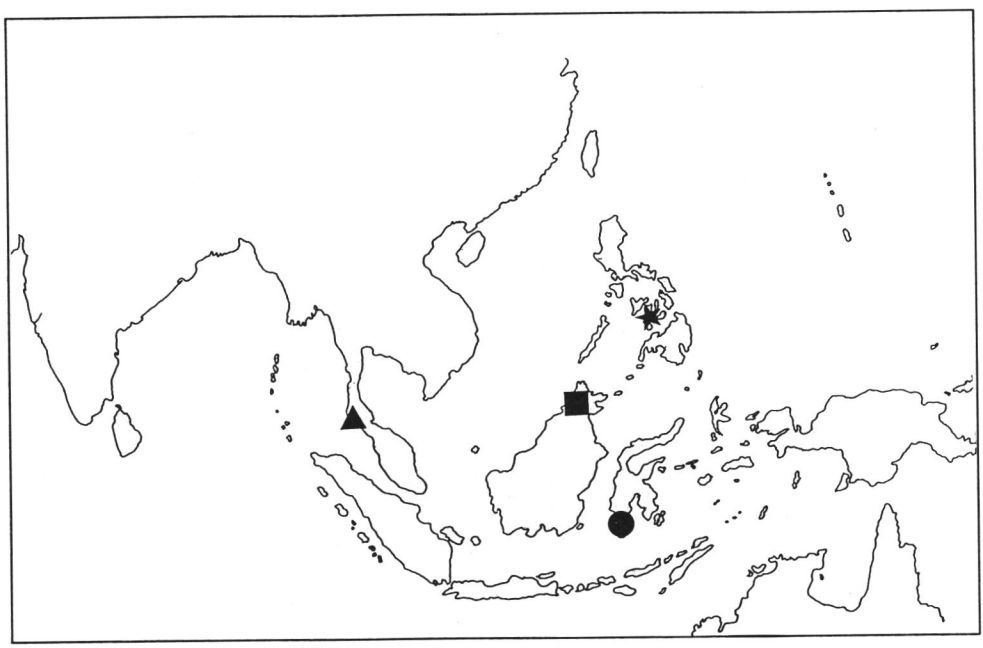
Althepus Thorell, 1898: 279.

Type species.- *Althepus pictus* Thorell.

Diagnosis.- Carapace posteriorly widely truncated, almost triangular, thorax divided by a deep longitudinal furrow; clypeus slanting, ratio carapace/clypeus $3^1/_2$:1 to 5:1. Head not elevated. Cheliceral lamina reduced, promargin with 3 teeth, retromargin with 2 small teeth, dense clothing of hairs on the anterior surface. Abdomen elongate. Male palpal tibia incrassate, tarsus with lateral protrusion bearing a lanceolate apophysis, bulb inserted on ventral face of tarsus, with embolus and conductor arising distally, their base well apart.



Figs. 138-141. *Leclercera negros*, new species, female: 138. Carapace and abdomen (b). 139. Sternum and venter (b). 140. Chelicer, maxilla and labium (d). 141. Vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.



Map 9. Triangle-*Leclercera longiventris*, square - *L. ocellata*, -circle-*L. spinata*, asterisk-*L. negros*.

This genus comprises the largest species of the family, with the longest legs, with femur I up to 7 times the carapace or longer and metatarsi much longer than tibiae. This makes *Althepus* species look like small pholcids. The female internal genital organ shows a surprising variety. Basically there is an atrium which is connected with paired spermathecae, the latter often showing multiple branching; some species have the vulva of the stereotyped simple paired-spermathecae type found in various other ochyroceratid genera and other haplogyne families. In *A. javanensis*, a posterior sac is found, reminiscent of that in many Dysderoidea (Forster & Platnick, 1985).

The species differ from each other in the pattern of the carapace, sternum and abdomen and in the genital organs: diagnostic characters are found in the male palp, viz. size ratio of tibia and tarsus, relative length of bulb and its appendages, the shape of the basal process of the tarsus and of the embolus and conductor. The structure of the vulva is highly diagnostic.

In the field, *Althepus* may be distinguished by the rather large, dense, horizontal, somewhat dome-shaped web of fine texture which resembles that of the larger *Lepthyphantes* species. The spiders hang upside down under the web and have been observed to make oscillating movements when disturbed, as in *Pholcus*.

Habitat. - Although most species described below were found in caves, none of the species shows any decrease in eye-size or loss of pigment. In *A. stonei*, *A. javanensis* and *A. suhartoi* a cavernicolous and a non-cavernicolous (epigean) population were found; comparative leg measurements showed a considerable difference in leg-length between the epigean and the cavernicolous population. Epigean populations live in dark shaded environments in evergreen forest; where this type of forest today is no longer in existence, for example in Java, the species survival may depend on cave populations. *Althepus* species build their finely mazed horizontal sheet web 20 - 50 cm above the ground, preferably among tree-buttresses and on vertical walls of embankments and rocky ledges; they are rarely found by sieving leaf litter.

Misplaced species.- The following species have been misplaced: *A. stellatus* Simon is placed with some reserve in *Merizocera*; *A. machadoi* Brignoli is placed in the new genus *Leclercera*; *A. mulcata* Brignoli is moved to *Psiloderces*.

Althepus pictus Thorell
(Map 10)

Althepus pictus Thorell, 1898: 279 (male, female, Burma, Mt. Carin Cheba).- Fage, 1912: 144, fig. 109-122 (redecription of the male and female type material).

Diagnosis and redescription. - Carapace light with dark head and lateral bands, sternum light with dark spots opposite the coxae.

Measurements of the holotype in mm: carapace 1.5 long, 1.5 wide, abdomen 2.5, leg I total legth 19.5, leg II 14.5, leg III 10.0, leg IV 16.0.

Type data.- Holotype male, female paratype, Burma: Carin Cheba, 6-800 m, (Fea) (MCSNG), examined.

The following four species are closely related to *A. pictus*; they all differ from that species in the genital organs and by the presence of a broad central pigmented area on the thorax.

Althepus suhartoi Deeleman-Reinhold
(Figs. 142-143,156, Map 10)

Althepus suhartoi Deeleman-Reinhold, 1985: 117, fig. 7-12 (male, female, Sumatra, Gn. Leuser National Park, Bohorok).

Emendation to description.- FEMALE. Vulva fig. 142; longitudinal section of the vulva fig. 143. Abdomen, lateral face fig. 156.

Measurements. Leg length of the female from a cave near the Bohorok station: leg I total length 30.2 mm, leg IV 17.2 mm. This is 25-30% longer than the average length in the forest specimens (total length leg I in 3 arbitrarily chosen female forest specimens: 22.0, 24.9, 23.1).

Remarks. - This species was described from Gunung Leuser National Park around the rehabilitation centre at Bohorok. No *Althepus* species was collected around the field station Ketambe in the southern part of the Gunung Leuser National Park during the extensive survey collecting 1984-1986 by S. Djojosudharmo. At Bohorok this species was found through the year.

Althepus javanensis, new species
(Figs. 144-146, 155, Map 10)

Diagnosis.- Combination of carapace pattern and genital organs are diagnostic. See also relationships.

Description.- MALE. Pattern of carapace fig. 144, similar to that in *suhartoi*; sternum and abdominal pattern as in *lehi*, but dorsum with median white band further extended posteriorly. Lateral pattern on abdomen, see female. Clypeus creamy white with transverse dark band under the eyes, chelicerae creamy with pigmented areas, maxillae dark with round white area on the base, labium dark. Cheliceral promargin with 2 basal teeth and 1 isolated subapical tooth, retromargin with 2 small teeth. Male palp fig. 145, tibia and tarsus less than twice the width of patella.

FEMALE. Lateral abdominal pattern fig. 155. Vulva fig. 146 (examined in 2 specimens), spermathecae seems to protrude laterally; a large membranous sac is seen extending posteriorly.

Measurements in mm of the male holotype: carapace 1.4 long, 1.3 wide, (other male 1.6 and 1.6 respectively), abdomen 2.4. Female: carapace 1.3 long, 1.2 wide, carapace/clypeus 4:1, abdomen 2.5.

	Fe	Pa	Ti	Mt	Ta	Tot.	
Male:							
Leg I	9.1	0.5	8.9	12.6	2.4	33.5	
III	4.1	-	-	-	-	-	
other male	4.8						
II and IV missing							
palp	0.5	0.15	0.3	-	0.4	bulb	(including embolus and conductor) 0.35
Female:							
Leg I	6.7	0.4	7.4	11.9	2.5	28.9	
II	4.7	-	-	-	-	-	
III	3.4	-	-	-	-	-	
IV	4.7	0.4	4.4	5.5	1.4	16.4	
palps missing.							

Comparative measurements of the male and the female from Cibodas:

male: carapace 1.2 long, 1.1 wide, abdomen 2.2.						
Leg I	6.0	0.4	6.5	10.1	2.3	25.3
III	2.9	-	-	-	-	-
Female: carapace 1.3 long, 1.1 wide, abdomen 2.4.						
Leg I	5.0	0.4	5.4	7.7	2.2	21.1
II	4.4	-	-	-	-	-
III	3.4	-	-	-	-	-
IV	4.7	0.4	4.4	5.7	1.5	16.7

Type data.- Holotype, male, INDONESIA: S.C.JAVA, Gunung Kapur, cave Guajati Yayar, 5.vii.1979 (C.L.Deeleman) (MHNG), 1 male and 3 female paratypes, same data (MHNG and CD).

Other material examined.- INDONESIA: W.JAVA, Gunung Gedeh, Cibodas National Park, 1 male, 1 female, 1500 m, xi.1986 (S.Djojosudharmo) (CD). No difference in pigment pattern of carapace and abdomen and male genital organ with the material from the type locality.

Etymology.- The island where the species was found.

Relationships.- Closely related to the type species *A. pictus* but differing in carapace pattern, the relatively shorter tarsus and the form of bulbal appendages. Separated from *A. suhartoi* by abdominal pattern and in the male palp by the conductor not being reflexed as in *A. suhartoi* and the retrolateral tarsus projection and the prolateral margin of the tarsus having a less than 90° angle between them; in *A. suhartoi* this angle is more than 90°. For differences with *A. lehi* and *A. bako* see there.

Remarks. - Both intra- and inter-population size-variation of the carapace amounts up to 15-20 %; leg length variability seems to be correlated to carapace-length. In the cave population, legs are almost twice as long as in the two surface specimens. See also under *A. stonei* and *A. suhartoi*.

Althepus lehi Deeleman-Reinhold
(Figs. 147-150,154, Map 10)

Althepus lehi Deeleman-Reinhold, 1985: 115, fig. 1-6 (description male, female, N.W.Sarawak, Semengoh Arboretum).

Emendation to description.- This species is characterized by the shape of the tibial apophysis and the conductor (fig. 149) and by the pair of "globular atria" in the vulva (fig. 150). The pattern of carapace and abdomen (figs. 147, 148, 154) is distinctive.

The fresh material agrees with the characters given in the original description. My statement (Deeleman 1985: 116), that the retromargin of the chelicerae is devoid of teeth is incorrect; the cheliceral dentition is standard for the genus, viz., 3 teeth (including the basal lamina) on the promargin and 2 small teeth on the retromargin. The clypeus and chelicerae are light, the labium and maxillae dark.

New material examined.- MALAYSIA: W. SARAWAK, 4 males, 2 females, juveniles, Semengoh Arboretum (type locality) 23.iii - 6.iv.1985 (P.R. and C.L.Deeleman) (CD).

Althepus bako, new species

(Figs. 151-153, 157, Map 10)

Diagnosis.- The pattern of the carapace and the genital organs distinguish this species from *A. lehi*. See also relationships.

Description.- MALE. Pattern carapace as in fig. 151, sternum, dorsum and venter of abdomen as in *A. lehi*, lung covers light, lateral face of abdomen fig. 157. Clypeus light with dark area directly bordering the eyes, chelicerae light, labium dark, maxillae dark with round white spot at base. Chelicerae with 3 teeth on promargin and 2 on retromargin. Palp fig. 152.

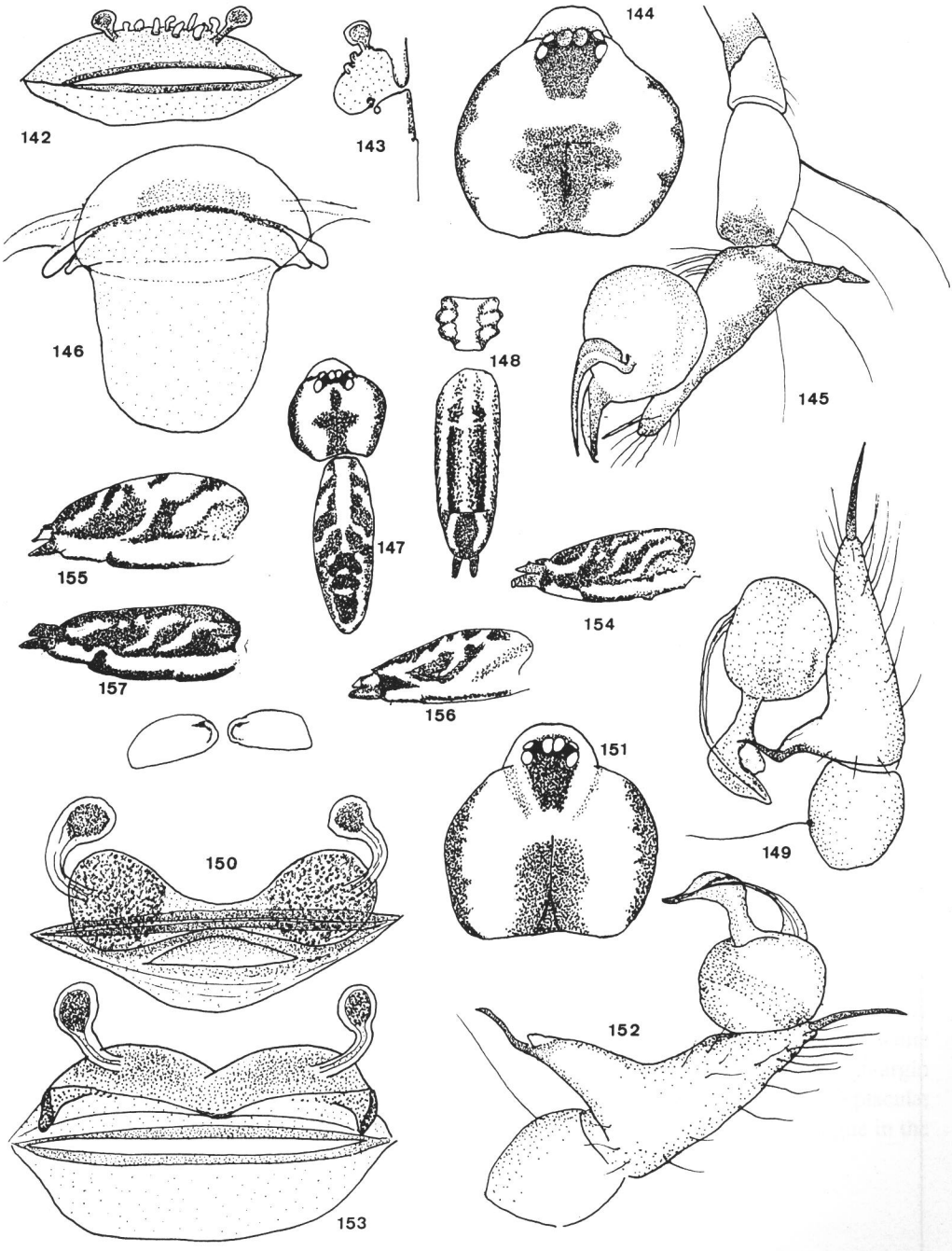
FEMALE. Pattern as the male. Vulva fig. 153. The abdomen contained 15 eggs, diameter 0.04 mm.

Measurements in mm of the male holotype: carapace 1.3 long, 1.2 wide, abdomen 2.4. Female: carapace 1.3 long, 1.1 wide, abdomen 2.4.

	Fe	Pa	Ti	Mt	Ta	Tot.
Male:						
Leg I	missing					
II	6.5	0.4	5.8	9.1	1.7	23.5
III	4.3	0.4	3.8	5.0	1.2	14.7
IV	-	-	-	-	-	-
palp	0.5	0.2	0.3	-	0.45, bulb 0.25, embolus 0.15	
Female:						
Leg I	6.5	0.4	7.7	12.2	2.6	29.4
II	4.8	0.4	4.8	7.0	1.5	18.5
III	3.4	0.4	3.1	4.1	1.1	12.1
IV	4.9	0.4	4.8	6.0	1.3	17.4
palp	0.5	0.2	0.35	-	0.3	

Type data.- Holotype male, MALAYSIA: W. SARAWAK, Bako National Park, 28-30.iii.1985 (P.R. and C.L. Deeleman) (MHNG); 1 female paratype, same data (MHNG); 1 male and 1 female paratype, same data (CD).

Etymology.- Named for the delightful Bako National Park, situated on a peninsula near the mouth of the Sarawak river north of Kuching. Name used as a noun in apposition.



Figs. 142-156: Figs. 142-143. *Althepus suhartoi* Deeleman-Reinhold. 142. Vulva (e). 143. Vulva, longitudinal section. Fig.144-146. *A. javanensis*, new species: 144. Male holotype, carapace (b). 145. Id., right palp, retrolateral (d). 146. Vulva (e). Fig.147-150. *A. lehi* Deeleman-Reinhold: 147. Male carapace and abdomen, dorsal (b). 148. Id., sternum and venter (b). 149. Id., right palp, retrolateral (d). 150. Vulva (e). also shown a pair of lightly sclerotized cuticular prints. Fig. 151-153. *A. bako*, new species: 151. Male holotype, carapace (b). 152. Id., right palp, retrolateral (d). 153. Female, vulva (e). Fig. 154-157. Lateral view of abdomen. 154. *A. lehi*, female (a). 155. *A. javanensis*, female (a). 156. *A. suhartoi*, female (a). 156. *A. bako*, male (a). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

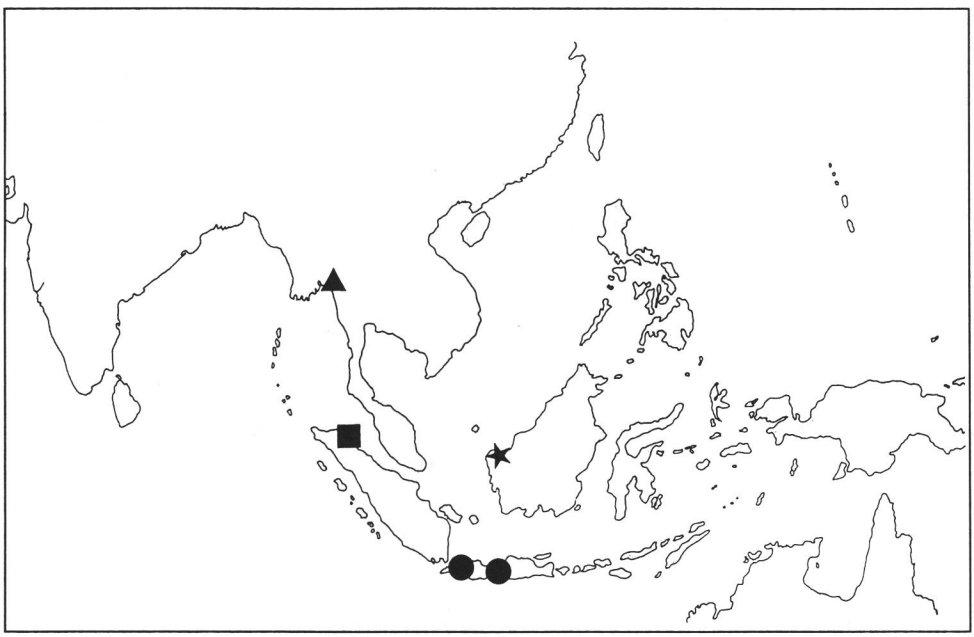
Relationships.- *A. bako* belongs to the species complex that is closely related to the type species *A. pictus*. It can be separated from *A. lehi* by the cream-coloured spot separating the dark cephalic and thoracic mark. Furthermore, in the Bako males, the palp differs in that the retrolateral apophysis in the tibia is directed more posteriorly; the transparent lobe attached to the inner curve of the embolic appendage is lacking in *A. bako*. The species differs from *A. pictus* and *A. javanensis* also by details in the genital organ and the pattern of the carapace.

Remarks.- The type locality is situated at a distance of a mere 20 km from Semengoh, the place of origin of *A. lehi*. Both these areas, consisting of rainforest, are separated by flat marshy areas and cultivated land and were surveyed by us in 1984 and 1985. It was a great surprise to find that each of these forests contained closely related but clearly distinct sister species, not only in *Althepus*, but also a.o. in the genus *Paculla* (Pacullidae) and, even more unexpected, in the large, arboreal, undescribed species of *Panjange* (Pholcidae).

Althepus noonadae Brignoli
(Map 11)

Althepus noonadae Brignoli, 1973c: 111, fig. 1-7 (description of female, cave Latuan, Mindanao, Philippines).

Material examined.- None.



Map 10. Triangle - *Althepus pictus*, square - *A. suhartoi*, circles - *A. javanensis*, asterisk - *A. lehi*, *A. bako*.

Althepus biltoni, new species
(Figs. 158-162, Map 11)

Diagnosis.- The species can be recognized by the predominantly white head and the conformation of the palp.

Description.- MALE. Pattern of carapace fig. 158, sternum fig. 159, clypeus creamy white with black distal margin, chelicerae light with some pigment at base, maxillae white, labium dark; carapace in profile fig. 160. Abdomen: dorsal pattern fig. 158, ventral pattern fig. 159. Coxae light with black distal spot, legs dark, with several light annulations on femora and tibiae. Chelicerae fig. 161. Male palp fig. 162.

FEMALE unknown.

Measurements in mm of the holotype: carapace 1.2 long, 1.3 wide, abdomen 2.2.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I missing						
II	6.7	0.5	6.5	11.2	1.6	26.5
III	4.6	0.5	4.3	5.8	1.2	16.4
IV missing						
palp	0.5	0.2	0.3	-	0.5, bulb 0.5	

Type data.- Holotype, male, INDONESIA: SULAWESI, Togian Islands, Pulau Baku Daka, cave near Lindu, 5.ix.1987 (D.Bilton) (MHNG).

Etymology.- Named for its discoverer David Bilton, participant of the Oxford University Cave Expedition to the Togian Islands and collector of the spider.

Althepus dekkingae, new species
(Figs. 163-166, Map 11)

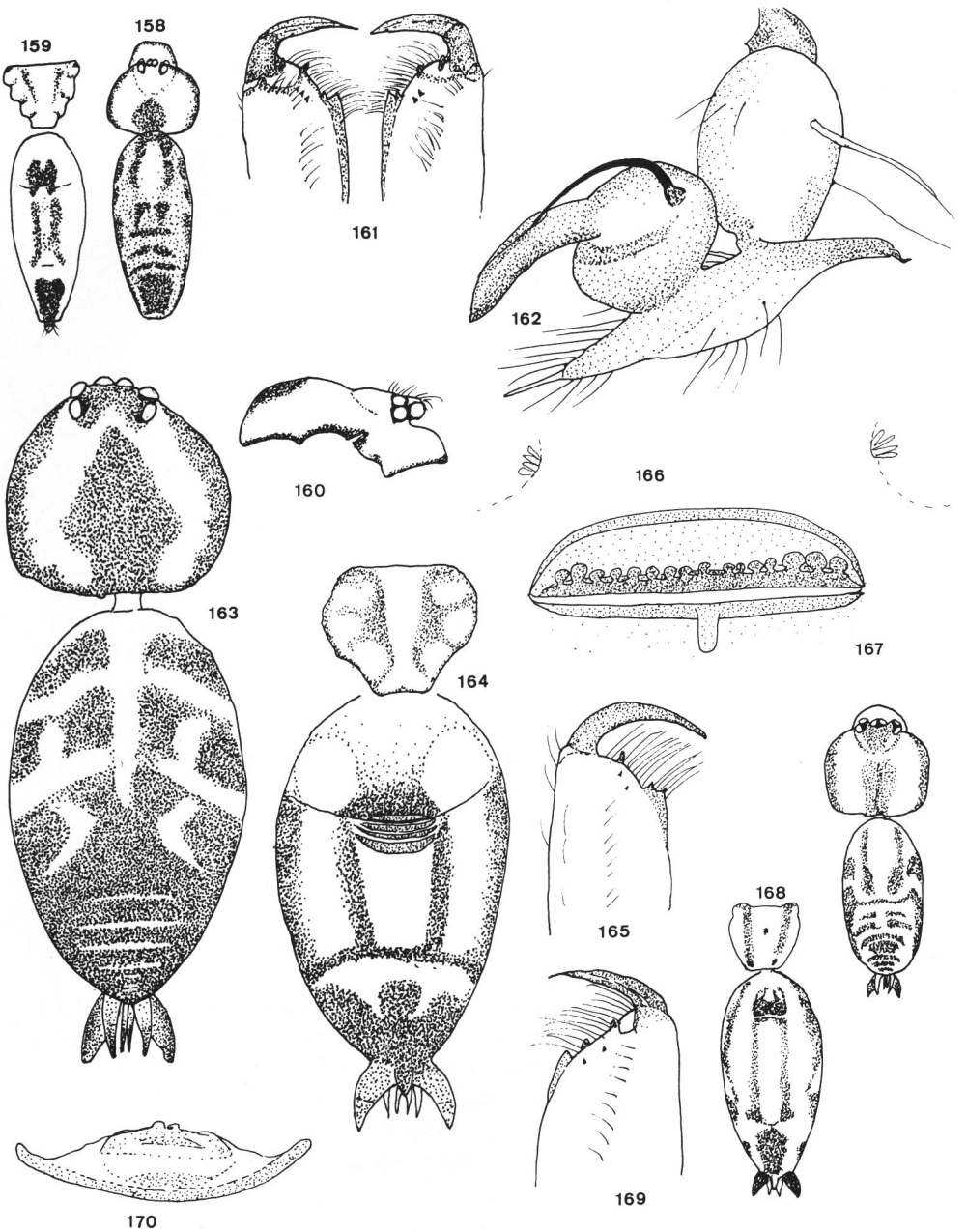
Diagnosis.- The peculiar carapace pattern distinguish this from all other *Althepus* species.

Description.- FEMALE. Pattern of carapace, sternum and abdomen fig. 163, 164, clypeus with dark pigmented transverse band underneath the eyes, chelicerae light, maxillae proximally dark, distally creamy white, legs dark, base of femora light, femora with one distal white band, tibiae with 2 white bands. Chelicerae fig. 165. Vulva fig. 166. The proximal margin of the genital fold is replicated inward, forming a transverse strip bearing a row of receptacula; the distal margin of the genital fold is replicated into a parallel strip bearing a tongue in the middle.

MALE unknown.

Measurements in mm of the holotype: carapace 1.5 long, 1.3 wide, abdomen 2.4.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	6.5	0.65	7.0	10.2	3.3	27.6
II	4.8	0.5	4.5	6.2	1.9	17.9
III	3.6	0.5	3.3	4.1	1.4	12.9
IV	4.9	0.5	4.9	5.8	1.9	18.0
palp	0.5	0.25	0.35	-	0.5	



Figs. 158-170: Figs. 158-162. *Althepus biltoni*, new species. 158. Male, carapace and abdomen (a). 159. Sternum and venter (a). 160. Carapace, lateral face (b). 161. Id., chelicerae (b). 162. Id., right palp, retrolateral (d). Figs. 163-166. *A. dekkingae*, new species, female, holotype: 163. Carapace and abdomen (b). 164. Id., sternum and venter (b). 165. Id., chelicer (d). 166. Vulva (e), also shown: apodemes of lung-cover. Fig. 167-170. *A. indistinctus*, new species: 167. Female, holotype, carapace and abdomen (a). 168. Subadult male, sternum and venter (a). 169. Female, chelicer (d). 170. Vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Type data.- Holotype, female, INDONESIA: E.JAVA, Dieng Plateau, in cave in forest, 23.vii.1989 (Marietta Dekking) (CD).

Other material examined.- One juvenile from the same locality and date.

Etymology.- In honour of the collector, my friend Marietta Dekking.

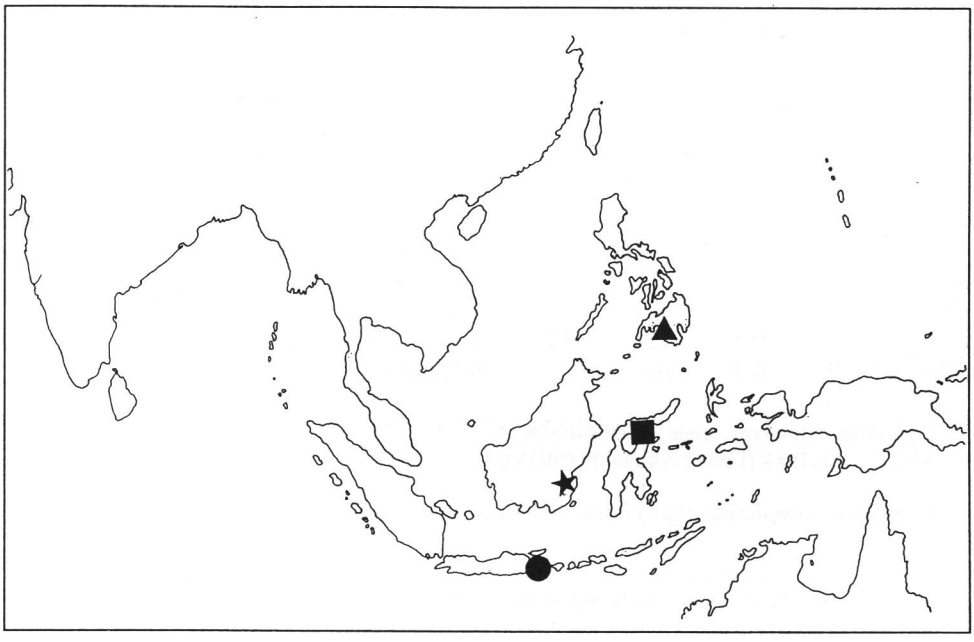
Althepus indistinctus, new species
(Figs. 167-170, Map 11)

Diagnosis.- Colour pattern of body and legs distinguish this species.

Description.- FEMALE. Colour pattern of carapace and sternum of the holotype see fig. 167, 168, dorsum of abdomen in the holotype fig. 167, venter deformed in the holotype, in the paratype as in fig. 168; clypeus and chelicerae creamy white, maxillae with a lateral pigmented zone, labium dark. Legs dark violet brown, femora with one white ring in the middle and one apically, tibiae with two white rings and one apically. Chelicerae fig. 169. Vulva fig. 170, indistinct, no spermathecae or ducts visible.

MALE unknown.

Measurements in mm of the holotype: carapace 1.3 long, 1.2 wide, abdomen, 1.9. Legs in the holotype missing. Male subadult (paratype): carapace 1.2 mm long.



Map 11. Triangle - *Althepus noonadae*, square - *A. biltoni*, circle - *A. dekkingae*, asterisk - *A. indistinctus*.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	5.9	0.3	5.9	9.6	2.9	24.6
II	3.8	0.3	3.6	5.4	1.7	14.8
III	2.9	0.3	2.5	3.4	1.2	10.3
IV	3.8	0.3	3.6	4.6	1.4	13.7

palps missing.

Type data.- Holotype, female, INDONESIA: BORNEO (Kalimantan), 40 km N. of Balikpapan ("Sepaku"), in a few square kilometers' stand of primary dipterocarp forest, in webs near decaying log, 22.vii.1982 (P.R. and C. L. Deeleman) (MHNG); 2 subadult male paratypes, same data (CD).

Etymology.- The name refers to the paucity of features in the vulva (possibly not adult ?).

Althepus complicatus, new species

(Figs. 171-175, Map 12)

Diagnosis.- In the peculiar conformation of the male palp this species resembles no other *Althepus* species.

Description.- MALE. Pattern of carapace and dorsum of abdomen fig.171, venter with a pair of broad dark longitudinal bands, anteriorly joining a narrower one in the center and strongly broadening in front, sternum dark with a light central V-shaped area; clypeus creamy white with pigmented area under the eyes, chelicerae, maxillae and labium lightly pigmented. Legs brown-violet, without annulations. Chelicerae fig. 172. Palp fig. 173-175, bulb inserted subapically on the tarsus; embolus with basal tooth, conductor partly black, contorted.

FEMALE unknown.

Measurements in mm of the holotype: carapace 1.7 long, 1.6 wide, ratio carapace/clypeus 30:9, abdomen 2.7.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	10.1	0.6	11.0	17.7	3.1	42.5
II	6.7	-	-	-	-	-
III	5.0	-	-	-	-	-
IV	7.7	0.6	7.2	9.1	1.7	26.3
palp	0.7	0.2	0.5	-	0.7, bulb (including appendages) 0.8	

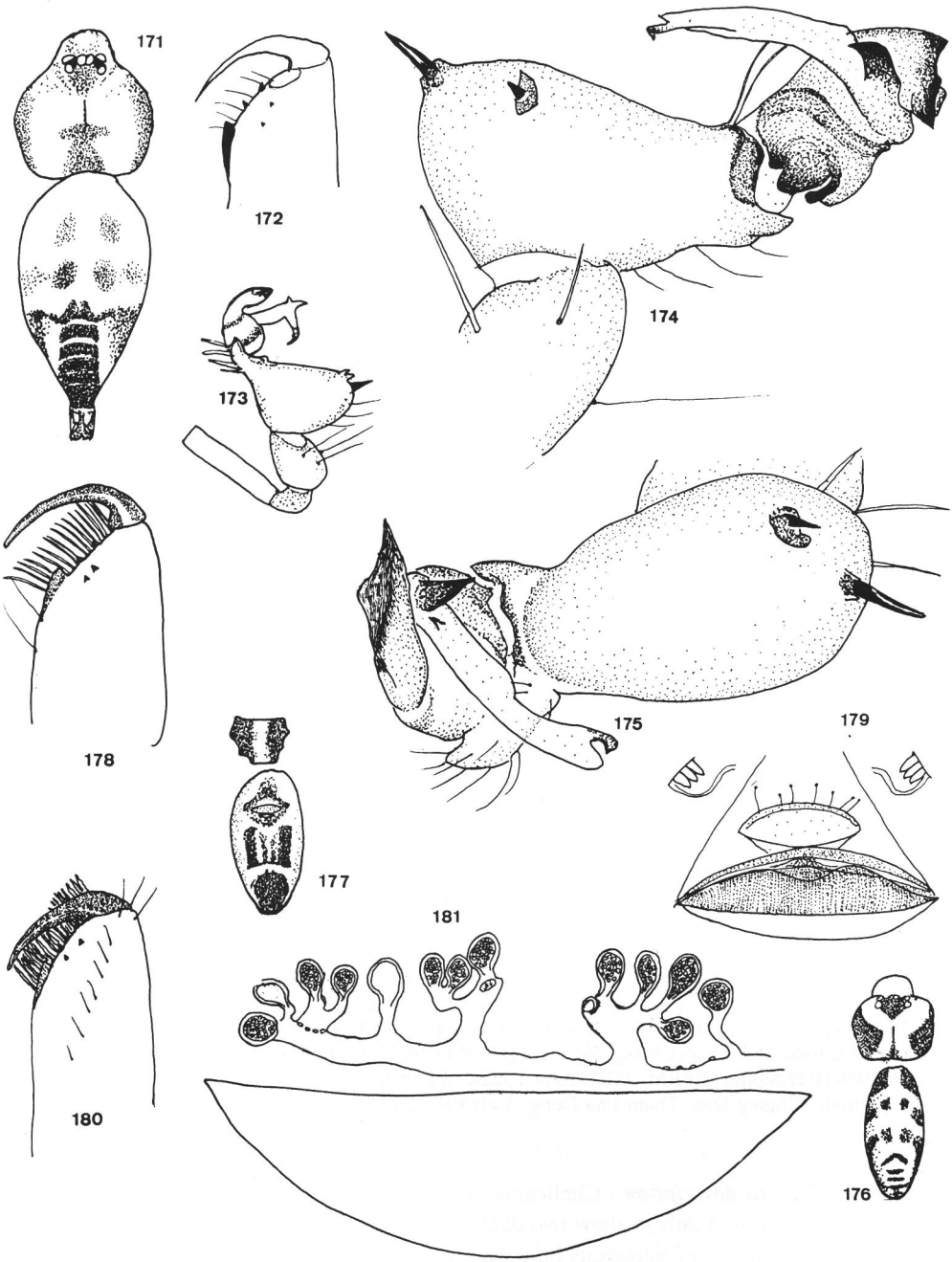
Type data.- Holotype, male, INDONESIA: N. SUMATRA, Aceh Province, Cantab Cave near Lhok'nga, 2.viii.1984 (Daniel Agranoff) (MHNG).

Etymology.- *complicatus* (Lat.) refers to the intertwined appendages of the bulb.

Althepus minimus, new species

(Figs. 176-179, Map 12)

Diagnosis.- The small size and the concave plate posterior to the female genital opening are diagnostic.



Figs. 171-181: Figs. 171-175. *Althepus complicatus*, new species, male, holotype: 171. Carapace and abdomen (a). 172. Chelicer (d). 173. Right palp, prolateral (b). 174. Palp, prolateral (d). 175. Id., dorsal (d). Figs. 176-179. *A. minimus*, new species, female, holotype: 176. Carapace and abdomen (a). 177. Sternum and venter (a). 178. Chelicer (e). 179. Vulva (e). Fig. 180-181. *A. tibiatus*, female. 180. Chelicer (Pha Deng Cave) (d). 181. Vulva (microscopic preparation). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Description.- FEMALE. Pattern of carapace, sternum and abdomen fig. 176,177. Lung covers white. Clypeus and chelicerae light, labium and maxillae dark; base of femora light, tips of femora and tibia white. Chelicerae fig. 178. Vulva fig. 179, posterior to genital opening a transverse concave plate, which is apparent also from the outside as a lightly chitinized plate. No clear spermathecae; the anterior and posterior margin of the genital fold replicated inward.

MALE unknown.

Measurements in mm of the paratype: carapace 1.0 long, 0.9 wide, abdomen 1.5.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I missing						
II	3.4	0.3	3.2	4.4	1.1	12.4
III	2.6	0.3	2.4	3.0	0.8	9.1
IV	3.8	0.4	3.6	4.1	1.1	13.0
palp	0.4	0.15	0.25	-	0.3	

Type data.- Holotype, female, INDONESIA: W.SUMATRA, Kerinci Seblat National Park, 800 m, primary forest near river, 21-30.vii.1988 (S.Djojosudharmo) (MHNG); 1 female paratype, 2 juveniles, same data (CD).

Etymology.- The smallest described species of the genus.

Relationships.- According to the genital structure related to both *A. javanensis* and *A. indistinctus*.

Remarks.- The pattern of the carapace is distinctive and very different from all other described *Althepus* species.

Althepus tibiatus Deeleman-Reinhold
(Figs. 180-181, Map 12)

Althepus tibiatus Deeleman-Reinhold, 1985: 118 fig. 13-17 (male, Tham Chiang Dao cave, BPBM).

More individuals now have been collected in the type locality and a nearby cave. N.THAILAND: Changwat Chiang Mai, Tham Chiang Dao Cave (19°24'N, 98°65'E, elevation 440 m), 2 males, 2 females, 31.vii.1986 (F.D.Stone) (BPBM, TCD IIIA); 1 male, 2 females, 7.vii.1985 (L. Deharveng TC 24 and 25); 1 female, Chiang Dao, Tham Pha Deng, 3 vii.1985 (B.Lebreton, THAI 85 NE 2) (MHNG and CD).

Emendations to description.- Chelicerae as in fig. 180. The figure of the chelicerae in the original description fails to show two denticles in the posterior row. The vulva (fig.181) is unusual and consists of numerous branched receptacula.

No individuals have been found outside caves.

***Althepus stonei*, new species**
(Figs. 182-188, Map 12)

Diagnosis.- The conformation of the genital organs distinguish this species from the other two, probably allopatric, species from N. Thailand, the colour pattern and size being somewhat variable.

Description.- MALE. Pattern of carapace fig. 182; sternum black (in Doi Chiang Mai and Doi Inthanon with a white line in the middle), bulges adjacent to coxae very small, dorsal and ventral abdominal pattern fig. 183-185, in the populations living in daylight the dark areas more extended; clypeus dark, distally bordered with some creamy white, chelicerae partly pigmented, maxillae dark with light base and tip, labium dark; legs faintly annulated with white. Promargin of chelicerae with 2 basal teeth and 1 widely separated subapical teeth, 2 denticles on retromargin. Palp fig. 186, 187, tibia and tarsus 2 times wider than femur and patella.

FEMALE. Somatic characters as in the male. Vulva fig. 188. Paired orifices apparently lateral, entrance ducts consisting of 3 parts: the first part adjacent to the orifice thin and transparent, the middle section large and thick-walled, the last section leading to the receptacula similar to the middle section, but narrower.

Measurements in mm of the male holotype: carapace 2.1 long, 2.0 wide, abdomen 3.1.

Female: carapace 1.4 long, 1.5 wide, abdomen 2.6.

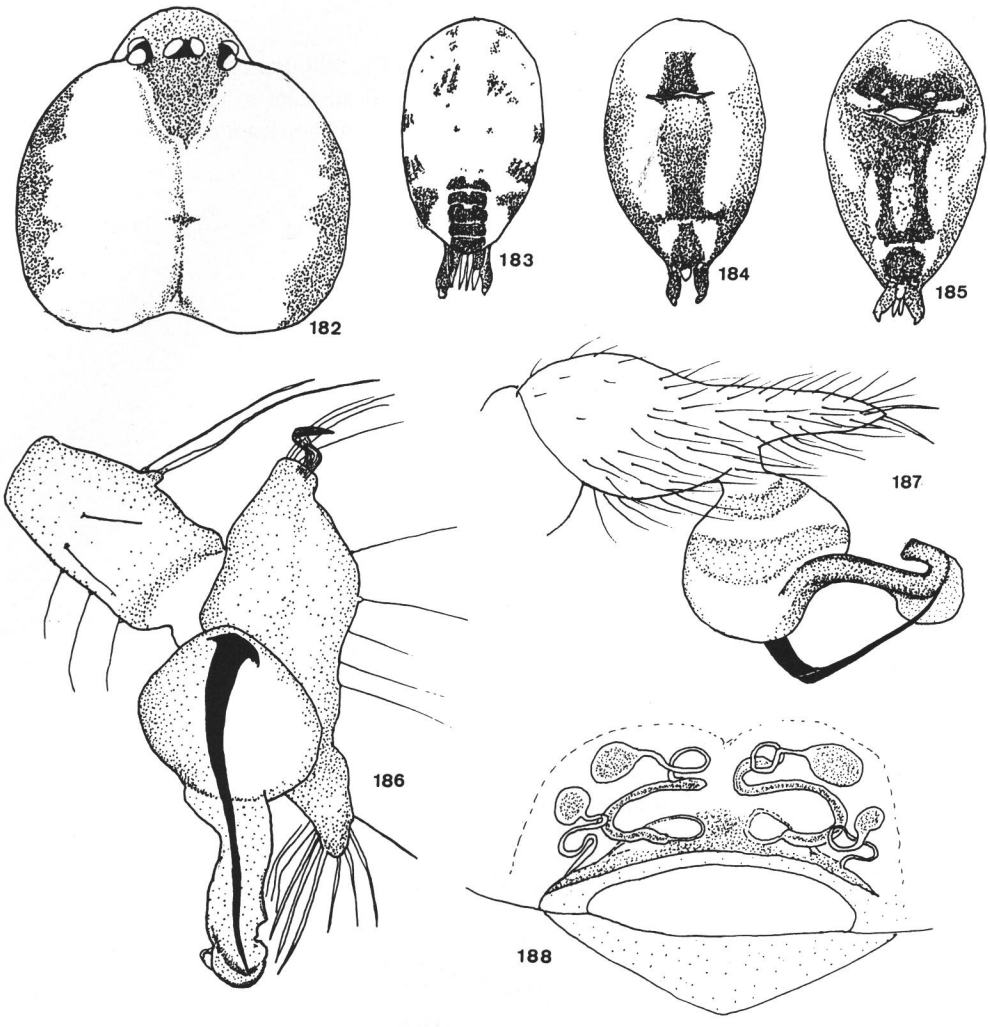
	Fe	Pa	Ti	Mt	Ta	Tot.
Male:						
Leg I	12.9	0.7	13.0	23.5	3.8	53.9
II	8.6	-	-	-	-	-
III	6.6	-	-	-	-	-
IV	8.4	0.7	9.2	11.0	2.1	31.4
palp	0.7	0.2	0.4	-	0.7, bulb 0.6	
Female:						
Leg I	10.1	0.5	11.0	17.8	3.8	43.2
II	8.6	-	-	-	-	-
III	4.8	-	-	-	-	-
IV	7.2	0.5	7.7	8.2	2.0	25.6
palp	0.6	0.2	0.3	-	0.5	

Leg-length variation.- I found considerable differences in leg length between cave populations and daylight populations:

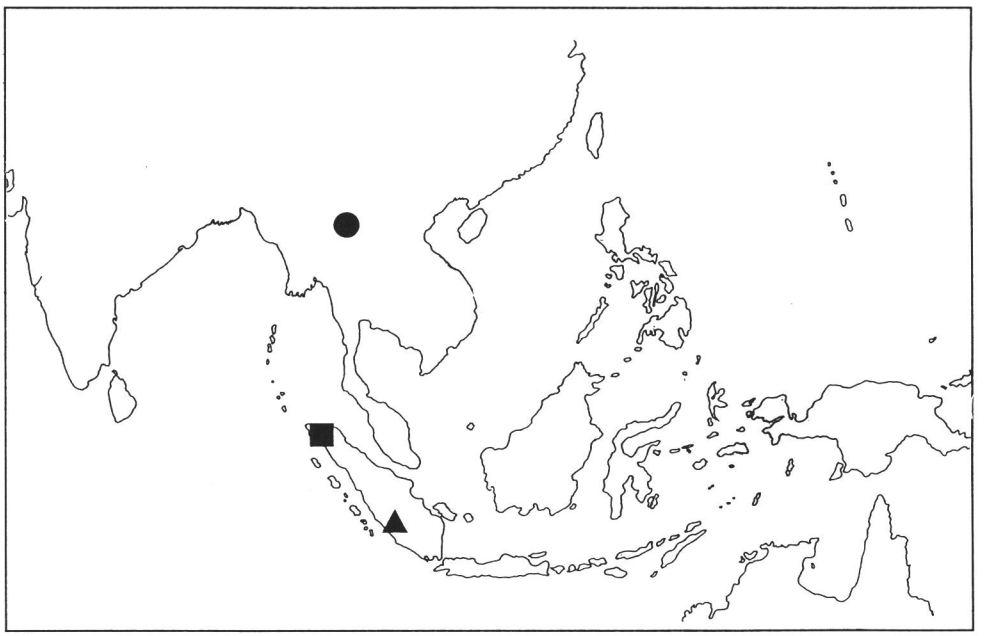
Total length in mm:	I	II	III	IV	carapace
Nam Ru Hua Kua cave:					
Holotype male	53.9	33.2	21.4	31.4	2.1
male paratype	-	37.0	22.0	31.8	2.2
male paratype	52.3	-	19.5	29.6	1.4
female paratype	44.5	27.0	17.4	25.2	1.4
female paratype	43.2	-	-	25.6	1.4

Mt. Doi Inthanon					
male	32.7	24.1	16.4	20.5	2.2
Mt. Doi Chiang Dao					
male	27.5	17.0	11.9	17.9	1.3
male	29.2	19.9	13.9	17.9	1.4
female	28.1	17.1	-	-	1.4

Difference in leg-length between cave and daylight population almost 100 % for the first leg, less for the other legs.



Figs. 182-188. *Althepus stonei*, new species: 182. Male, holotype, carapace (b). 183. Id., abdomen, dorsal (a). 184. Id., venter (a). 185. Female, venter (Doi Chiang Mai) (a). 186. Male holotype, right palp, retrolateral (d). 187. Id., ventral (d). 188. Female, vulva (Doi Chiang Mai) (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.



Map 12. Triangle - *Althepus minimus*, square - *A. complicatus*, circle - *A. tibiatus*, *A. stonei*.

Type data.- Holotype, male, N.W.THAILAND: Changwat Mae Hong Son, Amphoe Muang, Tham Nam Ru Hua Kua Cave, 30.vi.1986 (F.D.Stone) (BPBM RHH 5), 2 male and 1 female paratypes, 4 subadult males, 1 subadult female, same data (BPBM and MHNG).

Other material examined.- 6 males, 2 females, N.W.THAILAND: Changwat Chiang Mai, Amphoe Chiang Dao, 60 km north of Chiang Mai, Doi (=Mount) Chiang Dao wildlife sanctuary, 510 m, 18 and 25.x.1987 (P. Schwendinger); 1 male, Doi Inthanon, 2300 m, pitfall trap 11.vi-14.vii.1987 (Schwendinger) (BPBM and CD).

Etymology.- Named for its discoverer Fred D. Stone, Hilo, Hawaii.

Remark.- The spiders in the cave were found near the entrance of the cave, the webs were in a close group.

Althepus pum, new species
(Figs. 189-192, Map 13)

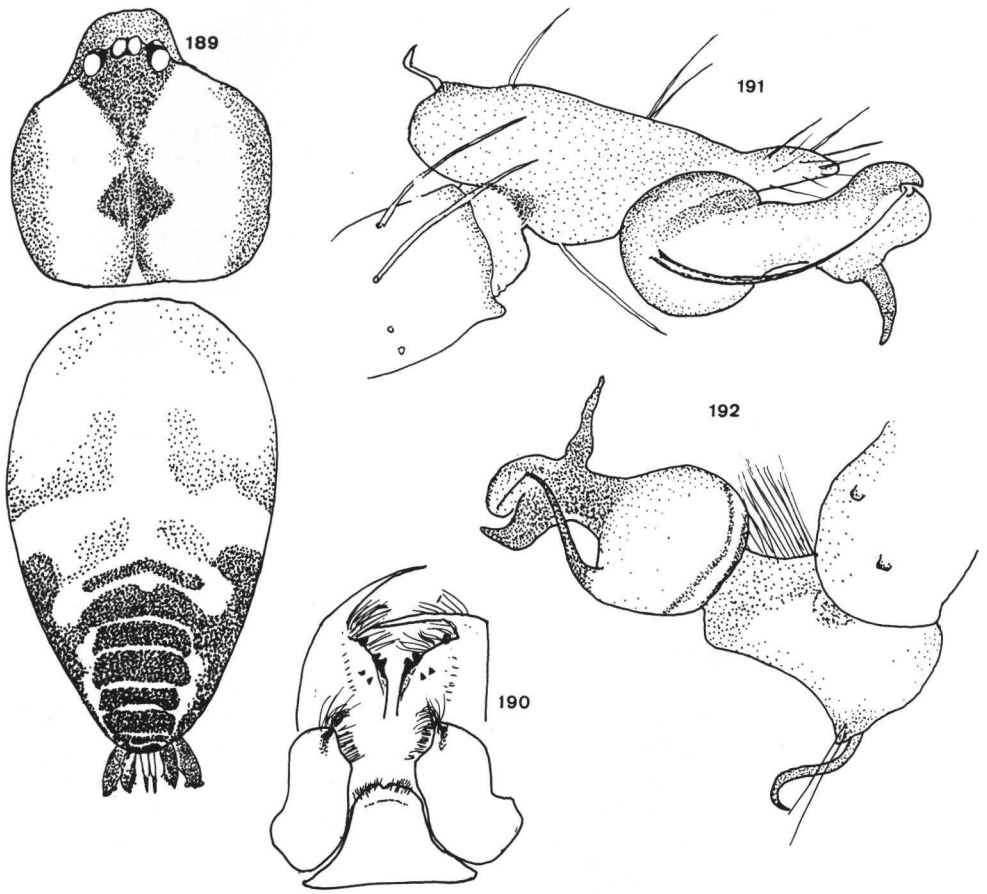
Diagnosis.- The conformation of the male palpal organ is distinctive.

Description.- MALE. Pattern of carapace fig. 189, sternum black, abdominal pattern fig. 189, venter predominantly dark, clypeus pale violet-brown, chelicerae with brownish longitudinal streaks, maxillae and labium dark; coxae white, legs dark violet-brown, anterior femora with distally a white band, posterior femora with 2 distal white rings; all tibiae basally with a white band, apex white. Mouthparts fig. 190. Palp fig. 191, 192, tibia and tarsus incrassate, twice as thick as femur and patella; tibia with 2 strong lateral hairs, borne on an elevation and longer than tibia.

FEMALE. Somatic characters as the male. Vulva of single female not examined.

Measurements in mm of the male holotype: carapace 1.6 long, 1.5 wide, abdomen 2.4. Female: carapace long 1.4, wide 1.4, abdomen 1.9.

	Fe	Pa	Ti	Mt	Ta	Tot.
Male:						
Leg I	10.6	0.6	11.0	19.0	4.1	45.3
II	6.7	0.5	6.8	10.1	2.2	26.3
III	5.0	0.5	4.6	6.0	1.7	17.8
IV	7.0	0.6	7.6	8.0	1.9	25.1
palp	0.7	0.2	0.4	-	0.7	-
Female:						
Leg I	8.9	0.6	9.3	15.8	3.4	38.0
II	5.8	-	-	-	-	-
III	4.3	-	-	-	-	-
IV	5.8	0.7	5.8	7.9	2.2	22.4
palp	0.5	0.2	0.3	-	0.3	



Figs. 189-192. *Althepus pum*, new species: 189. Male, carapace and abdomen (b). 190. Id., chelicerae, maxillae and labium (c). 191. Id., right palp, retrolateral (d). 192. Id., ventral (d). Refer to scale bars on page 99.

Type data.- Holotype, male, N.THAILAND: Changwat Chiang Rai, Amphoe Mae Sai, Tham Pum cave (20°21'N 99°52'E), 500 m, 22.vii.1986 (F.D.Stone) (BPBM, PUM 6B); 1 male, 1 female paratypes, 2 subadult specimens, some juveniles, same data (BPBM, PUM 6B, PUM 4A, PUM 6A).

Etymology.- The specific name is that of the cave in which it was found.

Althepus leucosternum, new species
(Figs. 193-200, Map 13)

Diagnosis.- The lack of a dark median band on the carapace and the pale sternum and pattern of the venter distinguish this species, as well as the genital organs.

Description.- MALE. Pattern of carapace fig. 193, sternum predominantly white, with laterally two series of slightly converging dots halfway between the center and the margins. Dorsal abdominal pattern fig. 193, ventral pattern fig. 194. Clypeus entirely dark, chelicerae light with laterally a dark area, labium pale with darker base. Coxae white with dark distal margin, legs dark violet-brown, femora with distally a light band and nearly white at the tip, tibiae with 2 light rings and a light apex; metatarsi vaguely annulated. Chelicerae (fig. 195) with equidistant teeth on promargin, 2 small teeth on retromargin. Male palp fig. 196, 197.

FEMALE. Somatic characters as in the male. Epigastric area fig. 198. Vulva fig. 199, 200.

Measurements in mm of the male holotype: carapace 1.1 long, 1.1 wide, abdomen 1.5. Female: carapace 1.2 long, 1.3 wide, abdomen 2.5.

	Fe	Pa	Ti	Mt	Ta	Tot.
Male:						
Leg I	7.7	0.5	8.3	13.3	2.5	32.3
Leg II missing						
III	3.4	-	-	-	-	-
Leg IV missing						
palp	0.5	0.2	0.2	-	0.5, bulb 0.4	
Female:						
Leg I	6.6	0.4	7.0	10.4	2.4	26.8
II	5.0	-	-	-	-	-
III missing						
IV	4.8	0.4	4.6	5.5	1.4	16.7
palp	4.8	0.15	0.2	-	0.4	

Type data.- Holotype, male, THAILAND: Changwat Nakhon Nayok, Khao Yai National Park, 800 m, 4.xi.1987 (P.R. and C.L.Deeleman) (MHNG); 2 male and 2 female paratypes, same data (BPBM and CD); 1 male and female paratypes, same data, with young just emerging from eggs, 25.x.1985 (P.R.Deeleman) (MHNG); one male, paratype, same data, trail in evergreen forest opposite Head Quarters, 25.xii.1988 (BPBM).

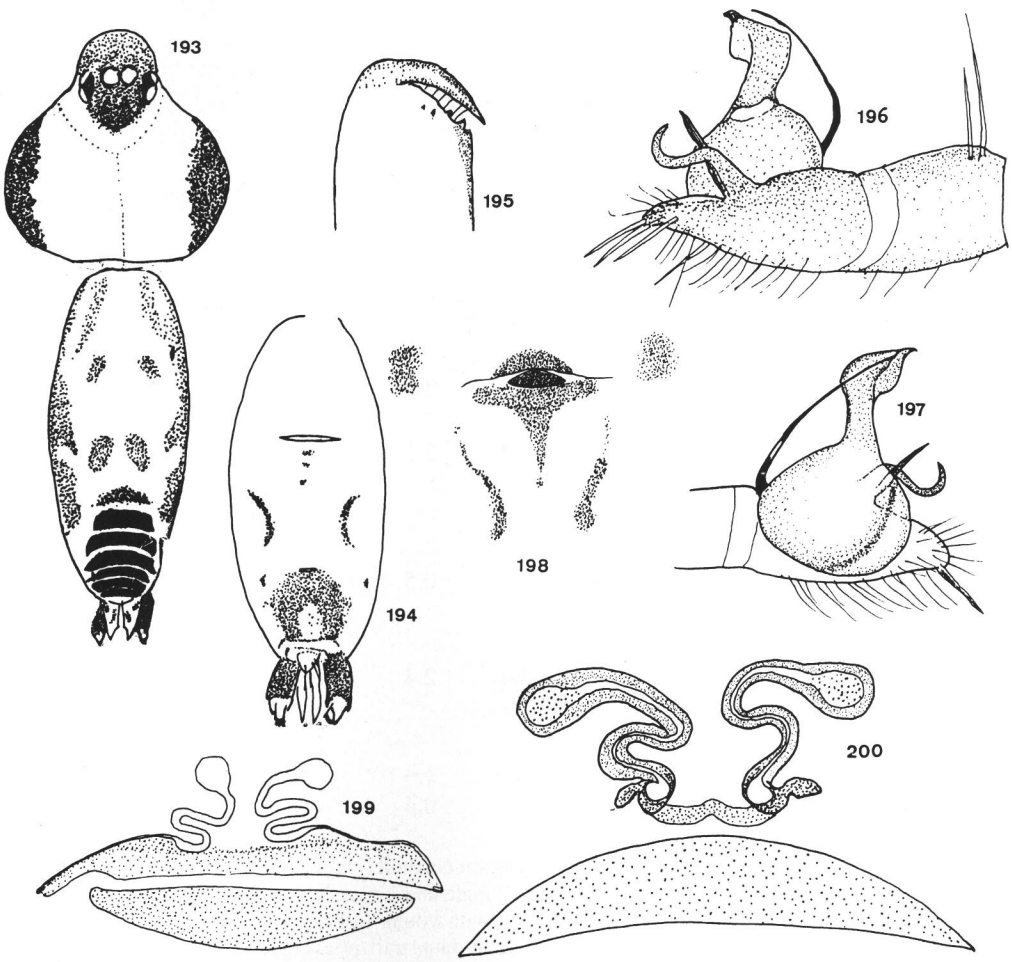
Remark.- The spiders were hanging upside down in finely mazed sheet webs in deeply shaded situations, among tree buttresses in evergreen forest. The diameter of the webs was 10-20 cm, and 10-30 cm above the ground.

Etymology.- *leucosternum* (Greek) is from the greek leuko, white and refers to the light colour of the sternum.

Althepus incognitus Brignoli
(Map 13)

Althepus incognitus Brignoli, 1973a: 587, fig. 11-5 (female, S.India, Mounts Nilghir).

Material examined.- None.



Figs. 193-200. *A. leucosternum*, new species: 193. Male, carapace and abdomen (b). 194. Id., abdomen and venter (b). 195. Id., chelicer (e). 196, right palp, retrolateral (d). 197. Id., ventral (d). 198. Female, genital region (b). 199. Vulva (e). 200. Id., microscopic preparation. Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Theotiminae, new subfamily

"New subfamily", Lehtinen, 1986: 156.

Diagnosis.- Promargin of chelicerae with row of 6-7 denticles, retromargin with 2. Tracheal stigma in the middle between epigastric fold and spinnerets; booklungs replaced by tracheae. Carapace longer than wide, clypeus almost vertical; tip of labium excised. Legs short: femur I not much longer than carapace.

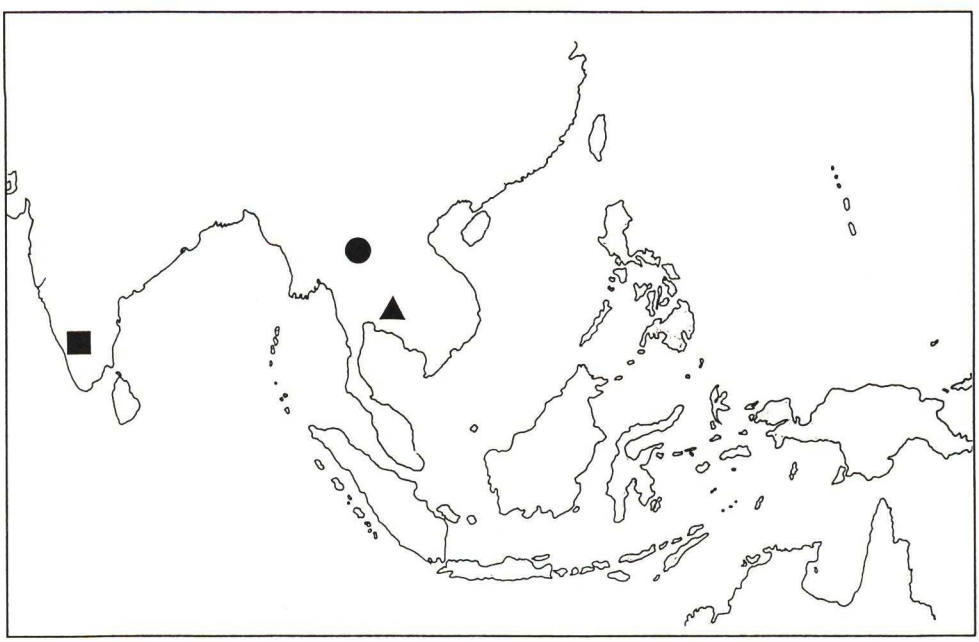
Theotima Simon

Theotima Simon 1892b: 439, new name for *Theoclia* Simon, preoccupied.

Type species: *Theotima radiata* Simon, 1891: 568, fig.12 (description male St.Vincent and Venezuela).

Diagnosis.- Male palp with tibial apophysis. The females cannot be distinguished from *Speocera* with certainty. Characters separating females enumerated by Fage (1912) and Barros de Machado (1951) are not tenable. All known species with the exception of the cosmotropic *T. minutissima* have been described from the New World tropics and Africa.

Misplaced species in S. Asia.-*T. javana* (Simon) is placed in *Speocera*. *T. microphthalma* probably is a *Speocera*.



Map 13. Triangle - *Althepus leucosternum*, square - *A. incognitus*, circle - *A. pum.*

Theotima minutissima (Petrunkevitch)
(Figs. 201-206, Map 14)

Oonopinus minutissimus Petrunkevitch, 1929: 70, fig.58-60 (female, Porto Rico); nec Bryant 1940.- Brignoli, 1978: 19
Simonicera chamorro Brignoli, 1986: 346, fig.1 (female, Guam, Marianas). new synonymy.

This parthenogenetic species is widely distributed in tropical America and tropical Asia (Lehtinen, in litt).

Redescription.- FEMALE. Carapace pattern with large dark star-shaped area in the middle, depth of colour variable, chelicerae fig. 201. Venter of abdomen fig. 202. Vulva fig. 203-206. The most salient feature is the paired lightly sclerotized arch on the lateral margin of the epigastric opening; the "spermathecae" are very thin-walled and easily shift position.

Measurements in mm. Female (lectotype, Porto Rico): total length 1.03, carapace 0,45 long, 0.34 wide.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I	0.44	0.10	0.37	0.27	0.22	1.30
IV	0.38	0.12	0.40	0.34	0.22	1.46
palp	0.10	0.03	0.07	-	0.08	

Measurements in mm of some Asian females:

	car length	fe I	fe IV
Female (Sumatra)	0.44	0.40	0.41
Female (Java)	0.44	0.36	0.40
Other female Java	0.43	0.40	0.41

Material examined.- Lectotype female "*Theotima minutissima* designated P.T.Lehtinen" and 2 female cotypes, PORTO RICO, Toa Alta, 17.5 km from San Juan, sifting leaf litter (AMNH, F 4003); 3 females, Algodones Key, 15.x.1964 (H.Heatwole, R.Levins and F.Mckenzie) (AMNH). PANAMA: Barro Colorado Island, 11 females, 2 of which carrying egg-sacks with 6 eggs, 9-13.viii.1983 (C.L.Deeleman). MALAYSIAN BORNEO: SABAH: 4 females, Kota Kinabalu, in Park, 20.vii.1980 (P.R. and C.L.Deeleman); INDONESIA: W.SUMATRA: 4 females, Prov. Jambi, Kerinci Seblat National Park, 800 m, in leaf litter, 21-30.vii.1988 (S.Djojosudharmo) (with females of S.krikkeni); C.JAVA: 3 females, Karang Bolong, in bamboo litter near south coast, 5.vii.1979 (P.R. and C.L.Deeleman). THAILAND: 1 female, Changwat Phangnga, Tham Tapan Cave, 1 female, 16.vii.1987 (P.Leclerc); Changwat Chiang Dao, 3 females, Chiang Dao Cave, near guano, 27.vii.1985 (P.Leclerc) (BPBM, MHNG and CD).

Speocera Berland

Speocera Berland, 1914: 89, fig.91-112.
Apiacera Marples 1955: 464, pl. 56,fig.7-10 (type species *Apiacera minuta*, Samoa).
Simonicera Brignoli, 1979: 601, fig.1-5 (type species *Theoclia microphthalma* Simon, Luzon). new synonymy.

Type species: *Speocera pallida* Berland, 1914 (E.Africa, in cave).

Diagnosis.- Male palpal tibia lacking an apophysis separates the genus from *Theotima*. In the female the laterally positioned chitinized ducts running on the surface are characteristic, but this character is shared with some species of *Theotima*.

Description.- Species in this genus are small spiders, up to just over 1 mm body length, clypeus 1/5 to 1/6 of carapace length, fovea short and inconspicuous, pattern of carapace with radiating U- or H-shaped streaks, usually absent in cavernicolous species. Cheliceral promargin with 6-7 strong teeth, retromargin with two denticles; chelicerae often modified in the male (see for instance *S. capra, S. ranongensis, S. dayakorum*). Mesodistal margin of maxillae, apart from the usual setae, with a bunch of thick setae in the middle, arising from the anterior surface; labium short, incised in the middle. Abdomen globular, tracheal opening halfway between epigastric fold and spinnerets. Legs short, in the epigean forms length of femur I equal to carapace length, leg IV>I>II>III (in *troglobia* I>IV), Tm I 0.6-0.7, Tm IV 0.8. Femora approximately as long as tibiae, metatarsi slightly shorter than tibiae, tarsi 2/3 - 3/5 of metatarsi. In some species spines are present on the posterior tibiae and metatarsi. Palpal tibia and tarsus often incrassate, without apophysis, bulb with distal embolus and conductor, which are often not well separated from each other.

Female genital organ consisting of copulatory pore which is connected with spermathecae by a chitinized tube, visible on the surface. De Barros Machado (1951: 29, fig. 49) analyzed the female genital organ in the Theotimae and divided the copulatory tract into four parts: section 1) a thick-walled tube connected with the copulatory pore and running on the surface ("chitinous duct"), of variable length and shape, characteristic for the species; this segment of the duct stands out on the abdominal surface as a white or orange line; section 2) an internal, membranous, perforated part; section 3) a thin peduncle; section 4) a thin-walled, sometimes chitinous ampulla (spermatheca). No direct connection ("fertilization duct") of the spermetheca with the uterus externus has been observed. How fertilisation of the eggs takes place is an intriguing question; transfer through the perforated part (section 2) of the copulatory duct might be suggested.

Justification of synonymy of Simonicera. - The holotype of the type species of *Simonicera*, *Speocera microphthalma* Simon, which I examined, shows considerable discrepancies with Brignoli's illustrations, made from fresh material from the Cueva Santa, Antimona. The identity of the species indicated by Brignoli as type species of *Simonicera* thus rests on a misidentification. Article 70b of the International Code of Zoological Nomenclature (1985) allows me to accept the nominal species named in the fixation as type of the genus. Thus, for *S. microphthalma*, no reference to the description of the material from Cueva Santa should be made (see also under *S. karkari*). This procedure simplifies the taxonomic problems raised by the confusion around *Simonicera*. Obviously, Brignoli had no clear picture of this genus in mind, as testified by the frequent shifts he made around the genus (see under *S. tabrobanica*, *S. chamorro* [sub *Theotima minutissima*]) and *Speocera javana*.

Should the genus designated by Brignoli with *Simonicera* be recognized and given a new name ? The genus *Simonicera* was based on the aberrant shape of the male chelicerae, presenting a lateral apophysis (Brignoli, 1979: 601, fig.2,3). New data concerning Asiatic *Speocera* presented in this paper show that modifications in chelicerae in males are frequent and occur in various degrees; no obvious association with other characters was found. Presence of an apophysis adjacent to the excavation in the cave specimens may recently have evolved in an isolated population.

It should be kept in mind that at the time of Brignoli's publication, and the genus *Speocera* in Asia was poorly known and but for the poorly-known *Speocera laureata* Komatsu from Japan, only the male of *Speocera krikkeni* had been described: in this species dimorphism in the chelicerae is only slight. In my view, modification of chelicerae in males does not justify creation of a new genus.

Fresh material collected at the type locality of *Speocera microphthalma* should bring light as to the identity of this species.

Most species were found in a limited range only; this may be due to lack of material. Some species now are known to occur over much larger stretches of land.

Parthenogenesis has been shown to occur in the Theotiminae in Africa (de Barros Machado 1964); there is no convincing evidence of its occurrence in S. E. Asia.

Complicicera, new subgenus

Type species: *Theotima javana* (Simon)

Diagnosis.- The subgenus is defined by the genital organs: male palp differing from that of *Speocera* by greatly lengthened embolus and conductor, sticking out considerably in opposite directions; bulb flattened. Superficial copulatory ducts in the female with large backward loop. Posterior tibiae and metatarsi bearing spines in the 2 known species.

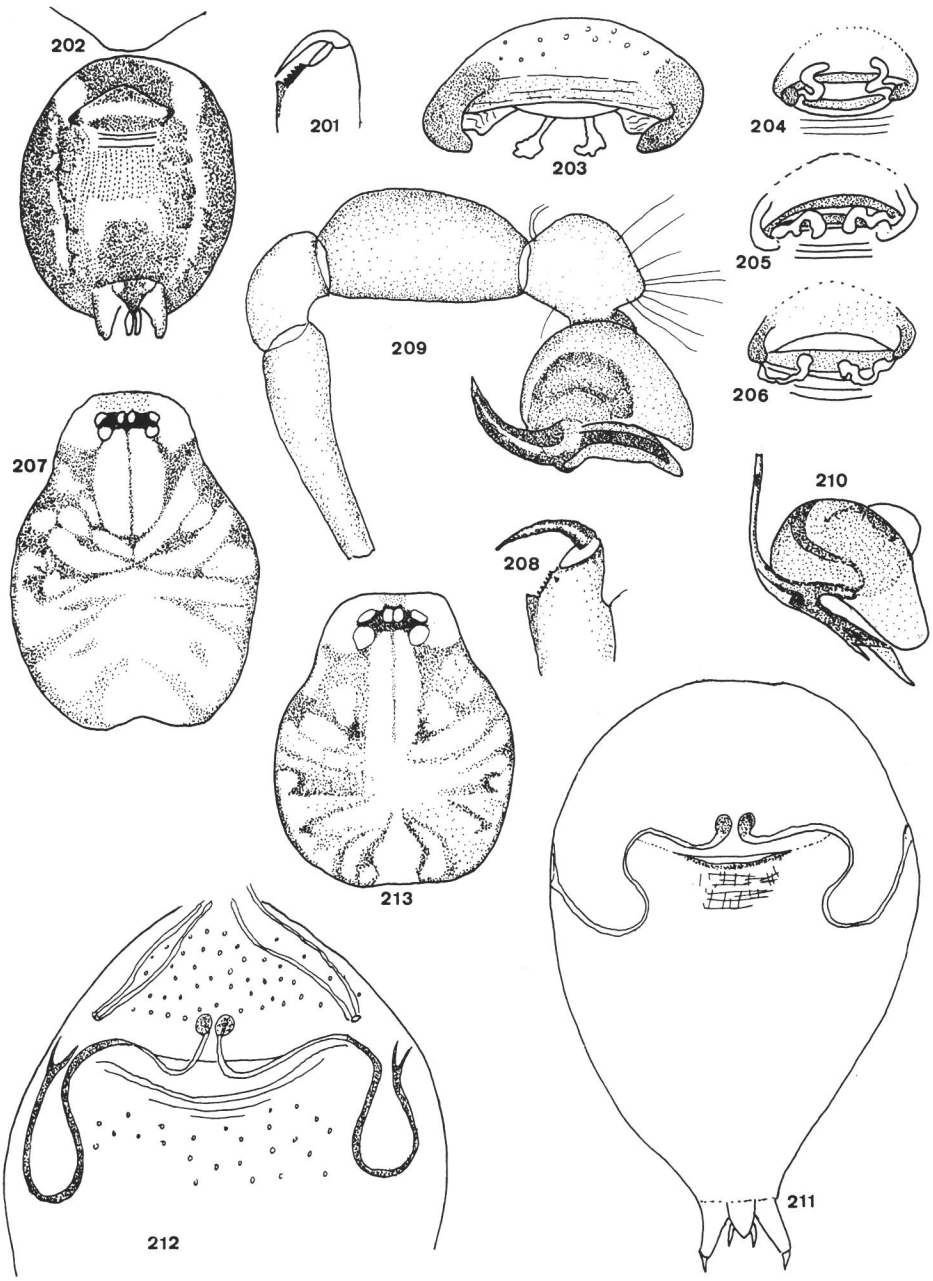
Etymology.- The genus' name refers to the complexity of the male palp.

Speocera (*Complicicera*) *javana* (Simon) new combination
(Figs. 207-212, Map 16)

Theotima javana Simon, 1905: 53 (description female, Buitenzorg).- Fage, 1912:116, fig. 27-30 (redescription of the type material).
Simonicera javana: Brignoli, 1979: 599.

Redescription.- MALE. Pattern of carapace as the female, but paler, sternum dark with vague radiating streaks, abdomen uniform dark; legs pale yellow. Chelicerae excavated laterally as in fig. 208. Chaetotaxy: tibia III with 2 prolateral and 2 retrolateral spines, metatarsus III with 1-2 pro- and retrolateral spines, tibia IV with 2-3 pro- and retrolateral spines and one dorsal distal spine, metatarsus IV with 3 pro- and retrolateral spines and dorsally one subapical spine. Palp fig. 209, 210.

FEMALE. Carapace pattern fig. 207, chelicerae not modified, chaetotaxy as in the male. Vulva fig. 211, 212.



Figs. 201-213: Figs. 201-206. *Theotima minutissima* (Petrunkevitch), female: 201. Chelicer (Barro Colorado) (e). 202. Venter of abdomen (Thailand) (d). 203. Vulva (Barro Colorado) (microscopic preparation). 204. Id., (Java) (e). 205. Id., Puerto Rico (e). 206. Id. (Barro Colorado) (e). 207-212. *Speocera (Complicicera) javana* (Simon): 207. Female, carapace (Udjung Kulon) (d). 208. Male, chelicer (Udjung Kulon) (e). 209. Id., right palp, retrolateral (e). 210. Id., bulb, ventral (e). 211. Female holotype, abdomen and vulva (d). 212. Vulva (Udjung Kulon) (e). 213. S.*(Complicicera) bosmansi* Baert female: carapace (d). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Measurements in mm:

	tot.car	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Female									
lectotype	-	0.55	0.40	-	-	-	0.48	tot.III	1.66
Fem.U.Kulon	1.10	0.52	0.44	0.56	2.10	0.55	0.48	0.64	2.25
Male U.Kulon	1.17	0.52	0.40	0.55	2.12	0.55	0.48	0.55	2.28

male palp femur 0.26 patella 0.15 tibia 0.25 tarsus 0.14, bulb 0.15 long, 0.20 wide.

Type data.- Holotype, female, INDONESIA, W.JAVA: Buitenzorg (Bogor) 1904, (K.Kraepelin) (MNHN, 1407), examined.

Other material examined.- W.Java, 4 males, 14 females, Udjung Kulon Reserve, primary forest, in leaf litter, 25.x.1986 (S.Djojosudharmo) (BPBM, MHNG and CD).

Speocera (Complicicera) bosmansi (Baert) new combination
(Figs. 213-214)

Speocera bosmansi Baert, 1988: 16, fig. 18-20 (female, Dumoga Bone National Park). n.subfam., n.gen., n.sp., Celebes, Lehtinen, 1986: 156, fig.7.

Redescription.- FEMALE. The specimens agree with the original description. Pattern carapace fig. 213. Measurements in mm: carapace 0.55 long, 0.40 wide, abdomen 0.55 long, femur I 0.48, femur IV 0.60; posterior tibiae and metatarsi bearing strong spines, length 1/2 - 1/3 of segment length. Vulva fig. 214. Ducts similar to those in *S. javana*, but spermathecae much further apart than in this species.

The male recently has been discovered, it may be described elsewhere.

Material examined.- INDONESIA: N.SULAWESI, 4 females, Dumoga watershed protection, border of primary forest, sifting leaf litter, 27-30.vii.1982 (P. R. and C. L. Deeleman) (MHNG and CD).

Relationships.- Closely related to *C. javana* Simon.

Key to the Indo-Pacific species of the subgenus *Speocera*

males

1		Carapace with large, dark, star-shaped mark in the middle 2
–		No dark, star-shaped mark in the middle 3
2	(1)	Chelicerae with excavation and "brush" (fig. 265), posterior legs spineless (Malaysia, Thailand) ..... *S. stellafera*
–		Chelicerae unmodified, posterior legs bearing spines (Borneo) ..... *S. pongo*
3	(1)	Bulb two times longer than wide, tarsus transverse (Sumatra) ..... *S. bovenlanden*
–		Bulb and tarsus not so 4
4	(3)	Leg IV bearing spines 5
–		Leg IV spineless 10
5	(4)	Tarsus tip acute 6
–		Tarsus tip obtuse, rounded 8

6 (5) Palpal tibia shorter than tarsus and than width bulb, tibia incrassate (Borneo) ..... *S. pongo*
– Palpal tibia not shorter than tarsus 7

7 (6) Palpal tibia slender, arched, chelicerae unmodified (Java) ..... *S. crassibulba*
– Palpal tibia incrassate, chelicerae with brush (Borneo) ..... *S. dayakorum*

8 (5) Bulb pear-shaped, appendages somewhat excentric (Sumatra, W.Java) ..... *S. krikkeni*
– Bulb cherry- or apple-shaped 9

9 (8) Carapace 0.40-0.45 mm long, bulb as wide as long (Borneo) ..... *S.parva*
– Carapace 0.45 mm or longer, bulb wider than long (Sumatra) ..... *S. transleuser*

10 (4) Bulbal appendages small, button-like, bulb round or apple-shaped 11
– Bulbal appendages not button-like, with short projections 14

11 (10) Palpal tibia long and slender, spider eyeless (Thailand) ..... *S. leclerci*
– Palpal tibia more or less incrassate 12

12 (11) Palpal femur longer than tibia, bulb wider than long and width equal to tibial length; chelicerae not modified (Samoa) ..... *S.minuta*
– Palpal femur not clearly longer than tibia, chelicerae laterally impressed 13

13 (12) Pale, eyeless spider, palpal tibia longer than tarsus (Sulawesi) ..... *S. caeca*
– Eyes and pigmentation present, palpal tibia as long as tarsus (New Guinea, Sulawesi, Luzon) ..... *S. karkari*

14 (10) Chelicerae laterally excavated, with "brush" or horn 15
– Chelicerae not laterally excavated 16

15 (14) Chelicerae with lateral horn (fig. 274), tarsus tip acute (Thailand) ..... *S. capra*
– Chelicerae with "brush" (fig. 271), tarsus tip blunt (Thailand) ..... *S. ranongensis*

16 (14) Distal appendages of bulb transverse, occupying appr. 1/2 width bulb (Japan) *S. laureata,* (Bismarck Isl.) *S. bismarcki,* (Papua New Guinea) ..... *S. papuana*
– Distal appendages not so 17

17 (16) Palpal tibia clearly longer than tarsus, tarsus tip obtuse 18
– Palpal tibia not longer than tarsus 19

18 (17) Bulb wider than long (Thailand) ..... *S. deharvengi*
– Bulb as wide as long (Sulawesi) ..... *S. indulgens*

19 (17) Bulb fig. 221, appendages massive, central (Mindanao) ..... *S. apo*
– Bulb fig. 285, appendages not so massive, excentric (Thailand) ..... *S. suratthaniensis*

Females

(*S. microphthalma* omitted due to poor condition of type specimen)

1 Carapace with large dark star-shaped mark in the middle (fig. 264) 2
– Carapace without large star-shaped mark in the middle 3

2 (1) Chitinous ducts very long, surrounding the abdomen, tip incurved (Malaysia, Thailand) ..... *S. stellafera*
– Chitinous ducts not so long, about half the width epigastric opening, tip straight (Borneo) ..... *S. pongo*

3 (1) Chitinous ducts very short, difficult to see ..... *S. karkari*
– Chitinous ducts longer 4

4 (3) Copulatory pores situated lateral to epigastric opening 5
– Copulatory pores situated anteriorly 10

5 (4) Pale spider, eyes reduced in size, ducts fig. 296 (Thailand) ..... *S. troglobia*
– Spider pigmented, size of eyes normal 6

6 (5) Tip of chitinous ducts not bent or coiled, duct gently arched (Thailand) ..... *S. suratthaniensis*
– Tip of chitinous ducts bent or coiled backward 7

7 (6) Ducts short, tip curved backward (fig. 247) 8
– Ducts longer 9

8 (7) Carapace 0.40-0.45 mm (Borneo) ..... *S. parva*
– Carapace 0.45-0.50 mm (Papua New Guinea) ..... *S. papuana*

9 (7) Tip of ducts hooked (fig. 284), ducts shorter than half width epigastric opening (Thailand) ..... *S. deharvengi*
– Tip of ducts coiled, half the width of epigastric opening (Thailand) . *S. phangngaensis*

10 (4) Pale spider, eyes reduced or absent 11
– Spider more or less pigmented, eyes normal size 12

11 (10) Chitinous ducts very long, curving smoothly, almost encircling abdomen (Thailand) ..... *S. leclerci*
– Chitinous ducts bent forward over near rectangle, tip straight (Sulawesi) ..... *S. caeca*

12 (10) Chitinous ducts at least as long as width of epigastric opening 13
– Chitinous ducts not so long as width of opening 16

13 (12) Chitinous ducts longer than width epigastric opening 14
– Chitinous ducts as long as epigastric opening, legs spineless 15

14 (13) Chitinous ducts straight, legs with spines (Sumatra, W.Java), Spider 1 mm or less ..... *S. krikkeni*
– Chitinous ducts curved, spider $1^1/_2$ mm long (Japan) ..... *S. laureata*

15 (13) Tip of chitinous ducts curled outward (Thailand) ..... *S. naumachiae*
– Tip straight (Pacific) ..... *S. minuta*

16 (12) Tip of chitinous ducts not coiled 17
– Tip of ducts coiled 18

17 (16) Chitinous ducts straight, half as long as epigastric opening (Java) ..... *S. crassibulba*
– Chitinous ducts curved, longer than half the epigastric opening, distally somewhat enlarged (Thailand) ..... *S. capra*

18 (16) Tip of chitinous ducts coiled outward, posterior legs with spines (Sumatra) ..... *S. transleuser*
– Tip of chitinous ducts incurved, spermathecae large 19

19 (20) Legs spineless ..... *S.taprobanica* (Sri Lanka), *S.apo* (Mindanao)
– Posterior legs with spines (Borneo) ..... *S. pongo*

Diagnosis of species: see identification keys.

Speocera (S.) microphthalma (Simon) new combination
(Fig. 215, Map 14)

Theoclia microphthalma Simon, 1892a: 40 (female, Luzon, Antipolo cave)
Theotima microphthalma: Simon, 1893c: 283.- Fage, 1912 :117, fig. 31-34 (redescription of the type material).
nec *Simonicera microphthalma*: Brignoli, 1979: 601, fig. 1-5.

Redescription.- FEMALE. Vulva fig.215. No ducts could be observed, possibly due to the poor condition of the specimen.

Measurements in mm of the female holotype: carapace 0.48 long, 3.8 wide.

	Fe	Pa	Ti	Mt	Ta	Tot.
Leg I and II lost.						
Leg I	-	-	-	-	-	1.7 (according to Fage)
III	0.37	0.11	0.30	0.27	0.21	1.26
IV	0.48	0.11	0.47	0.38	0.27	1.71
palp	0.14	0.06	0.08	-	0.11	

Chaetotaxy: if any spines, then no longer present in the type.

Type data.- Presumed holotype (female): PHILIPPINES: Luzon, Cueva de Calapnitan (or "Cueva de Talbac"), probably near Libmanan (cf. Simon 1892, Ann. Soc. Ent. France 61: 27), 1890 (MNHN 1403), examined.

Speocera (S.) karkari (Baert)
(Figs. 216-219, Map 14)

Apiacera karkari Baert, 1980: 6, fig. 5-7 (male, N.Papua New Guinea).
Speocera karkari: Brignoli, 1983: 153.- Baert, 1984: 226.
? *Simonicera microphthalma*: Brignoli, 1979: 601, fig.1-5 (male and female, Cueva Santa, Antimona).

Redescription.- MALE. Pattern of carapace as in S.parva (fig. 242), in lighter specimens only the periferal parts dark; sternum without radiating streaks, abdomen relatively dark, no clear markings, legs pale yellow. Chelicerae fig. 216. No spines on posterior legs. Male palp fig. 217, 218, in agreement with the illustrations of the type specimen; tibia shorter than femur and as long as tarsus. Embolus slightly excentric.

FEMALE. Colour and markings as male, chelicerae unmodified. Vulva fig. 219. Chitinous ducts on the surface difficult to see.

Measurements in mm of a male and a female (Quezon):

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	1.10	0.51	0.41	0.55	1.86	0.41	0.36	0.55	1.97
Female	1.16	0.51	0.38	0.50	1.56	0.45	0.38	0.55	1.88

Male palp femur 0.23 patella 0.09 tibia 0.19 tarsus 0.19 bulb 0.14 long, 0.14 wide.
Female palp femur 0.15 patella 0.06 tibia 0.10 tarsus 0.10.

Type data.- Holotype, male and 1 male paratype, N.PAPUA NEW GUINEA: Karkar Island, 200 m altitude, forest litter, 16.vi.1977 (J.Van Goethem) (KBIN), not examined.

Material examined.- PHILIPPINES: LUZON, 5 males, 15 females, Quezon National Park, Antimona, in leaf litter, 13.x.1979 (P.R.Deeleman) (MHNG, BPBM, CD); INDONESIA: S.W.SULAWESI, Maros Province, Bantimurung, Gua B2 Cave, 1 male, 8.vii.1986 (P.Leclerc) (MHNG); Watampone, Mampu, Mampu Cave, 1 female, 16.vii.1986 (A.Bedos, INDO 160) (MHNG).

Distribution.- Papua New Guinea, Luzon, Sulawesi, in forest litter and in caves.

Remark.- The specimens living in Cueva Santa in the Quezon National park, described by Brignoli under *Simonicera microphthalma* differ from *S. karkari* by the presence of a distal apophysis on the lateral surface of the male chelicerae, furthermore by the less incrassate tibia in the male palp. The bulb and terminal appendages are very similar, the latter are slightly excentric. The vulvae are very similar. At present I refrain from stating an opinion on the taxonomic position of the latter.

Relationships. - Related to *S. caeca* from caves in Maros, S.W.Sulawesi.

Speocera (S.) apo, new species
(Figs. 220-224, Map 14)

Description.- MALE. Pattern of carapace fig. 220, sternum uniform pale violet. Chelicerae with rounded lateral impression as in *S. caeca*. Legs spineless. Palp fig. 221, 222, bulb symmetrical, wider than high, apical appendages relatively large.

FEMALE. Carapace as the male, abdomen violet-brown, ventrally with a dark spot at the base and a dark semicircular band in front of the spinnerets, set off posteriorly with a thin white line; a pair of white round spots behind the tracheal opening; legs pale with violet longitudinal streaks on the femora. Chelicerae normal. Abdomen in profile fig. 223, vulva fig. 224.

Measurements in mm of the male holotype and a female paratype:

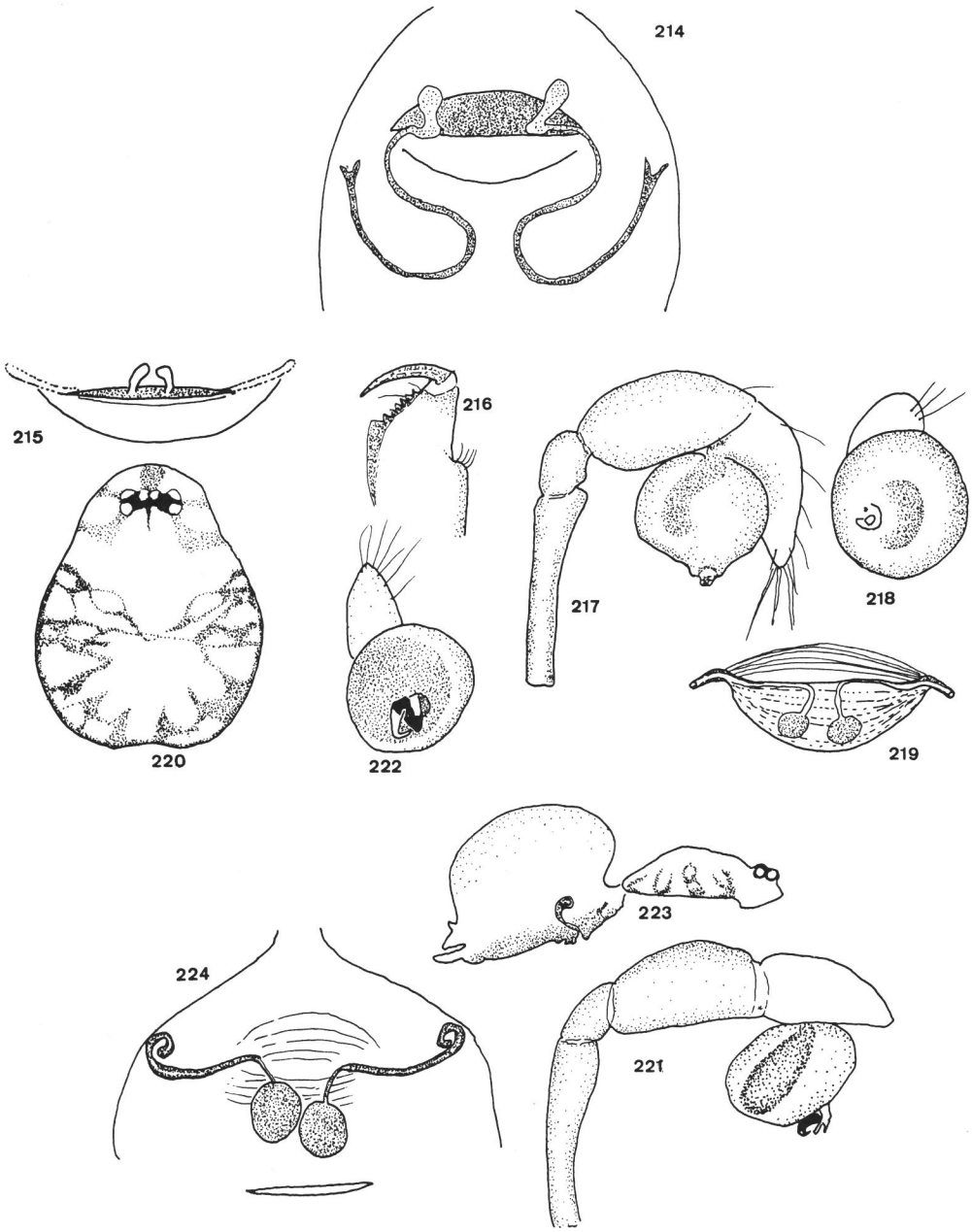
	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	-	0.48	0.41	-	-	-	-	-	-
Female	1.10	0.50	0.38	-	1.68	-	0.37	0.52	-

Male palp femur 0.18 patella 0.08 tibia 0.17 tarsus 0.17 bulb 0.12 long, 0.17 wide.
Female palp femur 0.14 patella 0.07 tibia 0.11 tarsus 0.12

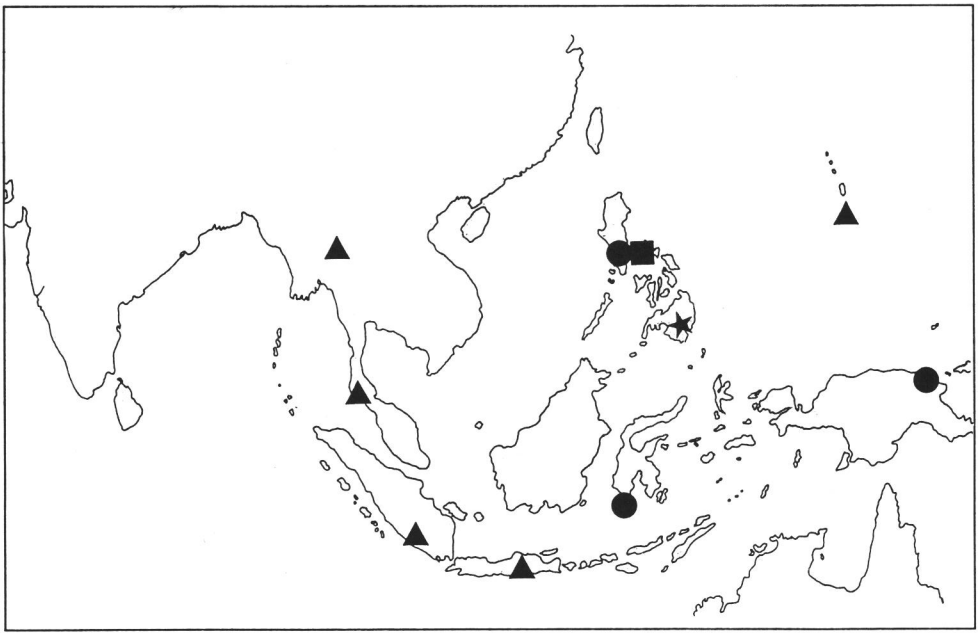
Type data.- Holotype, male: PHILIPPINES: MINDANAO ISL., Mt.Apo (Davao), Eagle Reserve, 800 m, secondary forest, sifting leaf litter, 26.iv.1982 (P.R.Deeleman) (MHNG); 1 female paratype, same data (MHNG).

Etymology.- From the type locality.

Remark.- The species shows superficial similarity with *S. taprobanica* Brignoli from Ceylon.



Figs. 214-224: Fig. 214. *Speocera (Complicicera) bosmansi*, vulva (e). Fig. 215. *Speocera (Speocera) microphthalma* (Simon) female, holotype: vulva (e). Figs. 216-219. *Speocera (S.) karkari* Baert: 216. Male, chelicer (Quezon) (e). 217. Male, right palp, retrolateral (Quezon) (e). 218. Id.,bulb, ventral (e). 219. Vulva (e). Scale in brackets 0.5 mm. Figs. 220-224. *Speocera (S.) apo*, new species: 220. Male, carapace (d). 221. Id., right palp, retrolateral (e). 222. Id., bulb, ventral (e). 223. Female, profile (c). 224. Id.,vulva (microscopic preparation). Scale in brackets 0.5 mm. Refer to scale bars on page 99.



Map 14. Triangles - *Theotima minutissima*, square - *Speocera microphthalma*, circles - *S. karkari*, asterisk - *S. apo*.

Speocera (S.) bismarcki (Brignoli)
(Map 15)

Apiacera bismarcki Brignoli, 1976 4: 23-26, fig.1-5 (male, Bismarck Island).
Speocera bismarcki: Brignoli, 1979: 597.

Material examined.- None.

Speocera (S.) papuana (Baert)
(Map 15)

Apiacera papuana Baert, 1980: 1, fig.1-4, 8-13 (male, female, N.Papua New Guinea)
Speocera papuana: Brignoli, 1983: 154.

Material examined.- None.

Speocera (S.) minuta (Marples)

Apiacera minuta Marples, 1955: 464, pl.56 fig. 7,8,9,10,12 (male, female, Western Samoa, Upolu)
Speocera minuta: Brignoli, 1979: 597.

Type material.- Holotype, male, SAMOA: Upolu, under log (B. J. Marples) (BMNH), examined.

Speocera (S.) caeca, new species
(Figs. 225-231, Map 15)

Description.- MALE. Whole spider pale yellow, eyes absent. Chelicerae fig. 226, anterior surface slightly impressed (observable from the side). Legs spineless. Anterior margin of genital fold protruding. Palp fig. 228, 229, bulb about as high as wide, onion-shaped, assymmetrical, tibia and tarsus inflated.

FEMALE. Profile fig. 225, chelicerae fig. 227. Genital area fig. 225, 230; vulva fig. 231. The abdomen contains 5 eggs.

Measurements in mm of the male holotype: total length 1.00, carapace 0.41 long, 0.36 wide. Female paraype (Gua 3 Bantimurung): total length 0.96, carapace 0.44 long, 0.36 wide.

	Fe	Pa	Ti	Mt	Ta	Tot.
Male:						
Leg I	0.92	0.17	0.87	0.62	0.34	2.92
Other legs missing,						
palp	0.22	0.09	0.22	-	0.17, bulb 0.14 long, 0.14 wide.	
Female:						
I	1.00	0.17	1.03	0.75	0.45	3.40
II	0.92	-	-	-	-	-
III	0.77	-	-	-	-	-
IV	1.02	0.17	1.02	0.74	0.38	3.33
palp	0.14	0.08	0.14	-	0.13	

Type data.- Holotype, male, INDONESIA: S.W.SULAWESI, Maros Province, Kappang, Gua Salukkan Kallang Cave, 21.vii.1986 (P.Leclerc) (MHNG); 1 female paratype, same data (MHNG); 1 male paratype, S.W.Sulawesi, Bantimurung, Cave B2, 8.vii.1986 (P.Leclerc); 1 male and 1 female paratype, id., Bantimurung, Cave B3, 8.vii.1986 (Leclerc); 1 female paratype, Patinuang, "restaurant cave", 9.vii.1986 (Leclerc); 2 male paratypes, Teduang, Saripah Cave, 24.vii.1989 (Leclerc); 1 male paratype, Kappang, Cave K9, 11.vii.1986 (Leclerc) (MHNG and CD).

Etymology.- *caeca* = blind.

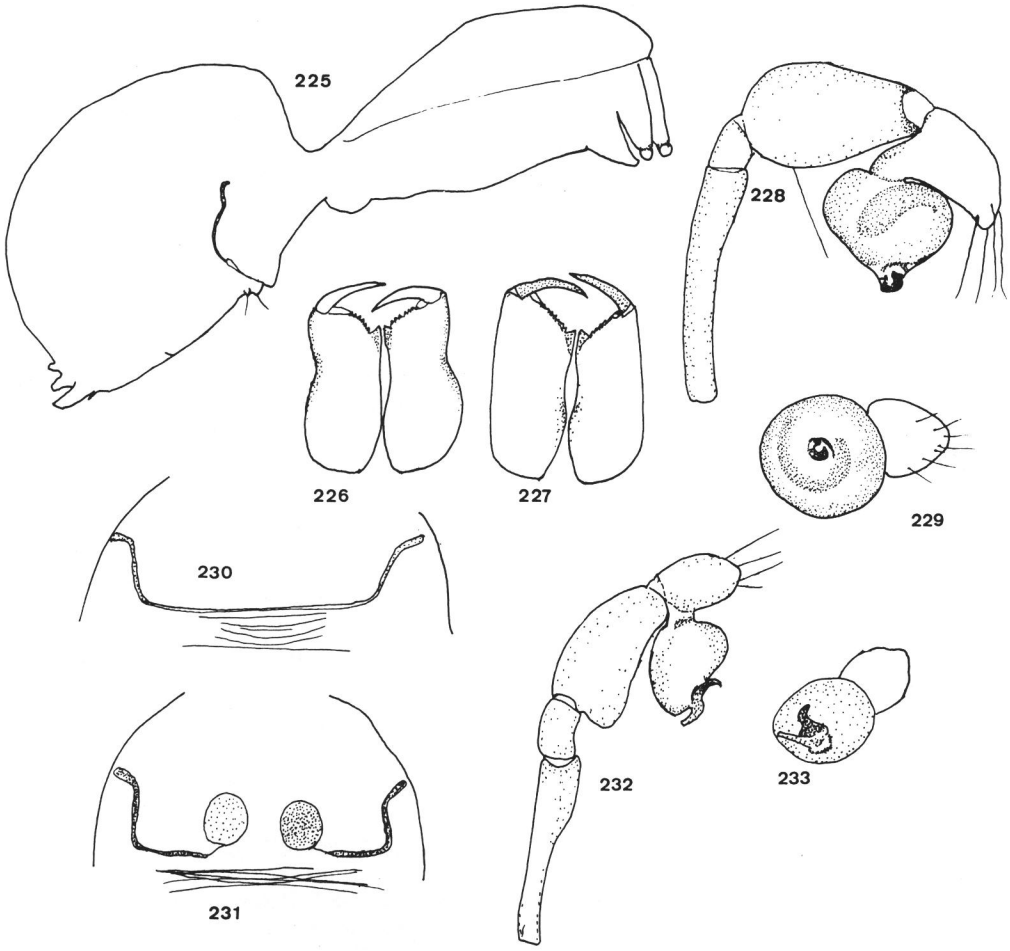
Remark.- The species is close to the sympatric *S. karkari*, the male can be separated in the palp by the long slender tibia of the same length as the femur, and in the female, the chitinized ducts are much longer.

Speocera (S.) indulgens, new species
(Figs. 232-233, Map 15)

Description.- MALE. Colour very pale, no pattern, eyes circled with pigment. Anterior face of chelicerae slightly impressed laterally as in *S. caeca*, impression covered with short bristles. Palp fig. 232, 233, tip of tarsus rounded.

FEMALE Non-adult. Chaetotaxy: legs IV spineless.

Measurements in mm of the male holotype: carapace 0.48 long, 0.34 wide, abdomen 0.41. Non-adult female: carapace 0.44 long, 0.30 wide, abdomen 0.75.

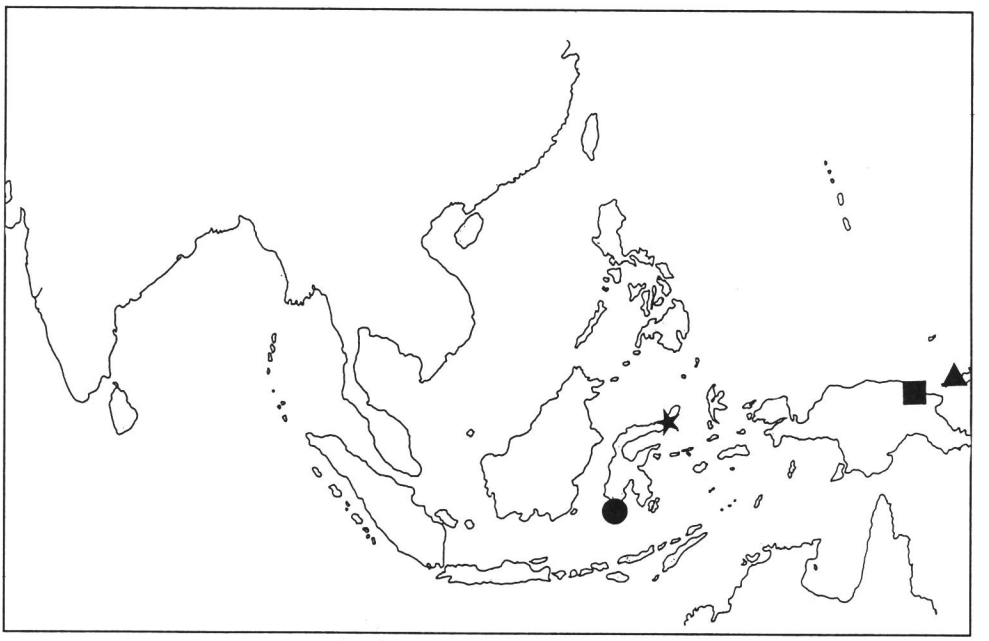


Figs. 225-233: Figs. 225-231. *Speocera (S.) caeca*, new species: 225. Female, paratype, profile (Gua Salukkan) (d). 226. Male, holotype, chelicerae (e). 227. Male, chelicerae (Gua Salukkan) (e). 228. Male, holotype, right palp, retrolateral (e). 229. Id., bulb, ventral (e). 230. Female, epigastric region (Gua Salukkan) (e). 231. Id., vulva (e). Figs. 232-233. *Speocera (S.) indulgens*, new species: 232. Male, right palp, retrolateral (e). 233. Id., bulb, ventral (e). Refer to scale bars on page 99.

	Fe	Pa	Ti	Mt	Ta	Tot.
Male:						
Leg I-III missing.						
IV	0.48	0.14	0.44	-	-	-
palp	0.21	0.07	0.15	0.11, bulb 0.07 long, 0.11 wide.		
Non-adult female:						
leg I-III missing.						
IV	0.44	0.14	0.34	0.30	0.21	1.43
palp	0.14	0.07	0.09	-	0.08	

Type data.- Holotype, male, INDONESIA: S.W.SULAWESI, Maros Province, Cave, 1986, no further data (Maros 86, INDO 161) (MHNG); 2 subadult females, same data (MHNG).

Relationships.- Very close to or identical with *S. bismarcki* Brignoli, but the palpal tarsus is shorter and incrassate.



Map 15. Triangle - *Speocera bismarcki*, square - *S. papuana*, circle - *S. caeca*, *S. indulgens*, asterisk - *Complicicera bosmansi*.

Etymology.- *indulgens* (Lat.) = tolerant, co-existing with *S. karkari* and *S. caeca* in the same area.

Speocera (S.) crassibulba, new species
(Figs. 234-237, Map 16)

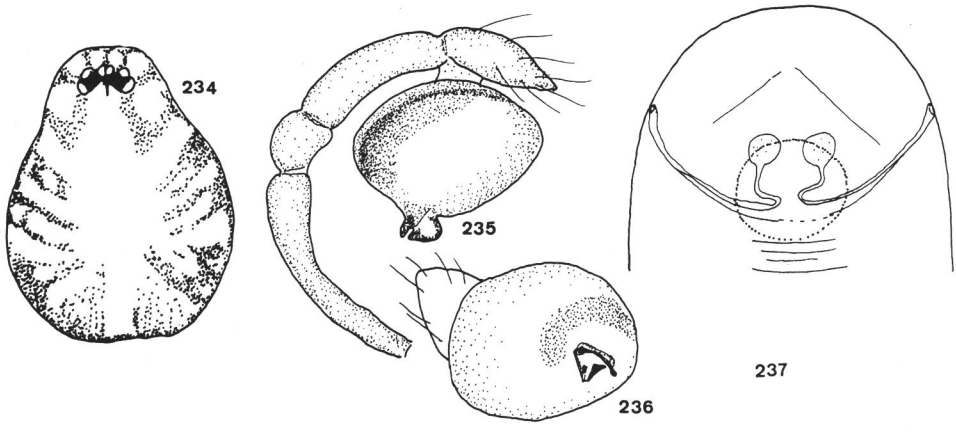
Description.- MALE. Pattern of carapace as in female, but paler. Sternum and venter of abdomen uniform pale. Posterior metatarsi darkened distally. Chelicerae not modified. Posterior tibiae and metatarsi with some lateral spines. Male palp (fig. 235, 236) distinct by the combination of a large bulb, long, arched femur and slender arched tibia; tarsus tip acute.

FEMALE. Pattern of carapace fig. 234, sternum and abdomen uniform, much darker than in the male. Vulva fig. 237, the dotted line indicates the contour of an egg found in the vulva. The egg's diameter equals 2/5 of the average diameter of an egg carried in the chelicerae and 5/8 of the diameter of an egg contained in the abdomen. No eggs were found in the abdomen of the illustrated female.

Measurements in mm of the male holotype and a female paratype:

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	1.10	0.38	0.38	0.59	2.02	0.53	0.40	0.66	2.18
Female	1.15	0.50	0.40	0.55	1.91	0.52	0.44	0.62	2.23

Male palp femur 0.21 patella 0.07 tibia 0.21 tarsus 0.17 bulb 0.20
Female palp femur 0.14 patella 0.07 tibia 0.11 tarsus 0.07



Figs. 234-237. *Speocera (S.) crassibulba*, new species: 234. Female, carapace (d). 235. Male, right palp, retrolateral (e). 236. Id., bulb, ventral (e). 237. Vulva (e), dotted line = outline of egg. Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Type data.- Holotype, male, INDONESIA: W.JAVA, Udjung Kulon reserve, in leaf litter, with *S. krikkeni* and *S. javana*, 25.xi.1986 (S. Djojosudharmo) (MHNG); 1 male and 2 female paratypes, same data (MHNG and CD).

Etymology.- *crassibulba* = large bulb.

Remarks.- The females can be separated from females of the sympatric *S. krikkeni* by the chitinized ducts being much shorter than the epigastric fold and having the tip slightly tilted inward.

Speocera (S.) pongo, new species
(Figs. 238-241, Map 16)

Description.- MALE. Pattern of carapace fig. 238, dark star-like central mark not always distinct, sternum pale violet with darker radiating streaks, abdomen pale violet, with ventrally a dark spot at the base and a darker ring around the spinnerets, legs pale uniform yellow. Chelicerae unmodified. Chaetotaxy: tibia III with 2 prolateral and 2 retrolateral spines, metatarsus III with 1 prolateral, tibia IV with 2 prolateral spines, metatarsus IV with two strong prolateral and 2 retrolateral spines. Tm IV 0.55. Palp fig. 239, 240, tarsus tip acute, bulb wider than long and wider than length of tibia, distal appendages relatively thick.

FEMALE. Colour and chaetotaxy as the male. Vulva fig. 241, ducts gently curved forward, half the length of the epigastric fold, tip tilted inward.

Measurements in mm of the male holotype and a female paratype:

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	1.03	0.38	0.50	0.55	1.99	0.51	0.45	0.26	2.25
Female	1.16	0.48	0.44	0.55	2.02	0.52	0.45	0.66	2.27

Male palp femur 0.21 patella 0.08 tibia 0.12 tarsus 0.14 bulb 0.ll long and 0.15 wide.
Female palp femur 0.12 patella 0.21 tibia 0.14 tarsus 0.08

Type data.- Holotype, male, INDONESIAN BORNEO: Prov. C.Kalimantan, Kaharian, 2°02'S, 113°40'E, swampy primary forest, in leaf litter, with *S. dayakorum*, 5-16.ix.1985 (S.Djojosudharmo) (MHNG); 2 male and 8 female paratypes, same data (2 females, MHNG, 1 male, 2 females, BPBM, 1 male, 4 females, CD); 1 male, 1 female paratypes, Tumbang Tahai, 2°02'S, 113°35'E, 13.ix.1985 (S. Djojosudharmo) (CD).

Etymology.- Named after the Orang Utan, an ape which is still present in this part of Borneo.

Remark.- *S. pongo* can be recognized by the elongate dark postocular triangles, the presence of spines on the posterior legs, the bulb wider than long and wider than tibial length and in the female by the forward curved ducts.

Speocera (S.) parva, new species
(Figs. 242-247, Map 16)

Description.- MALE. Pattern of carapace as the female, sternum with barely any darker streaks, abdomen without markings; legs pale yellow. Chelicerae compressed antero-posteriorly (fig.243). Posterior legs with strong spines as in *Speocera pongo*. Palp fig. 245, 246, tarsus with rounded tip, bulb as long as wide, apical appendages placed in the center.

FEMALE. Pattern of carapace fig. 242, chelicerae fig. 244. Vulva (fig. 247) with short backward-curved chitinous ducts.

Measurements in mm of the male holotype and a female paratype:

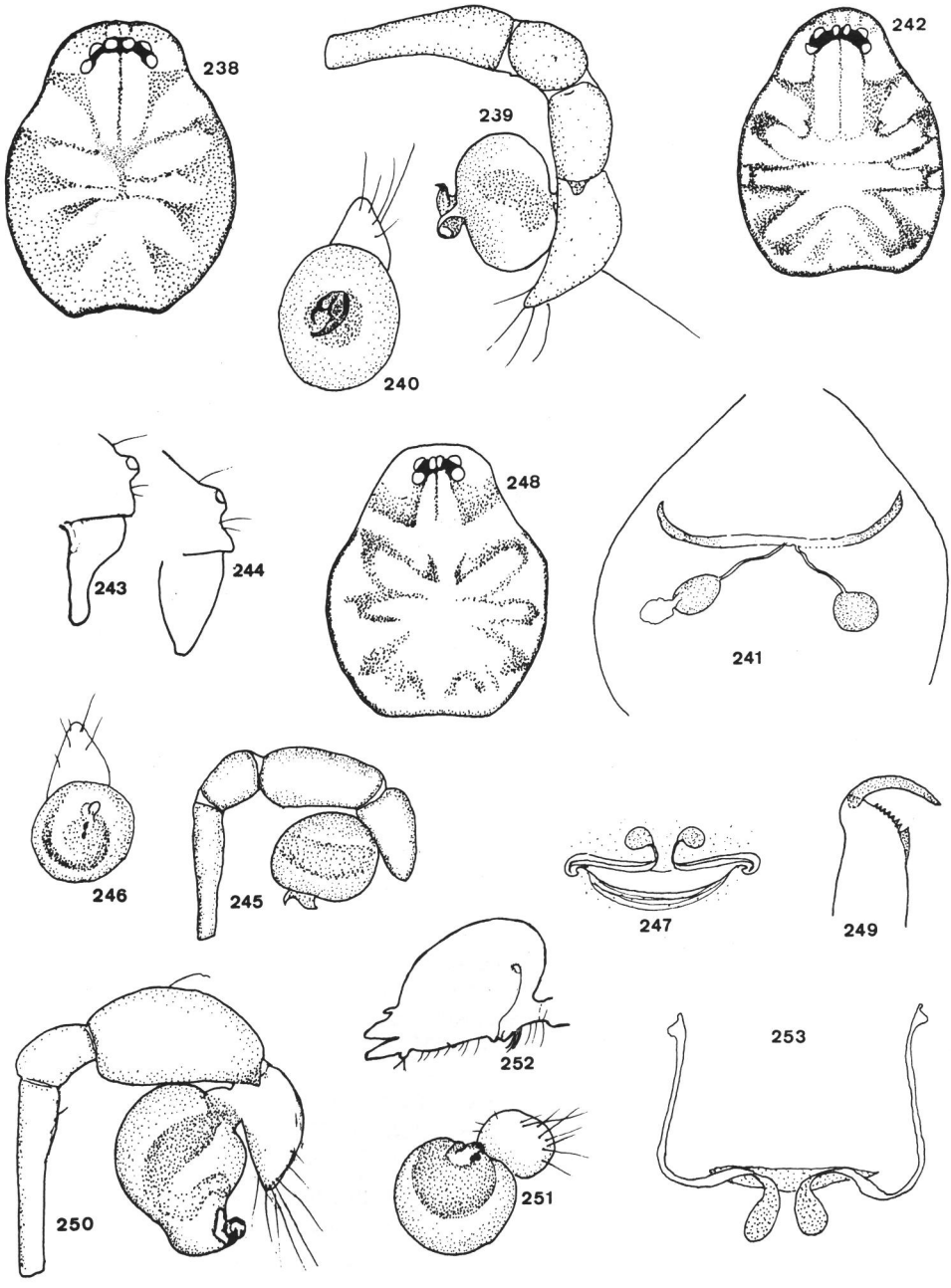
	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	0.82	0.41	0.34	0.48	1.68	0.47	0.37	0.54	1.77
Female	0.92	0.45	0.36	0.41	1.50	0.43	0.34	0.45	1.65

Male palp femur 0.14 patella 0.07, tibia 0.1 tarsus 0.13, bulb 0.11 long, 0.11 wide.
Female palp femur 0.14 patella 0.07, tibia 0.08 tarsus 0.07

Type data.- Holotype, male, MALAYSIAN BORNEO: W.Sarawak, Semengoh Arboretum west of Kuching, rainforest, 6-10.i.1984 ((P.R. and C.L.Deeleman) (MHNG); 1 male and 2 female paratypes, same data and 3 females, paratypes, 24+27.iii.1985 (Deeleman and Deeleman) (MHNG and CD); 1 female, Matang Reserve (Mt. Serapi), southwest of Kuching, elevation 160 m, in wet leaf litter during heavy rains, 12.i.1984 (P.R. and C.L.Deeleman) (BPBM).

Other material examined.- W.SARAWAK: 2 males, 2 females, Bako National Park, in leaf litter in swampy primary forest, 30.iii.1985 (P.R. and C.L.Deeleman) (CD).

Remark.- The species is close to *S. pongo*, it is distinguished by the smaller size, the modified chelicerae in the male, the shorter palpal tarsus and the relatively smaller apical appendages of the bulb and in the vulva by the short ducts.



Figs. 238-253: Figs. 238-241. *Speocera (S.) pongo*, new species: 238. Male, holotype, carapace (d). 239. Id., right palp, retrolateral (e). 240. Id., bulb, ventral (e). 241, Vulva (e). Figs. 242-247. *Speocera (S.) parva* new species: 242. Female, carapace (d). 243. Male, chelicer, profile (e). 244. Female, chelicer, profile (e). 245. Male, holotype, right palp, retrolateral (e). 246. Id., bulb, ventral (e). 247. Vulva (e). Figs. 248-253. *Speocera (S.) krikkeni* Brignoli: 248. Male, carapace (Ketambe) (d). 249. Id., chelicer (e). 250. Male, right palp, retrolateral (Panti) (e). 251. Id., bulb, ventral (e). 252. Female, abdomen, profile (Ketambe) (c). 253. Id., vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Speocera (S.) krikkeni Brignoli
(Figs. 248-253, Map 16)

Speocera krikkeni Brignoli, 1977: 226, fig. 7-11 (male, female, Sibolangit Range, northwest of Kutacane).

Redescription.- Males and females agree with Brignoli's description; carapace fig. 248. In males, chelicerae (fig. 249) slightly compressed antero-posteriorly. Fourth legs bearing some prolateral spines on tibia and metatarsus. Palp fig. 250, 251, bulb longer than wide, distal appendages excentric; femur 0.22, patella 0.07, tibia 0.21, tarsus 0.14, bulb 0.15 long, 0.13 wide; tarsus tip rounded. Vulva fig. 252, 253, the ducts can easily be seen, distal part long and straight and continued into dorsal half of the abdomen.

Material examined.- INDONESIA: N.SUMATRA: ACEH, numerous males and females, adult at all seasons, Sibolangit Range, Gunung Leuser Reserve, Ketambe Research Station northwest of Kutacane, in leaf litter (near to the type locality), (S. Djojosudharmo) (MHNG, BPBM and CD); W.SUMATRA, 1 male, Rimba Panti Reserve, rainforest, leaf litter on slope on mineral soil, 3.viii.1982 (P.R. and C.L.Deeleman); prov. Jambi, Kerinci National Park, 4 females, in leaf litter, 21-30.vii.1988 (S.Djojosudharmo), with females of *Theotima minutissima*; W.JAVA, 1 male, 2 females, Udjung Kulon Reserve, by sieving leaf litter, 14-25.xi.1986 (Djojosudharmo) with *S. crassibulba* and *S. javana* (CD).

Remarks.- The Sibolangit Range covers both lowland and mountainous areas, the type locality is at an elevation of 1420 m. The range of this species is extended to W. Java, 1300 km from the type locality.

Speocera (S.) dayakorum, new species
(Figs. 254-256, Map 16)

MALE. Pattern of carapace as in *S. pongo*; sternum uniform pale brown. Chelicerae with antero-lateral impression and large "brush" (fig. 254). All legs lost. Palpal tibia and tarsus slightly incrassate, tibia as long as tarsus, tarsus tip acute, bulb cherry-shaped, distal appendages very short, almost button-like (fig. 255, 256).

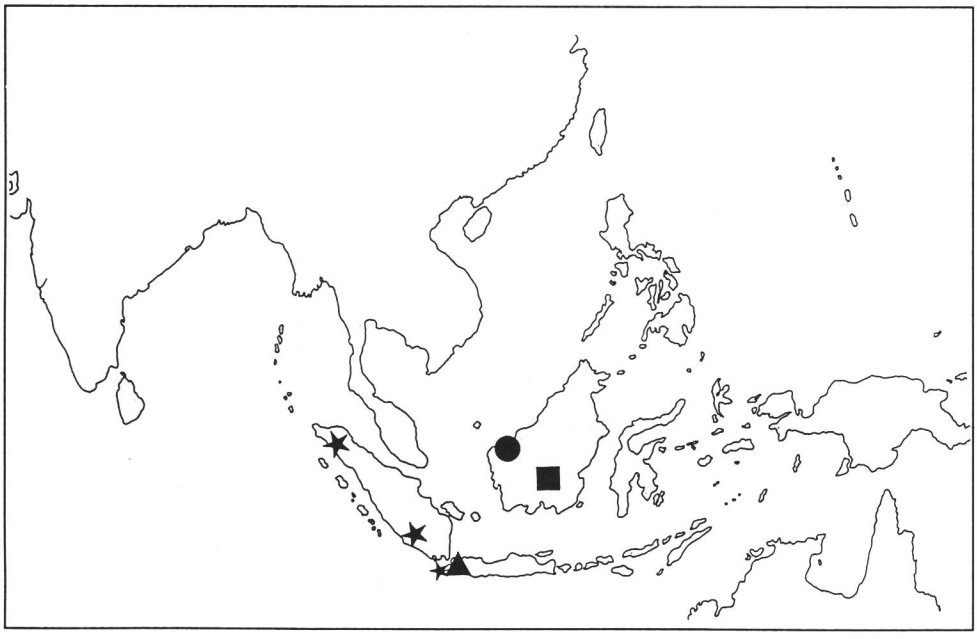
FEMALE unknown.

Measurements in mm of the holotype: carapace 0.55 long, 0.45 wide, abdomen 0.45 long. Palp femur 0.20, patella 0.08, tibia 0.18, tarsus 0.17, bulb 0.14 long, 0.16 wide.

Type data.- Holotype, male, INDONESIAN BORNEO: Prov. C.Kalimantan, Kaharian, 2°02'S, 113°40'E, swampy primary forest, in leaf litter, with S.pongo, 5-6.ix.1985 (S.Djojosudharmo) (BPBM).

Etymology.- Named for the Dayaks, the tribe that lives in the rainforests of the inner parts of Borneo.

Relationships.- Closely related to the sympatric *S. pongo*, *S. parva* and *S. transleuser*, separated from *S. pongo* by the modified chelicerae, the relatively longer palpal tibia and smaller bulbal appendages. Differs from *S. parva* and *S. transleuser* by the modified chelicerae, the more acute tarsus and the smaller bulbal appendages and from *S. transleuser* by the less incrassate tibia and tarsus.



Map 16. Triangle - *Complicicera javana, Speocera crassibulba*, square - *S. pongo, S. dayakorum*, circle - *S. parva*, asterisks - *S. krikkeni*.

Speocera (S.) transleuser, new species
(Figs. 257-260, Map 17)

Description.- MALE. Pattern of carapace as in *S. krikkeni*, but the dark triangles behind the eyes more elongate and pointed behind. Sternum pale violet with darker radiating streaks, abdomen brownish violet, with ventrally a few lighter areas; legs pale uniform yellow. Chelicerae compressed antero-posteriorly as in *S. parva*. Chaetotaxy as in *S. krikkeni*. Palp Figs. 257, 258, tibia strongly incrassate, pear-shaped, tarsus much shorter than tibia, tip blunt, bulb more flattened than in *S. krikkeni*, wider than long, the embolus excentric in a slightly proximal position.

FEMALE. Pattern of carapace as the male, but often darker. Epigastric region fig. 259, vulva fig. 260, chitinized ducts directed laterally, tip in the shape of a question-mark.

Measurements in mm of the male holotype and a female paratype:

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	1.00	0.50	0.40	0.48	1.85	0.48	0.41	0.55	2.03
Female	-	0.50	0.40	0.55	1.88	0.48	0.40	0.55	1.91

Male palp femur 0.20 patella 0.07 tibia 0.20 tarsus 0.15 bulb 0.11 long, 0.14 wide.
Female palp femur 0.12 patella 0.07 tibia 0.11 tarsus 0.11

Type data.- Holotype, male, INDONESIA: N.SUMATRA: Gunung Leuser National Park, Orang Utan Rehabilitation Centre at Bohorok, 1983 - 1985 (S. Djojosudharmo) (CD); numerous males and females, adult at all seasons, same data (Djojosudharmo and P.R. and C.L.Deeleman) (MHNG, MPBM and CD).

Etymology.- The name refers to the type locality, on the opposite side of the Sibolangit Range in respect to the type locality of *S. krikkeni*.

Speocera (S.) bovenlanden, new species
(Figs. 261-263, Map 17)

Description.- MALE. Pattern of carapace as in *S. pongo*, sternum pale with darker radiating streaks, abdomen pale without apparent markings; legs uniform pale yellow. Chelicerae slightly impressed laterally in the distal half. Legs spineless. Palp fig. 261-263, bulb much longer than wide, the tarsus directed laterally, tip widened and rounded.

FEMALE unknown

Measurements in mm of the male holotype:

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
	0.90	0.47	0.37	0.47	1.67	-	0.34	0.48	1.74

Palp femur 0.27 patella 0.08 tibia 0.24 tarsus 0.11 bulb 0.20 long, 0.10 wide.

Type data.- Holotype, male, INDONESIA: W.SUMATRA, Kotabaru near Bukittinggi (Fort de Kock in older litterature), bamboo litter, 1.viii.1982 (P.R. and C.L.Deeleman) (MHNG).

Etymology.- The area around Fort de Kock formerly was known as the "Padangse Bovenlanden".

Relationships.- Not closely related to any other species, deviant by the elongate bulb in the male palp and the peculiarly skewed tarsus, projected laterally.

Speocera (S.) stellafera, new species
(Figs. 264-269, Map 17)

Description.- MALE. Small species. Pattern of carapace as female (fig. 264), sternum violet with darker radiating streaks, abdomen pale, ventrally dark, legs uniform pale. Chelicerae excavated postero-laterally (fig. 265), with "brush". Legs spineless. Palp fig. 266, 267, tarsal tip acute, bulb asymmetrically onion-shaped, apical appendage small and colourless.

FEMALE. Carapace fig. 264. Chelicerae not modified. Epigastric region fig. 268, vulva fig. 269, with long straight chitinous ducts, tips curled around copulatory pore on the dorsal side of the abdomen.

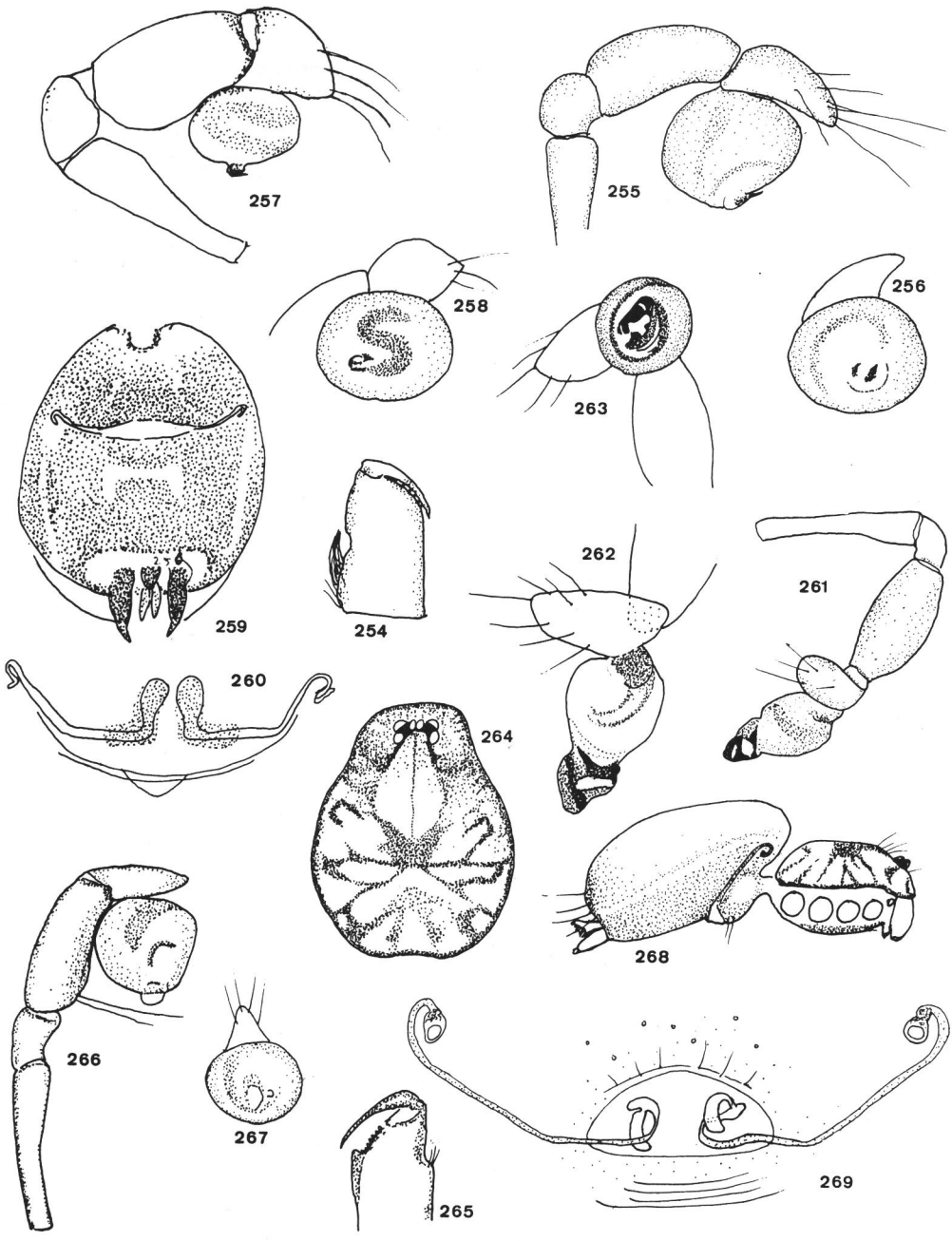
Measurements in mm of the male holotype and a female paratype:

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	0.90	0.43	0.34	0.41	1.29	0.38	0.27	0.38	1.34
Female	0.96	0.44	0.37	0.41	1.30	0.34	0.27	-	

Male palp femur 0.28 patella 0.10 tibia 0.22 width tibia 0.14, tarsus 0.17 bulb 0.20.
Female palp femur 0.11 patella 0.07 tibia 0.10 tarsus 0.07.

Type data.- Holotype, male, MALAYSIA: Templer's Park, (Kuala Lumpur), in leaf litter on slopes in forest, 21.iii.1985 (P.R. and C.L.Deeleman) (MHNG); 1 male, 1 female paratypes, same locality, 29.vii.1980 (Deeleman and Deeleman) (CD).

Other material examined.- S.THAILAND, 1 female, Changwat Krabi, Ao Luk, Tham Lod Na, 12.viii.1985 (P.Leclerc); 5 females, Changwat Saraburi, south of Pak Chong, in leaf litter in light bush bordering maize-field, 10.xi.1987 (P.R. and C.L.Deeleman); Changwat Ratburi, 1 female, Tham Thip, 25.i.1975 (F.D.Stone) (BPBM, MHNG and CD).



Figs. 254-269: Figs. 254-256. *Speocera (S.) dayakorum*, new species, male, holotype: 254. chelicer (e). 255. Right palp, retrolateral (e). 256. Bulb, ventral (e). Figs. 257-260. *Speocera (S.) transleuser*, new species: 257. Male, holotype, right palp, retrolateral (e). 258. Id., bulb, ventral (e). 259. Female, venter of abdomen (d). 260, vulva (e). Figs. 261-263. *Speocera (S.) bovenlanden*, new species, male, holotype: 261. Right palp retrolateral (d). 262. Tarsus and bulb, retrolateral (e). 263. Id., distal (e). Figs. 264-269. *Speocera (S.) stellafera*, new species: 264. Female, paratype, carapace (Templer's Park) (d). 265. Male, holotype, chelicer (e). 266. Id., right palp, retrolateral (e). 267. Id., bulb, ventral (e). 268. Female profile (Pak Chong) (c). 269. Id., vulva (e). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Etymology.- the name *"stellafera"* refers to the dark central spot on the carapace.

Relationships.- This species shares the pattern on the carapace with that in *Theotima minutissima*, yet according to the vulval structure it seems to be related rather to *S. krikkeni*. *S. stellafera* is also closely related to *S. transleuser*, but is distinguished by the central dark area on the carapace and in the male palp by the longer femur, the thinner tibia, from *S. krikkeni* by the flatter bulb and from *S. transleuser* by the less flattened bulb and in the female by the shape of the chitinized ducts. In the male, the tarsus is much shorter than the tibia, females can be recognized by the long chitinous ducts almost meeting on the dorsal side of the abdomen. *S. stellafera* differs from *S. taprobanica* in the form of the spermathecae and by the longer ducts.

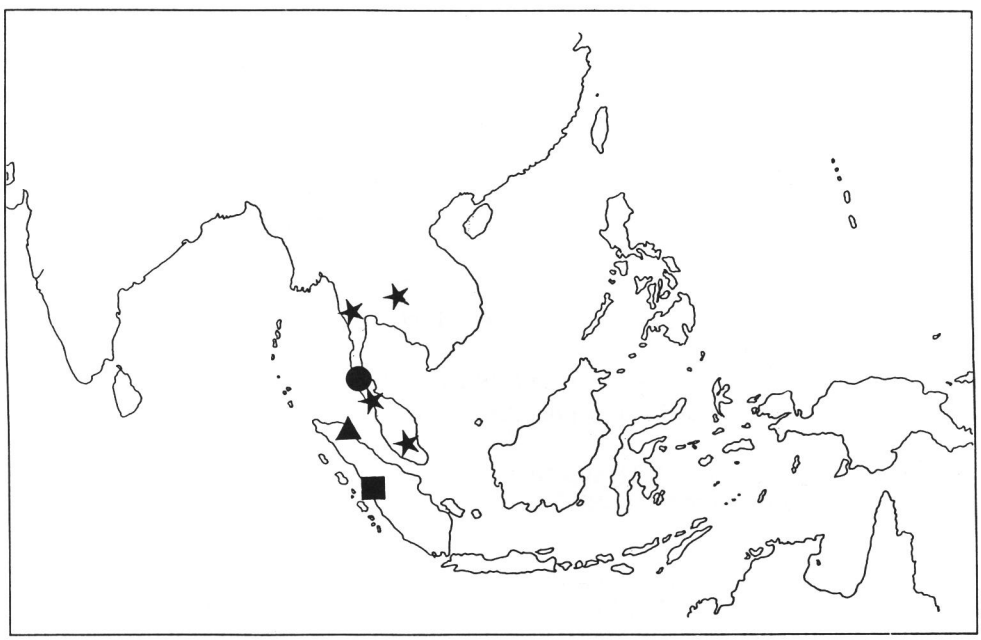
Speocera (S.) naumachiae Brignoli
(Map 17)

Speocera naumachiae Brignoli, 1980:5, fig.1-2 (female, Thailand, Koh Chang Island)

Material examined.- None.

Speocera (S.) ranongensis, new species
(Figs. 270-272, Map 17)

Description.- MALE. Pattern of carapace fig.270, sternum and abdomen pale, legs white, chelicerae fig. 271, as in *caeca* and *stellafera*, with "brush". Palp fig. 272, tibia two times longer than tarsus, the latter with rounded tip, bulb pear-shaped, distal appendage relatively large, a round lobe is apparent.



Map 17. Triangle - *Speocera transleuser*, square - *S. bovenlanden*, circle - *S. naumachiae*, *S. ranongensis*, asterisks - *S.stellafera*.

FEMALE unknown.

Measurements in mm of the male holotype:

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	0.94	0.45	0.37	0.48	1.60	0.45	0.34	0.52	1.81

Male palp femur 0.21 patella 0.09 tibia 0.18 tarsus 0.09 bulb 0.12 long, 0.10 wide.

Type data.- Holotype, male, THAILAND: Changwat Kraburi, Ranong, near Tham Phrakayang, by Berlese extraction of soil, 23.vii.1987 (P.Leclerc) (MHNG).

Etymology.- Named after the type locality.

Relationships.- *S. ranongensis* is close to *S. suratthaniensis*, new species, it differs from this species by the modified chelicerae, the longer and more slender palpal tibia and the different shape of bulb and embolus. It shares with *S. karkari*, *S. caeca* and *S. stellafera* the similarly modified chelicerae. Relationship to the geographically nearby *naumachiae* cannot be assessed as the male of that species is unknown; it may be identical.

Speocera (S.) capra, new species
(Figs. 273-279, Map 18)

Description.- MALE. Pattern of carapace fig. 273, sternum pale violet without radiating streaks, abdomen pale, ventrally with a dark spot at the base. Chelicerae (fig. 274) laterally excavated, with a lateral horn and a field of bristles adorning the front. Legs spineless. Femur I (fig. 275) with an apophysis at the base. Metatarsus IV distally uptilted as in *deharvengi*. Palp fig. 276, 277, symmetrical. Tibia and tarsus incrassate, tip of tarsus acute, bulb wider than long.

FEMALE. Chelicerae and legs unmodified. Abdomen ventrally dark, epigastric region and transverse region of posterior respiratory orifice light. Epigastric region fig. 278, vulva fig. 279; chitinized ducts long and straight, directed somewhat forward, distally gradually enlarged, tip not curved.

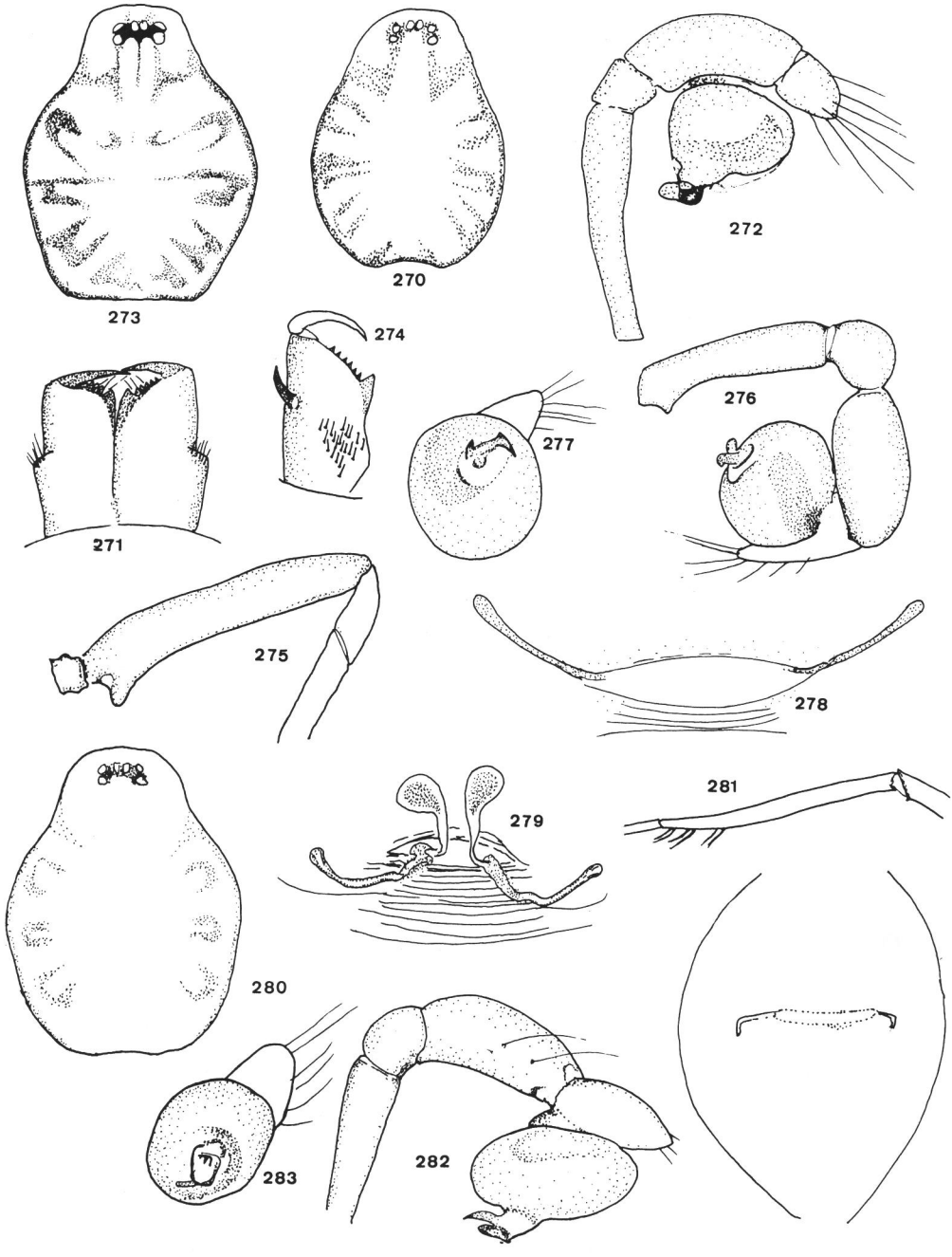
Measurements in mm of the male holotype and a female paratype:

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	1.03	0.51	0.41	0.45	1.59	0.41	0.38	0.52	1.83
Female	1.04	0.50	0.40	-	-	-	-	-	-

Male palp femur 0.22 patella 0.08 tibia 0.19 tarsus 0.15 bulb 0.12 long, 0.17 wide
Female palp femur 0.12 patella 0.07 tibia 0.11 tarsus 0.11

Type data.- Holotype, male, N.THAILAND: Changwat Fang, Ban Tham Klaeb, endogean near cave Klaeb, 3.viii.1985 (P.Leclerc) (MHNG); 1 male (CD) and 1 female (MHNG) paratypes, same data.

Other material examined.- N.THAILAND: 2 males, 1 female, Changwat Mae Hong Son, Amphoe Sop Pong, Cave Tham Nam, Hu-Ban Tham, 28.vi.1986 (Leclerc and F.Stone) (BPBM,CD), 1 female, Ban Sop Phong, Nam Lang valley, in humus, 30.vi.1986 (Leclerc) (CD). The spiders are paler in colour than those from the type locality, some entirely pigmentless, but with normally sized eyes.



Figs. 270-283: Figs. 270-272. *Speocera (S.) ranongensis*, new species, male: 270. Carapace (d). 271. Chelicerae (e). 272. Right palp, retrolateral (e). Figs. 273-279. *Speocera (S.) capra*, new species: 273. Male, holotype, carapace (d). 274. Id., chelicer (e). 275. Id., femur I (d). 276. Id., right palp, retrolateral (e). 277. Id., bulb, ventral (e). 278. Female, paratype, epigastric region (e). 279. Id., vulva (e). Figs. 280-284. *Speocera (S.) deharvengi*, new species: 280. Male, carapace (d). 281. Id., leg IV, metatarsus (e). 282. Id., right palp, retrolateral (e). 283. Id., bulb, ventral (e). 284. Female, epigastric region (d). Scale in brackets 0.5 mm. Refer to scale bars on page 99.

Etymology.- *capra* = goat, the males wear horns and a beard.

Remark.- The male chelicerae are characteristic and so is the pattern of the carapace.

Note.- Another troglobitic species (eyes strongly reduced), was found in a cave near by (Nam Ru Hua Koa cave), but the material consists of non-adults only.

Speocera (S.) deharvengi, new species
(Figs. 280-284, Map 18)

Description.- MALE. Larger than the preceding species. Pattern of carapace fig. 280, whole spider pale yellowish, posterior border of sternum and abdomen faintly brushed with violet; eyes reduced. Chelicerae slightly impressed anteriorly in the distal half. Legs spineless, metatarsus IV distally tilted upwards, provided with strong setae (fig. 281). Palp fig. 282, 283, tibia and tarsus incrassate, the latter very obtuse, bulb assymmetrical with long transverse appendage.

FEMALE. Somatic characters as the male, including the metatarsus IV modification. Chelicerae unmodified. Vulva in only female not examined, genital region fig. 284.

Measurements in mm of the male holotype and female paratype:

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	1.23	0.55	0.41	0.62	2.08	0.55	-	0.64	2.36
Female	1.23	0.55	0.43	0.55	1.94	-	-	0.62	2.13

Male palp femur 0.25 patella 0.08 tibia 0.18 tarsus 0.11 bulb 0.09 long, 0.12 wide.
Female palp femur 0.12 patella 0.07 tibia 0.11 tarsus 0.10

Type data.- Holotype male, THAILAND: Changwat Khon Kaen, Amphoe Phu Kradung, Tham Kubio Cave, 16°35'N, 102°50'E, 19.vi.1987 (L.Deharveng, Code KK 1) (MHNG); 1 female paratype, same data (MHNG).

Etymology.- In honour of its collector, Louis Deharveng.

Speocera (S.) leclerci, new species
(Figs. 285-288, Map 18)

Description.- MALE. Typically troglobitic spider, carapace pale yellow without pattern, eyes virtually disappeared, sternum, abdomen and legs pale yellow. Chelicerae unmodified. Anterior margin of genital fold protruding. Legs spineless, metatarsus IV modified as in *deharvengi*. Palp fig. 285, 286, femur and tibia long and slender, bulb large and globular, wider than tarsus length, apical appendage small.

FEMALE. Somatic characters as the male. Vulval ducts (fig. 287, 288) very long, surrounding the abdomen; vulva of only female not examined.

Measurements in mm of the male holotype: total length 1.03, carapace 0.43 long, 0.34 wide. Female: carapace 0.44 long, 0.34 wide, abdomen 0.62.

	Fe	Pa	Ti	Mt	Ta	Tot.
Male:						
Leg I	0.51	0.15	0.47	0.34	0.22	1.69
II	0.43	-	-	-	-	-
III missing						
IV	0.50	0.15	0.45	0.36	0.25	1.71
palp	0.27	0.07	0.20	-	0.12, bulb 0.11 long, 0.15 wide.	
Female all legs missing,						
palp	0.14	0.05	0.11	-	0.11	

Type data.- Holotype, male, THAILAND: Changwat Hua Hin, Amphoe Pran Buri, Khao Sam Roi Yot National Park, Tham Kaeo Cave, 26.vii.1987 (P.Leclerc); female paratype, Tham Sai Cave, same data (CD).

Etymology.- Named for the collector Philippe Leclerc.

Speocera (S.) phangngaensis, new species
(Figs. 289-290, Map 18)

Description.- FEMALE. Pattern of carapace as in *S. suratthaniensis*, an additional pigmented area in the middle of the posterior border, sternum almost uniform pale brown, legs pale uniform yellow, without spines. One specimen is almost colourless. Epigastric region fig.289, vulva fig 290.

MALE unknown.

Measurements in mm of the female holotype:

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
	1.10	0.50	0.37	0.47	1.63	0.40	0.35	0.48	1.75
palp	femur 0.14		patella 0.07		tibia 0.8		tarsus 0.11		

Type data.- Holotype, female: THAILAND: Changwat Phangnga, Tham Pung Chang Cave, 19.vii.1987 (P.Leclerc) (MHNG); 2 female paratypes, same data (CD).

Etymology.- Named after the type locality.

Remark.- Females can be separated from females of *S. deharvengi* by the chitinous ducts, which are much longer than in that species, about half the width of the epigastric fold, the tip not so replicated.

Speocera (S.) suratthaniensis, new species
(Figs. 291-295)

Description.- MALE. Pattern of carapace fig. 291, sternum without distinct radiating streaks, abdomen pale violet, underside darker, with darkest area near the base; legs pale yellow. Chelicerae slightly impressed anteriorly. Chaetotaxy unknown. Palp fig. 292, 293, tarsus slightly longer than tibia, acute; bulb wider than high, almost symmetrical, apically with distinctly separated embolus and conductor, embolus coiled anti-clockwise in the right palp in ventral view.

FEMALE. Genital region fig. 294; vulva fig. 295, similar to *S. karkari*, chitinized ducts slightly longer, nearly half the width of the epigastric fold.

Measurements in mm of the male holotype and a female paratype:

	tot.	car length	car width	fe I	tot.I	fe II	fe III	fe IV	tot.IV
Male	-	0.45	0.38	0.55	1.88	-	-	-	-
Female	1.00	0.44	0.37	-	-	0.48	-	-	-

Male palp femur 0.22 patella 0.08 tibia 0.15 tarsus 0.18 bulb 0.11 long, 0.15 wide.
Female palp femur 0.12 patella 0.07 tibia 0.11 tarsus 0.10

Type data.- Holotype, male, THAILAND: Changwat Surat Thani, Amphoe Kanchanadit, Tham Khu Ha Cave, 9°09' 99°40', 15.vii.1987 (P. Leclerc) (MHNG); 1 female paratype, same data (MHNG).

Etymology.- Named after the type locality.

Speocera (S.) troglobia, new species
(Fig. 296, Map 18)

Description.- FEMALE. Whole spider pale yellow, pigmentless, eyes vestigial. Vulva fig. 296.

MALE unknown.

Measurements in mm: carapace 0.51 long, 0.41 wide, abdomen 0.70, all legs lost (also in the specimen from Tham Khao Phang), palp femur 0.17, patella 0.07, tibia 0.10, tarsus 0.12.

Type data.- Holotype, female, THAILAND, Changat Surat Thani, Tha Chana, Tham Yai Cave, 13.vii.1987 (L. Deharveng & Giani, code SUT 2) (MHNG).

Other material examined.- One female, THAILAND: Changwat Suratthani, Khao Wong, Tham Khao Phang Cave, 23.vii.1987 (L.Deharveng, code SUT 12), with one female of *S. stellafera*; 2 females, Changwat Phangnga, endogean near Tham Rusit, 11.viii.1985 (Leclerc) (CD).

Etymology.- The name refers to the troglobitic appearance.

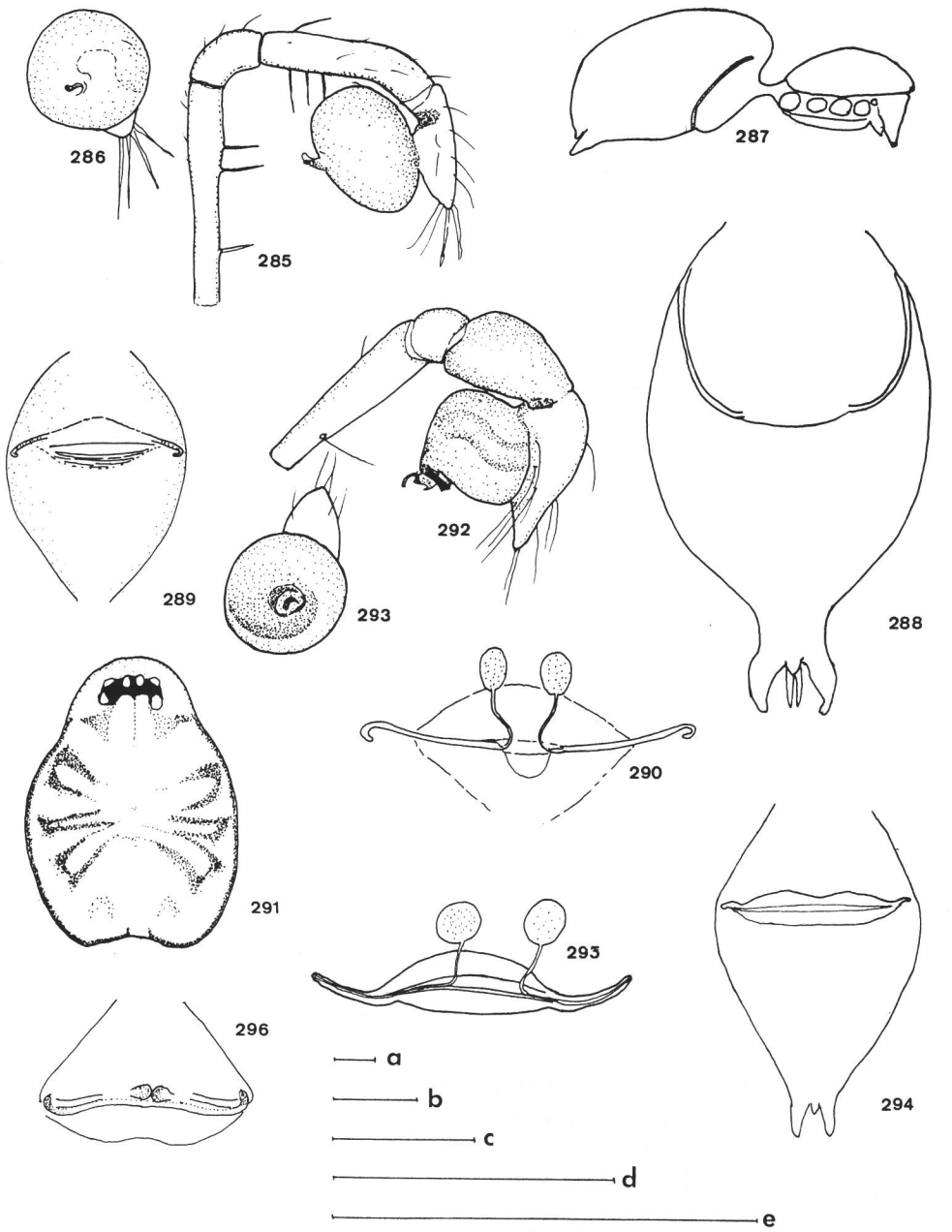
Note.- Other, similar, troglobitic adult or nonadult female specimens were found in Changwat Saraburi, Kaeng Khoi District, Tham Thap Kwang, 7.x.1973 (F.Stone).

Speocera (S.) taprobanica Brignoli

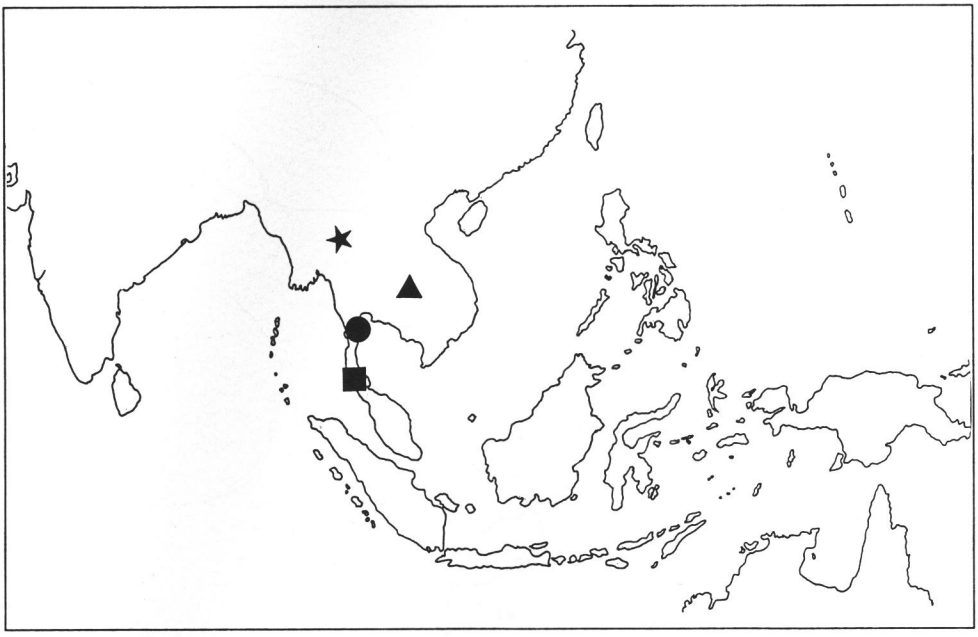
Speocera taprobanica Brignoli, 1981: 121, fig. 1,2 (female, Kandy).
Simonicera taprobanica: Brignoli, 1979, Revue Suisse Zool. 86 (3): 599. - Brignoli, 1983: 153
Speocera taprobanica: Brignoli, 1986: 348

Redescription.- Female chitinized ducts long, curved inward, section 2 lacking, pedunkels short, spermathecae large. This is the only *Speocera* recorded from Sri Lanka.

Material examined. - None.



Figs. 285-296: Figs. 285-288. *Speocera (S.) leclerci*, new species: 285. Male, holotype, right palp, retrolateral (e). 286. Id., bulb, ventral (e). 287. Female, paratype, profile (c). 288. Id. venter of abdomen (d). Figs. 289-290. *Speocera (S.) phangngaensis*, new species, female: 289. Holotype, venter of abdomen (d). 290. Id., vulva (e). Figs. 291-296. *Speocera (S.) suratthaniensis*, new species: 291. Male, holotype, carapace (d). 292. Id., right palp, retrolateral (e). 293. Id., bulb, ventral (e). 294. Female, venter of abdomen (d). 295. Id., vulva (e). 296. *Speocera (S.) troglobia*, new species, holotype: vulva (e). Scales a-e = 0.5 mm.



Map 18. Triangle - *S. deharvengi*, square - *S. phangnganesis*, *S. suratthani*, *S. troglobia*, circle - *S. leclerci*, asterisk - *S. capra*.

DISCUSSION

Ochyroceratid spiders are common in the Indo-Pacific region. They are inhabitants of leaf litter and humus, but they also constitute an important element in the fauna in caves. All three subfamilies are represented in the region, but the long-legged Psilodercinae reach the highest diversity in this continent, with all genera confined in distribution to the Oriental region - they probably never reached the Sahul plateau and Polynesia. Nearly all species of Psilodercinae are known from a single locality or a small area only and evidently dispersal capacity in this subfamily is low. As a consequence, the number of species is high, the great majority of species being yet undescribed. The tiny, short-legged theotimines appear to be much better dispersers and are spread over the world tropics with the exception of Australia.

The larger genera are composed of groups of related species with allopatric generally limited distribution (possibly covering ranges down to some tens of square kilometers only). The only universally present species is the allochthonous. *Theotima minutissima*, one of the smallest species and parthenogenetic; its primary range is in the New World tropics. Apart from this species and contrary to the findings of de Barros Machado (1951, 1964) in ochyroceratines in West Africa, no evidence of parthenogenesis was found in the Indo-Pacific Region.

Adaptations to the hypogean environment (troglomorphism) consist of loss of pigment and eyes, increase in size, lengthening of legs, and in the psilodercines in the presence of very long stiff hairs on the underside of the body. Troglomorphic species are unevenly distributed among the genera. But in all species of ochyroceratids in which cave-dwelling populations could be compared with forest dwellers, the former had significantly longer legs than their epigean relatives. Longer legs probably is a rapidly developing adaptation, or simply a matter of phenotype.

In this paper one new eyeless *Psiloderces* species (*P. pulcher*) and two new species with reduced eyes (*P. howarthi, P. fredstonei*) are described; *P. pulcher* and *P. fredstonei* show clear affinities with epigean species, *P. howarthi* does so to a much lesser extent. The total number of troglomorphic *Psiloderces* species, including the type species is now five, in *Speocera* five, in *Merizocera* two, in *Althepus* and *Leclercera*, none. *Psiloderces pulcher* was found in Mulu, an extensive limestone area in eastern Sarawak and the only extensive cave system from which spider material was available. It is closely related to *P. enigmatus*, an epigean species from western Sarawak. *Psiloderces howarthi*, the only phylogenetically isolated troglomorph species lives in a small isolated outcrop of limestone in western Thailand, surrounded by vast stretches of plain. Five *Psiloderces* species out of seven found in caves have reduced eyes. In the two cave-dwelling *Merizocera* species eyes and pigmentation are reduced and legs are lengthened in cave populations in relation to surface populations. In all nine *Althepus* species found in caves, none shows any morphological adaptation. In 11 cave-dwelling *Speocera* species, five show pigment loss and eye reduction, but only in the three eyeless species the legs are lengthened. Species can be distinguished primarily on the basis of the genital organs, but pattern of carapace and abdomen and secondary sexual characters in the male are also useful.

The theotimines have a genital organ that reminds of that in entelegyne spiders, with their copulatory openings well separated from the uterus externus, where the eggs normally are fertilized. It can be hypothesized that fertilisation takes place through pores in the proximal part of the sperm ducts.

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