# New species of Phaeacius from Sri Lanka, Sumatra and the Philippines (Araneae: Salticidae) 

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## Summary


#### Abstract

Four new species of Phaeacius Simon (Araneae: Salticidae: Spartaeinae) are described: $P$. wanlessi from Sri Lanka, P. biramosus from Sumatra, P. alabangensis from Luzon (Philippines) and $P$. leytensis from Leyte (Philippines); the females of biramosus and alabangensis, and the male of leytensis, are unknown. New records are provided for two previously known species. The range of the genus is Indo-Malayan. The distribution of all species based on records of males is mapped.


## Introduction

The genus Phaeacius Simon contains a distinctive group of salticid spiders distributed from India to the Philippines. Though relatively large in size specimens of this genus are rare in museum collections, as noted by Wanless (1981), perhaps due to their remarkably camouflaged appearance in life. Though only moderately depressed dorsoventrally, live specimens have a markedly flattened appearance that is enhanced by their somewhat laterigrade long legs which, together with their cryptic colour pattern, renders these spiders (especially females) hard to detect on the trunks of trees where they are usually encountered. This is well illustrated in the photographs published by PrestonMafham \& Preston-Mafham (1984: 157, fig. 7.12) and Jackson \& Hallas (1986). The latter authors' account of a Phaeacius species from Sri Lanka (apparently $P$. wanlessi n. sp., described below) provides the only information available on the natural history and behaviour of these spiders.

Phaeacius is one of some thirteen genera of nonlyssomanine pluridentate salticids forming the subfamily Spartaeinae (Wanless, 1984). This group is characterized by the presence of large posterior median eyes, cheliceral dentition with three promarginal teeth (with a gap between the apical and subapical) and male palpal features such as the ventral tibial apophysis, tegular furrow and distal haematodocha (Wanless, 1984; Wijesinghe, 1990). In addition to the depressed carapace, Phaeacius is further characterized by the falcate-blunt cymbium, well-developed pars pendula, filiform membranous process and dorsolateral apophysis of distal haematodocha, and the presence of clavate hairs on female coxae IV (Wanless, 1981).

In his excellent revision of Phaeacius, Wanless (1981) provided a detailed characterization of the genus and described and illustrated five species, three of which were previously unknown. The material on which Wanless based his study originated from India, Nepal, Burma, Singapore, Sumatra, Java and the Philippine island of Luzon. Subsequently Jackson \& Hallas (1986) reported the genus from Sri Lanka and further specimens from that island have been collected
thereafter. An examination of the unidentified salticid material in the collection of the American Museum of Natural History, New York, has brought to light a small number of additional specimens from India, Malaysia, Sumatra and the Philippine islands of Luzon and Leyte. Four previously unknown species appear to be represented by the Sri Lankan and southeast Asian material and are described as new below. During the course of this study it has been possible also to examine the types and other specimens of all previously described species of the genus. The format of the descriptions generally follows Wanless (1981); actual measurements, rather than ratios, are provided in all cases, however. Museum abbreviations are as follows: AMNH = American Museum of Natural History, New York; BMNH = British Museum (Natural History), London; CNMS = Sri Lanka Department of National Museums, Colombo; MNHN $=$ Muséum National d'Histoire Naturelle, Paris; NHMW = Naturhistorisches Museum, Wien. All holotypes are deposited in AMNH.

## Phaeacius wanlessi sp. n. (Figs. 1-5)

## Diagnosis

Males of $P$. wanlessi resemble $P$. lancearius (Thorell), P. malayensis Wanless and P. fimbriatus Simon in the general form of the retrolateral tibial apophysis, but can easily be distinguished from these species by having the apophysis posterolaterally angular and distally elongate and slender, with its dorsal prong short; females resemble $P$. saxicola Wanless closely but may be distinguished by the narrower posteromedial trilobed region of the epigynum and the divergent anterior loops of the copulatory ducts.

## Male holotype (in good condition)

Carapace: Dark reddish brown, clothed with recumbent brown translucent hairs; broad band of white hairs with sinuate upper edge at lateral margins; eye region finely punctate, faintly iridescent where rubbed. Eyes: Encircled in black; anteriors fringed with pale brown and white hairs; several short setae adjacent eyes, pair of long setae between and above AME. Clypeus: Reddish brown, clothed with white translucent hairs; row of long setae along lower margin; single long seta below each AME, pair between and below AME. Chelicerae: Reddish brown; proximal half thickly clothed with white hairs, long laterally and medially; promargin with three, retromargin with four teeth. Maxillae: Grey-brown, apicomedial margin white; thickly scopulate. Labium: Grey-brown, tipped white. Sternum: Yellow-brown, shiny; clothed with white hairs. Coxae: Similar to sternum but slightly greyer and less shiny; clothed with white hairs. Abdomen: Dorsally with fawn folium, edged blackish; weak scutum at anterior bearing many dark and few white setae, followed by two pairs of sigilla; subcutaneous white guanin granules on either side of cardiac region and posteriorly; posterior third of dorsal folium kite-shaped, delimited by inward extensions of
dark sides; pair of weak pencils of white hairs extending laterally from lateral corners of kite-shaped area; sides blackish; ventrally dark greyish fawn with pair of broad pale yellow stripes extending from lung slits to spinneret bases; spinnerets dusky yellow. Legs: Yellow-brown, distal elements darker, with numerous strong spines; patches of dark recumbent hairs forming spots and annulations, especially on tibiae and metatarsi. Spination of legs I: metatarsi v2-0-0, p1-2-0, r1-1-2; tibiae v3-2-2, p1-0-1, r1-0-1, d1-1-1; patellae p0-1-0, r0-1-0; femora p0-1-1, r0-0-1, d0-1-4. Palp (Figs. 1-2): Femur and patella yellow-brown, with distal hair tufts; tibia and tarsus very dark, clothed with dark hairs; retrolateral tibial apophysis posterolaterally angular, distally elongate, slender, dorsal prong short, not up-tilted; vertical ridge-like fold in hollow between ventral and retrolateral apophyses; pars pendula dark, fused to embolus; embolar complex broad, prolaterally convex, basally emarginate; distal haematodochal apophysis present.

Dimensions (mm): Total length 8.35; carapace length 3.82 , breadth 3.2 , height 2.1 ; abdomen length 4.35; legs, I 9.93, II 10.12, III 10.09, IV 11.40; eyes, anterior row 2.15 , middle row 1.86 , posterior row 1.98 , quadrangle length 1.59 ; diameters, AM 0.65 , AL 0.36 , PM 0.23, PL 0.33; interocular distances AL-PM-PL $0.53-0.56$; clypeus 0.23 .

## Female paratype (in good condition)

Carapace: Pale reddish brown, eye region clothed with recumbent pale brown translucent hairs; lateral
white band confined to narrow membranous border; thoracic region sparsely clothed with dark and scattered white hairs above margin; eye region finely punctate, faintly iridescent where rubbed. Eyes: Encircled in black; anteriors fringed with pale brown and white hairs; several short setae adjacent eyes, pair of long setae between and above AME. Clypeus: Pale reddish brown, clothed with short white hairs; row of long setae along lower margin; single long seta below each AME, pair between and below AME. Chelicerae: Pale reddish brown; proximal half clothed with white hairs, longer laterally and medially; promargin with three, retromargin with four (five on one side) teeth. Maxillae: Grey-brown, apicomedial margin white; thickly scopulate. Labium: Grey-brown, tipped white. Sternum: Pale buff-yellow, shiny; clothed with white hairs and some longer setae. Coxae: Similar to sternum, clothed with white hairs; coxae IV with grey clavate hairs on ventral surface. Abdomen: Dorsal folium of light fawn, darker on sides, edged blackish; posterior third of folium kite-shaped, formed by inward extensions of blackish sides; pair of white pencils of hair extending laterally from lateral corners of kiteshaped area; ventrally uniform pale buff-yellow (similar to sternum, coxae and legs), with long white hairs; dorsal pattern obscure where rubbed, revealing subcutaneous white guanin granules on either side of cardiac region and posteriorly; spinnerets pale buffyellow, tinged greyish. Legs: Pale buff-yellow, with darker spots and annulations; dorsally clothed with short brown hairs, laterally with long white hairs, with


Figs. 1-5: Phaeacius wanlessi sp. n. 1 Left palp, ventral view; $\mathbf{2}$ Left palp, retrolateral view; $\mathbf{3}$ Epigynum (uncleared), ventral view; 4 Epigynum (cleared), ventral view; 5 Vulva, dorsal view. Scale line $=1 \mathrm{~mm}$.
numerous strong spines; femora with long white hairs ventrally. Spination of legs I: metatarsi v2-0-0, p1-1-0, r1-1-1; tibiae v3-2-2, p1-0-1, r1-1-0, d1-1-0; patellae p0-1-0, r0-1-0; femora p0-1-1, d0-2-3. Palps: Pale buffyellow, distal elements with long white hairs laterally. Epigynum (Figs. 3-5): Orifices large; posterior margin with trilobed medial region narrow, posterior extensions at sides; anterior loops of copulatory ducts divergent, short of anterior epigynal margin; vulva dorsally with large pyriform spermathecae; copulatory ducts looped tightly, with pair of tubercles on inner anterior surfaces; pair of large membranous pockets with concertina-like folds lateral to spermathecae.

Dimensions (mm): Total length 9.45; carapace length 4.05 , breadth 3.4 , height 1.85 ; abdomen length 5.10 ; legs, I 10.4, II 10.7, III 10.9 , IV 11.9 ; eyes, anterior row 2.26, middle row 1.99, posterior row 2.08, quadrangle length 1.69; diameters, AM 0.69, AL 0.39 , PM 0.25, PL 0.33; interocular distances, AL-PM-PL $0.53-0.59$; clypeus 0.21 .

## Variation

Males ( $n=4$ ): total length 8.35-9.2, carapace length 3.82-4.36; females ( $n=3$ ): total length 9.45-10.10, carapace length 4.05-4.33.

## Distribution

Sri Lanka.

## Material examined

Holotype: Kalutara, Kalutara District: $\sigma^{\top}$ on trunk of mango Mangifera indica L . in company with leafhoppers Idioscopus sp . and ants Technomyrmex albipes (F. Smith), 27 June 1987 (D. P. Wijesinghe, AMNH). Paratypes: Opatha, Gampaha District: $10^{7}$ on leaf of screwpine Pandanus sp., 15 August 1986 (T. Wijesiri, CNMS); Kotte, Colombo District: $10^{\prime}$ on leaf of papaw Carica papaya L., 10 June 1987 (D. P. Wijesinghe, CNMS), $10^{\prime \prime}$ on trunk of mango Mangifera indica L. near a few ants Oecophylla smaragdina (Fabricius), 28 June 1987 (D. P. Wijesinghe, BMNH); Kalutara, Kalutara District: 19 (same data as $O^{\prime \prime}$ holotype) (AMNH), 19 on trunk of mango Mangifera indica L., 12 July 1987 (D. P. Wijesinghe, CNMS), 19 on trunk of mango Mangifera indica L., 16 August 1987 (D. P. Wijesinghe, BMNH).

## Etymology

The specific name is a patronym in honour of Fred R. Wanless, London, whose revisionary studies have contributed greatly to our knowledge of palaeotropical salticids.

Phaeacius biramosus sp. n. (Figs. 6-8)

## Diagnosis

P. biramosus is a highly distinctive species which may be distinguished easily from all other known species of the genus by the large, laterally extended and curved retrolateral tibial apophysis with its two bladelike distal rami.

Male holotype (in fair condition)
Carapace: Light reddish brown, eye region rubbed, with patches of recumbent pale brown translucent hairs, finely punctate, faintly iridescent; patches of white hairs above white membranous border forming irregular marginal band; thoracic region with fine dark and pale hairs. Eyes: Encircled in black; several short setae adjacent eyes, pair of long setae between and above AME. Clypeus: Clothed with short pale hairs; row of long setae along lower margin, inward-directed, longest at middle; single long seta below each AME, pair between and below AME. Chelicerae: Light reddish brown; proximal half clothed with white hairs, longer laterally and medially; promargin with three, retromargin with four teeth. Maxillae: Dusky brown, apices and medial margins broadly white; thickly scopulate. Labium: Dusky brown, tipped white. Sternum: Orange-brown, shiny, with white hairs. Coxae: Similar to sternum but slightly less shiny, clothed with white hairs. Abdomen: Dorsally rubbed, with weak scutum at anterior followed by two pairs of sigilla; elongate cardiac region dark; rest of dorsum with extensive subcutaneous deposits of white guanin granules; two pairs of dark patches posteriorly indistinctly marking pale kite-shaped area; ventrally greyish-brown, greyer anterior to genital furrow; pair of buff-yellow stripes extending from lung slits to spinneret bases; spinnerets buff-yellow, tinged dusky. Legs: Orange-brown, distal elements darker; traces of dark annulations on patellae, tibiae and metatarsi; numerous strong spines. Spination of legs I: metatarsi v2-0-0, p1-2-0, r1-1-2; tibiae v3-2-2, p1-0-1, r1-0-1, d1-1-1; patellae p0-1-0, r0-1-0; femora p0-0-1, d0-2-3. Palp (Figs. 6-8): Femur and patella orange-brown, tibia and tarsus dark; cymbium narrow, apically truncate, strongly convex retrolaterally; retrolateral tibial apophysis very large, extending considerably laterally, with two blade-like distal rami, upper ramus shorter than lower, overlying latter in lateral view; ventral tibial apophysis slender, extended anteriorly; tegulum anteriorly displaced, with wide cleft between embolar complex and anterior end of tegulum; tegular furrow narrow; sperm duct visible as dark elongate area extending forwards from centre of tegulum; embolar complex slender, not emarginate prolaterally; distal haematodochal apophysis apparently absent.

Dimensions (mm): Total length 7.3; carapace length 3.6 , breadth 2.9 , height 1.9 ; abdomen length 3.9 ; legs, I 8.84, II 9.06, III 9.42, IV 10.52; eyes, anterior row 1.90 , middle row 1.68 , posterior row 1.78 , quadrangle length 1.53; diameters, AM 0.56 , AL 0.33 , PM 0.21 , PL 0.29; interocular distances, AL-PM-PL 0.47-0.55; clypeus 0.23 .

## Female

Unknown.

## Distribution

Sumatra, Indonesia.

## Material examined

Holotype: c. $105^{\circ} \mathrm{E} 5^{\circ} \mathrm{S}$, Wai Lima, Lampongs
[=Lampung], Sumatra: $\sigma^{7}$, November-December 1921 (Karney, AMNH).

## Etymology

The specific name is from the Latin for twobranched and refers to the structure of the retrolateral tibial apophysis.

## Phaeacius alabangensis sp. n. (Figs. 9-10)

## Diagnosis

P. alabangensis resembles $P$. canalis Wanless more than any other known species on the basis of the distally attenuated and pale retrolateral tibial apophysis and the narrowed distal end of the cymbium, but may be distinguished easily by the retrolateral tibial apophysis being shorter with the dorsal prong absent, the presence of a cleft separating the lower portion of the retrolateral tibial apophysis from the upper, the absence of an apophysis on the retrolateral face of the ventral tibial apophysis, the angular proximal retrolateral margin of the cymbium and the rounded (not emarginate) prolateral embolar base.

## Male holotype (in fair condition)

Carapace: Dark reddish brown, eye region rubbed, finely punctate, faintly iridescent; narrow membranous marginal border with white hairs; thoracic region with scattered pale and dark hairs above margins. Eyes: Encircled in black; anteriors fringed partially with pale brown and white hairs; few setae adjacent to eyes. Clypeus: With pale hairs, row of long setae along lower
margin directed inwards, longer at middle; single long seta below each AME, triad between and below AME. Chelicerae: Dark reddish brown, proximal half clothed with white hairs, longer laterally, medially; promargin with three, retromargin with four (five on one side) teeth. Maxillae: Dusky reddish brown, apicomedial margins broadly white; thickly scopulate. Labium: Dusky reddish brown, tipped white. Sternum: Orangebrown, shiny, with white hairs. Coxae: Similar to sternum, with white hairs. Abdomen: Dorsally rubbed, uniform pale fawn; weak scutum anteriorly, followed by two pairs of sigilla; faint indications of white subcutaneous guanin granules on either side of greyish cardiac region; traces of pale kite-shaped area posteriorly; laterally greyish fawn; ventrally greyish fawn, with two broad buff-yellow stripes from lung regions to spinneret bases; spinnerets buff-yellow, tinged dusky. Legs: Orange-brown, with traces of annulations on tibiae; femora with white hairs ventrally; numerous strong spines. Spination of legs $I$ : metatarsi v2-0-0, p1-2-0, r1-1-2; tibiae v2-3-2, p1-0-1, r1-0-1, d1-1-1; patellae p1-0-0, r1-0-0; femora p0-1-1, r0-0-1, d0-1-4. Palp (Figs. 9-10): Femur and patella orange-brown, with distal hair tufts, tibia and tarsus dark; retrolateral tibial apophysis distally yellowish, attenuated to finger-like process, with no separate dorsal prong; anteroventral cleft separating dark lower portion from paler upper portion; cymbium narrowed distally, proximal retrolateral region angular; retrolateral tegular edge with two emarginations; tegular furrow wide; pars pendula dark, fused to embolus; prolateral embolar base rounded (not emarginate); distal haematodochal apophysis (at dorsal


Figs. 6-8: Phaeacius biramosus sp. n. 6 Left palp, ventral view; 7 Left palp, ventrolateral view; 8 Left palp, retrolateral view. Scale line $=1 \mathrm{~mm}$.
embolar base) present.
Dimensions (mm): Total length 9.35; carapace length 4.2 , breadth 3.5 , height 2.0 ; abdomen length 5.25 ; legs, I 12.09, II 12.48, III 12.20, IV 13.31; eyes, anterior row 2.16 , middle row 1.93 , posterior row 2.08 , quadrangle length 1.65; diameters, AM 0.64, AL 0.36, PM 0.23, PL 0.32; interocular distances AL-PM-PL $0.55-0.58$; clypeus 0.21 .

## Female

Unknown. Note, however, that the locality of the female assigned by Wanless (1981) to $P$. canalis [Cape Engano (Palaui Island)] is closer to the type locality of $P$. alabangensis [Alabang] than to the type locality of P. canalis [Albay].

## Distribution

Central Luzon, Philippines.

## Material examined

Holotype: Alabang, Rizal Province, Luzon: O', 2030 July 1945 (W. Spector, AMNH).

## Etymology

The specific name refers to the type locality.
Phaeacius leytensis sp. n. (Figs. 11-12)

## Diagnosis

This species is distinguished by the markedly angular posterolateral regions of the epigynum which extend further back relative to the medial region.

## Male

Unknown. However, it is probable that further
collecting may reveal this species to be the female of one of the male-based species known from the Philippines.

## Female holotype (in very poor condition)

Carapace: Dark reddish brown, paler on thoracic region, finely punctate, faintly iridescent; narrow white membranous border at margins; traces of pale hairs on eye region. Eyes: Encircled in black, anteriors partially fringed with white hairs. Clypeus: Thickly clothed with long white hairs in middle, sides with shorter brown hairs; row of long setae along lower margin, single long seta below each AME. Chelicerae: Reddish brown, proximal half with white hairs, longer laterally, medially; promargin with three, retromargin with five teeth. Maxillae: Dusky reddish brown, apicomedial margins broadly white; thickly scopulate. Labium: Dusky reddish brown, tipped white. Sternum: Pale orange-brown, shiny, clothed with white hairs. Coxae: Similar to sternum, clothed with white hairs; coxae IV with clavate hairs. Abdomen: Extensively damaged but probably similar to other species. Legs: Pale orangebrown, with traces of darker annulations on patellae, tibiae and metatarsi; numerous strong spines. Legs I damaged. Epigynum (Figs. 11-12): Posterolateral corners pronounced, extending back beyond medial region; anterior loops of copulatory ducts anterior to margins of orifices; vulva dorsally with large, asymmetrically pyriform spermathecae; copulatory ducts looped loosely, with pair of tubercles anterolaterally; lateral membranous pockets small.

Dimensions (mm): Carapace length 4.1, breadth 3.25, height 1.94; abdomen damaged; legs, I damaged, II 10.54, III 10.57, IV 11.96; eyes, anterior row 2.16 , middle row 1.89 , posterior row 2.04 , quadrangle length 1.64; diameters, AM 0.63, AL 0.35, PM 0.22, PL 0.32;


Figs. 9-10: Phaeacius alabangensis sp. n. 9 Left palp, ventral view; 10 Left palp, retrolateral view.
Figs. 11-12: Phaeacius leytensis sp. n. 11 Epigynum (cleared), ventral view; 12 Vulva, dorsal view. Scale line $=1 \mathrm{~mm}$.
interocular distances AL-PM-PL 0.60-0.52; clypeus 0.21 .

## Distribution

Leyte, Philippines.

## Material examined

Holotype: Near Dulag, elevation 30m, Leyte: ㅇ, 8 April 1945 (L. W. Saylor, AMNH).

## Etymology

The specific name refers to the island on which the holotype was collected.

## Notes on previously known species

## Phaeacius lancearius (Thorell)

New records: West Bengal, India. Kanchrapara: 10', June 1944 (Mont A. Cazier, AMNH); Calcutta: 1juv., 5 August 1950 (AMNH).

## Phaeacius saxicola Wanless

Remarks: This species was described by Wanless (1981) on the basis of a single female from Nepal. It may prove to be the female of $P$. lancearius, which is known so far only from males.

## Phaeacius malayensis Wanless

New records: Kepong, Selangor, Malaysia: $10^{7}$, 1juv., August 1944 (U.S. Scrub Typhus Unit, AMNH); Fort de Kock [=Bukittinggi], Sumatra, Indonesia: 19
(Jacobson, det. E. Reimoser as 'Phaeacius fimbriatus Sim.', NHMW). Remarks: The Bukittinggi specimen is identical with the female from Lembang Anai (sic) [=Lembah Anai (Bristowe, 1976: 166)], Sumatra, described by Wanless (1981) under this species. Another female (not examined), presumably also identical with the Lembah Anai specimen, has been reported from Singapore (Wanless, 1984: 191), the locality of the male holotype; the sexes thus appear to be correctly associated. Since a species quite distinct from $P$. malayensis has been demonstrated to occur in southern Sumatra ( $P$. biramosus sp. n., above) it remains to be shown to what extent, if at all, the two species are sympatric.

## Distribution

As currently known, Phaeacius shows a typical Oriental or Indo-Malayan pattern of distribution (Fig. 13). The absence of records for much of the southeast Asian mainland and Borneo is indicative of considerable gaps in collections, since the known distribution of the genus suggests that it also occurs in these areas. As most species have been described from male types, and males are better known than females at present, the distribution of species shown in the map takes into account only male-based records. The areas of endemism indicated by the species are in agreement with those revealed by other taxa (e.g. Mani, 1974; Schuh \& Stonedahl, 1986), but since the genus is at present known only from a small number of specimens further material is required to confirm some of these areas and clarify their limits.


Fig. 13: Distribution of Phaeacius species. Individual species indicated only for male-based records (solid symbols). Additional records of females unaccompanied by males indicated by open circles.

## Acknowledgements

I thank Paul D. Hillyard (BMNH, London) and Drs Jürgen Gruber (NHMW, Wien), W. Thelma T. P. Gunawardane (CNMS, Colombo), Norman I. Platnick (AMNH, New York) and Christine Rollard (MNHN, Paris) for the loan of specimens for study. Dr Platnick is also thanked for providing facilities for work and reading a draft of this paper. Financial assistance was received from the Doctoral Training Program of the American Museum of Natural History, New York.

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