

Siamspinops, a new selenopid spider genus from Southeast Asia (Arachnida, Araneae)

Pakawin Dankittipakul^{a,*}, José A. Corronca^b

^a*Insect Endocrinology Research Laboratory, Department of Biology, Faculty of Science, Chiang Mai University, Chiang Mai 50200, Thailand*

^b*CONICET-IEBI (U.N.Sa) (Instituto para el Estudio de la Biodiversidad de Invertebrados), Av. Bolivia 5150, CP 4400, Salta, Argentina*

Received 15 October 2008; accepted 23 October 2008

Abstract

Examination of a collection of selenopid spiders from Southeast Asia resulted in recognition of a new genus, *Siamspinops* gen. nov., which is erected to accommodate four new Southeast Asian species. *Siamspinops spinosissimus* sp. nov. (the type species; the male and female are described), *S. spinosus* sp. nov. (female) and *S. allopsinosus* sp. nov. (female) are recorded from Thailand, *S. spinescens* sp. nov. (female) from the Malay Peninsula.

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Keywords: Taxonomy; New genus; New species; Zoogeography; Thailand; Malaysia

Introduction

Selenopidae Simon, 1897 is a relatively small spider family comprising approximately 191 described species known from tropical regions of the world (Corronca 1998, 2002; Bosselaers 2004; Mondragon 2007; Platnick 2007), with a small radiation into temperate areas of China, Korea and Japan (Karsch 1879; Yaginuma 1986; Zhu et al. 1990; Namkung 2003). The family currently contains four valid genera: *Selenops* Latreille, 1819 (worldwide, 117 species); *Anyphops* Benoit, 1968 (Africa, 64 species); *Hovops* Benoit, 1968 (Madagascar, 6 species); and *Garcorops* Corronca, 2003 (Madagascar, 4 species). When Selenopidae had been given family status it was treated as monotypic at first, with all

known species subsequently placed in *Selenops*. The revision by Benoit (1968) added three genus names, but Corronca (1996) has reconsidered *Orops* Benoit, 1968 as a junior synonym of *Selenops*.

Among the described species that have been reported from Asia, only *Selenops radiatus* Latreille 1819, the type species of the genus, has a broad distributional range, occurring in Africa, the Mediterranean, India, and allegedly also in Burma (Walckenaer 1837; Cambridge 1876; Thorell 1895; Pocock 1900; Benoit 1968; Corronca 2002). The remaining species were recorded from India (Simon 1889; Pocock 1900; Gravely 1931; Reimoser 1934; Tikader 1969; Patel and Patel 1973), China (Bösenberg and Strand 1906; Zhu et al. 1990; Song et al. 1999), Korea and Japan (Yaginuma 1986; Namkung 2003), and a single species, *S. aculeatus* Simon, 1901, from the Malay Peninsula (Simon 1901). The Indian species hitherto known are: *S. agumbensis*

*Corresponding author.

E-mail address: pakawin@gmail.com (P. Dankittipakul).

Tikader, 1969; *S. montigenus* Simon, 1889; *S. nilgirensis* Reimoser, 1934; *S. radiatus*; *S. shevaroyensis* Gravely, 1931, and *S. sumitrae* Patel & Patel, 1973. Three species have been reported from China: *S. bursarius* Karsch, 1879; *S. cordatus* Zhu et al., 1990; and *S. ollarius* Zhu et al., 1990. The first of these occurs also in Korea and Japan.

Little is known about the selenopid spiders of Southeast Asia, and few records of *Selenops* species are available from this region (Thorell 1895; Pocock 1900; Simon 1901). Selenopidae systematics is in continuous change, because new collections have been made all over the world within the last 20 years, and numerous species and one genus have been described in the last decade (Corronca 1998, 2002, 2003, 2005). When examining a collection of this spider family from Southeast Asia, we found four new selenopid species that represent a new genus, *Siamspinops* gen. nov., from Thailand and Malaysia. All these new taxa are described below.

Material and methods

Representatives of the family Selenopidae are rather infrequently collected and especially poorly studied, mainly because they are confined to a specific microhabitat, i.e. the surface of large rocks. It is important to note that the numbers of specimens examined here are relatively low and that any generalisations given might be falsified by additional specimens.

The type material will be deposited in the spider collection of the Muséum d'histoire naturelle de la Ville de Genève (MHNG), Switzerland.

Morphological characters were examined, measured and drawn under an Olympus SZX-9 stereomicroscope equipped with a drawing tube. Photographs were taken and transferred to Adobe Photoshop CS2 for adjustment. In the descriptions, all measurement results are given in millimeters. Measurements of leg articles were taken from the dorsal side. Epigynes were drawn in natural and cleared state (after immersing in 90% lactic acid for 30–60 min).

Abbreviations used: AL = accessory lobe of spermatheca; ALE = anterior lateral eye; AME = anterior median eye; C = conductor; CD = copulatory duct; dRTA = dorsal part of retrolateral tibial apophysis; E = embolus; EP = secondary epigynal pocket; FD = fertilization duct; Fe = femur; GO = genital orifice; LL = lateral lobe of epigyne; MA = median apophysis; MS = median septum of epigyne; Mt = metatarsus; PLE = posterior lateral eye; PME = posterior median eye; Pt = patella; SH = spermathecal head; SP = spermatheca; Ta = tarsus; Ti = tibia; UE = uterus externus; vRTA = ventral part of retrolateral

tibial apophysis. Spination: d = dorsal; p = prolateral; v = ventral.

Taxonomic section

Selenopidae Simon, 1897

Siamspinops gen. nov.

Etymology

Siamspinops is a combination of words referring to the occurrence of these selenopid spiders in Thailand and Malaysia (Thai: 'Siam' = the former name of Thailand), to the presence of numerous ventral spines on the anterior tibiae and metatarsi (Latin: 'spina' = spine, thorn), and to the peculiar arrangement of the eyes and the short clypeus (Greek: 'ops' = face, eye; the traditional ending of genus names in Selenopidae). The gender of the genus name is masculine for the purposes of nomenclature (ICZN 1999, Article 30.1.4.3).

Type species

Siamspinops spinosissimus sp. nov.

Other species included

Siamspinops allospinosus sp. nov., *S. spinescens* sp. nov., *S. spinosus* sp. nov.

Diagnosis

Siamspinops gen. nov. is characterised by the following combination of characters: AME < PME; AME and ALE aligned; PLE, PME and AME in a recurved row (Fig. 11); second pair of legs longer than fourth, third pair longest in females, leg formula usually either 3241 (female) or 2413 (male); femora I–IV with d1.1.1 spines, femur I always with p1.1.0 spines (Fig. 14); tibiae I–II with at least 11 ventral spines, generally paired and not more than 15; metatarsi I–II with at least 7 and not more than 13 ventral spines, these generally paired (Figs. 12, 21); tibiae and metatarsi III–IV without ventral spines; male palp with two sub-branched RTA apophyses (Figs. 22–24), with tibia longer than cymbium; embolus long and filiform; conductor T-shaped, with one tip sclerotised and pointed (Figs. 22–24, 26); median apophysis hook-shaped (Fig. 22); cymbium with sparse scopula on its tip (Fig. 25); epigyne usually with a depression; posterior secondary epigynal pockets and genital orifices situated in middle portion (Figs. 27, 29, 31, 34); lateral lobes distinct and separated (Fig. 34) or fused at midline (Figs. 27, 29, 31); spermathecae heavily sclerotised, coiled into a spiral (Figs. 28, 30, 32, 33, 35), partially covered by a thin uterus externus from posterior margin of epigyne (Figs. 28, 32, 35); fertilization ducts generally located anteriorly.

Relationships

Siamspinops gen. nov. can be distinguished from all other selenopids by the absence of spines on tibiae and metatarsi III–IV, as well as by the presence of a great number of ventral spines on metatarsi I–II. A large number of ventral spines on tibiae I–II is also present in the B2–B4 *Anyphops* species group (Corronca 2005).

The structure of the male palp does not differ much from that in *Selenops* and other related genera. *Siamspinops* gen. nov. shares with several species of *Selenops* and related genera the hook-shaped median apophysis, the T-shaped conductor (distinct from *Garcorops* by the lack of a lateral projection; similar to *Hovops*, in which the apex is sclerotised, sharply pointed), and the shape of the embolus (e.g. filiform; equal in length to that of *Garcorops*) of the male palp. The retrolateral tibial apophysis with two branches is common among selenopid spiders. The presence of a cymbial scopula can also be found in representatives of *Anyphops* and *Garcorops*, but in *Siamspinops* gen. nov. the scopula is less dense than in *Hovops* species.

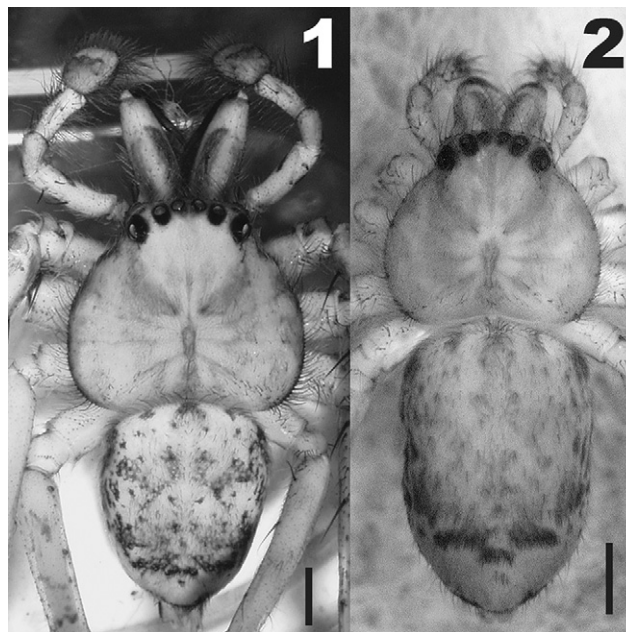
The general shape of the epigyne, with a median depression and distinctive lateral lobes, resembles that in *Selenops*, *Garcorops* and *Anyphops* species. The presence of secondary epigynal pockets is shared with *Selenops*, but those are situated posteriorly in all cases, not in the middle portion. Separated lateral lobes of the epigyne can be found in several *Selenops* species, but the condition in which the lateral lobes are fused is similar to the majority of *Anyphops* and all *Garcorops* species. The type and form of the spermathecae and the position of the fertilization ducts are unique among selenopid spiders.

With regard to all the characters mentioned, *Siamspinops* gen. nov. is intermediate between *Selenops*, *Anyphops* and *Garcorops*.

Description

Ecribellate spiders. Total length about 6.9 (male), 6.0–7.9 (female). Carapace subcircular (Figs. 1, 2, 16–18), wider than long, widest at coxae III (male) or between coxae II and III (female); dorsoventrally flattened, pars cephalica slightly higher than pars thoracica; tegument sparsely covered with short, dark brown setae more numerous on basolateral sides, behind ocular area and in center; lateral margins with long and curved spines on round sockets (Fig. 5), their length gradually increasing anteriorly; faint striae radiating from moderately depressed longitudinal fovea. Color pale yellow to orange-brown; slightly darker and generally with pattern in males.

Chelicerae (Figs. 3, 6, 7) elongate in male, about half of prosoma length; three promarginal teeth, the middle one largest, and two retromarginal teeth of subequal size on cheliceral fang grooves (Figs. 6–8); hairs on anterior surface increasing distomesad; dorsal side of chelicerae covered with short setae; chelicerae ventrally flat, with

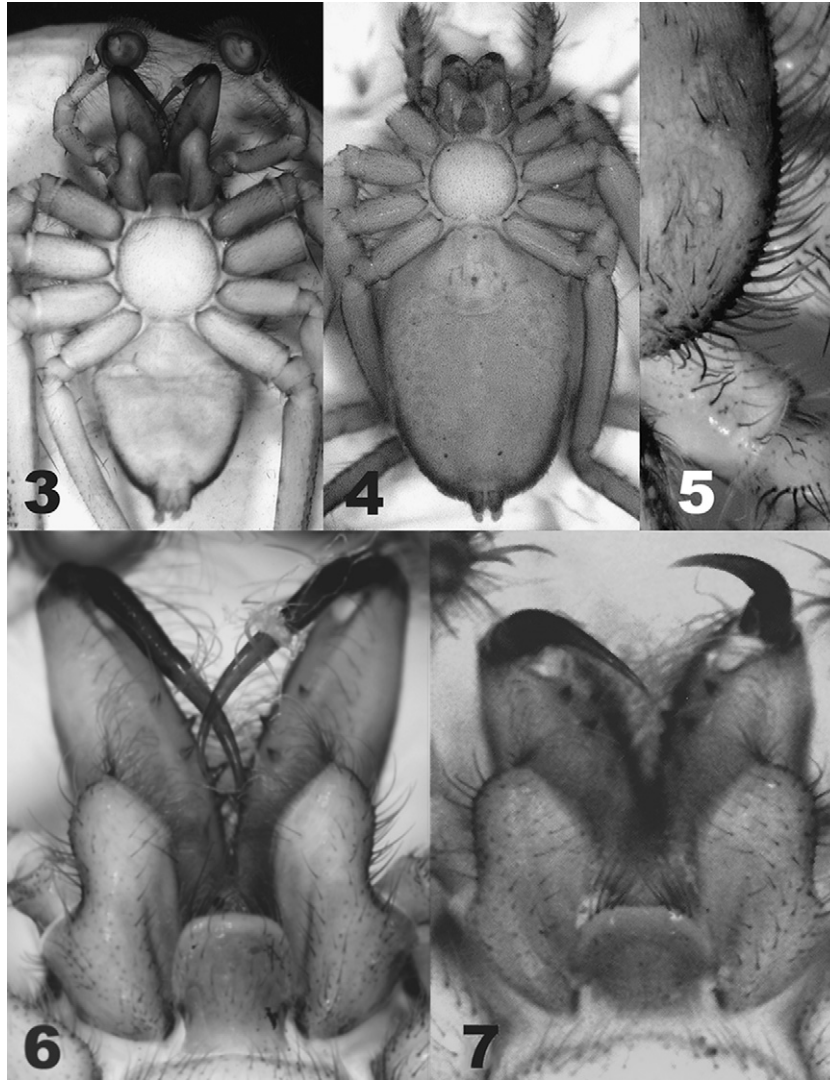


Figs. 1–2. *Siamspinops spinosissimus*, habitus in dorsal view. (1) Male. (2) Female. Scale bars = 1.0 cm.

few short proximal setae and long, fine inner setae; fangs very long, dorsally excavated in middle, crossing near tips. Labium (Figs. 6, 7, 9) rectangular, slightly longer than wide, widest at middle, basolaterally constricted, with anterior scopula. Maxillae (Figs. 6, 7) elongate, broad at base, constricted medially, with maxillary groove accommodating labium and anteromesal labial scopula. Sternum (Figs. 3, 4, 9) round, posteriorly invaginated; without lateral extensions; sparsely covered with short dark setae.

All eyes (Fig. 11) encircled by black pigment and arranged in two rows (Figs. 1, 2, 11, 16–17); eye formula 6:2; AME, PME and PLE in a recurved line, ALE aligned with AME close to anterior edge of carapace; ALE smallest; PLE largest, situated on slightly elevated posterolateral tubercle; AME smaller than PME. Clypeus very low, its height less than AME diameter, covered with a row of strong curved spines along clypeal margin, their length gradually increasing laterally.

Legs long, laterigrade, generally with strong elongate spines placed in elevated sockets (Figs. 12, 14); two smooth tarsal claws, claw tufts and scopulae present; leg II longest in male, leg III longest in female; male coxae I = IV, slightly longer than II–III, the latter of equal length (Fig. 3); female coxae IV > III > II > I (Fig. 4). Legs yellow, with stripes and numerous irregular-shaped gray spots on prolateral side of leg I (Fig. 14); with or without faint markings on legs II–III (Fig. 16), usually of pale grayish spots on proventral side; broken grayish stripes on dorsal and retrolateral sides of leg IV. Leg spination variable among individuals; typical pattern: coxae and trochanters with a group of curved dorsal



Figs. 3–7. *Siamspinops spinosissimus*. (3) Male habitus, ventral view. (4) Female habitus, ventral view. (5) Part of male carapace showing setae. (6) Male chelicerae, maxillae and labium, ventral view. (7) Female chelicerae, maxillae and labium, ventral view.

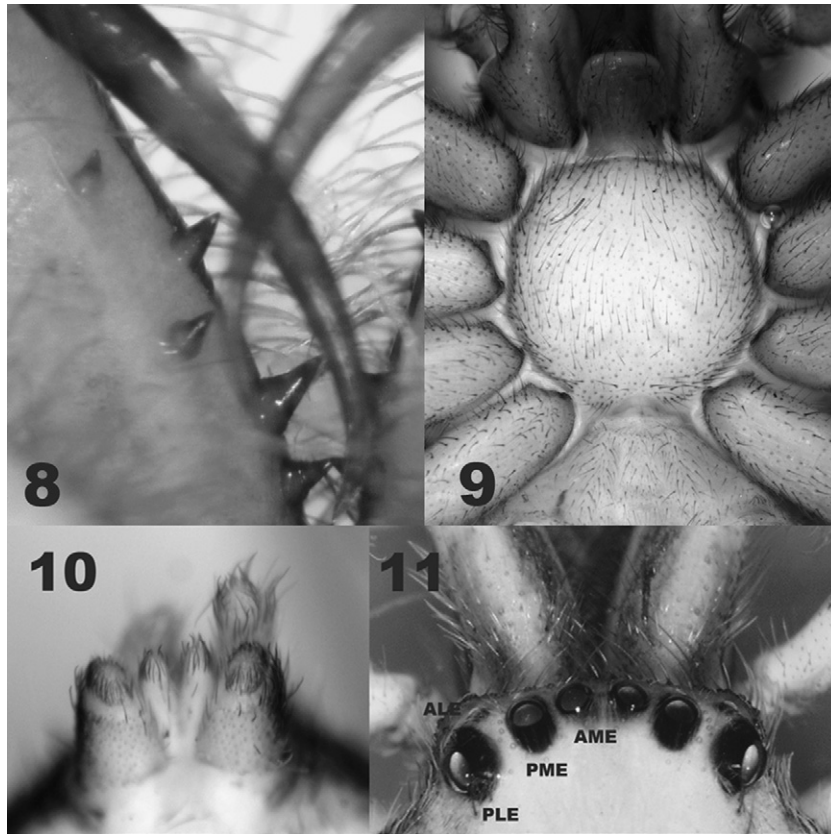
spines, irregularly arranged on coxae, forming a semicircular line on trochanters; femora I–IV with three dorsal spines (d1.1.1); femur I additionally with two prolateral spines (d1.1.1, p1.1.0) (Figs. 14, 19); patella usually with a thin apical spine (Fig. 15); tibiae I–II with 6–7 proventral and 7–8 retroventral spines; metatarsi I–II with 5 proventral and 3–8 retroventral spines; a group of curved setae situated distally on femora and tibiae in some species (Fig. 20). Female palp with numerous irregularly arranged spines on tarsi; male femur elongate, with d1.2; patella d1 (apical); tibia d0.2.

Opisthosoma (Figs. 1, 2, 16–18) oval or suboval, covered with short black hairs; anterior portion with tufts of black and sometimes white hairs (Fig. 1); dorsum of opisthosoma with distinct pattern or markings (Fig. 1); venter pale, without pattern (Figs. 3, 4); posterolateral margins with dark bands. Six spinnerets, surrounded by short erect spines (Fig. 10). Anterior spinnerets conical,

clearly biarticulated, their apical segments short, with spigots. Posterior spinnerets longer than anterior ones, cylindrical, faintly biarticulated, with numerous elongate gland spigots. Median pairs cylindrical, small, faintly biarticulated, slightly shorter than anterior ones. Colulus absent. Tracheal spiracle located just in front of spinnerets, very faint, with lightly sclerotised rim.

Male palp (Figs. 22–26) flat, retrolateral tibial apophysis consisting of dorsal and ventral branches, one above the other. Cymbium rounded, with elongate hairs on prolateral side forming a sparse cymbial scopula. Bulb rounded, basolaterally excavated below embolic base; tegulum lightly sclerotised, with small membranous area. Embolus filiform, encircling tegulum. Conductor T-shaped. Median apophysis small, hook-shaped, without branches.

Epigyne (Figs. 27, 29, 31, 34) a broad, lightly sclerotised plate; its middle field a depression with



Figs. 8–11. *Siamspinops spinosissimus*, male. (8) Denticles on cheliceral fang grooves. (9) Sternum. (10) Spinnerets, ventral view. (11) Eye pattern, dorsal view. ALE = anterior lateral eye; AME = anterior median eye; PLE = posterior lateral eye; PME = posterior median eye.

separated or fused lateral lobes and a pair of posterior secondary epigynal pockets. Vulva (Figs. 28, 30, 32, 33, 35) with strongly convoluted tubular spermathecae, partially hidden by a thin sclerotised uterus externus.

Distribution

Thailand and Malaysia.

Siamspinops spinosissimus sp. nov.

(Figs. 1–13, 15, 22–28, 36)

Etymology

The specific epithet (Latin superlative of ‘spinosus’ = spiny) reflects that this species is the spiniest one known in Selenopidae. It is to be treated as an adjective for the purposes of nomenclature.

Type material

Holotype (MHNG, PDC-1510): Male; Thailand, Phitsanulok Province, Nakhorn Thai District, Thung Salang Luang National Park, Kaeng So Pa Falls, Malaise trap, 5.–17.xi.2006, leg. P. Dankittipakul & N. Likhitrakarn.

Paratype (MHNG, PDC-1512): Female; Thailand, Chiang Mai Province and District, Doi Suthep-Pui

National Park, San Koo, 1250 m, 29.xi.1994, leg. P.J. Schwendinger.

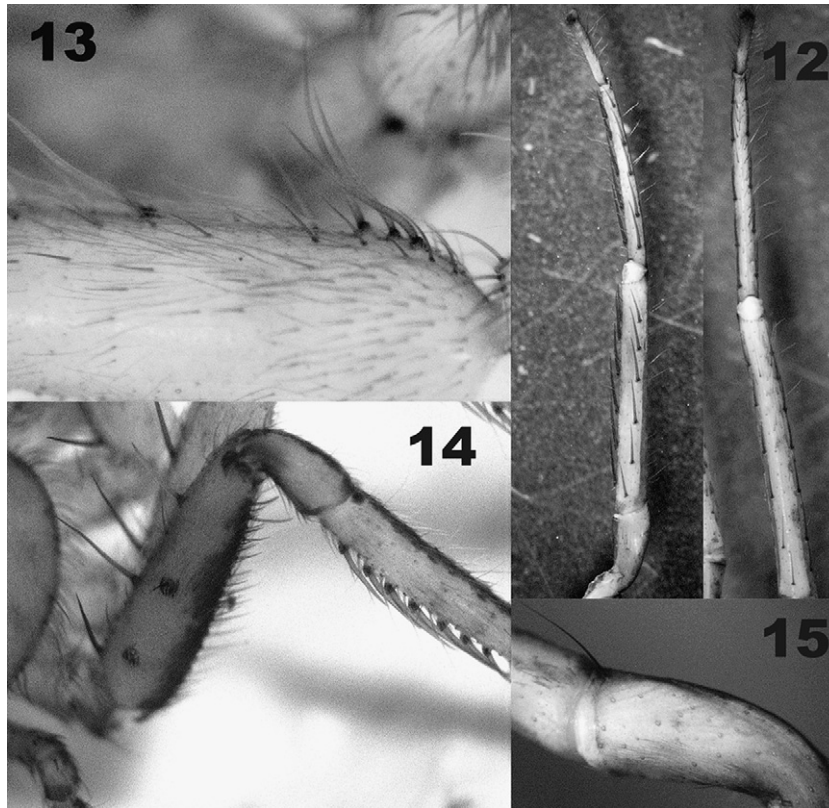
Diagnosis

Males of *S. spinosissimus* sp. nov. can be recognised by the following characters of the male palp: T-shaped conductor with pointed and sclerotised apex (Figs. 23, 26); RTA two-branched, with subtriangular dRTA (Fig. 22); embolus strongly curved and long, almost completely encircling the bulb (Fig. 22). Females of *S. spinosissimus* sp. nov. resemble those of *S. spinosus* sp. nov. in the general shape of the epigyne, but in the former species the epigyne is wider than long (Fig. 27) and its secondary epigynal pockets and genital orifice are slightly bigger. The convoluted spermathecae are similar to those in *S. spinosus* sp. nov., but are elongated with 15 turns (Fig. 27) (13 turns in *S. spinosus* sp. nov., cf. Fig. 29). Fertilization ducts diverging and protruding anteriorly over the spermathecal heads. Copulatory ducts slender.

Description

Male.

Total length 6.9; carapace 3.4 long, 3.9 wide; opisthosoma 3.5 long, 2.7 wide.



Figs. 12–15. (12) *Siamspinops spinosissimus*, male legs I–II showing metatarsi and tarsi armed with paired ventral spines. (13) *S. spinosissimus*, female femur II showing dorsal spines. (14) *S. spinescens*, female femur, patella and tibia (in part) of leg I. (15) *S. spinosissimus*, male patella I with apical spine.

Coloration and pattern (Fig. 1): Carapace yellow, lateral margins yellowish-brown; chelicerae yellow, proximal portions with dark grayish pattern dorsally; fangs orange-brown; labium and maxillae yellow distally, yellowish-brown basally; sternum yellow, lateral margins brown; dorsum of opisthosoma with distinct dark grayish pattern on pale background; venter pale, without markings, sparsely covered with short erect hairs, posterior portion with dark brown basolateral areas; legs pale yellow, mottled with faint grayish spots and annulations on femora and tibiae of legs I–II, pattern indistinct on other legs; ventral side of all legs without markings; metatarsi and tarsi pale brown. Eye sizes: AME 0.18; ALE 0.07; PME 0.19; PLE 0.21. Spination. Leg I: femur d1.1.1, p1.1.0; tibia v2.2.2.2.2.2; metatarsus v2.2.2.2.2; leg II: femur d1.1.1; tibia v2.2.2.2.2.2.1; metatarsus v2.2.2.2.2; leg III: femur d1.1.1; leg IV: femur d1.1.1; no strong erect spines on tibiae and metatarsi of legs III–IV. Leg measurements (Fe, Pt, Ti, Mt, Ta): Leg I: 3.80, 1.50, 3.70, 3.00, 1.30, total: 13.30; II: 5.50, 1.60, 4.80, 4.00, 1.50, total: 17.40; III: 3.40, 1.00, 2.70, 2.00, 1.10, total: 10.20; IV: 5.00, 1.40, 3.50, 3.00, 1.30, total: 14.20. Leg formula 2413.

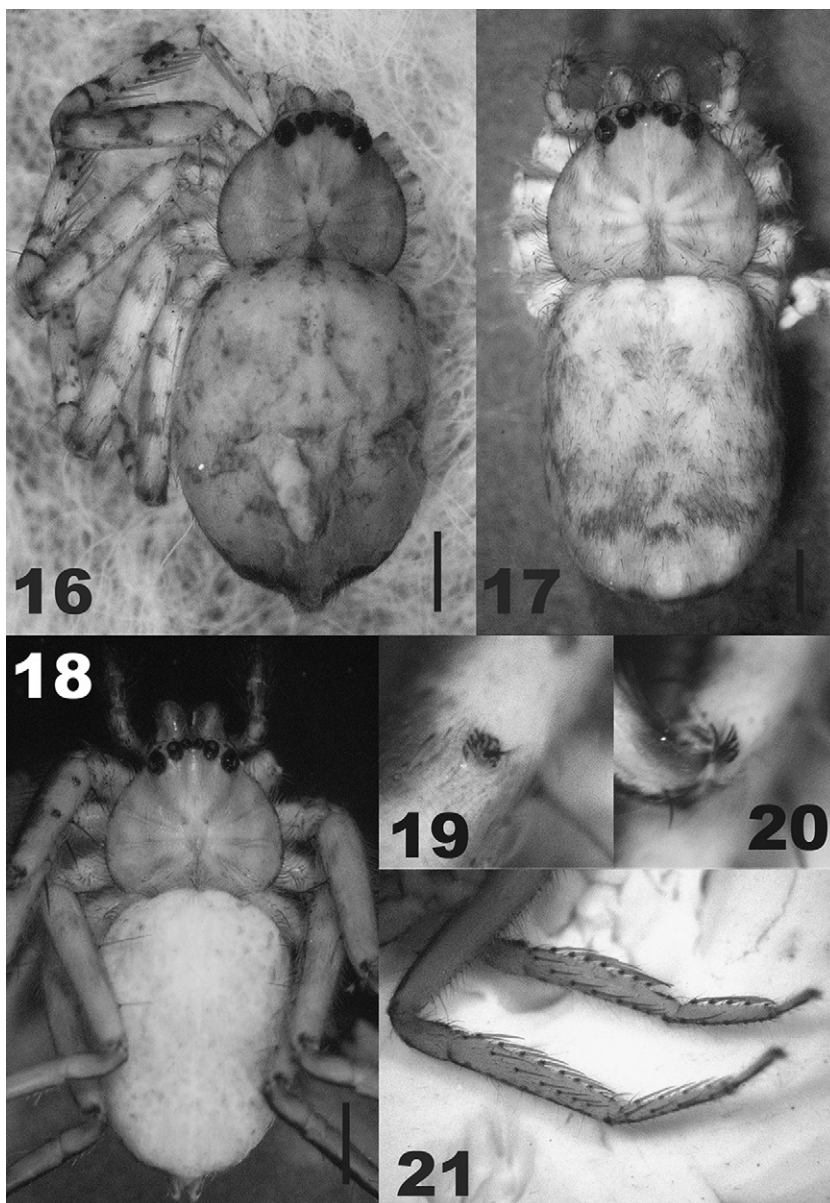
Male palp (Figs. 22–26): Palpal patella without apophysis. Palpal tibia two times longer than patella. Retrolateral tibial apophysis two-branched, one branch

above the other; vRTA cup-shaped, smaller than triangular dRTA (Figs. 22, 24). Cymbium flattened and rounded, prolaterally with scopula of elongated and curved hairs (Fig. 25). Bulb relatively round, with basolateral excavation below embolic base. Conductor T-shaped, with well-sclerotised, sharp and pointed apex (Fig. 26). Embolus filiform, originating on mesolateral side of bulb, describing an almost complete loop around tegulum (Fig. 22). Median apophysis simple, not branched (Figs. 22, 23).

Female.

Total length 7.9; carapace 3.0 long, 3.5 wide; opisthosoma 4.8 long, 3.2 wide.

Coloration and pattern (Fig. 2): Carapace yellow, lateral margins brown; chelicerae yellow; fangs dark reddish-brown; labium brown; maxillae and sternum yellow; dorsum of opisthosoma with faint grayish pattern on pale background; venter pale yellow, without markings; legs pale yellow; tibiae and metatarsi with two dark grayish rings, mottled with numerous round prolateral spots; color pattern on legs III–IV darkest, faintly marked on leg II. Eye sizes: AME 0.13; ALE 0.07; PME 0.17; PLE 0.22. Spination. Leg I lost; leg II: femur d3.1.1, p1.1.0; tibia v2.2.1.2.2.2; metatarsus v2.2.2.1; leg III: femur d1.1.1; leg IV: femur d1.1.1; no



Figs. 16–21. (16) *Siamspinops spinosus*, female habitus, dorsal view. (17) *S. allospinosus*, female habitus, dorsal view. (18) *S. spinescens*, female habitus, dorsal view. (19) *S. spinescens*, female proteral spine on femur I showing curved hairs situated on its base. (20) *S. spinescens*, distal part of female femur I with a group of setae. (21) *S. spinescens*, female legs I–II showing strong elongate ventral spines on tibiae and metatarsi. Scale bars = 1.0 cm.

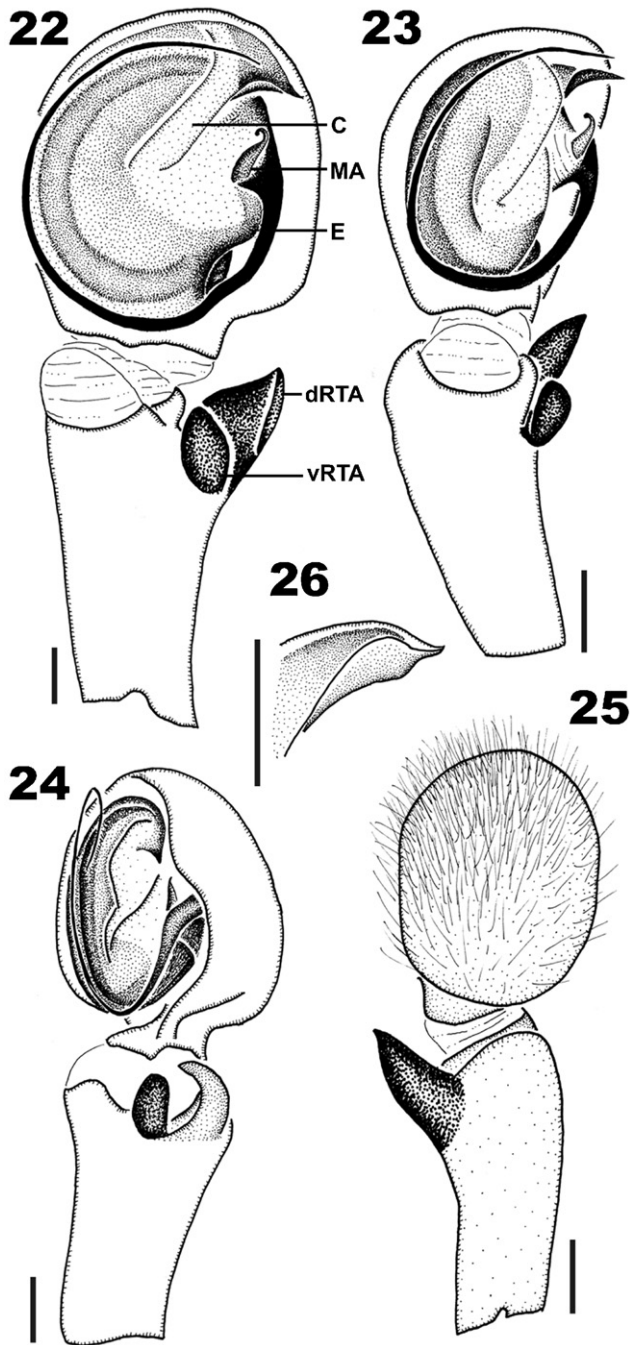
strong erect spines on tibiae and metatarsi of legs III–IV. Leg measurements (Fe, Pt, Ti, Mt, Ta): Leg I lost; II: 3.25, 0.97, 2.60, 1.95, 0.97, total: 9.74; III: 4.74, 1.36, 3.57, 2.60, 1.04, total: 13.31; IV: 3.51, 0.97, 2.27, 3.00, 1.95, total: 9.67. Leg formula 3241.

Epigyne and vulva (Figs. 27, 28): Epigyne with posteromedian excavation. Middle field of epigyne indistinct, with posterior secondary epigynal pockets. Genital orifices elongate oval, in center portion of epigyne; lightly sclerotised posterior rim clearly visible, with dark reddish pigment. A sclerotised trapezoidal uterus externus partially covering spermathecae, posteriorly

invaginated. Spermathecae compact, tubular, strongly convoluted, with 15 curls; leaf-shaped copulatory ducts just below fertilization ducts and rounded spermathecal heads.

Natural history

The male holotype of *S. spinosissimus* sp. nov. was collected in a Malaise trap located near a river running through a mixed deciduous forest. Along the river and the waterfall at the type locality there are numerous large rocks, on which the spider presumably lived. The presence of this specimen in a Malaise trap sample



Figs. 22–26. *Siamspinops spinosissimus*, male. (22) Palp, ventral view. (23) Palp, prolateral view. (24) Palp, retrolateral view. (25) Palp, dorsal view. (26) Distal part of conductor, ventral view. Scale bars = 0.25 mm.

indicates that the spiders move freely between different microhabitats. The female paratype was collected in a pitfall trap in an evergreen hill forest at about 1200 m altitude in the Doi Suthep-Pui National Park.

Distribution

Northern Thailand, the provinces of Chiang Mai and Phitsanulok.

Siamspinops spinosus sp. nov.

(Figs. 16, 29, 30, 36)

Etymology

The specific epithet (Latin ‘spinosus’ = spiny) is to be treated as an adjective for the purposes of nomenclature.

Type material

Holotype (MHNG, PDC-1511): Female; Thailand, Chiang Mai Province, Doi Suthep-Pui National Park, near Tham Ryssie, 18.i.1998, leg. P. Dankittipakul.

Diagnosis

The female of *S. spinosus* sp. nov. can be distinguished by: Epigynal plate longer than wide (Fig. 29); spermathecae hook-shaped, coiled, with 13 turns (Fig. 29); fertilization ducts protruding anteriorly beyond spermathecal heads; copulatory ducts wide and diverging near median portion of spermathecae.

Description

Female.

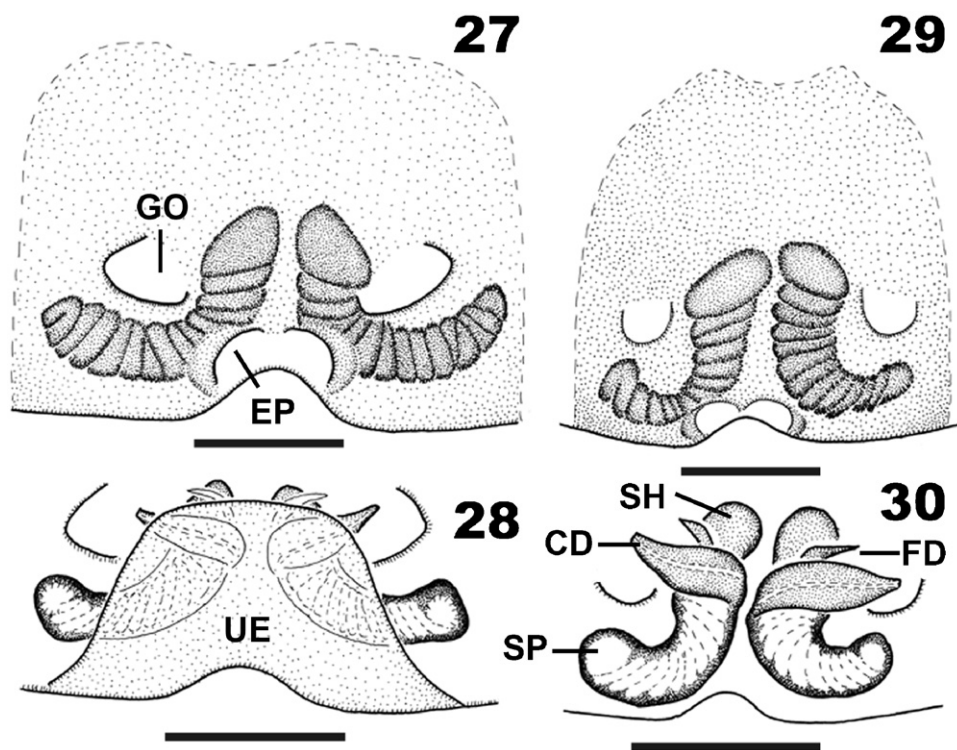
Total length 7.2; carapace 2.7 long, 3.2 wide; opisthosoma 4.5 long, 2.7 wide.

Coloration and pattern (Fig. 16): Carapace yellow, lateral margins yellowish brown; chelicerae yellow; fangs dark reddish-brown; labium brown; maxillae and sternum yellow; dorsum of opisthosoma with faint grayish pattern on pale background; venter pale yellow, without markings; all legs pale yellow; femur I with irregular ventral band, femora and metatarsi III–IV with dark grayish prolateral annulations; leg IV with dark grayish dorsal bands on patellae, tibiae, metatarsi and tarsi; leg III as leg IV but faintly marked. Eye sizes: AME 0.13; ALE 0.06; PME 0.16; PLE 0.21. Spination. Leg I: femur d1-1-1, p1-1-0; tibia v2-2-2-2-2-2-1; metatarsus v2-2-2-2-2; leg II: femur d1-1-1; tibia v2-2-2-2-2-2-2; metatarsus v2-2-2-1-1; leg III: femur d1-1-1; leg IV: femur d1-1-1; no strong erect spines on tibiae and metatarsi of legs III–IV. Legs measurements (Fe, Pt, Ti, Mt, Ta): Leg I: 2.70, 0.80, 2.10, 1.70, 0.80, total: 8.10; II: 3.00, 0.80, 2.20, 1.80, 0.90, total: 8.70; III: 4.00, 1.10, 3.20, 2.20, 0.90, total: 11.40; IV: 3.10, 0.90, 2.20, 1.50, 0.90, total: 8.60. Leg formula 3241.

Epigyne and vulva (Figs. 29, 30): Epigyne with posteromedian excavation. Middle field of epigyne indistinct, with posterior secondary epigynal pockets. Semi-circular genital orifices with sclerotised posterior rim; anterior rim indistinct. Spermathecae compact, tubular, convoluted with 13 curls, partially covered by trapezoidal, posteriorly invaginated uterus externus (removed in Fig. 30); leaf-shaped copulatory ducts situated just below fertilization ducts and triangular spermathecal heads.

Male.

Unknown.



Figs. 27–30. (27) *Siamspinops spinosissimus*, epigyne, ventral view. (28) *S. spinosissimus*, vulva, dorsal view. (29) *S. spinosus*, epigyne, ventral view. (30) *S. spinosus*, vulva, dorsal view, uterus externus removed. Scale bars = 0.10 mm.

Remarks

The females of *S. spinosissimus* sp. nov. and *S. spinosus* sp. nov. were collected in evergreen hill forest on Doi Suthep. The type localities are less than 10 km apart. These two females are quite similar and appear to be closely related, thus might represent extremes of a wide variation range. However, they can be separated easily by the presence of additional dorsal spines on femur II (d3.1.1) in *S. spinosissimus* (Fig. 13), which are absent in *S. spinosus* (d1.1.1), as well as by the different spination patterns and shapes of spines (robust and curved in *S. spinosissimus* vs. thin and elongate in *S. spinosus*) on the anterior tibiae and metatarsi.

Natural history

The holotype of *S. spinosus* sp. nov. was collected in an evergreen hill forest on Doi Suthep, where *S. spinosissimus* sp. nov. also occurs.

Distribution

Known only from the type locality (Thailand, Chiang Mai Province).

Siamspinops allospinosus sp. nov.

(Figs. 17, 31–33, 36)

Etymology

The specific epithet signifies ‘another spinose species’ (Greek: ‘allos’ = other; Latin: ‘spinosus’ = spiny). It is

to be treated as an adjective for the purposes of nomenclature.

Type material

Holotype (MHNG, PDC-1513): Female; Thailand, Chiang Mai Province, Fang District, Doi Angkhang, near Ban Luang, 1600 m, 2.xi.1990, leg. P.J. Schwendinger.

Diagnosis

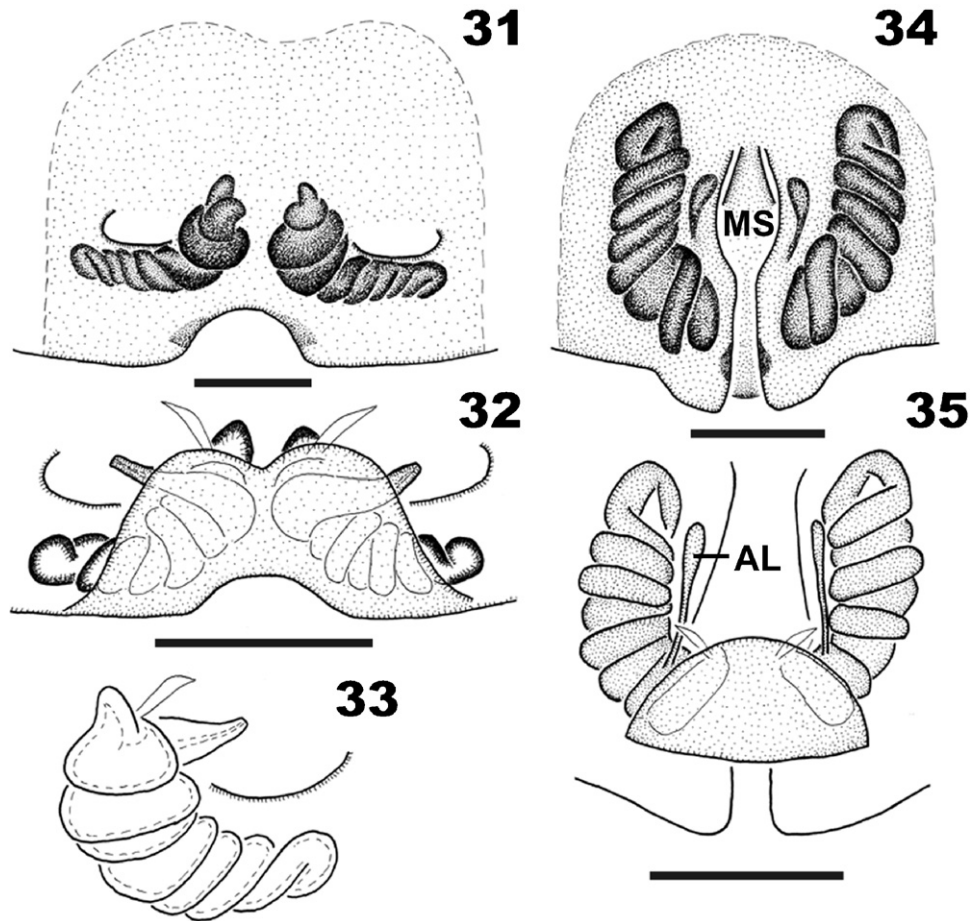
The female of *S. allospinosus* sp. nov. resembles that of *S. spinosissimus* sp. nov. in several aspects but can be distinguished easily by: Smaller secondary epigynal pockets (Fig. 31; cf. Fig. 27); invaginated anterior margin of sclerotised uterus externus partly lying above spermathecae (distant in *S. spinosissimus* sp. nov.); spermathecae less coiled (Fig. 32; cf. Fig. 28) and with digitiform spermathecal heads (Fig. 33); copulatory ducts elongated and curved.

Description

Female.

Total length 6.8; carapace 2.4 long, 2.9 wide; opisthosoma 4.4 long, 3.1 wide.

Coloration and pattern (Fig. 17): Carapace orange, lateral margins slightly darker; chelicerae yellow; fangs orange-brown; labium and sternum pale yellow; maxillae yellow, lateral margins dark gray; coxa I ventrally with dark grayish areas; dorsum of opisthosoma with faint grayish pattern on pale background, almost



Figs. 31–35. (31) *Siamspinops allospinosus*, epigyne, ventral view. (32) *S. allospinosus*, vulva, dorsal view. (33) *S. allospinosus*, right spermatheca, ventral view, epigynal plate removed. (34) *S. spinescens*, epigyne, ventral view. (35) *S. spinescens*, vulva, dorsal view. Scale bars = 0.10 mm.

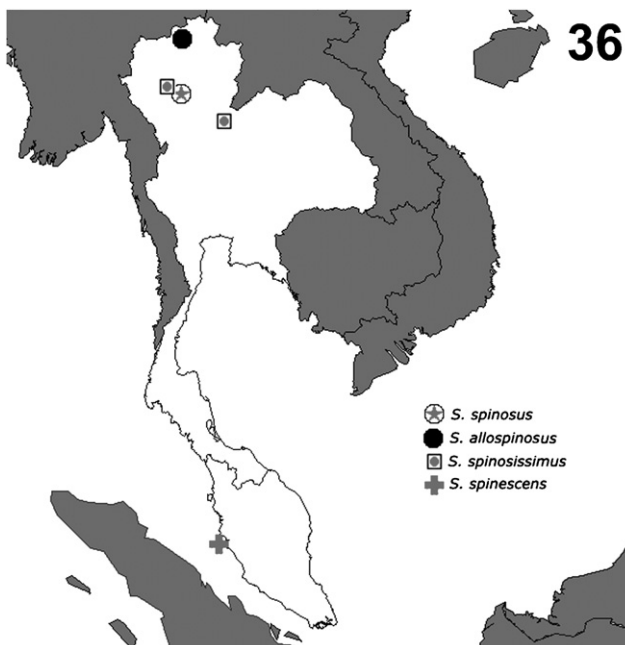


Fig. 36. Distribution map for *Siamspinops* gen. et spp. nov.

indistinct; venter pale yellow, without markings; legs yellow, with faint greenish spots and annulations on femora and tibiae of legs I–II, almost indistinct on other legs; metatarsi and tarsi yellowish brown. Eye sizes: AME 0.12; ALE 0.07; PME 0.15; PLE 0.21. Spination. Leg I: femur d1.1.1, p1.1.0; tibia v2.2.2.2.2.2.2; metatarsus v2.2.2.2.2.2; leg II: femur d1.1.1; tibia v2.2.2.2.2.2.2; metatarsus v2.2.2.2.2.1.1.1; leg III: femur d1.1.1; leg IV: femur d1.1.1; no strong erect spines on tibiae and metatarsi of legs III–IV. Leg measurements (Fe, Pt, Ti, Mt, Ta). Leg I: 2.40, 0.70, 2.50, 1.70, 0.80, total: 8.10; II: 3.20, 1.10, 2.70, 2.00, 0.80, total: 9.80; III: 3.50, 1.00, 2.30, 2.00, 1.00, total: 9.80; IV: 3.00, 0.70, 2.20, 1.70, 0.80, total: 8.40. Leg formula 3 = 241.

Epigyne and vulva (Figs. 31–33): Epigyne with posteromedian excavation. Middle field of epigyne indistinct, with posterior secondary epigynal pockets. Genital orifices elongate oval, with lightly sclerotised posterior rim. Anterior and posterior margins of trapezoidal uterus externus covering spermathecae invaginated. Spermathecae tubular and convoluted, anteriorly wider than in posterior portion. Copulatory

ducts gradually tapering towards apices, situated below fertilization ducts and digitiform spermathecal heads.

Male.

Unknown.

Natural history

Siamspinops allospinosus sp. nov. inhabits evergreen hill forest at 1600 m altitude on Doi (Mt.) Angkhang, one of several peaks taller than 1500 m in the large mountain range dividing Thailand and Myanmar. Doi Angkhang is renowned for its relatively low temperatures, which range between 20 and 25 °C on annual average. This new species was collected from the highest locality recorded for representatives of the genus.

Distribution

Known only from the type locality (Chiang Mai Province, northern Thailand).

Siamspinops spinescens sp. nov.

(Figs. 14, 18–21, 34–36)

Etymology

The specific epithet signifies the ‘somewhat spiny’ condition of the species (Latin: ‘spina’ = spine; suffix ‘-escens’ expresses low degree of development of the corresponding character). It is to be treated as an adjective for the purposes of nomenclature.

Type material

Holotype (MHNG-16, PDC-1514): Female; Malaysia, Perak State, Ipoh, Pangkor Islands, 30–150 m, 15./16.xii. 1997, leg. P.J. Schwendinger.

Diagnosis

The female of *S. spinescens* sp. nov. can be distinguished from its congeners by the following combination of characters: Middle field of epigyne depressed, with a narrowed septum reaching posterior margin of epigyne (Fig. 34); lateral lobes of epigyne separated but close to each other in posterior half, with triangular posterior extensions; a sclerotised semicircular epigynal extension covering less than a quarter of the strongly convoluted spermathecae; elongated accessory lobes originating basally on spermathecae (Fig. 35).

Description

Female.

Total length 6.0; carapace 2.0 long, 2.5 wide; opisthosoma 4.0 long, 2.8 wide.

Coloration and pattern (Fig. 18): Carapace pale orange, lateral margins pale brown; chelicerae yellow; fangs orange-brown; labium, maxillae and sternum yellow; dorsum of opisthosoma pale, without distinctive

pattern; venter pale yellow, posteriorly with brown lateroventral markings; legs pale yellow; ventral side of femora with dark grayish stripes; patellae, tibiae and metatarsi with dark grayish dorsal bands, pale gray on tarsi; femora and tibiae with curved distal setae (Fig. 20); prolateral spines on femur of leg I basally covered with short curved setae (Figs. 14, 19). Eye sizes: AME 0.75; ALE 0.04; PME 0.13; PLE 0.16. Spination. Leg I: femur d1.1.1, p1.1.0; tibia v2.2.2.2.2.2.2; metatarsus v2.2.2.2.2; leg II: femur d1.1.1; tibia v2.2.2.2.2.2.1; metatarsus v2.2.2.2.1; leg III: femur d1.1.1; leg IV: femur d1.1.1; no strong erect spines on tibiae and metatarsi of legs III–IV. Leg measurements (Fe, Pt, Ti, Mt, Ta): Leg I: 2.00, 0.80, 1.90, 1.30, 0.70, total: 6.70; II: 2.60, 0.90, 2.20, 1.50, 0.70, total: 7.90; III: 3.00, 0.80, 2.00, 1.50, 0.80, total: 8.10; IV: 2.70, 0.80, 1.80, 1.30, 0.80, total: 7.40. Leg formula 3241.

Epigyne and vulva (Figs. 34, 35): Depressed middle field of epigyne with a narrowed median septum reaching posterior epigynal margin; lateral lobes separated, with posterior triangular extensions. Genital orifice indistinct, with posterior secondary epigynal pockets. Semicircular sclerotised epigynal extension covering basal portion of strongly convoluted, anteriorly extending spermathecae. Elongate and club-shaped accessory lobes originating posteriorly on spermathecae.

Male.

Unknown.

Natural history

The female holotype of *S. spinescens* sp. nov. was collected by sifting decomposing organic litter in disturbed rainforest on a small island.

Distribution

Known only from the type locality (Perak, Malaysia).

Acknowledgements

We are grateful to Dr. P.J. Schwendinger (MHNG) for providing specimens from his private collection and for a loan of specimens from the MHNG. The Graduate School and Faculty of Science of Chiang Mai University supported PD during this study. The Royal Forest Department gave permission to collect specimens in national parks and other protected areas. JAC thanks CONICET (Consejo Nacional de Investigaciones Científicas y Técnicas, Argentina) for their support. PD also wishes to thank the following people for their generous support: Dr. Tippawan Singtripop (Chiang Mai University), Dr. Angoon Lewvanich (The Royal Academy of Thailand), Donglin Li and Dr. Jim Xu (both at the University of Auckland).

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