# FOUR NEW AND ONE NEWLY RECORDED SPECIES OF THE JUMPING SPIDERS (ARANEAE: SALTICIDAE: LYSSOMANINAE \& SPARTAEINAE) FROM (SUB)TROPICAL CHINA 

J. X. Zhang<br>College of Life Sciences, Hebei University, Baoding, Hebei 071002, China Department of Zoology, 6270 University Boulevard, University of British Columbia, Vancouver, BC V6T 1Z4, Canada Email: jxzhang@interchange.ubc.ca<br>\section*{Daiqin Li}<br>Department of Biological Sciences, National University of Singapore, 14 Science Drive 4, Singapore 117543 College of Life Sciences, Hubei University, Wuhan 430062, Hubei Province, People's Republic of China Email:dbslidq@nus.edu.sg (Corresponding author)


#### Abstract

Five species of jumping spiders belonging to four genera of subfamilies Lyssomaninae (Onomastus) and Spartaeinae (Phaeacius, Portia and Yaginumanis) from China were diagnosed, described and figured. These widely distributed genera range from subtropical China to tropical Southeast Asia. Four species were found to be new to science, Onomastus nigrimaculatus (female, male), Phaeacius yixin (male), Portia taiwanica (female, male) and Yaginumanis wanlessi (female); the species Phaeacius malayensis Wanless, 1981 (female, male), is newly recorded from China.


KEY WORDS. - Salticidae, Lyssomaninae, Spartaeinae, spiders, new species, Southeast Asia; China.

## INTRODUCTION

The family Salticidae, commonly called jumping spiders, is the largest and most diverse spider group, currently containing more than 5000 described species in 550 genera (Platnick, 2005). Among them, about 370 species in 89 genera are reported from China.

The Lyssomaninae and Spartaeinae are usually considered as two singular subfamilies because they lack many derived features that mark the bulk of the Salticidae (Maddison, 1995). The Lyssomaninae was even proposed as a separate family, the Lyssomanidae, by Blackwall (1877). After examining the morphological characters, Galiano (1976) redefined this group and concluded that they merit no more than subfamilial rank within the Salticidae. The Lyssomaninae currently contains seven genera and 125 species, most of which have been recently revised (Galiano, 1980, 1998; Wanless, 1980a, b, c). Five genera are known from the old world (Asemonea O. P-Cambridge, Goleba Wanless, Macopaeus Simon, Onomastus Simon, and Pandisus Simon), of which only Asemonea has been reported from China. Members of this subfamily are usually adapted to an arboreal existence associated with green leaves. Although they are commonly distinguished from ordinary salticids by two diagnostic characters: eyes in four rows and the tracheal system confined to the abdomen, Wanless (1980c) pointed out that the subfamily is actually polyphyletic.

The Spartaeinae, defined by Wanless (1984a) who erected six new genera and revised most genera of this subfamily (Wanless, 1978, 1979, 1981a, b, 1984a, b, 1987), is now composed of 14 existing and five fossil genera. Approximately, 93 species of the existing genera are now recorded from the Old World, of which 18 species in eight genera are known from Chinese fauna (Platnick, 2005). Members of this subfamily are diagnosed by the presence of the palpal tegular furrow in male. Being similar to lyssomanines, the spartaeines usually have large posterior median eyes (PME), but they have been reduced in four genera of Lyssomaninae (Lyssomanes, Chinoscopus, Pandisus and Onomastus) and two genera of Spartaeinae (Cyrba and Gelotia).

The present paper contains partial results of a taxonomic study, which aims to investigate biodiversity of spiders in subtropical and tropical China and Southeast Asia. Here, we describe four new species and one new record of the subfamilies Lyssomaninae and Spartaeinae.

## MATERIALS AND METHODS

All measurements given in this paper are in millimetres. Palp measurements are shown as: total length (femur+patella+tibia+tarsus). Leg measurements are shown
as: total length (femur+patella+tibia+metatarsus+tarsus). Dissected epigynes were digested in lactic acid for 10-30 min. or in $10 \% \mathrm{KOH}$ for approximately 24 h at room temperature, rinsed in distilled water, stained in ethanol solution of chlorazol black E under control and mounted in glycerin. Specimens including types are deposited in the Raffles Museum of Biodiversity Research (formerly Zoological Reference Collection, or ZRC), National University of Singapore; Museum of Hebei University, Hebei, China (MHBU); and National Museum of Natural History, Taichong, Taiwan (NMNH).

The abbreviations used are: ALE - anterior lateral eyes, AME - anterior median eyes, PLE - posterior lateral eyes, PME posterior median eyes.

## TAXONOMY

## Onomastus Simon, 1900

Onomastus Simon, 1900: 29 (Type species: Onomastus nigricaudus Simon, 1900, by original designation); Wanless, 1980b: 179.

Diagnosis. - The genus can be easily distinguished from other genera of the subfamily Lyssomaninae by fovea indistinct, posterior median eyes minute, male palpal organ with a subtegular apophysis (labelled as " $y$ " by Wanless, 1980b), and female lacking epigynal ducts.

Remarks. - Members of this genus are mainly distributed in Japan, South and Southeast Asia. Up till now, six species have been recorded in the world (Platnick, 2005), not including the new species described in this paper. This genus is first reported from China.

## Onomastus nigrimaculatus, new species

(Fig. 1A-F)
Holotype. - Male (ZRC•ARA•494), Mingfeng Valley ( $18^{\circ} 44.635^{\prime} \mathrm{N}$ $108^{\circ} 50.667^{\prime} \mathrm{E}$ ), Jianfengling National Park, Hainan Province, China, coll. D. Li, 15 Dec. 2003.

Paratypes. - 1 male (ZRC•ARA•495), same data as holotype; 1 male (ZRC•ARA•496)(OS 001/LD 2003), Mingfeng Valley ( $18^{\circ} 44.635^{\prime}$ N $108^{\circ} 50.667^{\prime} \mathrm{E}$ ), Jianfengling National Park, Hainan Province, China, 15 Dec.2003; 1 male (ZRC•ARA•497)(OS 022/ LD 2003), Mingfeng Valley ( $18^{\circ} 44.635^{\prime} \mathrm{N} 108^{\circ} 50.667^{\prime} \mathrm{E}$ ), Jianfengling National Park, Hainan Province, China, 15 Dec.2003; 1 female (ZRC•ARA•498)(OS 008/LD 2003), Mingfeng Valley ( $18^{\circ} 43.016^{\prime}$ N $108^{\circ} 50.228^{\prime} E$ ), Jianfengling National Park, Hainan Province, China, 14 Dec.2003; 1 female (ZRC•ARA•499)(OS 033/ LD 2003), Mingfeng Valley ( $18^{\circ} 44.635^{\prime} \mathrm{N} 108^{\circ} 50.667^{\prime} \mathrm{E}$ ), Jianfengling National Park, Hainan Province, China, 15 Dec.2003; 1 female (ZRC•ARA•500)(OS 009/LD 2003), Tian Chi ( $18^{\circ} 43.982^{\prime} \mathrm{N} 108^{\circ} 52.186^{\prime} \mathrm{E}$ ), Jianfengling National Park, Hainan Province, China, 13 Dec.2003; 2 females and 2 males (ZRC•ARA•501)(ONO 002/LD 2004), Mengla Natural Reserve ( $21^{\circ} 37.63^{\prime} \mathrm{N} 101^{\circ} 35.22^{\prime} \mathrm{E}$ ), Pubang, Mengla County, Yunnan Province, China, coll. D. Li, 7 May. 2004.

Diagnosis. - The new species resembles Onomastus complexipalpis Wanless, 1980 (Wanless, 1980b: 187, Fig. 4) in the shape of male palp, but can be distinguished from the latter in abdomen with pairs of dark spots dorsally (Fig. 1A); median apophysis of male palp wide in basal part, with a middle curved flange, and spur of embolic guide shorter and wider (Fig. 1B-D). It is also similar to Onomastus nigricaudus Simon, 1900 (Wanless, 1980b: 181, fig. 1A-G) in male palp with a femoral apophysis, but differs from the latter in abdomen with pairs of dark spots dorsally (Fig. 1A); median apophysis of male palp not branched, with distal part thin and dagger shaped, spur of embolic guide wide (Fig. 1B-D); female epigynum with a median septum which widened posteriorly, and spermatheca connected with an oval structure anteriorly, which is doubted to be the copulatory duct (Fig. 1E, F). It can also be distinguished from Onomastus kanoi Ono, 1995 (Ono, 1995: 157, figs. 16-21) by the long and thin distal part of median apophysis, smaller embolic guide, larger spur of embolic guide and blunt femoral apophysis of male palp (Fig. 1B-D).

Description. - Males. Total length 4.25-4.70. Length of holotype 4.60: cephalothorax 2.20 long, 1.45 wide, 1.05 high; abdomen 2.25 long, 0.90 wide. Carapace (Fig. 1A) pale yellow, eye area grayish. Fovea indistinct. Eye sizes: AME 0.50 , ALE 0.30 , PME 0.03, PLE 0.25 . First eye row 1.00 wide, second row 1.45 wide, third eye row 1.10 wide, fourth eye row 0.96 wide, eye area 1.09 long. Clypeus height 0.16 . Chelicerae, endites, labium and sternum pale yellow. Chelicerae with 5 teeth on promargin and 8-10 denticles on retromargin. Endites, labium and sternum yellowish. Coxae and trochanters of legs yellowish, other segments deeper in colour. Legs with some long spines and hairs. Spination of leg I: metatarsi v 4-2-0, p 1-0-0, r 1-0-0; tibiae v 4-4-4, p 1-$0-0$, r 1-0-0, d 1-1-0; patellae v 0-1-0, p 0-1-0, r 0-1-0; femora p 0-0-1, r 0-0-1, d 1-1-1. Measurements of palp and legs: palp $2.50 \quad(0.80+0.38+0.28+1.04) ;$ I 6.03 $(1.65+2.45+1.30+0.63)$, II $5.27(1.50+2.08+1.16+0.53)$, III $5.55(1.60+1.75+1.60+0.60)$, IV $6.90(1.90+2.20+2.05+0.75)$. Leg formula: 4132. Abdomen long oval and white yellow, with some short hairs; dorsum with two pairs of dark patches. Subtegular apophysis (y) of palpal organ (Fig. 1B-D) long and finger shaped; median apophysis large with its distal part long and dagger-like; embolic guide (eg) terminating with a large spur (s).

Females. Total length 4.60-4.72. A female total length 4.60: cephalothorax 2.05 long, 1.30 wide, 1.15 high; abdomen 2.65 long, 1.00 wide. Eye sizes: AME 0.50 , ALE 0.30 , PME 0.04 , PLE 0.22 . First eye row 1.00 wide, second row 1.43 wide, third eye row 1.04 wide, fourth eye row 0.95 wide, eye area 1.14 long. Clypeus height 0.08 . Retrolateral surface of distal femur I, prolateral and retrolateral surface of distal tibiae with a black patch respectively. Spination of leg I: metatarsi v 4-$2-0$, p 1-0-0, r 1-0-0; tibiae v 4-4-4, p 1-0-0, r 1-0-0, d 0-10 ; patellae v 0-1-0, r 0-1-0; femora p $0-0-1$, r 0-0-1, d 1-11. Measurements of legs: I $6.45(1.85+2.75+1.30+0.55)$, II $5.45(1.65+2.10+1.20+0.50)$, III $5.50(1.55+1.80+1.60+0.55)$, IV (1.85+2.20+2.05+0.60). Leg formula: 4132. Other characters similar to those of male. Median septum of
epigynum (Fig. 1E, F) widened posteriorly, spermatheca small.

Etymology. - The specific name is from the Latin "nigri+maculatus", and refers to the dorsal dark patches on abdomen.

## Phaeacius Simon, 1900

Phaeacius Simon, 1900: 32 (Type species: Phaeacius fimbriatus Simon, 1900, by original designation); Wanless, 1981a: 199; 1984a, 190; Wijesinghe, 1991: 249.

Diagnosis. - This genus can be easily distinguished from the closely related genus Portia by the somewhat flattened body; massive retrolateral tibial apophysis of male palp, filamentous secondary conductor (sc, labeled as "M1" in Wanless, 1984a); and the shape of female epigynum.

Remarks. - A small salticid genus containing 11 species from South and Southeast Asia (Prószynśki, 2003).

## Phaeacius malayensis Wanless, 1981

(Fig. 2A-E)
Phaeacius malayensis Wanless, 1981a: 205, Figs. 6A-E, 7A-C.
Materials examined. -1 female and 1 male, Xishuangbanna Tropical Botanic Garden (ZRC•ARA•502)( $21^{\circ} 55.85^{\prime} \mathrm{N} 101^{\circ} 15.25^{\prime} \mathrm{E}$ ), Menglun, Mengla County, Yunnan, coll. D. Li, 7 May.2004.

Diagnosis. - This species is very similar to Phaeacius fimbriatus Simon, 1900 (Wanless, 1981a: 202, Figs. 4A-H, 5 B ), but differs from the latter in male palp with a pronounced apophysis lying between the ventral and retrolateral apophyses (Fig. 2B, C), and median septum of female epigynum narrower (Fig. 2D).


Fig. 1. Onomastus nigrimaculatus, new species. A, male; B, left palp, prolateral view (the black arrow refers to the median apophysis, and the white arrow refers to the subtegular apophysis); C, same, retrolateral view; D, same, ventral view (the black arrow refers to the spur of embolic guide, and the white arrow refers to the embolic guide); E, epigynum, ventral view; F, same, dorsal view. Scales: A=1.0 mm, $B-D=0.2 \mathrm{~mm}, E, F=0.1 \mathrm{~mm}$.

Description. - Male. Total length 9.00: cephalothorax 4.50 long, 3.50 wide, 1.70 high ; abdomen 4.50 long, 2.40 wide. Carapace (Fig. 2A) deep brown, red brown around fovea, with many fine hairs. Eye sizes: AME 0.56, ALE 0.31, PME 0.25 , PLE 0.34 . First eye row 2.03 wide, second row 1.88 wide, third eye row 2.03 , eye area 2.00 long. Clypeus height 0.13 . Chelicerae red brown, with 3 promarginal and 4 retromarginal teeth. Endites and labium deep red brown. Sternum yellow brown, with indistinct gray patches. Legs yellow brown, with a few dark markings. Spination of leg I: metatarsi v 2-0-0, p 1-1-0, r 1-1-2, d 0-1-0; tibiae v 2-32, p 1-1-0, r 1-1-0, d 1-1-1; patellae p 0-1-0, r 0-1-0; femora p 0-1-1, r 0-0-1, d 0-2-2. Measurements of palp and legs: palp $4.38 \quad(1.41+0.53+0.47+1.97) ;$ I 10.60 $(2.97+4.13+2.44+1.06)$, II $10.76(3.19+3.95+2.52+1.10)$, III $10.72 \quad(3.05+3.75+2.84+1.08)$, IV 12.16 (3.40+4.16+3.56+1.04). Leg formula: 4231. Abdomen oval, scattered with lots of short hairs; dorsum earthy yellow, black marginally, with a brownish patch at the centre; venter black brown. Embolus of palpal organ (Fig. 2B, C) long and robust, secondary conductor (sc) translucent long and slender, a
pronounced apophysis present between the ventral and retrolateral apophyses.

Female. Total length 8.60: cephalothorax 4.10 long, 3.15 wide, 1.60 high; abdomen 4.50 long, 2.20 wide. Eye sizes: AME 0.50, ALE 0.31, PME 0.22, PLE 0.31. First eye row 1.97 wide, second row 1.75 wide, third eye row 1.84 wide, eye area 1.78 long. Clypeus height 0.09 . Spination of leg I: metatarsi v 2-0-0, p 1-1-1, r 1-1-0; tibiae v 2-3-2, p 1-10 , r 1-1-0, d 1-1-0; patellae p 0-1-0, r 0-1-0; femora p 0-11 , d 0-1-4. Measurements of legs: I 9.39 $(2.69+3.63+2.13+0.94)$, II $9.69(2.75+3.69+2.44+0.81)$, III $9.38 \quad(2.75+3.25+2.50+0.88)$, IV 10.69 ( $2.94+3.75+3.06+0.94)$. Leg formula: 4213. Other characters similar to those of male. Median septum of epigynum (Fig. $2 \mathrm{D}, \mathrm{E})$ narrow in the middle and widened at the posterior part, spermatheca almost oval, accompanied with a membranous sac.

Distribution. - China (Yunnan; new record), Malaysia, Singapore, Sumatra.


Fig. 2. Phaeacius malayensis Wanless, 1981. A, male; B, left palp, ventral view (the black arrow refers to the secondary conductor); C, same, lateral view (the black arrow refers to the pronounced apophysis between the ventral and retrolateral apophyses); D, epigynum, ventral view; E , same, dorsal view. Scales: $\mathrm{A}=1.0 \mathrm{~mm}, \mathrm{~B}-\mathrm{E}=0.2 \mathrm{~mm}$.

## Phaeacius yixin, new species

(Fig. 3A-E)

Materials examined. - Holotype: Male (ZRC•ARA•503), Institute of Tropical Forest ( $18^{\circ} 41.890^{\prime} \mathrm{N} 108^{\circ} 47.373^{\prime} \mathrm{E}$ ), Jianfengling, Hainan, China, coll. Y. X. Li, 13 Dec. 2003.

Non-types: 2 female juveniles (ZRC•ARA•504), same data as holotype; 1 male juvenile (ZRC•ARA•505), Institute of Tropical Forest ( $18^{\circ} 41.890^{\prime} \mathrm{N} 108^{\circ} 47.373^{\prime} \mathrm{E}$ ), Jianfengling, Hainan, China, coll. D. Li, 12 Dec. 2003.

Diagnosis. - The new species resembles Phaeacius malayensis Wanless, 1981, but can be easily distinguished from the latter by the pronounced apophysis between the ventral and retrolateral apophyses almost triangular, and the different shape of retrolateral tibial apophysis (Fig. 3D, E). It differs from Phaeacius yunnanensis Peng \& Kim, 1998 (Peng \& Kim, 1998: 411-413, Figs. 1-3) in the shape of
retrolateral tibial apophysis of male palp and the presence of pronounced apophysis between ventral and retrolateral apophyses (Fig. 3D, E).

Description. - Males. Length of holotype 8.64: cephalothorax 4.24 long, 3.20 wide, 1.76 high; abdomen 4.40 long, 2.48 wide. Carapace (Fig. 3A) deep brown, red brown behind eyes region and earthy yellow laterally, with many short fine hairs. Eye sizes: AME 0.59, ALE 0.31, PME 0.22, PLE 0.34. First eye row 2.12 wide, second row 1.88 wide, third eye row 2.04 wide, eye area 1.97 long. Clypeus height 0.09 . Chelicerae (Fig. C) red brown, with 3 promarginal and 5 retromarginal teeth. Endites and labium red brown. Sternum and legs yellow. Legs with a few dorsal dark stripes and many long spines. Spination of leg I: metatarsi v 2-00 , p 1-1-0, r 1-1-2, d 0-1-0; tibiae v 2-3-2, p 1-0-1, r 1-0-1, d 1-1-1; patellae p 1-0-0, r 1-0-0; femora p 0-1-1, r 0-0-1, d $0-2-2$. Measurements of palp and legs: palp 3.96


Fig. 3. Phaeacius yixin, new species. A, male; B, carapace, lateral view; C, left chelicera, retrolateral view; D, left palp, ventral view (the black arrow refers to the pronounced apophysis between the ventral and retrolateral apophyses); E , same, lateral view. Scales : $\mathrm{A}, \mathrm{B}=1.0$ $\mathrm{mm}, \mathrm{C}-\mathrm{E}=0.2 \mathrm{~mm}$.
$(1.28+0.56+0.40+1.72)$; I $9.57(2.63+3.63+2.25+1.06)$, II $9.94(2.88+3.75+2.31+1.00)$, III $9.81(2.81+3.50+2.50+1.00)$, IV $11.20(3.13+3.88+3.13+1.06)$. Leg formula: 4231 . Abdomen oval, covered with many fine hairs; dorsum earthy yellow, with lateral margins black, centre with a brownish foliform patch; venter gray brown, black in front of genital groove, with two rows of muscle attachment spots from genital groove to spinnerets. Ventral tibial apophysis of male palp (Fig. 3D, E) robust and round, retrolateral apophysis long with a median process, pronounced apophysis between ventral and retrolateral apophysis almost triangular.

Etymology. - The specific name is a noun in apposition taken from the first name of the collector Y. X. Li, who was only 11 years old when he first collected the type specimen.

## Portia Karsch, 1878

Portia Karsch, 1878: 774 (Type species: Portia schultzi Karsch, 1878, by original designation and monotypy); Wanless, 1978: 84; 1984a: 191; Peng \& Li, 2002b: 255.

Diagnosis. - Spiders of this genus can be easily distinguished from others of the subfamily Spartaeinae by the presence of developed tufts on dorsal abdomen, fan-like fringes on legs, and dorsal flange on male palpal cymbium.

Remarks. - A total of 16 species have been reported (Platnick, 2005), being distributed in the Oriental and Ethiopia regions.

## Portia taiwanica, new species

(Fig. 4A-G)
Materials examined. - Holotype: Male (ZRC•ARA•506), Kenting National Park, Taiwan, coll. D. Li, 8 Jun. 2001.

Paratypes: 1 female (NMNH-Ar-95-00339), Taiwan Phoenix valley Bird Park, coll. J. D. Lee, 27 Sep.1995; 1 female (NMNH-Ar-9500214), Mt. Lanran, Taiwan, coll. J. D. Lee, 26 Jun. 1995.

Diagnosis. - The new species resembles Portia assamensis Wanless, 1978 (Wanless, 1978: 105, Figs. 10D-F, 11D-F) in the shapes of male palp and female epigynum, but differs from the latter in the membrane at the base of embolus


Fig. 4. Portia taiwanica, new species. A, male; B, left palp, ventral view; C, same, retrolateral view; D, same, dorsal view; E, cheliceral teeth of female, retrolateral view; F, epigynum, ventral view; $G$, same, dorsal view. Scales: $\mathrm{A}=1.0 \mathrm{~mm}, \mathrm{~B}-\mathrm{G}=0.2 \mathrm{~mm}$.
(labeled as "M1" in Wanless, 1984a) large, embolus shorter, retrolateral tibial apophysis finger shaped (Fig. 4B), and the posterior depression of female epigynum with oblique lines and thickened border (Fig. 4F). It is also similar to Portia fimbriata (Doleschall, 1859) (Wanless, 1978: 99, Figs. 7A$\mathrm{G}, 8 \mathrm{~A}-\mathrm{F}$ ) in the shape of male palp, but can be distinguished from the latter by female clypeus with white beards; embolus of male palp shorter, retrolateral tibial apophysis thin and finger-like (Fig. 4B). It also differs from Portia quei Zabka, 1985 (Zabka, 1985: 438, Figs. 497-501; Peng et al., 1993: 188, Figs. 660-666) in the shorter embolus and retrolateral tibial apophysis of male palp (Fig. 4B), and the shape of posterior depression of female epigynum (Fig. 4F).

Description. - Males. Length of holotype 9.00: cephalothorax 4.40 long, 3.44 wide, 2.72 high; abdomen 4.56 long, 2.08 wide. Carapace (Fig. 4A) deep red brown, with grayish lateral and mesal bands composed of short hairs. Clypeus lacking white beards. Eye sizes: AME 0.88, ALE 0.40 , PME 0.28 , PLE 0.40 . First eye row 2.60 wide, second row 2.28 wide, third eye row 2.36 wide, eye area 1.94 long. Clypeus height 0.50 . Chelicerae red brown, with 3 promarginal and 4 retromarginal teeth. Endites and labium deep red brown, with distal margins in lighter colour. Sternum yellow brown, with darker margins, covered with numerous white fine hairs and a few black long setae. Legs deep brown, with many spines. Tibiae and patellae with ventral fringes, tibiae III and IV with short dorsal fringes. Measurements of palp and legs: palp $4.04(1.40+0.52+0.48+1.64)$; I 19.60 $(4.64+6.80+6.08+2.08)$, II $12.80(3.52+4.48+3.52+1.28)$, III $10.72(3.20+3.52+2.96+1.04)$, IV 16.56 (4.32+5.20+5.76+1.28). Leg formula: 1423. Abdomen oval; dorsum yellow brown, with black lateral margins and some indistinct patches; venter deep brown, with a dark wide band behind the epigynal groove. Retrolateral tibial apophysis of male palp (Fig. 4B-D) finger shaped; cymbium with a prolateral flange; embolus long and slender.

Females. Total length 9.50-9.75. A female total length 9.75: cephalothorax 4.50 long, 3.75 wide, 2.38 high; abdomen 5.25 long, 2.75 wide. Carapace red brown, with a few indistinct brown stripes. Clypeus with lots of white beards. Eye sizes: AME 0.88 , ALE 0.41 , PME 0.28 , PLE 0.41 . First eye row 2.69 wide, second row 2.50 wide, third eye row 2.63 wide, eye area 2.28 long. Clypeus height 0.53 . Palps with many white hairs. Chelicerae (Fig. 4E) red brown, promargin with 3 teeth, retromargin with 4 small teeth and 2 denticles. Measurements of legs: I $14.19(3.88+5.00+3.75+1.56)$, II $11.76 \quad(3.38+4.00+3.00+1.38)$, III 10.77 $(3.13+3.63+2.88+1.13)$, IV $16.64(4.38+5.38+5.50+1.38)$. Leg formula: 4123. Dorsum of abdomen deep brown, with three yellow brown patches composed of long hairs, posterior part with a mesal rectangular grayish patch, with its centre dark brown; venter yellow brown, with two pairs of deep brown patches behind the epigynal groove. Other characters similar to those of male. Epigynum (Fig. 4F-G) weakly sclerotized, the posterior depression with dark margins; spermatheca large and round.

Remarks. - Chang \& Tso (2004) reported the species Portia fimbriata (Doleschall, 1859) from Taiwan. But judging from the illustrations they provided, we believe that Chang \& Tso's specimens are probably Portia taiwanica, new species, rather than P. fimbriata.

Etymology. - The specific name refers to the type locality.

## Yaginumanis Wanless, 1984

Yaginumanis Wanless, 1984a: 152 (Type species: Boethus sexdentatus Yaginuma, 1967, by original designation and monotypy).

Diagnosis. - This genus is similar to Spartaeus in abdominal pattern, but can be distinguished from the latter in: legs robust and with less ventral spines on tibia I; distal modification of the male palpal tegulum (labelled as "M3"by Wanless, 1984a) with a pleated region, retrolateral apophysis of male palp with a strong lobe.

Remarks. - A small genus represented by only two species (Prószynski, 2003), distributed in China and Japan. Judging from the eyes pattern and the shape of eyigynum described by Peng \& Li (2002a), Yaginumanis cheni Peng \& Li, 2002 from Guangxi, China, might belong to a genus of the subfamily Lyssomaninae.

## Yaginumanis wanlessi, new species

(Fig. 5A-E)

Materials examined. - Holotype: Female (MHBU-Ar-46), Qiankun ( $28^{\circ} 37^{\prime}$ N $106^{\circ} 16^{\prime} \mathrm{E}$ ), Zihuai Town, Hejiang County, Luzhou City, Sichuan Province, coll. J. X. Zhang, 30 Jul. 2003.

Paratype: 1 female (ZRC•ARA•507), Dagou Natural Reserve ( $32^{\circ} 367^{\prime} \mathrm{N} 105^{\circ} 13$ 'E), Qingchuan County, Guangyuan City, Sichuan Province, coll. J. X. Zhang, 13 Jul. 2003.

Diagnosis. - This new species resembles Yaginumanis sexdentatus (Yaginuma, 1967) (Wanless, 1984a: 153, Fig. 6AJ ), but can be distinguished from the latter by: posterior depression of the epigynum with dark surroundings, copulatory openings at the lateral sides of posterior depression, and posterior portion of the spermathecae larger than that of the latter (Fig. 5D, E).

Description. - Female. Total length 5.88-7.25. Holotype total length 7.25: cephalothorax 3.06 long, 2.16 wide, 1.62 high; abdomen 4.32 long, 2.70 wide. Carapace (Fig. 5A) black brown, eye area darker in color with many white fine hairs and several black long setae, the area behind PLSs earthy yellow. Eye sizes: AME 0.57, ALE 0.30, PME 0.22, PLE 0.29 . Anterior eye row 1.80 wide, median row 1.58 wide, posterior row 1.67 wide, eye area 1.43 long, clypeus height 0.13 . Chelicerae (Fig. 5C) red brown, with a brown patch in the front surface, promargin with 3 teeth and retromargin
with 5 teeth. Endites and labium red brown, with distal inner margins of endites and tip of labium white. Sternum yellow, with darker margins. Spination of leg I: metatarsi v 2-2-2; tibiae v 2-2-2, p 0-1-1; patellae p 0-1-0; femora d 0-2-4. Leg measurements: I $5.95(1.80+2.30+1.17+0.68)$, II 5.95 $(1.85+2.16+1.22+0.72)$, III $6.30(1.80+2.16+1.53+0.81)$, IV 8.15 (2.25+2.75+2.25+0.90). Leg formula: 431=2. Dorsum of abdomen with an indistinct brownish band in the middle of anterior part, lateral sides brown, with some indistinct stripes anteriorly; venter pale yellow, scattered with some brown patches. Epigynum (Fig. D, E) with an oval depression at the back part; copulatory duct short, spermatheca large and bean-shaped.

Etymology. - The specific name is a patronym in honor of F. R. Wanless, who has made great contributions to the study of jumping spiders.

## ACKNOWLEDGEMENTS

This study was in part supported by grants from National University of Singapore ARC to D. Li (R-154-000-060-112 and R-000-072-112), NSFC to D. Li (30470229), and in part by NSFC to Mingsheng Zhu (30170118). Valuable and
generous assistance was provided by Xishuangbanna Tropical Botanic Garden (XTBG), Chinese Academy of Sciences in China. Special thanks are extended to Hongmao Liu, Yuping She, Liming Li, Jian Zhang, Jinghua Mao and Zhihua Li from XTBG for generous assistance to the second author's study leave in XTBG without which this study would not have been possible. Special thanks also go Mingsheng Zhu and Maobin Gu for assistance with the expedition to Hainan in December 2003 and also for assistance with field work in Hainan, China. Shyh-min Chao from National Museum of Natural Science in Taiwan is grateful for giving access to the collection. We also wish to thank Shuqiang Li for assistance with export permits from China. Import permits were provided by the CITES, Agri-food \& Veterinary Authority of Singapore.

## LITERATURE CITED

Blackwall, J., 1877. A list of spiders captured in the Seychelle Islands by Professor E. Perceval Wright, M. D., F. L. S.; with descriptions of species supposed to be new to arachnologists. Proceedings of the Royal Irish Academy, (2) 3: 1-22.

Chang, Y. H. \& I. M. Tso, 2004. Six newly recorded spiders of the genera Araneus, Larinia, Eriophora, Thanatus, Portia and Dolichognatha (Araneae: Araneidae, Philodromidae, Salticidae


Fig. 5. Yaginumanis wanlessi, new species. A, female; B, carapace, lateral view; C, left chelicera, retrolateral view; D, epigynum, ventral view; E, same, dorsal view. Scales: A, B $=1.0 \mathrm{~mm}, \mathrm{C}-\mathrm{E}=0.2 \mathrm{~mm}$.
and Tetragnathidae) from Taiwan. Acta Arachnologica, Tokyo, 53: 27-33.
Galiano, M. E., 1976. Comentarios sobre la categoria sistematica del taxon Lyssomanidae (Araneae). Revista del Museo Argention de Ciencias Naturales Bernardino Rivadavia (Ent.), 5: 59-70.

Galiano, M. E., 1980. Revision del genero Lyssomanes Hentz, 1845 (Araneae, Salticidae). Opera Lilloana, 30: 1-104.
Galiano, M. E., 1998. Revision of the genus Chinoscopus (Araneae, Salticidae, Lyssomanidae). Bulletin of British Arachnological Society, 11: 1-9.
Karsch, F., 1878. Exotisch-araneologisches. Zeitschrift für die gesamten Naturwissenschaften, 51: 332-333, 771-826.
Maddison, W., 1995. The Tree of Life Web Project: Salticidae. URL: http://tolweb.org/tree/phylogeny.html
Ono, H., 1995. Four East Asian spiders of the families Eresidae, Araneidae, Thomisidae and Salticidae (Arachnida, Araneae). Bulletin of the National Science Museum Tokyo (A), 21: 157169.

Peng, X. J. \& S. Q. Li, 2002a. One new species of the genus Yaginumanis from Mt. Shiwandashan, Guangxi, China (Araneae: Salticidae). Acta Zootaxonomica Sinica, 27: 238-240.
Peng, X. J. \& S. Q. Li, 2002b. Chinese species of the jumping spider genus Portia Karsch (Araneae: Salticidae). Pan-Pacific Entomologist, 78: 255-264.
Peng, X. J. \& J. P. Kim, 1998. Four species of jumping spiders (Araneae: Salticidae) from China. Korean Journal of Biological Sciences, 2: 411-414.
Peng, X. J., L. P. Xie, X. Q. Xiao \& C. M. Yin, 1993. Salticids in China (Arachnida: Araneae). Hunan Normal University Press, Changsha, 270 pp.
Platnick, N. I., 2005. The World Spider Catalog, version 5.5. American Museum of Natural History. URL: http:// research.amnh.org/entomology/spiders/catalog81-87/index.html
Prószyński, J., 2003. Salticidae of the World. URL: K "http:// spiders.arizona.edu/salticid/main.htm" http:// spiders.arizona.edu/salticid/main.htm
Simon, E., 1900. Etudes arachnologiques. 30e Mémoire. XLVII. Descriptions d'espèces nouvelles de la famille des Attidae. Annales de la Société Entomologique de France, 69: 27-61.

Wanless, F. R., 1978. A revision of the spider genus Portia (Araneae: Salticidae). Bulletin of the British Museum (Natural History), 34: 83-124.
Wanless, F. R., 1979. A revision of the spider genus Brettus (Araneae: Salticidae). Bulletin of the British Museum (Natural History), 35: 183-190.
Wanless, F. R., 1980a. A revision of the spider genus Macopaeus (Araneae, Salticidae). Bulletin of the British Museum (Natural History), 38: 219-223.
Wanless, F. R., 1980b. A revision of the spider genus Onomastus (Araneae, Salticidae). Bulletin of the British Museum (Natural History), 39: 179-188.
Wanless, F. R., 1980c. A revision of the spider genera Asemonea and Pandisus (Araneae: Salticidae). Bulletin of the British Museum (Natural History), 39: 213-257.
Wanless, F. R., 1981a. A revision of the spider genus Phaecius (Araneae: Salticidae). Bulletin of the British Museum (Natural History), 41: 199-212.
Wanless, F. R., 1981b. A revision of the spider genus Cocalus (Araneae: Salticidae). Bulletin of the British Museum (Natural History), 41: 253-261.
Wanless, F. R., 1984a. A review of the spider subfamily Spartaeinae nom. n. (Araneae: Salticidae) with descriptions of six new genera. Bulletin of the British Museum (Natural History), 46: 135-205.
Wanless, F. R., 1984b. A revision of the spider genus Cyrba (Araneae: Salticidae) with the description of a new presumptive pheromone dispersing organ. Bulletin of the British Museum (Natural History), 47: 445-481.
Wanless, F. R., 1987. Notes on spiders of the family Salticidae. 1. The genera Spartaeus, Mintonia and Taraxella. Bulletin of the British Museum (Natural History), 52: 107-137.
Wijesinghe, D. P., 1991. New species of Phaeacius from Sri Lanka, Sumatra and the Philippines (Araneae: Salticidae). Bulletin of British Arachnological Society, 8: 249-255.
Yaginuma, T., 1967. Three new spiders (Argiope, Boethus and Cispius) from Japan. Acta Arachnologica, Tokyo, 20: 50-64.

