

First data on *Arctosa* wolf spiders (Araneae: Lycosidae) from Laos with description of a new species

M. M. Omelko^{1,2*} & Y. M. Marusik^{3,4}

Abstract. A new species, *Arctosa delaportei*, is described from Laos on the basis of male specimens; it is related to *A. tangguoi* Wang, Li & Zhang, 2021 known from China. *Arctosa depectinata* (Bösenberg & Strand, 1906), *A. kiangsiensis* (Schenkel, 1963), and *A. springiosa* Yin, Wang, Xie & Peng, 1993 are reported from Laos for the first time; the records of these three species are the southernmost ones within their known ranges. All species are (re)described and illustrated.

Key words. Araneae, Lycosinae, new record, Southeast Asia

INTRODUCTION

Arctosa C.L. Koch, 1847, with 167 species and two subspecies (WSC, 2022), is one of the largest genera of Lycosidae; it has an almost worldwide distribution, although it does not occur in Australia. The genus is relatively well studied in Europe (Lugetti & Tongiorgi, 1965; Almquist, 2005), the Nearctic (Dondale & Redner, 1983; Paquin & Dupérré, 2003), Japan (Tanaka, 2009) and Korea (Namkung, 2002, 2003).

Almost one fifth (32) of all named *Arctosa* species occur in China (WSC, 2022). Chinese species have not been revised, and data regarding their taxonomy and distribution is scattered throughout a number of papers (Song et al., 1999; Yin et al., 2012; Wang et al., 2012, 2021, etc.). Some Chinese species remain poorly studied and known only from the original descriptions often lacking satisfactory illustrations, or are known only by one sex (e.g., *A. amylaceoides* (Schenkel, 1936), *A. kansuensis* (Schenkel, 1936), *A. pichoni* Schenkel, 1963, *A. schensiensis* Schenkel, 1963, *A. swatowensis* (Strand, 1907), *A. tangguoi* Wang, Li & Zhang, 2021).

Diversity of *Arctosa* in the Southeast Asia is extremely poorly studied. *Arctosa tanakai* Barrion & Litsinger, 1995 is the only species that has been recorded (Barrion & Litsinger, 1995) from this area (Philippines) up to date.

While studying wolf spiders collected in Laos, we found four species belonging to *Arctosa*. One of them was identified as new to science and three others as new records for the country. The aims of the present paper are (1) to describe a species new to science, (2) to redescribe *A. depectinata* (Bösenberg & Strand, 1906), *A. kiangsiensis* (Schenkel, 1963) and *A. springiosa* Yin et al., 1993 in detail, and (3) to map the distribution of all aforementioned species based on new and literature-derived records.

MATERIAL AND METHODS

Specimens were photographed using a Nikon DS-Ri2 camera attached to a Nikon SMZ25 stereomicroscope at the Laboratory of Ecology and Evolutionary Biology of Aquatic Organisms (Far Eastern Federal University). Photographs were taken in dishes with soft white paper on the bottom and filled with alcohol. The epigynes were macerated using NaOH solution. Lengths of leg segments were measured on the lateral side. All measurements are given in millimetres. Stacking of images was performed using Zerene Stacker (<https://zerenesystems.com/cms/home>). Distribution data is provided according to WSC (2022).

Spination is given only for legs I and II which are involved in courtship behaviour.

The depositories of the studied material are the Far Eastern Federal University (FEFU) and the Zoological Museum of Moscow University, Moscow, Russia (ZMMU).

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Terminology and abbreviations used in the text and figures follow Wang et al. (2012) with some modifications and additions. Abbreviations:

Copulatory organs. Aa – anterior arm, Ag – arm groove, Cd – copulatory duct, Co – conductor, Cp – copulatory opening, Em – embolus, Ep – embolus projection, Fd – fertilisation duct, Ho – hood, Pa – posterior arm, Ra – retrolateral arm, Re – receptacle, Rg – receptacle gland, Sd – sperm duct, Se – septum, Ss – stem of septum, St – subtegulum, Ta – terminal apophysis, Te – tegulum, Tg – tegular apophysis, Tt – tooth/teeth of tegular apophysis.

Legs and spination. Fe – femora, Pa – patella, Ti – tibia, Mt – metatarsus, Ta – tarsus; d – dorsal, p – prolateral, r – retrolateral, v – ventral.

TAXONOMY

Arctosa C.L. Koch, 1847

Type species. *Aranea cinerea* Fabricius, 1777, from France.

Note. *Arctosa* is a poorly defined and undoubtedly polyphyletic genus (Wang et al., 2012). The bulk of species originally assigned to this genus have already been transferred to almost all subfamilies (Allocosinae, Artoriinae, Evippinae, Sosippinae, Pardosinae, Tricassinae, and Venoniinae (Piacentini & Ramírez, 2019; WSC, 2022)).

Arctosa delaportei, new species

(Figs. 1, 7, 8, 15–17, 26, 37)

Material examined. Holotype: male (ZMMU), LAOS, Vientiane Prov., env. Of Nam-Lik Eco-Village, 18°36'53.18"N 102°24'31.87"E, pitfall traps on edge of dry rice field, coll. M.M. Omelko, 9–12 June 2016. Paratype: male (FEFU), same place and collector, 4–9 June 2017.

Etymology. The specific name is a patronym in honour of the French naval officer, artist, and explorer of Indochina, Louis Delaporte (11 January 1842 – 3 May 1925).

Diagnosis. By the general appearance (especially leg colouration) and palp structure, the new species is similar to *A. tangguoi* Wang et al., 2021 known from Hainan Island. It differs by 1) having poorly distinct white markings on the carapace (vs. distinct); 2) dorsal abdominal pattern poorly distinct (vs. distinct); 3) bulb height/cymbium tip length ratio 1.16 (vs. 1.3); 4) course of embolus (Em) is less steep in new species (ca. 20° vs. 30°); 5) tip of tegular apophysis (Tg) is abruptly sharp (vs. rounded); 5) embolus and terminal apophysis (Ta) not contiguous (vs. contiguous); 6) sperm duct (Sd) less curved in its middle part in the new species (103° vs. 83°).

Description. Male, holotype. Total length 4.62. Carapace 2.46 long, 1.65 wide. Abdomen 1.90 long, 1.23 wide. Carapace uniformly dark brown, lacking distinct pattern (Fig. 1). Eye region black. Radial stripes poorly visible. Eye sizes and interdistances: AME 0.09, ALE 0.08, PME 0.20,

Table 1. Length of leg segments for the holotype male of *Arctosa delaportei*, new species.

	Fe	Pa	Ti	Mt	Ta	Total
I	1.74	0.70	1.24	1.35	0.75	5.78
II	1.61	0.73	1.06	1.18	0.60	5.18
III	1.48	0.66	0.88	1.42	0.74	5.18
IV	1.95	0.82	1.60	2.07	0.90	7.34

PLE 0.14; AME–AME 0.06, AME–ALE 0.03, PME–PME 0.11, PME–PLE 0.14. Clypeus 0.03 high. Chelicerae brown. Number of cheliceral teeth as in Table 7. Labium dark brown, longer than wide. Endites light brown, longer than wide. Sternum brown, without pattern, with sparse brown setae.

Legs with contrasting colours. Coxae I–II light brown, III–IV yellow. Femur I dark brown with brown tips, II–IV black with yellow basal parts; patellae I–II light brown, III–IV dark brown; tibiae and metatarsi brown with yellowish annulation; tarsi brown. Length of leg segments as in Table 1. Spination of legs I and II as in Table 8.

Abdomen dorsally dark grey, with lanceolate cardiac mark in anterior half and whitish irregular markings in posterior half part. Venter of abdomen dark grey, with grey spinnerets. Lateral sides grey.

Male palp as in Figs. 7, 8, 15–17, 26. Femur light brown. Tibia same colour, 1.7 times longer than wide (in ventral view), as long as bulb. Cymbium 2.1 times longer than wide, with 4 spines apically, tip almost as long as bulb. Bulbus oval, 1.25 times longer than wide; sperm duct with ca. 100° bent above subtegulum. Tegular apophysis (Tg) with only retrolateral arm (Ra). Retrolateral arm with abruptly sharp tip and deep groove (Ag) visible in retrolateral view (Fig. 17). Terminal apophysis (Ta) short, slightly curved, with widened tip. Conductor (Co) wide, semi-transparent, membranous, poorly visible. Embolus (Em) wide and short, with rounded projection (Ep) near tip (Fig. 26).

Distribution. Type locality only (Fig. 37).

Arctosa depectinata (Bösenberg & Strand, 1906)

(Figs. 2, 3, 9, 10, 31–33, 37)

A. binalis: Yu & Song, 1988: 236, figs. 11–13, male.

A. depectinata: Chikuni, 1989: 112, fig. 14, male and female.

A. binalis: Song, Zhu & Chen, 1999: 318, fig. 188L, male.

A. depectinata: Tanaka, 2009: 232, figs. 60–61, male and female.

A. depectinata: Wang et al., 2012: 54, figs. 1A–D, 2A–G, 3A–D, male and female.

A. depectinata: Wang et al., 2021: 24, figs. 1C–D, 8A–H, 9A–D, male and female.

For the complete list of taxonomic references see WSC (2022).

Material examined. 1 male (ZMMU), LAOS, Vientiane Prov., env. of Nam-Lik Eco-Village, 18°36'53.18"N



Figs. 1–6. General appearance of *Arctosa delaportei*, new species (1), *A. depectinata* (2, 3), *A. kiangsiensis* (4, 5), and *A. springiosa* (6). 1, 2, 4, 6, male; 3, 5, female. Scale = 1 mm.

102°24'31.87"E, coll. M.M. Omelko, November 2013; 2 males and 1 female (ZMMU), same place and collector, pitfall traps at rice field, 17 May–3 June 2016; 3 males and 1 female (FEFU), same place, coll. A.A. Komisarenko, June 2017.

Redescription. Male (Fig. 2). Total length 3.70. Carapace 1.92 long, 1.44 wide. Abdomen 1.59 long, 1.00 wide. Carapace dark brown, with yellow submarginal bands separated in several spots. Eye region black. Radial stripes distinct. Eye sizes and interdistances: AME 0.12, ALE 0.07, PME 0.19 PLE 0.15 AME–AME 0.05, AME–ALE 0.02, PME–PME 0.10, PME–PLE 0.14. Clypeus height 0.05. Number of cheliceral teeth as in Table 7. Labium

light brown, longer than wide. Endites yellow, longer than wide. Sternum uniformly yellow, without pattern, covered with sparse brown setae.

Legs yellow brown, with greyish spots and semi-rings. Length of leg segments as in Table 2. Spination of legs I and II as in Table 8.

Abdomen dorsally greyish with irregular markings in posterior half part. Ventral side of abdomen yellow, with small greyish spots. Spinnerets yellow. Lateral sides yellow.

Palp as in Figs. 9–10. Tibia 1.47 times longer than wide (in ventral view), slightly shorter than bulb. Cymbium 2.1

Table 2. Length of leg segments for the male of *Arctosa depectinata*.

	Fe	Pa	Ti	Mt	Ta	Total
I	1.60	0.60	1.47	1.42	0.73	5.82
II	1.42	0.56	1.17	1.29	0.70	5.14
III	1.29	0.52	0.91	1.27	0.67	4.66
IV	2.01	0.69	1.64	2.03	0.90	7.27

times longer than wide. Sperm duct near subtegulum almost straight. Tegular apophysis with 2 large arms: posterior (Pa) and retrolateral (Ra); posterior arm (Pa) with hooked tip. Embolus and terminal apophysis well depicted and described in Wang et al. (2012, 2021).

Female (Fig. 3). Total length 5.57. Carapace 2.25 long, 1.67 wide. Abdomen 2.86 long, 1.66 wide. Number of cheliceral teeth as in Table 7. Colouration as in male. Eye sizes and interdistances: AME 0.13, ALE 0.10, PME 0.23, PLE 0.17; AME–AME 0.06, AME–ALE 0.02, PME–PME 0.08, PME–PLE 0.13. Clypeus height 0.05.

Length of leg segments as in Table 3. Spination of legs I and II as in Table 9.

Epigyne (Figs. 31–33). Septum (Se) trapezoidal with wide stem (Ss). Lateral margins of stem indistinct. Receptacles (Sr) large, drop-like with small glands (Rg) anteriorly. Receptacles (Sr) spaced by ca. 3 diameters. Copulatory ducts (Co) thick, short.

Notes. The male of *A. depectinata* has a posterior arm (Pa) of tegular apophysis (vs. lacking in congeners occurring in the region). Females of *A. depectinata* have small receptacles, not reaching the anterior edge of epigyne.

This species was redescribed and well-illustrated in two recent papers (Wang et al., 2012, 2021). *Arctosa depectinata* has the widest distribution among all species treated in this paper, with its range stretching 4,600 km from northernmost (Hokkaido, Japan) to southernmost (Laos).

Distribution. China (Fujian, Guangdong, Hainan, Jiangxi, Shandong, Yunnan), Japan, and Laos (Fig. 37).

***Arctosa kiangsiensis* (Schenkel, 1963)**
(Figs. 4, 5, 11, 12, 18–21, 27, 28, 34–37)

A. kiangsiensis: Yin et al., 1997: 88, fig. 39a–b, male and female.

A. kiangsiensis: Song, Zhu & Chen, 1999: 319, fig. 189C, J, male and female.

A. kiangsiensis: Yin et al., 2012: 797, fig. 398a–f, male and female.

A. kiangsiensis: Dong, 2018: 58, figs. 9–1. A–C, pl. 13, female.

For the complete list of taxonomic references see WSC (2022).

Material examined. 2 males (ZMMU), LAOS, Vientiane Prov., env. of Nam-Lik Eco-Village, 18°36'53.18"N 102°24'31.87"E, coll. M.M. Omelko, 21 June–3 July 2017;

Table 3. Length of leg segments for the female of *Arctosa depectinata*.

	Fe	Pa	Ti	Mt	Ta	Total
I	1.61	0.73	1.29	1.26	0.66	5.55
II	1.45	0.70	1.11	1.18	0.65	5.09
III	1.39	0.65	0.88	1.25	0.62	4.79
IV	2.12	0.86	1.69	1.96	0.94	7.57

Table 4. Length of leg segments for the male of *Arctosa kiangsiensis*.

	Fe	Pa	Ti	Mt	Ta	Total
I	1.96	0.83	1.39	1.36	0.92	6.46
II	1.76	0.79	1.26	1.33	0.80	5.94
III	1.68	0.73	1.15	1.41	0.76	5.73
IV	2.27	0.74	1.77	2.37	1.13	8.28

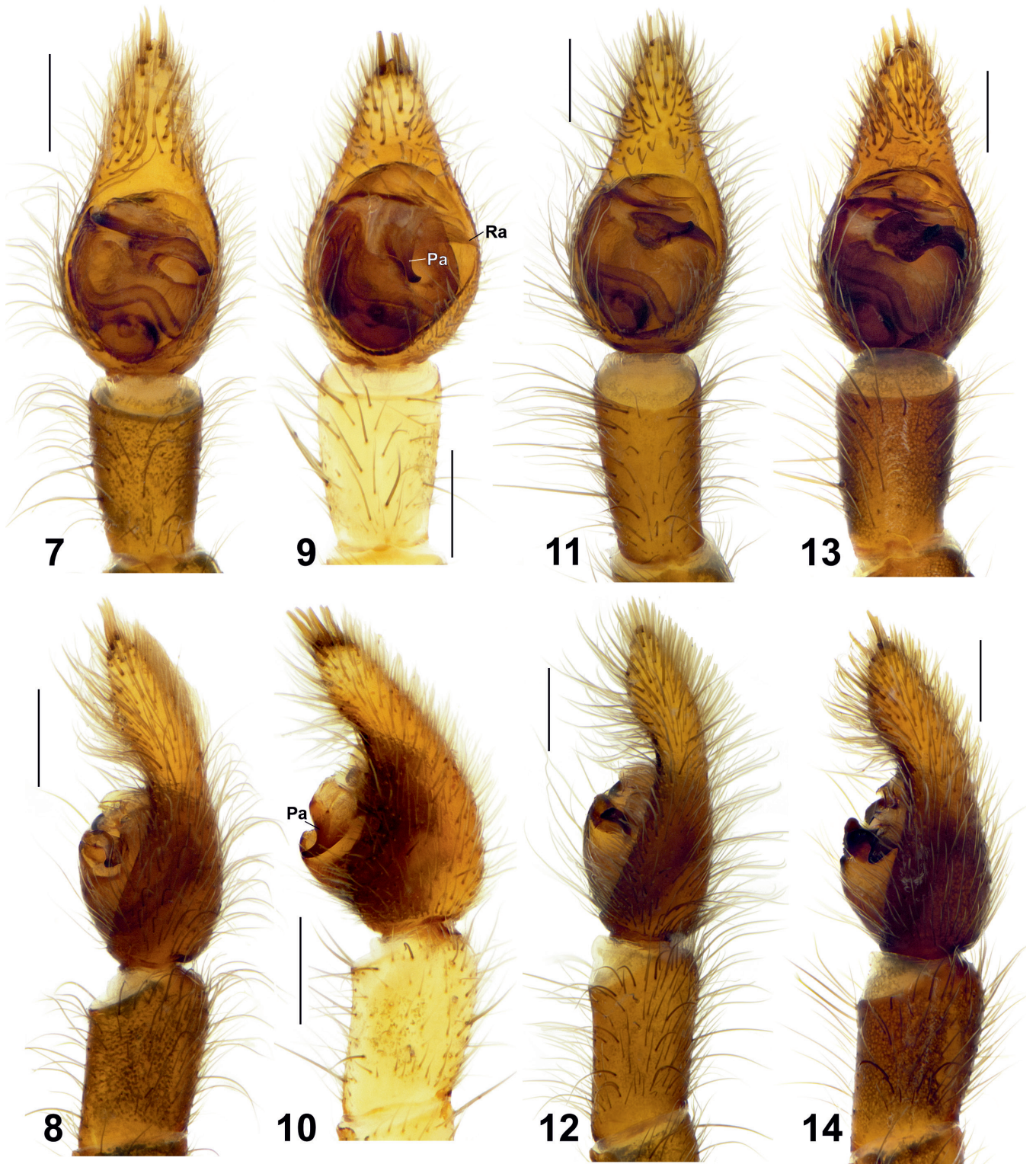
1 female, same place and collector, pitfall traps near lake shore in forest, 24–27 November 2013.

Redescription. Male (Fig. 4). Total length 5.50. Carapace 2.74 long, 2.15 wide. Abdomen 2.58 long, 1.63 wide. Carapace dark brown, without submarginal bands, eye region black. Fovea black. Radial furrows thin, barely visible. Eye sizes and interdistances: AME 0.10, ALE 0.09, PME 0.20, PLE 0.17; AME–AME 0.08, AME–ALE 0.05, PME–PME 0.18, PME–PLE 0.16. Clypeus height 0.09. Number of cheliceral teeth as in Table 7. Labium brown, with yellow outer edge, longer than wide. Endites brown, longer than wide. Sternum brown, without visible pattern, with sparse brown hairs.

Femur I dark brown, retrolaterally with white rounded spot formed by short hairs; II dark brown with yellow base and spot as in I; III and IV dark brown with yellow base and yellowish spot at middle part. Patellae brown. Tibia I yellow with dark tip and base; II–IV brown with yellow rings. Metatarsi brown with yellow rings. Tarsi brown. Length of leg segments as in Table 4. Spination of legs I and II as in Table 8.

Abdomen oval, greyish, with longitudinal light brown median part. Ventral side of abdomen yellowish, with small, grey spinnerets. Lateral sides greyish with small yellow spots.

Palp (Figs. 11, 12, 18–21, 27, 28). Tibia 1.97 times longer than wide (in ventral view), 1.25 times longer than bulb. Cymbium with 4 spines apically. Subtegulum (St) located on prolateral side of the bulb. Tegular apophysis (Tg) with two arms, anterior (Aa) and retrolateral (Ra); retrolateral arm with long thin tip; anterior arm small, ridge-like (Figs. 18, 19). Tegular apophysis (Tg) with large, serrated tooth (Ti) posteriorly (Figs. 18–20). Embolus (Em) long, with

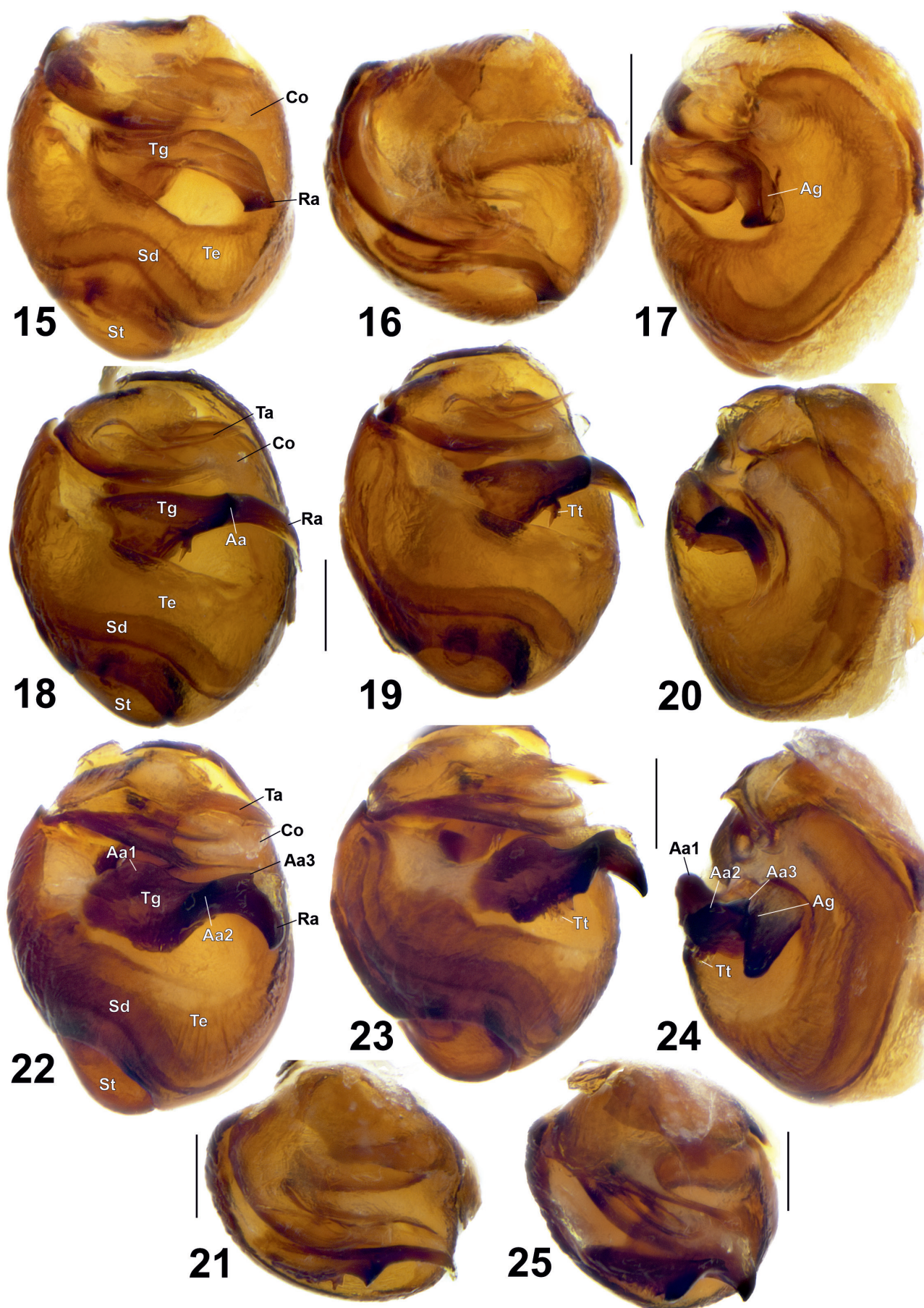


Figs. 7–14. Male palps of *Arctosa delaportei*, new species (7, 8), *A. depectinata* (9, 10), *A. kiangsiensis* (11, 12), and *A. springiosa* (13, 14). 7, 9, 11, 13, ventral; 8, 10, 12, 14, retrolateral. Scale = 0.2 mm. Abbreviations: Pa – posterior arm, Ra – retrolateral arm.

small, pointed projection (Ep) near its tip (Figs. 27, 28). Terminal apophysis (Ta) long, straight, with slightly widened tip. Conductor (Co) wide, semi-transparent, membranous, poorly visible.

Female (Fig. 5). Total length 7.04. Carapace 3.55 long, 2.55 wide. Abdomen 3.15 long, 2.44 wide. Carapace dark

brown (lighter than in males), without submarginal bands, eye region dark brown. Fovea black. Radial furrows poorly visible. Eye sizes and interdistances: AME 0.12, ALE 0.09, PME 0.24, PLE 0.17; AME–AME 0.10, AME–ALE 0.05, PME–PME 0.21, PME–PLE 0.28. Clypeus height 0.11. Number of cheliceral teeth as in Table 7. Labium brown, with yellow outer edge, longer than wide. Endites brown,



Figs. 15–25. Bulbs of *Arctosa delaportei*, new species (15–17), *A. kiangsiensis* (18–21), and *A. springiosa* (22–25). 15, 18, 22, ventral; 16, 21, 25, anterior; 17, 20, 24, retrolateral; 19, 23, prolateral-anterior. Scale = 0.1 mm.

Abbreviations: Aa1–3 – anterior arms 1–3, Ag – arm groove, Co – conductor, Ra – retrolateral arm, Sd – sperm duct, St – subtegulum, Ta – terminal apophysis, Te – tegulum, Tg – tegular apophysis, Tt – tegular apophysis teeth.

Table 5. Length of leg segments for the female of *Arctosa kiangsiensis*.

	Fe	Pa	Ti	Mt	Ta	Total
I	2.22	1.05	1.63	1.62	0.90	7.42
II	2.10	1.03	1.41	1.55	0.86	6.95
III	1.83	0.89	1.19	1.69	0.78	6.38
IV	3.16	1.10	2.00	2.73	1.16	10.15

longer than wide with yellow outer edges. Sternum brown, without visible pattern.

Leg segments yellow brown, with white spots formed by short hairs (except for tarsi). Tibia I lighter than other segments, covered with white hairs dorsally. Length of leg segments as in Table 5. Spination of legs I and II as in Table 9.

Abdomen dorsally greyish. Venter of abdomen yellowish, with small, grey spinnerets. Lateral sides greyish with small yellow spots.

Epigyne (Figs. 34–36). Septum (Se) broad and triangular, with narrow stem (Ss). Copulatory openings (Co) located close to septum stem (Ss). Copulatory ducts (Cd) thick, slightly curved. Seminal receptacles (Sr) large and droplet-like. Fertilisation ducts (Fd) thin. Receptacles (Sr) separated by ca. 2.25 diameters.

Notes. The male of *A. kiangsiensis* has the long, strongly curved tip of tegular apophysis. The females of *A. kiangsiensis* have receptacles reaching anterior edge of hoods and long septal stem. *Arctosa kiangsiensis* might be a senior synonym of *A. tanakai* Barrion & Litsinger, 1995 known from Philippines. However, we do not synonymise these species here since published images of both species are very schematic and the status of *A. tanakai* requires studying of comparative material which lies beyond the scope of this paper.

Although *A. kiangsiensis* was treated in several publications before, it has never been properly illustrated (particularly the structure of its bulb).

Distribution. China (Hunan, Zhejiang, Jiangxi, Fujian, Yunnan) and Laos (Fig. 37).

Arctosa springiosa Yin, Wang, Xie & Peng, 1993
(Figs. 6, 13, 14, 22–25, 29, 30, 37)

A. springiosa: Wang et al., 2021: 25, figs. 13A–H, 14A–E, 15A–D, male and female.

For the complete list of taxonomic references see WSC (2022).

Material examined. 1 male (FEFU), LAOS, Vientiane Prov., env. of Nam-Lik Eco-Village, 18°36'53.18"N 102°24'31.87"E, hand picking at lake shore, coll. M.M. Omelko, 17–22 May 2016.

Table 6. Length of leg segments for the male of *Arctosa springiosa*.

	Fe	Pa	Ti	Mt	Ta	Total
I	Missing					
II	1.84	0.95	1.33	1.53	0.93	6.58
III	1.69	0.79	1.07	1.64	0.83	6.02
IV	2.21	1.01	1.54	2.35	1.14	8.25

Table 7. Number of teeth on a cheliceral edge.

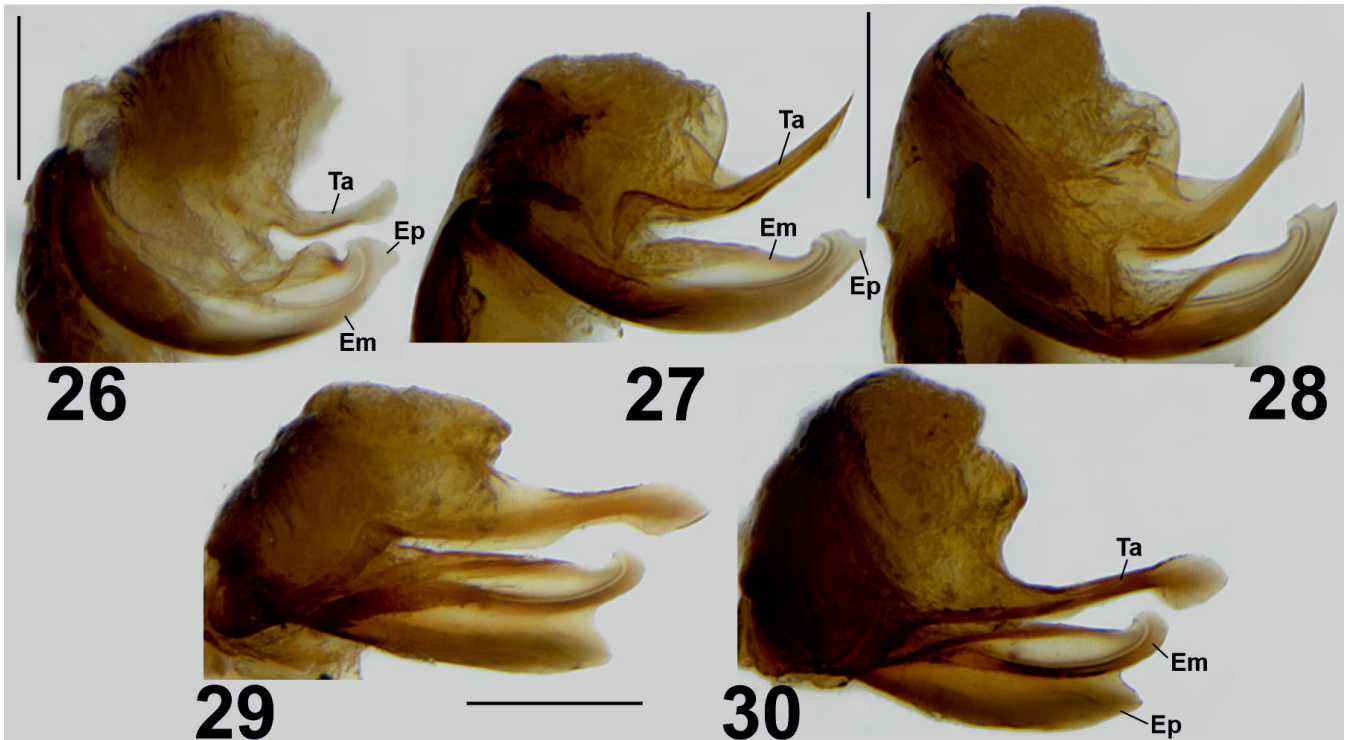
	Number of cheliceral teeth	
	Promarginal	Retromarginal
<i>A. delaporte</i> , new species	3	3
<i>A. depectinata</i>	2	3
<i>A. kiangsiensis</i>	3	3
<i>A. springiosa</i>	2, one of them tiny, almost invisible	3

Redescription. Male (Fig. 6). Total length 5.47. Carapace 2.86 long, 2.27 wide. Abdomen 2.60 long, 1.61 wide. Carapace dark brown, somewhat lighter in middle part, without submarginal bands. Eye region black. Radial furrows indistinct. Eye sizes and interdistances: AME 0.13, ALE 0.10, PME 0.24, PLE 0.18; AME–AME 0.06, AME–ALE 0.03, PME–PME 0.13, PME–PLE 0.21. Clypeus height 0.10. Number of cheliceral teeth see in Table 7. Labium brown, with yellow anterior edge, longer than wide. Endites yellowish with brown base, longer than wide. Sternum brown, without pattern, with sparse brown setae.

Femora I–II black, III–IV black with yellow base; patellae light brown with blackish lateral sides; tibiae and metatarsi light brown with blackish semi-rings; tarsi light brown. Length of leg segments as in Table 6. Spination of legs I and II as in Table 8.

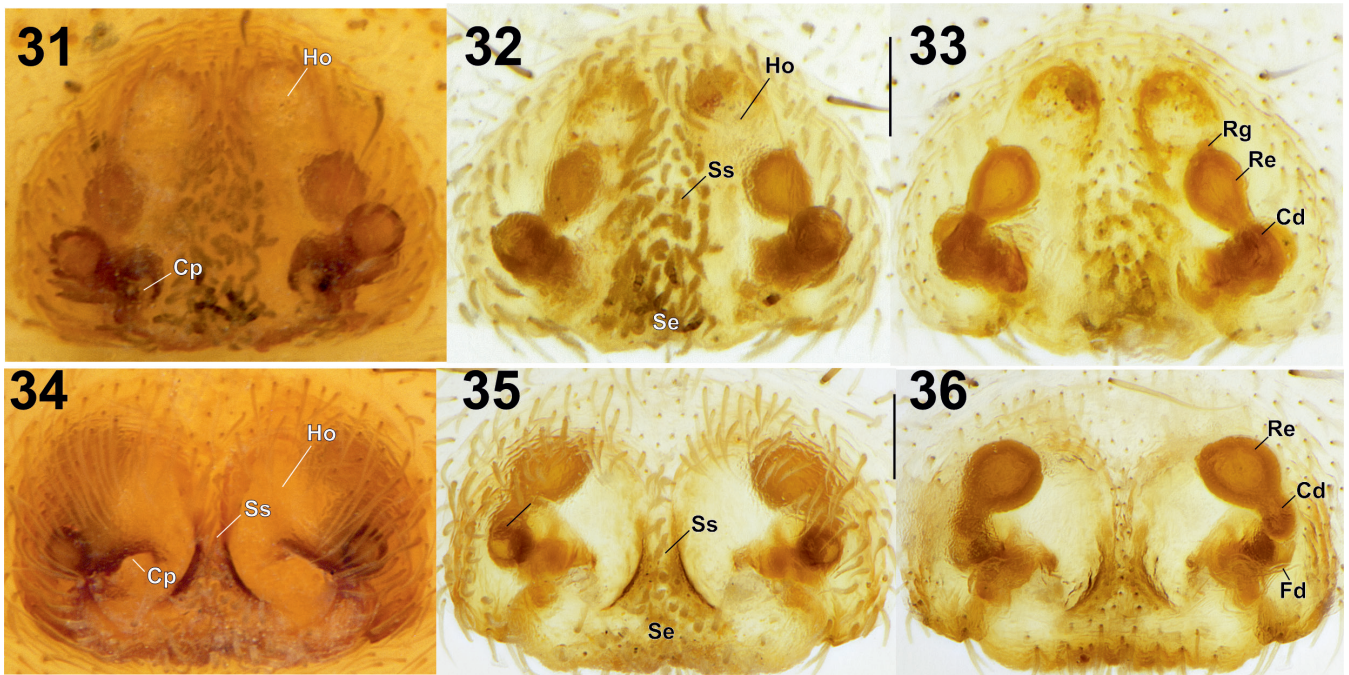
Abdomen oval, dorsally brown, with light brown lanceolate cardiac mark and yellow spots close to it in anterior half, and with brown irregular markings in posterior half part. Ventral side of abdomen light brown, spinnerets yellow. Lateral sides greyish.

Palp (Figs. 13, 14, 22–25, 29, 30). Tibia 1.72 times longer than wide (in ventral view), 1.15 times longer than bulb. Cymbium with 2–3 spines apically. Subtegulum (St) located on prolateral side of bulb. Tegular apophysis (Tg) with four arms, three anterior (Aa) and one retrolateral (Ra); retrolateral arm with long large tip and deep groove (Fig. 24), first anterior arm (Aa1) large, rounded, second (Aa2) ridge-like, third arm (Aa3) small with pointed tip (Figs. 22–24). Tegular apophysis (Tg) with several large teeth (Tt) posteriorly



Figs. 26–30. Embolic divisions of *Arctosa delaportei*, new species (26), *A. kiangsiensis* (27, 28), and *A. springiosa* (29, 30). 26, 28, 30, anterior; 27, 29, ventral. Scale = 0.1 mm.

Abbreviations: Em – embolus, Ep – embolus projection, Ta – terminal apophysis.



Figs. 31–36. Epigynes of *Arctosa depectinata* (31–33) and *A. kiangsiensis* (34–36). 31, 34, ventral, intact; 32, 35, ventral, macerated; 33, 36, dorsal, macerated. Scale = 0.1 mm.

Abbreviations: Cd – copulatory duct, Cp – copulatory opening, Fd – fertilisation duct, Ho – hood, Re – receptacle, Rg – receptacle gland, Se – septum, Ss – stem of septum.

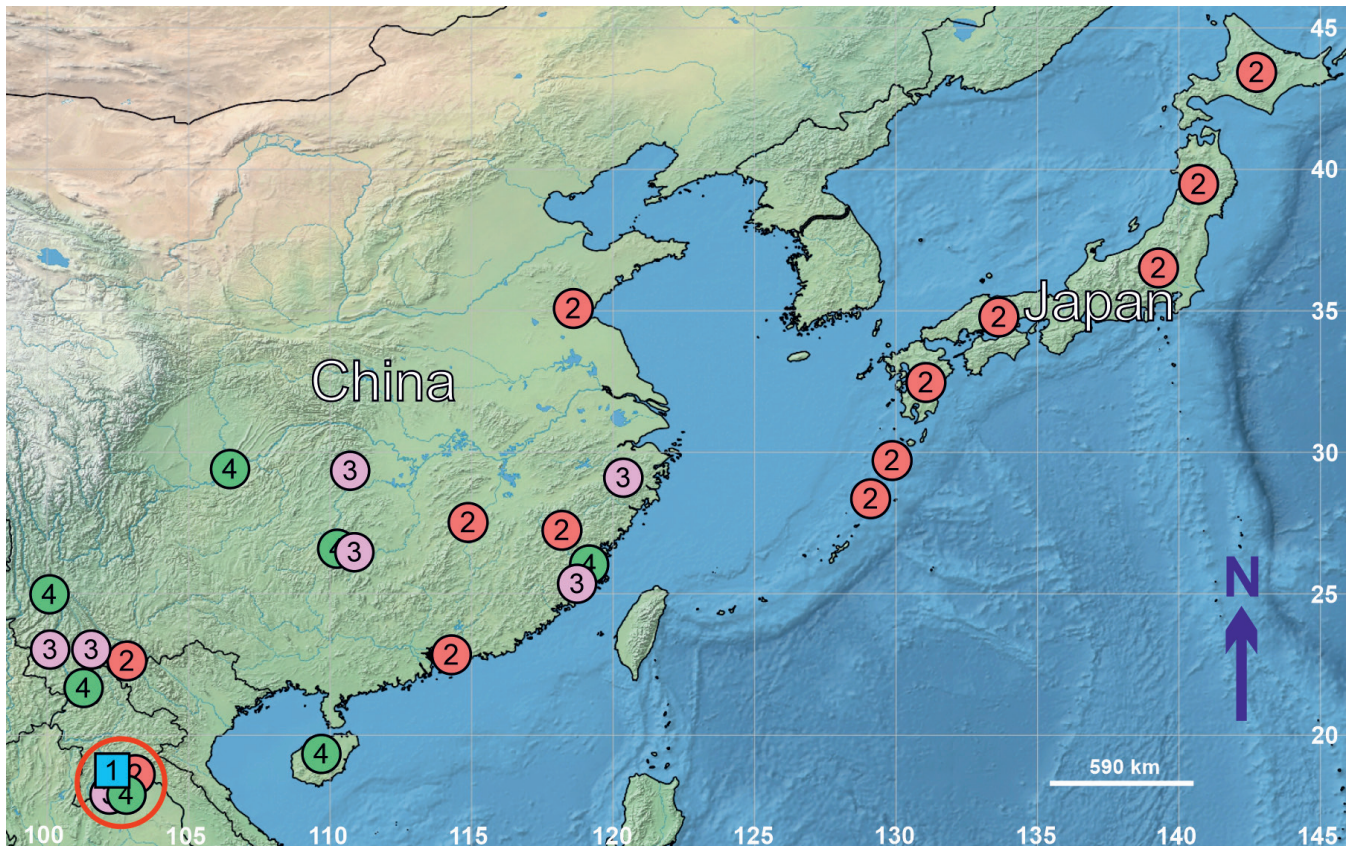


Fig. 37. Distribution records of *Arctosa* spp.: *A. delaporteii*, new species (1), *A. depectinata* (2), *A. kiangsiensis* (3), and *A. springiosa* (4). New localities in Laos are outlined by red circles.

Table 8. Spination of legs I and II of *Arctosa* spp., males.

	Fe		Pa		Ti		Me	
	leg I	leg II	leg I	leg II	leg I	leg II	leg I	leg II
<i>A. delaporteii</i> , new species	3d 1p	3d 1p	spineless	1p	2p 2-2v	2p 2-2v	1p 2-2v	1p 2-2v
<i>A. depectinata</i>	3d 1p1r or 2r	3d 2p 1r	1p 1r	1p 1r	2p 2r 2-2v	2p 2r or 3r 2-2v	2p 1r 2-2v	2p 2r 2-2v
<i>A. kiangsiensis</i>	2d (hair like) 1p	2d (hair like)	spineless	spineless	1p	2p	2-2v	1p 2-2v
<i>A. springiosa</i>	Leg missing	2d 1p	Leg missing	spineless	Leg missing	2p 1(0)r 2-2v	Leg missing	2p 1r 2-2v

Table 9. Spination of legs I and II of *Arctosa* spp., females.

	Fe		Pa		Ti		Me	
	leg I	leg II	leg I	leg II	leg I	leg II	leg I	leg II
<i>A. depectinata</i>	3d 1p	3d 1p	spineless	1p	2p 2-2v	1p, ti 2p 2-2v	1p 2-2v	1p 2-2v
<i>A. kiangsiensis</i>	2d 1p	2d	spineless	spineless	spineless	2p	2-1v	2-2v

(Figs. 23, 24). Embolus (Em) short, very wide, with large, pointed projection (Ep) near its tip (Figs. 29, 30). Terminal apophysis (Ta) long, straight, with significantly widened tip. Conductor (Co) wide, semi-transparent, membranous.

Notes. Males of *A. springiosa* have significantly widened tip of terminal apophysis, embolus with large projection.

Distribution. China (Chongqing, Fujian, Hainan, Hunan, Yunnan) and Laos (Fig. 37).

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