Pholcus bidentatus Zhu et al. 2005

Zhu, M.S., Zhang, J.X., Zhang, Z.S. & Chen, H.M. 2005. *Arachnida*: *Araneae.* In: *Insects from Dashahe Nature Reserve of Guizhou* (Edited by Yang, M.F. and Jin, D.C.). Guizhou Peoples Publishing House, Guiyang, pp. 490-551.

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1. 双齿幽灵蛛，新种 *Pholcus bidentatus* Zhu *et al.*, sp. nov.（图 1）

雌蛛体长 7. 14-7. 38。正模体长 7. 38：头胸部长 1. 56，宽 1. 80；腹部长 5. 58，宽 1. 44。背甲浅黄色，胸区具 1 对大的浅褐色斑。前中眼间距小于前中侧眼间距（0. 05：0. 08），后中眼间距大于后中侧眼间距（0. 23：0. 05）。AME：ALE：PME：PLE（0. 10：0. 23：0. 15：0. 20）。中眼域长小于宽（0. 33：0. 53），前边小于后边（0. 25：0. 53）。螯肢暗黄褐色。下唇浅黄褐色，前缘具 1 暗黄褐色横带。颚叶浅黄褐色，具 2 个暗黄褐色斑。步足测量：I 43. 47（10. 44 + 10. 98 + 19. 35 + 2. 70），II 27. 09（7. 65 + 7. 74 + 10. 17 + 1. 53），III 20. 43

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（5. 85 + 5. 58 + 7. 83 + 1. 17），IV 28. 89（8. 19 + 7. 38 + 11. 52 + 1. 80）。足式：1423。腹部长，浅灰褐色，背面沿中线两侧有不规则的暗色斑点。腹部腹面浅黄色，具 2 条纵向的暗色阴影。外雌器中央具 1 短的锤状垂体，纳精囊 1 对，草履虫形，呈“八”字形排列。

雄蛛体长 4. 59-7. 11。一雄蛛体长 5. 94：头胸部长 1. 53，宽 1. 62；腹部长 4. 41，宽 1. 08。体色及斑纹等近似于雌蛛。步足测量：I 44. 91（10. 89 + 11. 52 + 19. 89 + 2. 61），II 28. 08（8. 10 + 8. 28 + 10. 08 + 1. 62），III 23. 58（6. 48 + 6. 21 + 9. 27 + 1. 62），IV 30. 42（8. 55 + 7. 74 + 12. 51 + 1. 62）。触肢器的钩状突起近似斧状，附器中部腹侧具 2 个小的齿状突起。

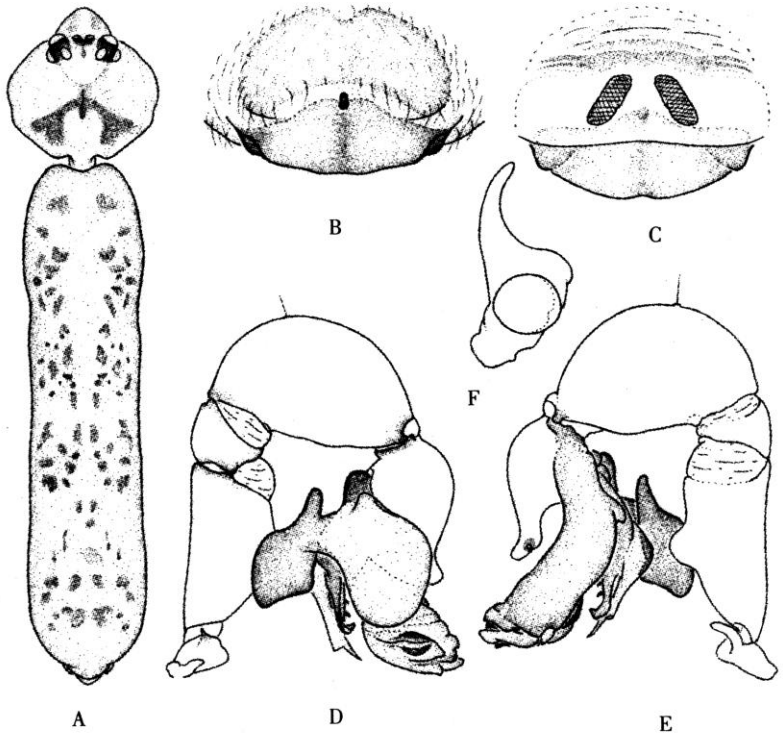

图 1　双齿幽灵蛛，新种 *Pholcus bidentatus* Zhu *et al.*, sp. nov.

A. 雌蛛，背面观（female, dorsal view）；B. 外雌器，腹面观（epigynum, ventral view）；C. 同前，背面观（do., dorsal view）；D. 雄蛛左触肢，内侧面观（left male palp, endo-lateral view）；E. 同前，外侧面观（do., exo-lateral view）；F. 雄蛛触肢转节（trochanter of male palp）。

正模：♀，副模：1 ♀，1 ♂，贵州道真县大沙河保护区玉河坝，2004-8-26，张志升采；9 ♀♀，7 ♂♂，贵州习水县，2004-7-26，陈会明采。

鉴别特征：本新种触肢器的结构近似于金氏幽灵蛛 *Pholcus kimi* Song *et* Zhu, 1994，但其附器中部腹侧具 2 个小的齿状突起，跗前突顶端的骨片形状不同；雌蛛外雌器垂体呈短锤状，而不同于后者。

词源学：本新种的种名来源于拉丁语“*bi-*（两个）”+“*dentatus*（小齿）”，指其触肢器的附器腹侧具 2 个小齿突。

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***Pholcus bidentatus* Zhu *et al.*, sp. nov. (Fig. 1)**

Holotype: ♀, paratypes: 1♀,1♂, Yuheba, Dashahe Nature Reserve, Daozhen County, Guizhou, 2004-8-26, collected by Zhang Zhisheng; 9♀♀,7♂♂, Xishui County, Guizhou, 2004-7-26, collected by Chen Huiming.

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Etymology: The specific name is from the Latin *bi-* plus *dentatus*, and refers to the appendage of the male palpal organ with two small denticles ventrally.

Diagnosis: The new species resembles *Pholcus kimi* Song *et* Zhu, 1994 in the shape of male palpal organ, but can be easily distinguished from the latter by the appendage of palpal organ with two small denticles at the middle part ventrally, the distal sclerite of protarsus in different shape, and the scape of epigynum small hammer shaped.

Female total length 7.14-7.38. Holotype total length 7.38: cephalothorax 1.56 long, 1.80 wide; abdomen 5.58 long, 1.44 wide. Carapace yellowish, with a pair of large brownish patches on thorax. AME-AME: AME-ALE (0.05:0.08), PME-PME: PME-PLE (0.23:0.05); AME: ALE: PME: PLE (0.10:0.23:0.15:0.20). MOA 0.33 long, front width 0.25, back width 0.53. Chelicerae dark yellow brown. Labium yellowish brown, with a dark yellow brown transverse band at anterior margin. Endites yellowish brown, with two dark yellow brown patches. Measurements of legs: I 43.47 (10.44 + 10.98 + 19.35 + 2.70), II 27.09 (7.65 + 7.74 + 10.17 + 1.53), III 20.43 (5.85 + 5.58 + 7.83 + 1.17), IV 28.89 (8.19 + 7.38 + 11.52 + 1.80). Leg formula: 1423. Abdomen long, greyish brown, dorsum with irregular dark spots; venter yellowish, with two longitudinal dark shadows. Epigynum with a central small hammber-like scape, spermathecae paramecium shaped, lined in "八"-shaped.

Male total length 4.59-7.11. A male total length 5.94: cephalothorax 1.53 long, 1.62 wide; abdomen 4.41 long, 1.08 wide. Characters similar to those of female. Measurements of legs: I 44.91 (10.89 + 11.52 + 19.89 + 2.61), II 28.08 (8.10 + 8.28 + 10.08 + 1.62), III 23.58 (6.48 + 6.21 + 9.27 + 1.62), IV 30.42 (8.55 + 7.74 + 12.51 + 1.62). Uncus of the papal organ almost axe-like, appendage with two small denticles at the middle part ventrally.

Zhang, F., Zhu, M.S. 2009. A review of the genus *Pholcus* (Araneae: Pholcidae) from China. Zootaxa 2037: 1-114.

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***Pholcus bidentatus* Zhu, Zhang, Zhang & Chen, 2005**
(Fig. 4)

Pholcus bidentatus Zhu, Zhang, Zhang & Chen 2005: 490, f. 1A–F.

Diagnosis. Similar to *P. gui* and especially *P. kimi*, but can be distinguished from the latter by the appendix with two thorn-shaped small apophyses (Fig. 4E); by the shape of tip of the procursus (Figs. 4E–F); and by the almost rectangular pore plates (Fig. 4C).

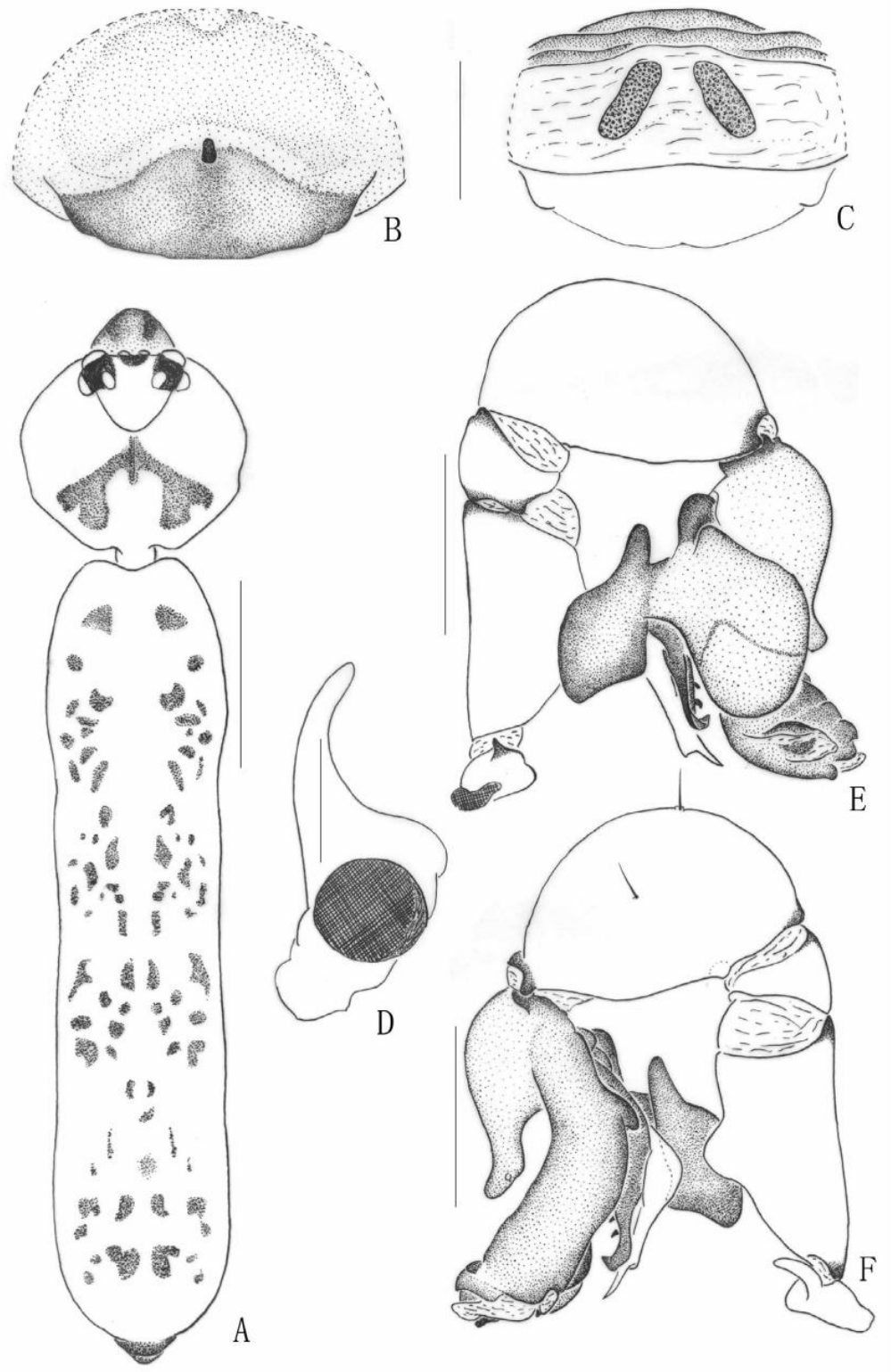

FIGURE 4. *Pholcus bidentatus* Zhu, Zhang, Zhang & Chen, 2005 (illustrations modified from Zhu *et al*. 2005). A. female body, dorsal view. B. epigynum, ventral view. C. same, dorsal view. D. trochanter of male left palp, retrolaterodorsal view. E. left palp, prolateral view. F. same, retrolateral view. Scale lines: 1.0mm (A), 0.5mm (B, C, E, F), 0.2mm (D).

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Redescription. Male (a paratype), total length 5.9: cephalothorax 1.5 long, 1.6 wide; abdomen 4.4 long, 1.1 wide. Leg I: 44.9 (10.9+0.7+10.8+19.9+2.6), tibia II: 7.4, tibia III: 5.4, tibia IV: 7.2; Tibia I L/D: 60. Carapace short, broad and almost circular, ochre, with brown butterfly-shaped marks narrowly connecting to ocular area. Cephalic region raised, without brown central marks, ocular area dark yellow. Clypeus 0.46, slightly ochre, with yellow marks. Distance AME–AME 0.05. Diameter AME 0.09, ALE 0.17, PME 0.15, PLE 0.16. Chelicerae with pair of black apophyses distally and two pairs of unsclerotized round apophyses proximolaterally. Labium and endites yellow. Sternum light black, without marking. Femora, patellae and tibiae ochre, with dark rings, metatarsi and tarsi brown. Palps as in Figs. 4E and 4F, bulb with a cleaver-shaped uncus, appendix with two thorn-shaped projections centrally. Palpal tarsal organ capsulate, on conical projection of cymbium (Fig. 4F).

Variation. Tibia I in other male paratypes: 9.5–11.0 (mean 10.5). Body length in other male paratypes: 5.2–6.8.

Female: in general very similar to male. Total body length 6.6–7.5. Female (holotype), total length 7.2: cephalothorax 1.6 long, 1.8 wide; abdomen 5.6 long, 1.4 wide. Tibia I 10.2; in other paratypes females: 9.3–11.2 (mean 10.3). Prosoma shape as in Fig 4A. Distance AME–AME 0.05. Diameter AME 0.10, ALE 0.21, PME 0.15, PLE 0.19. Abdomen cylindrical, pale ochre, dorsum with numerous blackish markings as in Fig. 4A. Venter pale brown. Epigynum roughly triangular as in Fig. 4B, with a small knob-shaped apophysis on the top. Dorsal view as in Fig. 4C, with a pair of almost rectangular pore plates.

Distribution. Guizhou, Sichuan.

Material examined. CHINA: **Guizhou**: Daozhen County, Dashahe Natural Reserve, August 26, 2004, leg. Z. S. Zhang, female holotype, 1♂, 1♀ paratypes (MHBU); Xishui County, July 26, 2004, leg. H. M. Chen, 7♂, 9♀ paratypes (MHBU). **Sichuan:** Hejiang County, Zihuai Town, July 30, 2003, leg. J. X. Zhang, 1♂, 2♀ (MHBU); Mt. Emei, Temple Fuhu, July 27, 2003, leg. J. X. Zhang, 3♀ assigned tentatively (MHBU).

Huber, B. A. 2011. Revision and cladistic analysis of *Pholcus* and closely related taxa (Araneae, Pholcidae). Bonner zool. Monographien 58: 1-510.

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1930, 1931. *Ph. bidentatus*, male, dorsal view; female abdomen, ventral view.

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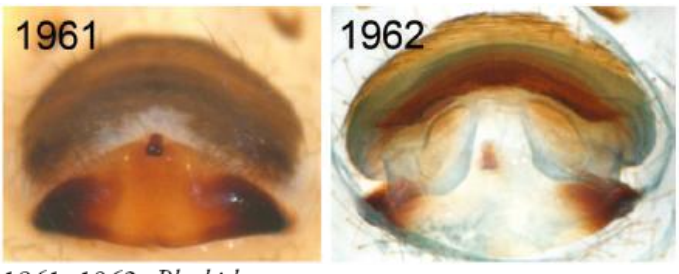


1961, 1962. *Ph. bidentatus*.

Pholcus bidentatus Zhu, Zhang, Zhang & Chen, 2005

Figs. 1930, 1931, 1961, 1962, 2028-2033

Pholcus bidentatus Zhu, Zhang, Zhang & Chen 2005: 490-491, 544-545, figs 1a-f. Zhang & Zhu 2009a: 15-18, figs. 4a-f (copied from Zhu *et al.* 2005).

Types. Female holotype and 1♂1♀ paratypes from China, Guizhou Prov., Daozhen County, Dashahe Nature Reserve [~29°10'N, 107°35'E], Yuheba, 26.viii.2004 (Z. Zhang), in MHBU, not examined. 7♂9♀ paratypes from Guizhou Prov., Xishui County [~28°20'N, 106°13'E], 26.vii.2004 (H. Chen), in MHBU, not examined.

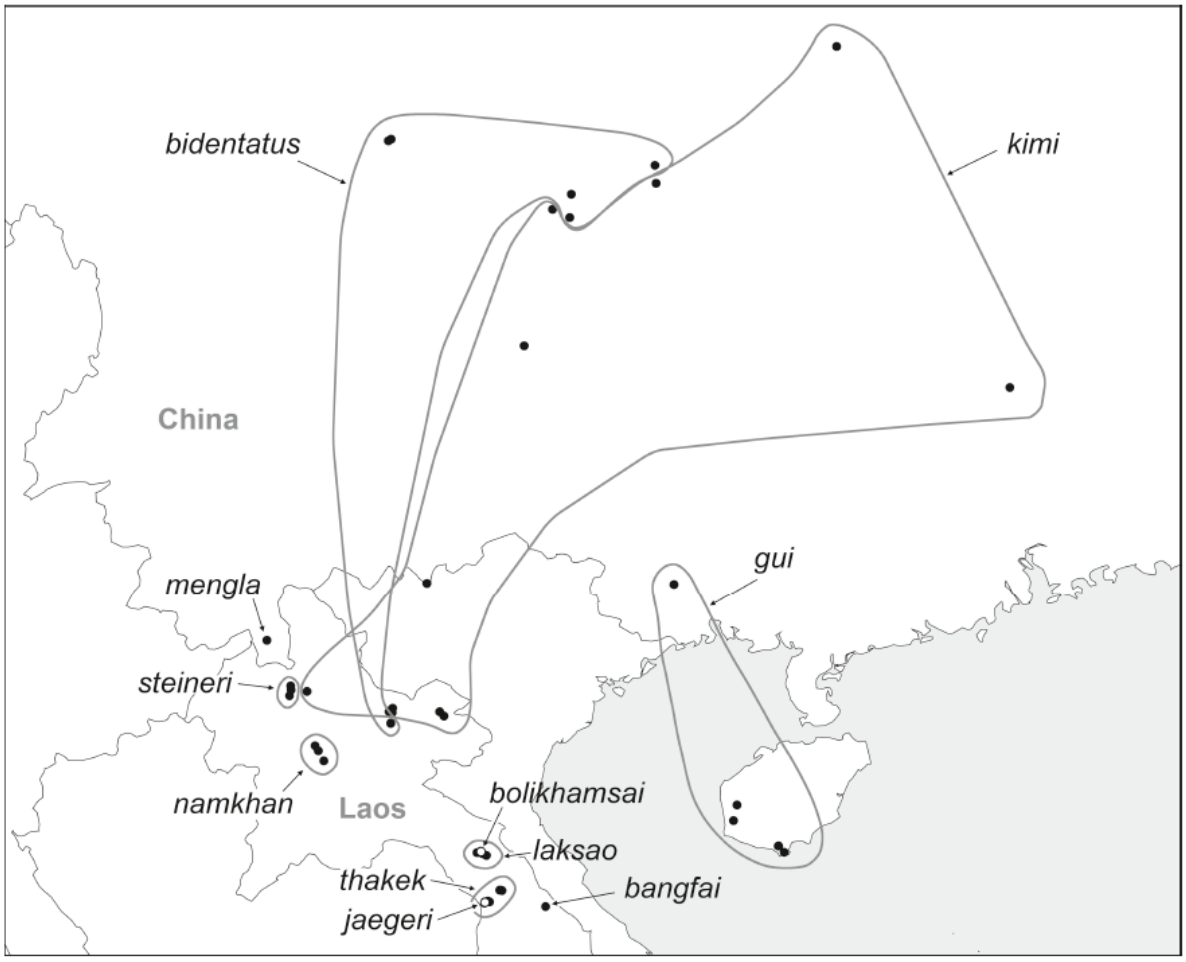


FIG. 2027. Known distribution of the *Pholcus bidentatus* species group.

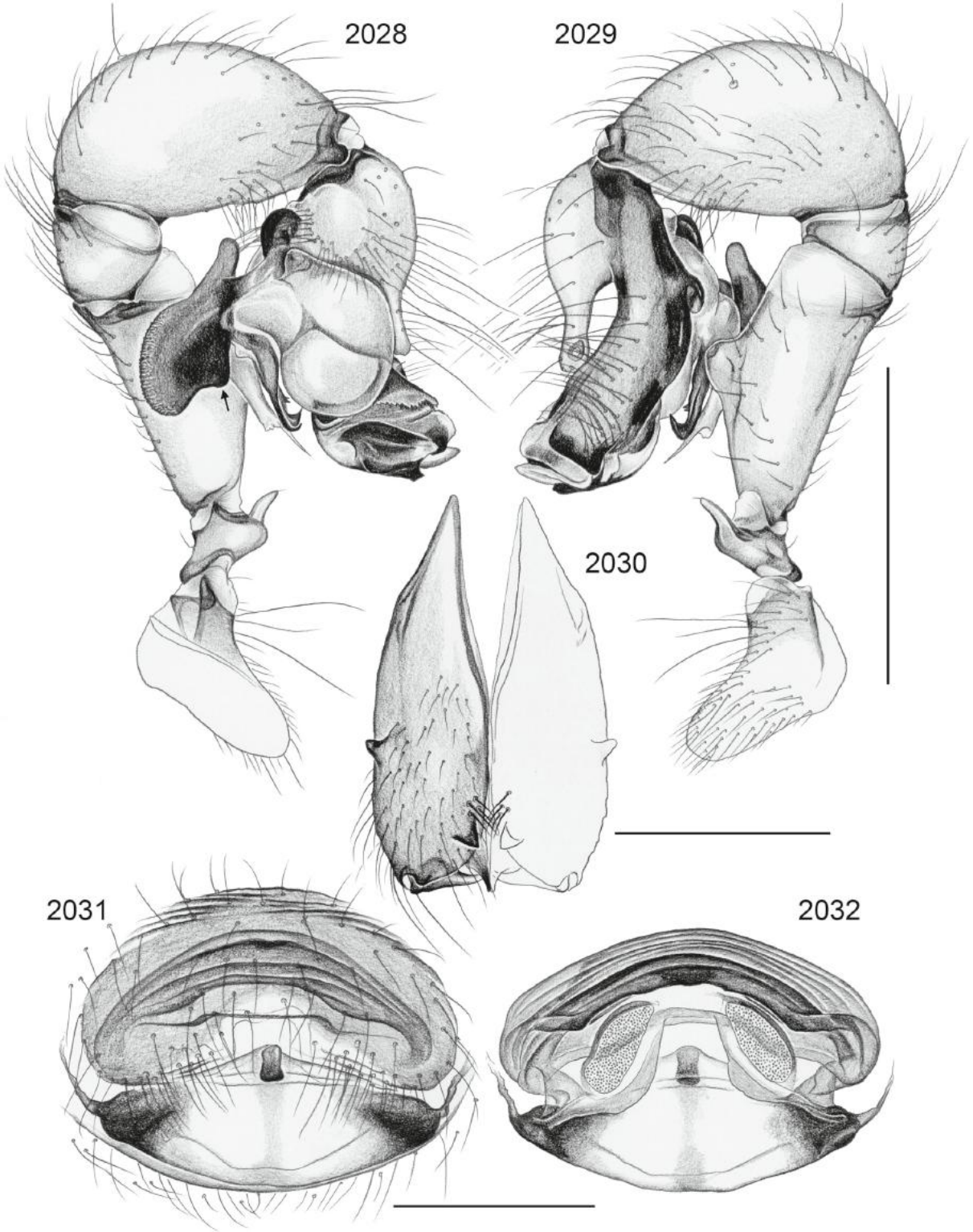
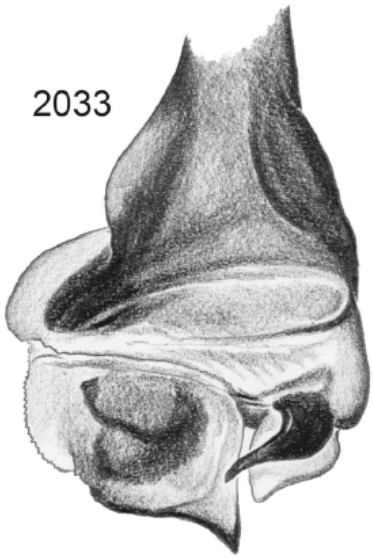


FIG. 2028-2032. *Pholcus bidentatus*. 2028, 2029. Left male palp, prolateral and retrolateral views (arrow points at part of uncus that projects more strongly in *Ph. kimi*). 2030. Male chelicerae, frontal view. 2031, 2032. Cleared female genitalia, ventral and dorsal views. Scale lines: 1.0 (2028, 2029), 0.5 (2030-2032).



Tips of left procursi at same scale, dorsal views. 2033. *Ph. bidentatus.* Scale line: 0.5.

Diagnosis. Distinguished from most congeners by male palpal morphology (Figs. 2028, 2029; dorsally elongated tarsus, shapes of procursus, uncus, and appendix), and female genitalia (Figs. 1961, 2031, 2032); from very similar *Ph. kimi* by tip of procursus (Fig. 2033) (not by spine-like processes on appendix, see *Ph. kimi* below).

Male (Mt. Emei). Total body length 6.0, carapace width 1.5. Leg 1: 45.4 (11.1 + 0.7 + 11.1 + 20.0 + 2.5), tibia 2: 7.6, tibia 3: 5.2, tibia 4: 7.1; tibia 1 L/d: 70. Habitus as in Fig. 1930. Carapace ochre-yellow with distinctive brown mark posteriorly, ocular area slightly darkened, clypeus not darkened, sternum dark brown, legs light brown, femora and tibiae with lighter tips and darker subdistal rings, patella area also darker, abdomen ochre-gray with many dark internal spots and indistinct cuticular pattern dorsally, ventrally with indistinct darker band (cf. female, Fig. 1931), genital area brown. Distance PME-PME 290 µm, diameter PME 175 µm, distance PME-ALE 45 µm, distance AME-AME 45 µm, diameter AME 110 µm. Ocular area elevated, with stronger hairs posteriorly. No thoracic furrow (only short dark line anteriorly); clypeus unmodified. Chelicerae as in Fig. 2030, distal apophyses apparently without modified hairs, with some stronger hairs medially, one pair of small lateral apophyses proximally (not two pairs as in Zhang & Zhu 2009a). Sternum wider than long (1.1/0.9), unmodified. Palps as in Figs. 2028 and 2029, coxa unmodified, trochanter with retrolateroventral apophysis, femur with distinct ventral protuberance, tarsus with dorsal elongation, procursus strongly bent, with two dorsal spines, distally complex, prolatero-distal part apparently hinged against proximal part, bulb with large uncus, weakly sclerotized embolus with long transparent process distally, appendix distally hooked, with long prolateral branch and two tiny spine-like processes. Legs without spines and curved hairs, few vertical hairs; retrolateral trichobothrium on tibia 1 at 5%; prolateral trichobothrium absent on tibia 1, present on other tibiae; tarsus 1 with >30 pseudosegments, only distally ~10 quite distinct.

Variation. Tibia 1 in three other males: 11.5, 11.6, 11.9. Some males with fewer spots on abdomen. The number of little spine-like processes on the appendix varies from one to two.

Female. Very similar to male, triads closer together (distance PME-PME 220 µm), clypeus with pair of distinct dark bands. Tibia 1: 9.8, 10.9. Epigynum weakly elevated, with large dark area anteriorly, posteriorly wide triangular plate strongly sclerotized

laterally and with anterior 'knob' (Figs. 1961, 2031); internal genitalia as in Figs. 1962 and 2032.

Distribution. Known from Guizhou and Sichuan Provinces, China and from Huaphan Prov., Laos (Fig. 2027).

Material examined. CHINA: *Sichuan Prov.*: "Omei Shan" [=Emei Shan, Mt. Emei, 29°31'N, 103°20'E], 1000-2200 m a.s.l., 25.v.-16.vi.1998 (J. Martens), 1♂1♀ in SMF. Emei Shan, Wannian Temple and surrounding area (29°34.9'N, 103°22.9'E), 1000 m a.s.l., 29.iii.1999 (P. Jäger), 3♂2♀ 1 juv. in SMF. LAOS: *Huaphan Prov.*: Vieng Thong, Tham Mue ("F48-135-010") (20°16.9'N, 103°22.3'E), 15.i.2009 (H. Steiner), 1♂ in SMF. Vieng Thong, Tham Long Mak ("F48-135-011") (20°16.9'N, 103°22.4'E), 15.i.2009 (H. Steiner), 1♂ in SMF.