

Three newly recorded species of the genus *Pardosa* from China (Araneae: Lycosidae)

Ming-Sheng Zhu^{1*}, Chun-Hua Xu² & Feng Zhang^{1*}

¹ College of Life Sciences, Hebei University, Baoding 071002, Hebei, P. R. China.

² Qingxian Middle School, Qing County 062650, Hebei, P. R. China

* Correspondence, E-mail: dudu06042001@163.com

** Deceased

Abstract — Three newly recorded species of the genus *Pardosa* from China are described: *P. bukukun* Logunov & Marusik, 1994, *P. graminea* Tanaka, 1985 and *P. lugubris* (Walckenaer, 1802)

Key words — Lycosidae, *Pardosa*, newly recorded species, China.

Introduction

The Lycosidae is a big family comprising 116 genera and 2367 species worldwide, of which 279 species belonging to 21 genera are known from China. *Pardosa* is the largest genus of this family, so far containing 549 species all over the world and 119 species, from China (Yin *et al.*, 1997; Song *et al.*, 1999; Platnick, 2010).

The genus *Pardosa* was established by C. L. Koch in 1847 and the type species *Lycosa alacris* C. L. Koch, 1833 was proposed by ICZN (Kronstedt, Dondale & Zyuzin, 2002). There were 3 junior synonyms of the genus *Pardosa*: 1. *Pardosops* Roewer, 1955 (Tongiorgi, 1966); 2. *Acroniops* Simon, 1898 (Tikader & Malhotra, 1980); 3. *Chorilycosa* Roewer, 1960 (Barrion & Litsinger, 1995).

While examining specimens from China, three species, *P. bukukun* Logunov & Marusik, 1994, *P. graminea* Tanaka, 1985 and *P. lugubris* (Walckenaer, 1802), were newly recognized from China and are described below.

Materials and methods

Specimens are deposited in the Museum of Hebei University (MHBUE), Baoding, China. All measurements are given in mm and quantify the size of a structure at its widest or longest point. Drawings were done under a Spencer Buffalo microscope and a Tech XTL-II stereomicroscope equipped with an Abbe drawing device. Total length is the sum of cephalothorax and abdomen length, regardless of the petiolus. Leg measurements are shown as: total length (femur + patella + tibia + metatarsus + tarsus).

Abbreviations: AME – anterior median eye; ALE – anterior lateral eye; PME – posterior median eye; PLE – posterior lateral eye; AME-AME – distance between AMEs; AME-ALE – distance between AME and ALE; PME-PME

– distance between PMEs; PME-PLE – distance between PME and PLE; ICZN – International Commission on Zoological Nomenclature.

Pardosa bukukun Logunov & Marusik, 1995 (Fig. 1)

Pardosa bukukun Logunov & Marusik, 1995: 112, figs. 13–19.

Materials. 1♀, Changbaishan Natural Reserve (31°25'N, 95°36'E), Jilin Province, 11 August 2004, collected by Zhi-Sheng Zhang.

Diagnosis. This species is distinguished from the congeners by abdomen with a broad yellowish brown belt; epigynum with 2 hood, long median septum, gradually merge terminal; swelling and spherical copulatory tube; ovoid spermatheca.

Female. A female total body length of 4.54: cephalothorax 2.24 long, 1.58 wide; abdomen 2.30 long, 1.43 wide. Carapace with distinct T-shaped median band, brownish-yellow. Fovea long and thin, dark-brown. Lateral belt brown, broad. Radial furrows distinct. Lateral spots distinct. Carapace edge black-brown. Eye diameters and interdistances: AME 0.08, ALE 0.05, PME 0.23, PLE 0.18; AME-AME 0.05, AME-ALE 0.03, PME-PME 0.68, PME-PLE 0.85; quadrangle of the posterior eyes 0.65 long, anterior width 0.68, posterior width 0.85. Clypeus brownish-yellow, 0.10 high. Sternum brown, medial with a U-shaped brownish yellow longitudinal spot. Palp brown, with distinct annulations. Legs brown, with distinct brown annulations. Leg measurements: I 6.33 (1.73 + 0.82 + 1.48 + 1.43 + 0.87), II 5.92 (1.68 + 0.71 + 1.38 + 1.33 + 0.82), III 5.81 (1.68 + 0.61 + 1.28 + 1.53 + 0.71), IV 9.25 (2.30 + 0.82 + 2.04 + 2.81 + 1.28). Leg formula: 4123. Abdomen with a broad yellowish brown belt dorsally. Epigynum with one

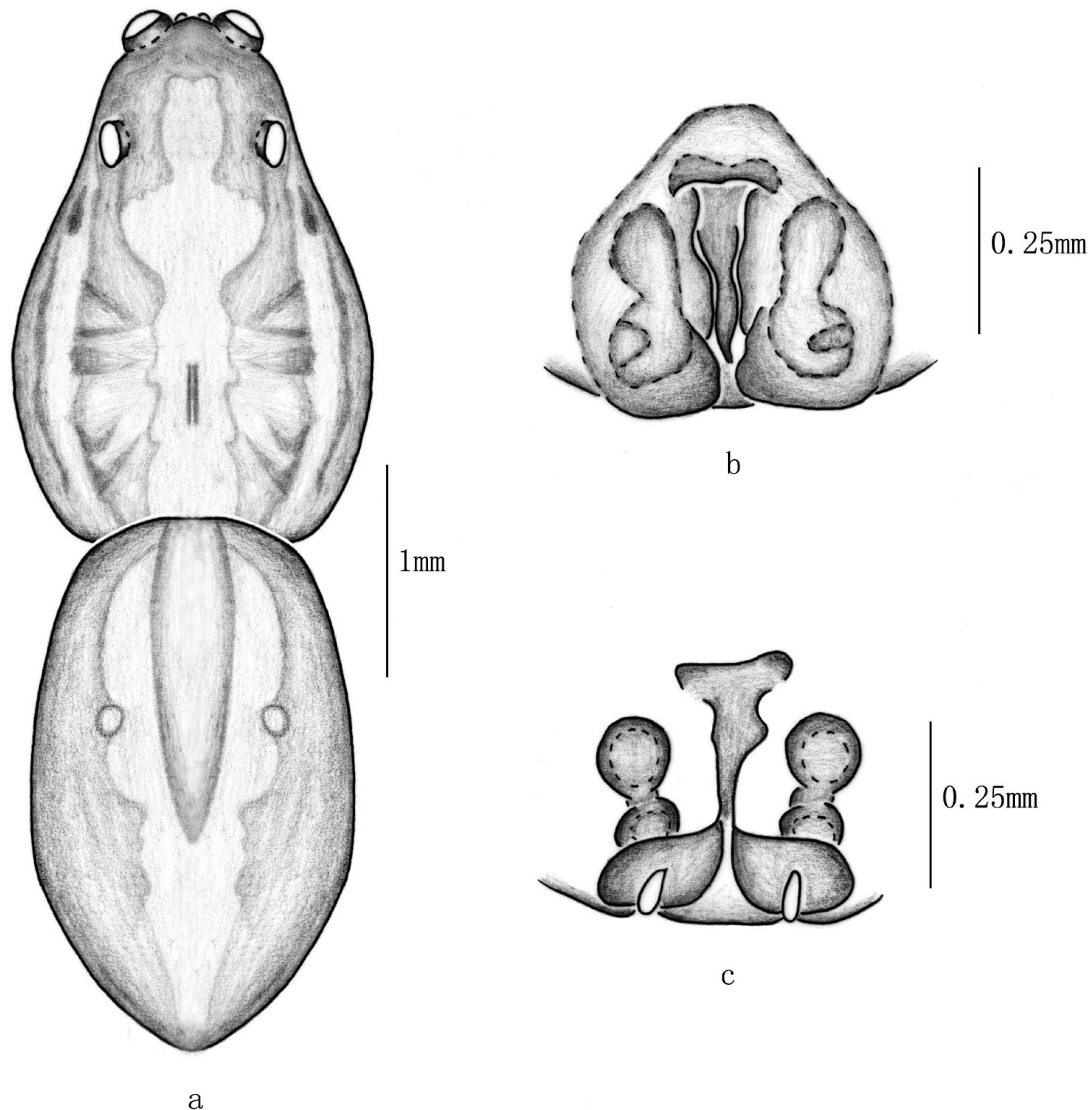


Fig. 1. *Pardosa bukukun* Logunov & Marusik, 1994
a. male, dorsal view; b. epigyne, ventral view; c. vulva, dorsal view.

hood, median septum long; copulatory tube thick and short, spermatheca ovoid.

Male. Unknown.

Distribution. China (Jilin); Russia, Mongolia.

***Pardosa graminea* Tanaka, 1985**
(Fig. 2)

Pardosa graminea Tanaka, 1985: 76, figs. 37–40; 1993: 289, figs. 33–36; 2009: 243, figs. 117–118.

Materials. 4♀3♂♂, Zhangshiyan Mount., Zanhuan County (37°30'N, 114°06'E), Hebei Province, 13 June 1998, collected by Feng Zhang; 1♀, Fusong (42°21'N, 127°17'E), Jilin Province, 9 August 2004, collected by Dong Li.

Diagnosis. This species is similar to *Pardosa brevivulva* Tanaka, 1975, but the male can be distinguished from the schistic median apophysis and longer embolus.

Female. A female total body length of 5.56: cephalothorax 2.81 long, 2.19 wide; abdomen 2.75 long, 1.58 wide. Carapace with distinct T-shaped median band, yellowish brown; anterior with a brown longitudinal stripes. Fovea long and thin, brown. Lateral belt brown. Radial furrows distinct. Lateral spots not distinct, interruption. Carapace edge dark brown. Eye diameters and interdistances: AME 0.13, ALE 0.08, PME 0.33, PLE 0.25; AME-AME 0.08, AME-ALE 0.03, PME-PME 0.28, PME-PL 0.33; quadrangle of the posterior eyes 1.00 long, anterior width 0.83, posterior width 1.10. Clypeus black, 0.18 high. Chelicera yellowish brown, 3 teeth on each promargin and retromargin, the first tooth of the promargin tininess. Sternum brown, with short white and long brown hairs, anterior with a longitudinal striation. Legs yellowish brown, with black annulations. Leg measurements: I 8.11 (2.19+1.02+1.89+1.73+1.28), II 7.81 (2.09+0.97+1.68+1.79+1.28), III 7.60 (1.89+0.87+1.68+2.04+

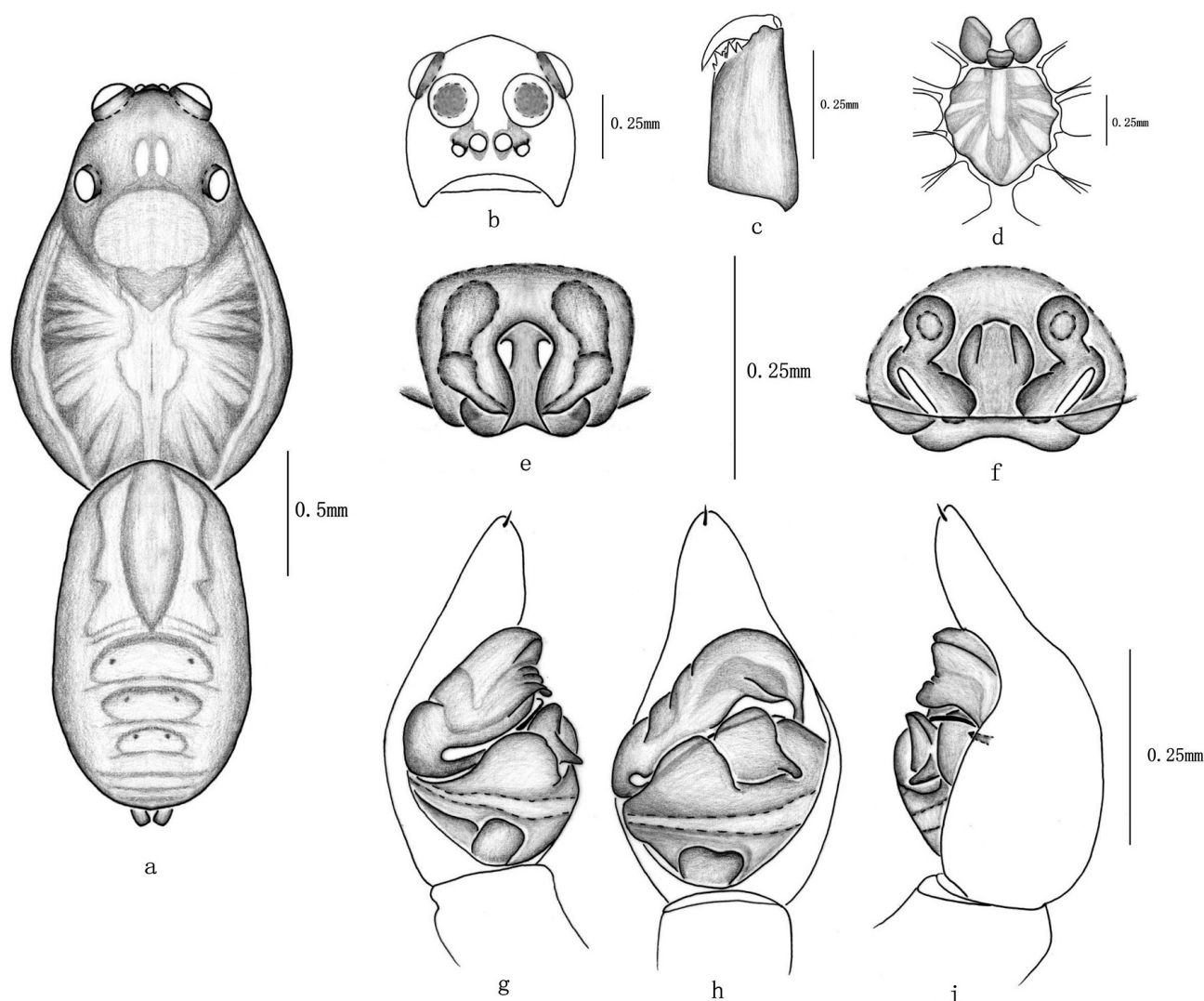


Fig. 2. *Pardosa graminea* Tanaka, 1985

a. male, dorsal view; b. eye, anterior view; c. cheliceral teeth, retrolateral view; d. sternum; e. epigyne, ventral view; f. vulva, dorsal view; g. left palp, prolateral view; h. left palp, ventral view; i. left palp, retrolateral view.

1.12), IV 1.33 (2.81+0.87+2.50+3.47+1.68). Leg formula: 4132. Abdomen black brown dorsally, cardiac mark lance-shaped, redish brown. Epigynum with one hood, copulatory tube short and thick, spermatheca ovoid.

Male. A male total body length 4.80: cephalothorax 2.30 long, 1.94 wide; abdomen 2.50 long, 1.53 wide. Eye diameters and interdistances: AME 0.13, ALE 0.10, PME 0.28, PLE 0.25; AME-AME 0.08, AME-ALE 0.03, PME-PME 0.23, PME-PL 0.30; quadrangle of the posterior eyes 0.73 long, anterior width 0.73, posterior width 1.00. Clypeus height 0.15. Similar to the female in general shape and colour. Leg measurements: I 6.89 (1.79+0.87+1.58+1.58+1.07), II 6.49 (1.84+0.82+1.38+1.48+0.97), III 5.96 (1.73+0.71+0.82+1.73+0.97), IV 9.19 (2.30+0.87+1.89+2.75+1.38). Leg formula: 4123. Median apophysis of palp organ medial sheet-shaped, basal pointing to the outbroad; embolus long and thin.

Distribution. China (Hebei and Jilin); Japan.

Pardosa lugubris (Walckenaer, 1802)

(Fig. 3)

Aranea lugubris Walckenaer, 1802: 239.

Lycosa silvicola Sundevall, 1833: 176.

Pardosa lugubris Fuhn & Niculescu-Burlacu, 1971: 99, figs. 42a-c; Tanaka, 1993: 265, figs. 1-4; Namkung, 2003: 335, figs. 20.27a-c.

Materials. 1♀, Erdao Town (42°27'N, 128°09'E), Antu County, Jilin Province, 8 August 2004, collected by Zhi-Sheng Zhang.

Diagnosis. The epigyne of this species with two broad hoods; basal part of median septum thin; copulatory tube long and thick, spermatheca slight swelling.

Female. A female total body length of 6.37: cephalothorax 3.26 long, 2.45 wide; abdomen 3.11 long,

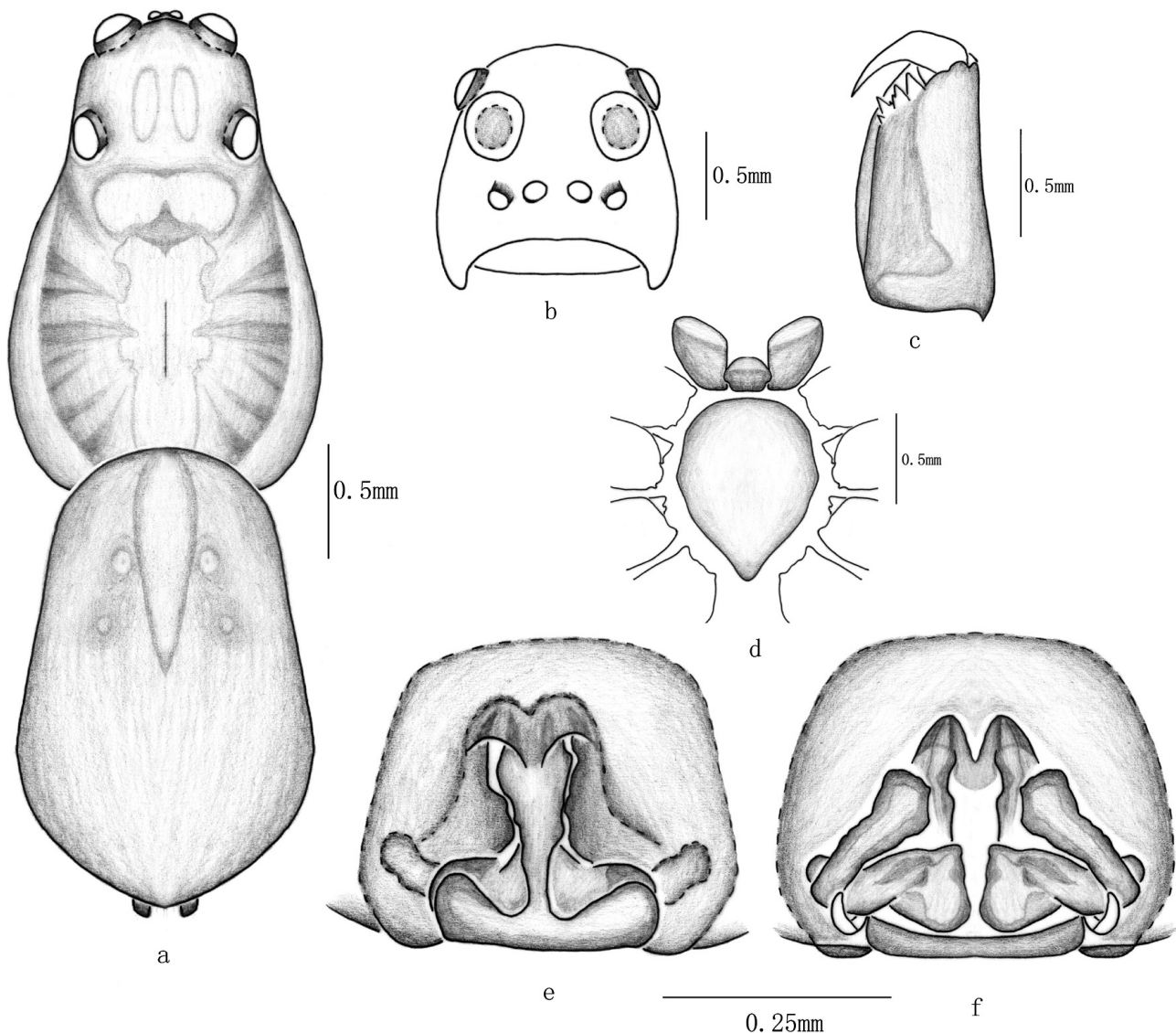


Fig. 3. *Pardosa lugubris* (Walckenaer, 1802)

a. male, dorsal view; b. eye region, anterior view; c. cheliceral teeth, retrolateral view; d. sternum; e. epigyne, ventral view; f. vulva, dorsal view.

2.30 wide. Carapace with T-shaped median band, yellowish brown, distinct. Fovea short, brown. Lateral belt broad, brown. Radial furrows distinct, blackish brown. Lateral spots distinct, continuous. Carapace edge dark brown. Eye diameters and interdistances: AME 0.13, ALE 0.10, PME 0.35, PLE 0.28; AME-AME 0.10, AME-ALE 0.05, PME-PME 0.33, PME-PLE 0.40; quadrangle of the posterior eyes 1.00 long, anterior width 1.00, posterior width 1.28. Clypeus black, 0.15 high. Chelicera yellowish brown, 3 teeth on promargin and retromargin, the first tooth of the promargin tininess. Sternum brown, with short white and long brown pubescences, anterior with a longitudinal striation. Legs reddish brown, with black annulations. Leg measurements: I 10.52 (2.81+1.28+2.50+2.35+1.58), II 10.71 (2.60+1.12+3.16+2.35+1.48), III 9.89 (2.55+1.07+2.09+2.75+1.43), IV 14.39 (3.32+1.28+3.11+

4.64+2.04). Leg formula: 4213. Abdomen black brown dorsally, cardiac mark lance-shaped, light brown. Epigyne with one hood, broad; basal part of median septum thin; copulatory tube long, spermatheca slight swelling.

Distribution. China (Jilin); Palearctic.

References

- Barrion, A. T. & J. A. Litsinger. 1995. *Riceland Spiders of South and Southeast Asia*. CAB International, Wallingford, UK, xix + 700 pp.
- Fuhn, I. E. & F. Niculescu-Burlacu. 1971. Fam. Lycosidae. *Fauna Republicii Socialiste România* (Arachnida) 5(3): 1–253.
- Kronstedt, T., C. D. Dondale & A. A. Zyuzin. 2002. Case 3174: *Pardosa* C. L. Koch, 1847 (Arachnida, Araneae): proposed fixation of *Lycosa alacris* C. L. Koch, 1833 as the type species to conserve the usage of *Pardosa* and of *Alopecosa* Simon, 1885. *Bull. zool. Nomen.* 59: 7–11.
- Logunov, D. V. & Y. M. Marusik. 1995. Spiders of the family

- Lycosidae (Aranei) from the Sokhondo Reserve (Chita area, east Siberia). *Beitr. Araneol.* 4: 109–122.
- Namkung, J. 2003. *The Spiders of Korea*, 2nd. ed. Kyo-Hak Publ. Co., Seoul, 648 pp.
- Platnick, N. I. 2010. The world spider catalog, version 11.0, on line at <http://research.amnh.org/iz/spiders/catalog/COUNTS.html>. (Accessed 20 July 2010)
- Song, D. X., M. S. Zhu & Chen J. 1999. *The Spiders of China*. Hebei Sci. Technol. Publ. House, Shijiazhuang, 640 pp.
- Sundevall, J. C. 1833. Svenska spindlarnes beskrifning. Fortsättning och slut. *Kongl. Svenska Vet. Ak. Handl.* 1832: 172–272.
- Tanaka, H. 1985. Descriptions of new species of the Lycosidae (Araneae) from Japan. *Acta arachn. Tokyo* 33: 51–87.
- Tanaka, H. 1993. Lycosid spiders of Japan IX. The genus *Pardosa* C. L. Koch - *amentata*-group. *Sonoda women's Coll. Stud.* 27: 261–318.
- Tikader, B. K. & M. S. Malhotra. 1980. Lycosidae (Wolf-spiders). *Fauna India* (Araneae) 1: 248–447.
- Tongiorgi, P. 1966. Wolf spiders of the *Pardosa monticola* group (Araneae: Lycosidae). *Bull. Mus. comp. Zool. Harv.* 134: 335–359.
- Walckenaer, C. A. 1802. *Faune parisienne. Insectes. ou Histoire abrégée des insectes de environs de Paris.* Paris 2: 187–250.
- Yin, C. M., X. J. Peng, L. P. Xie, Y. H. Bao & Wang J. F. 1997. *Lycosids in China (Arachnida: Araneae)*. Hunan Normal Univ. Press, 317 pp.

Received June 4, 2010 / Accepted September 3, 2010