



<http://dx.doi.org/10.11646/zootaxa.3856.2.4>

<http://zoobank.org/urn:lsid:zoobank.org:pub:5C95C6B3-DD2A-4D10-A698-9761F5AA96A1>

## Two new species and a new synonym in the *Pardosa nebulosa*-group (Lycosidae: *Pardosa*) from China

DONG WANG<sup>1</sup> & ZHI-SHENG ZHANG<sup>1,2</sup>

<sup>1</sup>Key Laboratory of Eco-environments in Three Gorges Reservoir Region (Ministry of Education), School of Life Science, Southwest University, Chongqing 400715, China.

<sup>2</sup>Corresponding author. E-mail: zhangzs327@gmail.com

### Abstract

The *Pardosa nebulosa*-group consists of at least 66 species, including 14 species recorded from the South China. In this paper, we describe two new species of this group, *P. tuberosa* **sp. nov.** and *P. parathompsoni* **sp. nov.** from Yunnan Province of China. Also, *P. shuangjiangensis* Yin *et al.*, 1997 is newly synonymised with *P. pusiola* (Thorell, 1891), based on the examination of specimens mainly from Yunnan. Detailed figures and photos of genitalia, photos of habitus of these three species and SEM photos of male bulb of *P. pusiola* are given.

**Key words:** Wolf spiders, species group, distribution, Yunnan, taxonomy

### Introduction

The wolf spider genus *Pardosa* C.L. Koch, 1848 is the largest group within Lycosidae and includes 557 species (Platnick 2014). However, it is a polyphyletic genus and many unrelated species are included in the genus (e.g. Kronstedt 2010; Marusik & Ballarin 2011; Nadolny & Kovlyuk 2012). The division of *Pardosa* into species-groups was first done by Zyuzin (1979), who proposed 22 species-groups on the basis of more than 100 Palearctic *Pardosa* species. There are at least 34 species-groups (unpubl. data) and the *Pardosa nebulosa*-group is possibly the largest, in which the number of species number varies from five (Zyuzin 1979) to at least 66 (Marusik & Ballarin 2011) from the southern Palaearctic, southern and Southeast Asia, Africa and the Mediterranean. However, Marusik & Ballarin (2011) did not provide a list of all members of their *Pardosa nebulosa*-group.

Zyuzin (1985) compared the eye distances and diameters and concluded that *P. nebulosa* was quite different from the *Pardosa lugubris*-group, which includes the type species of *Pardosa*, *P. alacris* (C.L. Koch, 1833). Alderweireldt & Jocqué (1992) followed Zyuzin's (1985) opinion and summarised the characters of this group. Eshyurin *et al.* (2007) included 23 species into this group and 3 possible Chinese species (*P. longionycha* Yin *et al.*, 1995, *P. sangzhiensis* Yin *et al.*, 1997 and *P. x-notata* Schenkel, 1936). Marusik & Ballarin (2011) discussed the history and diagnosis of this group in detail and noted that it deserves the status of a separate genus. There are two possible existing generic names for this group, *Acrionops* Simon, 1898 with the type *A. heterophthalmus* Simon, 1898 from Java and *Chorilycosa* Roewer, 1960 with the type *Lycosa arorai* Dyal, 1935 from Punjab of Pakistan, which were synonymised with *Pardosa* by Tikader & Malhotra (1980) and Barrion & Litsinger (1995), respectively. It is not appropriate to elevate the *Pardosa nebulosa*-group to the generic level until its name is confirmed, which would involve the checking of type specimens of these two possible generic names.

In China, there are at least 14 species belonging to this group (Yin *et al.* 1997b; Yang & Cai 1998; Wang & Qiu 1991): *P. baoshanensis* Wang & Qiu, 1991, *P. burasantiensis* Tikader & Malhotra, 1976, *P. chapini* (Fox, 1935), *P. dabiensis* Cai & Yang, 1998, *P. jambaruensis* Tanaka, 1990, *P. longionycha* Yin *et al.*, 1995, *P. mionebulosa* Yin *et al.*, 1997, *P. nebulosa* (Thorell, 1872), *P. oriens* (Chamberlin, 1924), *P. pusiola* (Thorell, 1891), *P. shuangjiangensis* Yin *et al.*, 1997, *P. shyamae* (Tikader, 1970), *P. sumatrana* (Thorell, 1890) and *P. tschekiangiensis* Schenkel, 1963.

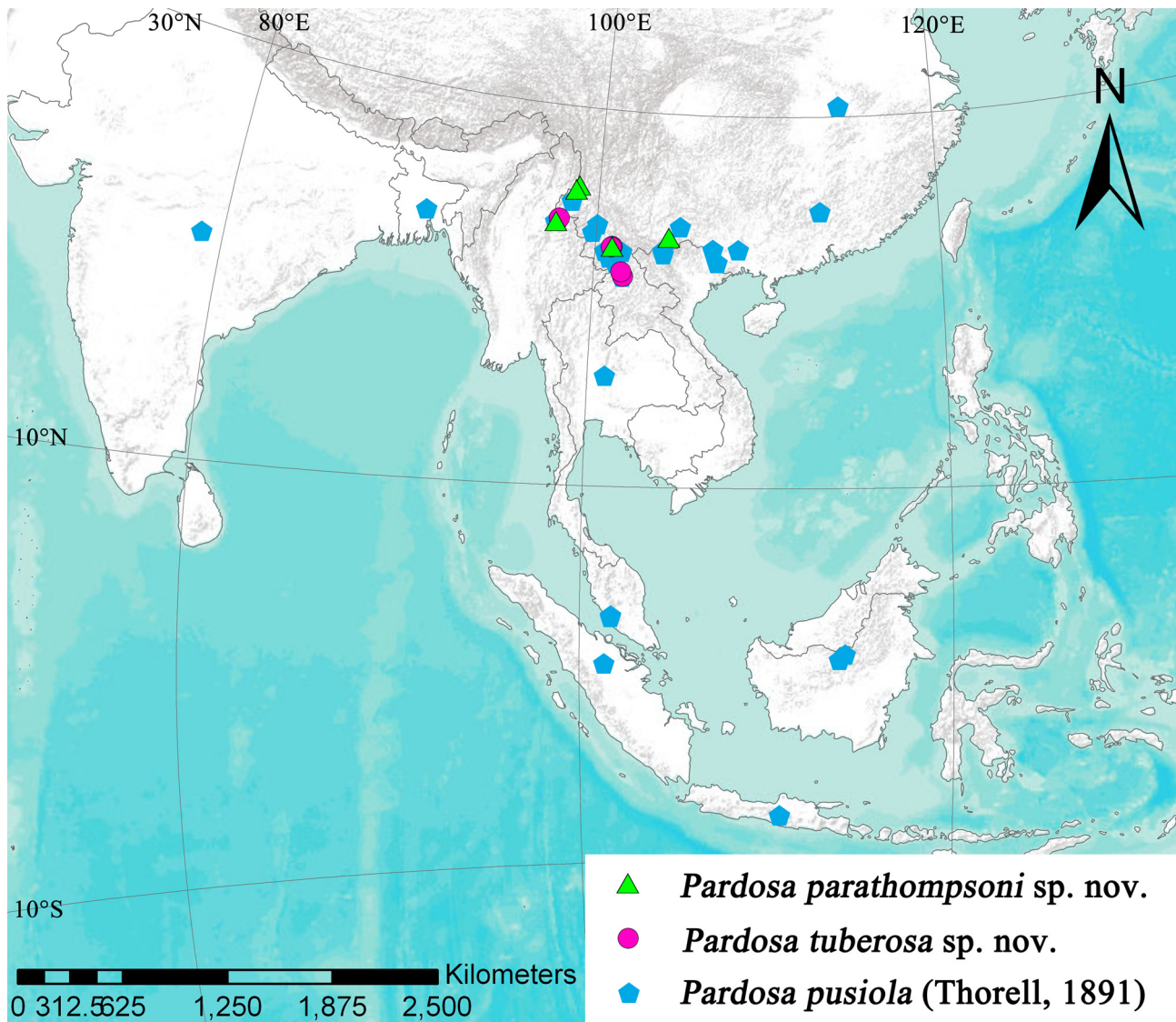


FIGURE 10. Distribution records of three *Pardosa nebulosa*-group species.

## References

- Alderweireldt, M. & Jocqué, R. (1992) A review of the *nebulosa*-group of *Pardosa* Koch 1847 in Africa, a complex with some highly variable species (Araneae Lycosidae). *Tropical Zoology*, 5, 73–113.  
<http://dx.doi.org/10.1080/03946975.1992.10539183>
- Barrion, A.T. & Litsinger, J.A. (1995) *Riceland Spiders of South and Southeast Asia*. CAB International, Wallingford, UK, xix + 700 pp.
- Biswas, V. & Raychaudhuri, D. (2003) Wolf spiders of Bangladesh: genus *Pardosa* C.L. Koch (Araneae: Lycosidae). *Records of the Zoological Survey of India*, 101 (1–2), 107–125.
- Chamberlin, R.V. (1924) Descriptions of new American and Chinese spiders, with notes on other Chinese species. *Proceedings of the United States National Museum*, 63 (13), 1–38.  
<http://dx.doi.org/10.5479/si.00963801.63-2481.1>
- Esyunin, S.L., Tuneva, T.K. & Farzalieva, G.S. (2007) Remarks on the Ural spider fauna (Arachnida, Aranei), 12. Spiders of the steppe zone of Orenburg Region. *Arthropoda Selecta*, 16, 43–63.
- Fox, I. (1935) Chinese spiders of the family Lycosidae. *Journal of Washington Academy of Science* 25, 451–456.
- Gravely, F.H. (1924) Some Indian spiders of the family Lycosidae. *Records of the Indian Museum* 26, 587–613.
- Marusik, Y.M. & Ballarin, F. (2011) Redescription of the Himalaian *Pardosa flevisterna* Caporiacco, 1935 (Aranei: Lycosidae) with notes of the *Pardosa nebulosa* species-group *Proceedings of the Zoological Institute RAS*, 315 (1), 63–69
- Nadolny, A.A. & Kovblyuk, M.M. (2012) Members of *Pardosa amentata* and *P. lugubris* species groups in Crimea and

- Caucasus with notes on *P. abagensis* (Aranei: Lycosidae). *Arthropoda Selecta*, 21, 67–80.
- Peng, X.J. (2011) A new name of *Pardosa bidentata* Qu, Peng & Yin, 2010 (Araneae: Lycosidae). *Acta arachnologica Sinica*, 20, 9.
- Platnick, N.I. (2014) The World Spider Catalog, Version 14.5. American Museum of Natural History, New York. Available from: <http://research.amnh.org/entomology/spiders/catalog/index.html> (accessed 15 February 2014)
- Qu, L.L., Peng X.J. & Yin, C.M. (2010) Six new species of the spider genus *Pardosa* (Araneae: Lycosidae) from Yunnan, China. *Oriental Insects*, 44, 387–404.  
<http://dx.doi.org/10.1080/00305316.2010.10417623>
- Roewer, C.F. (1960) Araneae Lycosaeformia II (Lycosidae) (Fortsetzung und Schluss). *Exploration du Parc National de l'Upemba Mission G. F. de Witte*, 55, 519–1040.
- Schenkel, E. (1963) Ostasiatische Spinnen aus dem Muséum d'Histoire naturelle de Paris. *Mémoires du Museum national d'Histoire naturelle Paris*, Series A (Zoologie), 25, 1–481.
- Simon, E. (1898) *Histoire naturelle des Araignées, seconde édition. Tome 2, Fascicule 2*. Paris Librairie encyclopédique de Roret, 187 pp. [pp. 193–380]
- Song, D.X., Zhu, M.S. & Chen, J. (1999) *The Spiders of China*. Hebei Science and Technology Publishing House, Shijiazhuang, 640 pp.
- Tanaka, H. (1990) A new species of the genus *Pardosa* C.L. Koch (Araneae: Lycosidae) from Japan. *Proceeding of Japanese Society of Systematic Zoology*, 41, 23–25.
- Thorell, T. (1872) *Remarks on synonyms of European spiders. Part III*. Upsala, 229–374.
- Thorell, T. (1890) Diagnoses aranearum aliquot novarum in Indo-Malesia inventarum. *Annali del Museo civico di storia naturale di Genova*, 30, 132–172.
- Thorell, T. (1891) Spindlar från Nikobarerna och andra delar af södra Asien. *Kongliga Svenska Vetenskaps-Academiens Handlingar*, 24 (2), 1–149.
- Tikader, B.K. & Malhotra, M.S. (1980) Lycosidae (Wolf-spiders). *Fauna India (Araneae)*, 1, 248–447.
- Wang, X.P. & Qiu, Q.H. (1991) Spiders collected from Yunnan Province (Araneae, Lycosidae). *Journal of Shaanxi Normal University (Natural Science Edition)*, 19, 93–94.
- Yang, X.F. & Chai, B.Q. (1998) A study on five wolf spiders of the group *Pardosa nebulosa* from China including a new species redescription. *Journal of Hunan Normal University (Nature Science)*, 26, 60–64.
- Yin, C.M., Peng, X.J., Gong, L.S., Chen, Y.F. & Kim, J.P. (1997a) Six new species of the genus *Pardosa* from China (Araneae: Lycosidae). *Korean Arachnology*, 13 (2), 19–31.
- Yin, C.M., Peng, X.J., Xie, L.P., Bao, Y.H. & Wang, J.F. (1997b) *Lycosids in China (Arachnida: Araneae)*. Hunan Normal University Press, Changsha, 317 pp.
- Yin, C.M., Peng, X.J., Yan, H.M., Bao, Y.H., Xu, X., Tang, G., Zhou, Q.S. & Liu, P. (2012) *Fauna Hunan: Araneae in Hunan, China*. Hunan Science and Technology Press, Changsha, 1590 pp.
- Zheng, Z.M. & Qiu, Q.H. (1980) A preliminary study of *Trochosa* Koch and *Pirata* Sundevall of Shaanxi (Arachnida: Araneida: Lycosidae). *Acta zootaxonomica sinica*, 5, 377–381.
- Zyuzin, A.A. (1979) A taxonomic study of Palaearctic spiders of the genus *Pardosa* (Aranei, Lycosidae). Part 1. The taxonomic structure of the genus. *Entomologicheskoe Obozrenie*, 58 (2), 431–447.
- Zyuzin, A.A. (1985) Generic and subfamilial criteria in the systematics of the spider family Lycosidae (Aranei), with the description of a new genus and two new subfamilies. *Trudy Zoological Institute. Leningrad*, 139, 40–51.
- Zyuzin, A.A. (1993) Studies on the wolf spiders (Araneae: Lycosidae). I. A new genus and species from Kazakhstan, with comments on the Lycosinae. *Memoirs of the Queensland Museum*, 33, 693–700.