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A new species of *Pholcus* (Aranei, Pholcidae) spider from a cave in Hebei Province, China

Новый вид пауков рода *Pholcus* (Aranei, Pholcidae) из пещеры в провинции Хэбэй, Китай

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КЛЮЧЕВЫЕ СЛОВА: Pholcidae, *Pholcus*, новый вид, пещера Ваньси, Хэбэй.

ABSTRACT. A new pholcid spider belonging to the genus *Pholcus* from a cave in Hebei Province, China, is diagnosed, described and illustrated: *Pholcus wangxidong* sp.n.

РЕЗЮМЕ. Описан новый вид пауков *Pholcus wangxidong* sp.n. из пещеры в провинции Хэбэй.

Introduction

The spider family Pholcidae currently contains 82 genera and 1031 species world-wide [Huber, 2009], and in China there are 12 genera and 85 species [Zhang & Zhang, 2008; Chen et al., 2009; Platnick, 2009; Tong & Li, 2009; Zhang & Zhu, 2009]. Members of the family vary in habitus, size and life style. They are often small to medium-sized, and usually with eight or six eyes, but cave species are often blind [Huber, 2000]. Pholcids occupy a wide range of ecosystems and habitats. Many species have been found in caves, and some of these are highly troglomorphic, a condition which includes the total loss of eyes and body color [Huber, 2005].

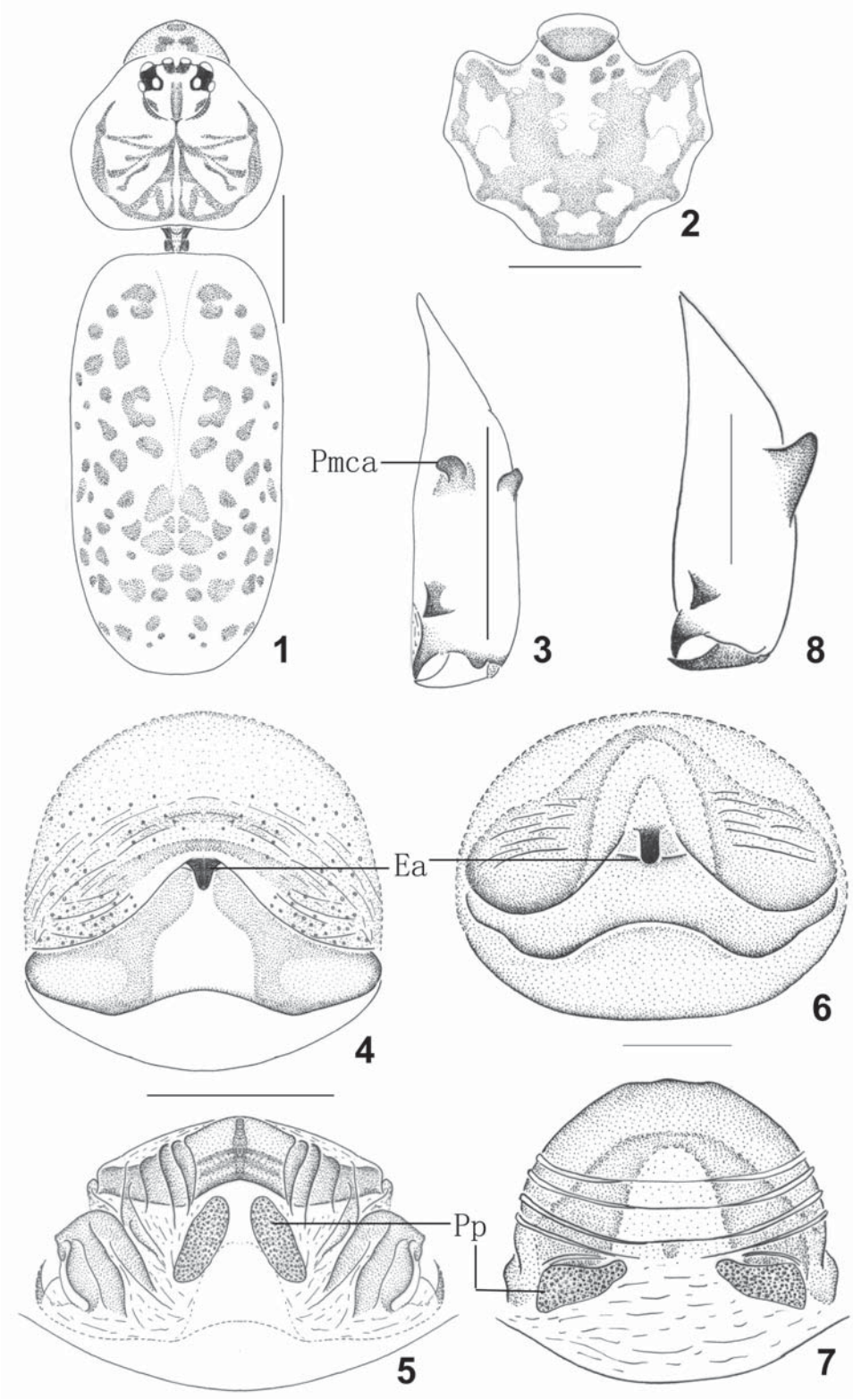
Pholcus is the largest genus of the family Pholcidae and currently contains 146 species [Huber, 2009; Platnick, 2009; Zhang & Zhu, 2009], and widely distributed in the old world especially. A large scale genus revision is greatly needed. Huber [2000] spent considerable effort on this family and has made a few taxonomic remarks on genus *Pholcus*. Zhang & Zhu [2009] reviewed the Chinese *Phoclus*, which includes 54 species, and in detail described the morphological characters and outlined the research history of Chinese *Pholcus*.

In Hebei Province, north China, Xiaowutai National Natural Reserve (39°40' ~40°10'N, 114°50' ~115° 15'E) lies in Yu and Zhuolu Counties, in the northwest corner of the Province. The Reserve stretches 40 km from east to west, and 45 km from south to north, including about 1800 square km total. The Reserve has numerous mountains greater than 2000 m but all are lower than nearby Wutai Mountain of Shanxi Province. Xiaowutai means 'small wutai' and the Reserve is so identified. The peak of Esat Mountain is 2 882 m and is the highest peak in Hebei Province. Xiaowutai National Natural Reserve is the home to many rare animals and plants. The spider fauna is very rich and abundant, containing 234 species belonging to 114 genera and 31 families have been recorded [Yu et al., 2004, Zhang et al., 2006].

Recently, May 2009, while surveying the spider fauna of Xiaowutai Reserve we collected some pholcid specimens with a glass tube from Wangxi Cave at the Wangxidong Forestry Research Farm. After examining and identifying all the specimens, one new *Phoclus* species was recognized. This is the first report of a new species of *Pholcus* from the caves of Hebei Province, though some pholcids have been reported from caves of other provinces; for example, four *Belisana* species from Guizhou [Chen *et al*., 2009].

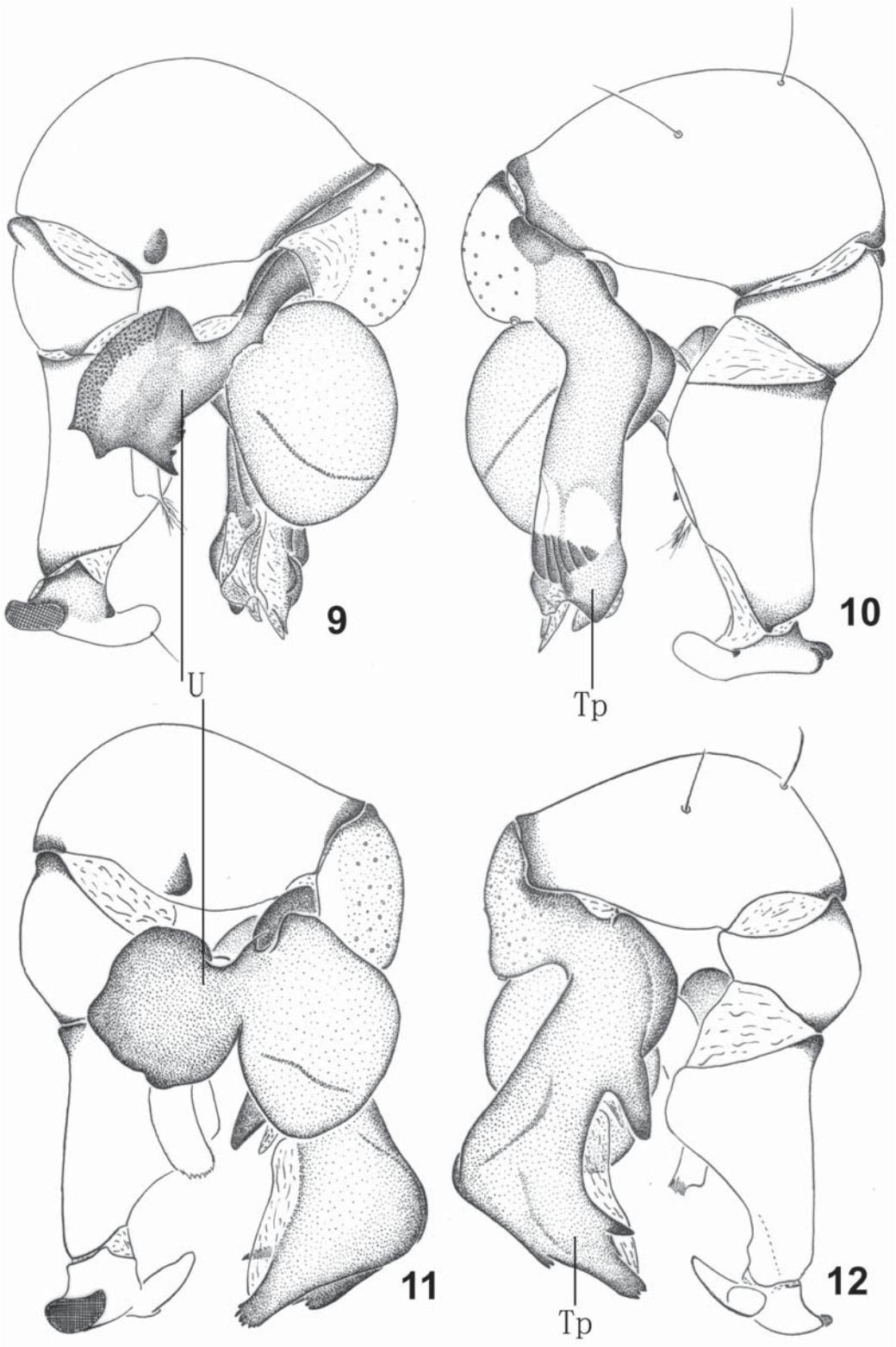
Materials and methods

Terminology and taxonomic descriptions followed Huber [2000]. All measurements given are in mm. Carapace length was measured from the anterior margin to the rear margin of the carapace medially, excluding the clypeus. Total length is the sum of carapace and abdomen length, regardless of the petiolus. The measurements of legs are as follow: total length (femur + patella + tibia + metatarsus + tarsus). All specimens are preserved in 75% alcohol and were examined, drawn and measured under a Tech XTL-II stereomicroscope equipped with an Abbe drawing device. Epigyne was removed and cleared in 10% warm solution of potassium hydroxide [KOH], transferred to alcohol and temporarily mounted for drawing.



Figs 1–8. *Pholcus wangxidong* sp.n. (1–5) and *P. triangulatus* (6–8): 1 — male body, dorsal view; 2 — male sternum, ventral view; 3, 8 — male left chelicera, frontal view; 4, 6 — epigynum, ventral view; 5, 7 — vulva, dorsal view. Figs 6–7 after Zhang & Zhu [2009]. Scale line: 1.0 mm (1), 0.5 mm (2–7). Abbreviations: Ea — epigynal apophysis; Pmca — proximocentral cheliceral apophysis; Pp — pore plates.

Рис. 1–8. *Pholcus wangxidong* sp.n. (1–5) и *P. triangulatus* (6–8); 1 — самец, сверху; 2 — стернум самца; 3, 8 — девая хелицера самца, спереди; 4, 6 — эпигина, снизу; 5, 7 – вульва, сверху. Рис. 6–7 по Zhang и Zhu [2009]. Масштаб: 1,0 мм (1), 0,5 мм (2–7). Сокращения: Ea — отросток эпигины; Pmca — проксимоцентральный отросток хелицеры; Pp — пористая пластинка.



Figs 9–12. Male palp of *Pholcus wangxidong* sp.n. (9–10) and *P. triangulatus* (11–12): 9, 11 — left palp, prolateral view; 10, 12 — left palp, retrolateral view. Figs 11–12 after Zhang & Zhu [2009]. Scale line: 0.5 mm. Abbreviations: Tp — tip of the procursus; U — uncus.

Рис. 9–12. Пальпы *Pholcus wangxidong* sp.n. (9–10) и *P. triangulatus* (11–12): 9, 11 – левая пальпа, пролатерально; 10, 12 – левая пальпа, ретролатерально. Рис. 11–12 по Zhang и Zhu [2009]. Масштаб: 0,5 мм. Сокращения: Tp — вершина прокурзуса; U = ункус.

Fig. 13. Type locality of *Pholcus wangxidong* sp.n., Wangxi Cave.
Рис. 13. Типовое местообитание *Pholcus wangxidong* sp.n., пещера Ваньси.

The abbreviations used in the text and figures are: ALE: anterior lateral eyes, AME: anterior median eyes; PLE: posterior lateral eyes PME: posterior median eyes.

Taxonomy

Pholcus wangxidong **sp.n.**
Figs 1–5, 8–10.

MATERIALS. Male holotype, 1 ♂ 1 ♀ paratypes, CHINA: Hebei Province, Yu County, Mt. Xiaowutai, Wangxidong Forest Farm [39°36'N, 114°48'E], Wangxi Cave, May 2, 2009, leg. by F. Zhang and Y.L. Yan; one juvenile, leg. by C.L. Han, same data as type material (MHBU). The type specimens are deposited in the Museum of Hebei University [MHBU], Baoding, China.

DIAGNOSIS. This species is very similar to *P. triangulatus* Zhang & Zhang, 1999 (Figs 6–8, 11–12) in the shapes of the palpal bulb and epigynum, both without appendices of the palpal bulb (Figs 9, 11) and with a knob-shaped epigynal apophysis (Figs 4, 6). It can be distinguished from the latter by the cleaver-shaped uncus, the relatively simple tip of the procursus (Fig. 9), the pair of proximocentral cheliceral apophyses (Fig. 3), also by the oval pore plates (Fig. 5).

ETYMOLOGY. The species name is a noun in apposition, taken from the type locality, Wangxi Cave, Wangxidong Forest Farm, Mt. Xiaowutai, Hebei Province.

DESCRIPTION. Male (holotype). Total body length 4.59: cephalothorax 1.44 long (including clypeus 1.63), 1.56 wide; abdomen 3.15 long, 1.35 wide. Prosoma shape as in Fig. 1. Leg I: (8.55+0.55+9.00+13.95 +2.34), tibia II: 6.07, tibia III: 4.05, tibia IV: 5.35; tibia I L/D: 58. Carapace short, broad and almost circular, ochre, with brown marks broadly connecting to ocular area (Fig. 1). Cephalic region raised, with brown central marks and pair of brown stripes laterally, ocular area dark yellow. Clypeus height 0.37, ochre, with some brown small marks (Fig. 1). Diameter AME 0.08, ALE 0.13, PME 0.12, PLE 0.14. Distance AME–AME 0.05, PME–PME 0.23. Chelicerae shape as in Fig. 3, with pair of black distal apophyses, pair of unsclerotized nipple-shaped apophyses proximolaterally and pair of sclerotized, long apophyses proximocentrally. Labium and endites light yellow. Sternum dark gray, with yellow small patches as in Fig. 2. Legs ochre, femora, patellae and tibiae with dark rings. Tarsal organ of tarsus 1 capsulate. Abdomen cylindrical, pale ochre, dorsum with small brown patterns as in Fig. 1. Venter pale brown. Male gonopore epiandrous spigots not visible with an optical dissecting

microscope. Palps as in Figs. 9 and 10, femur without a dorsal projection retrolaterally; tibia spindle-shaped, with two trichobothria laterally and dorsally, also with an ear-shaped projection ventrally; bulb with nearly cleaver-shaped, flat, sclerotized uncus, which with serrated edge; without appendix; embolus long and transparent, with a brush-shaped tip; complex procursus with three small membranous, pointed processus.

Variation. Tibia I in other male: 9.45. Body length in other male 5.54.

Female. In general very similar to male. Female paratype, total length 4.46: cephalothorax 1.31 long, 1.48 wide; abdomen 3.15 long, 2.25 wide. Tibia I: 5.63. Diameter AME 0.08, ALE 0.13, PME 0.12, PLE 0.14. Distance AME–AME 0.03, PME–PME 0.18. Anterior plate of epigynum roughly triangular as in Fig. 4, with a median knob-shaped apophysis. Dorsal view as in Fig. 5, with a sclerotized arch anteriorly and a pair of oval pore plates centrally.

DISTRIBUTION. Known from type locality only.

NATURAL HISTORY. All specimens, two males, one female and one juvenile, were collected from the light zone inside of the Wangxi cave (Fig. 13), which is small, about 50 m horizontally deep, and 1.5 m high, with a streamlet flowing out. Spiders were found underside of rock walls. Outside the cave, near the mouth of cave, we also found some irregular webs in underside of rock, which is the appropriate habitats for pholcids, but no pholcids was found. Due to the time we have not searched more pholcids in the surrounding area.

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