

On new and interesting records of spiders from northern Pakistan and India (Aranei)

Новые и интересные находки пауков в северном Пакистане и северной Индии (Aranei)

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КЛЮЧЕВЫЕ СЛОВА: Aranei, Gnaphosidae, Lycosidae, Theridiidae, Индия, Пакистан, Китай, Гималаи.

ABSTRACT. The present work shows new faunistic and taxonomic data on nine species from Northern Pakistan and India belonging to the families Gnaphosidae, Lycosidae and Theridiidae. *Berlandina afghana* Denis, 1958, *Parasyrisca alai* Ovtsharenko, Platnick et Marusik, 1995, *Pardosa algooides* Schenkel, 1963, and *Leptodrassex memorialis* (Spassky, 1940) are reported for the first time in the Pakistanian fauna; *Pardosa haupti* Song, 1995, is new for India and *Gnaphosa dege* Ovtsharenko, Platnick et Song, 1992 and *Enoplognatha diodonta* Zhu et Zhang, 1992, are new for both the countries. New distribution data are provided for *Micaria lenzi* Bösenberg, 1899 and *M. pulcherrima* Caporiacco, 1935. *Berlandina afghana* Denis, 1958 is removed from the synonymy of *B. plumalis* (O. Pickard-Cambridge, 1872). An unusual structure was found and illustrated in epigyne of *Leptodrassex memorialis*. All nine species are illustrated and comments on their taxonomy and distribution are provided.

РЕЗЮМЕ. В работе приводятся новые фаунистические и таксономические данные по 9 видам пауков из северных регионов Пакистана и Индии относящихся к Gnaphosidae, Lycosidae и Theridiidae. *Berlandina afghana* Denis, 1958, *Parasyrisca alai* Ovtsharenko, Platnick et Marusik, 1995, *Pardosa algooides* Schenkel, 1963 и *Leptodrassex memorialis* (Spas-

sky, 1940) впервые отмечены в Пакистане, *Pardosa haupti* Song, 1995 впервые отмечается для Индии. *Gnaphosa dege* Ovtsharenko, Platnick et Song, 1992 и *Enoplognatha diodonta* Zhu et Zhang, 1992 впервые найдены в Пакистане и Индии. Приведены новые данные по распространению *Micaria lenzi* Bösenberg, 1899 и *M. pulcherrima* Caporiacco, 1935. *Berlandina afghana* Denis, 1958 ревалидизирована и выведена из синонимов *B. plumalis* (O. Pickard-Cambridge, 1872). Обнаружена и проиллюстрирована необычная структура в эпигине *Leptodrassex memorialis*. Для всех 9 видов приводятся рисунки и комментарии по таксономии и распространению.

Introduction

The pioneer work about spiders of northern India (=NW Himalaya) was published by O.P.-Cambridge [1885]. He studied the material collected during the second Yarkand Mission and reported from there 131 species, 109 of which were described as a new to science. The route of expedition runs across modern Pakistan, India, Tajikistan and Xizang (Tibet, now province of China). The second paper dealing with spiders of this region was published by Caporiacco [1935]. Most of the spiders treated in his work were collected by him during the Italian Mission to Karakoram in



Map 1. Collecting localities in Pakistan and India: 1 — Bagrot and Kergat valleys; 2 — Skardu District (no precise locality); 3 — Deosai Plateau; 4 — Tso Moriri; 5 — Surajtal Lake; 6 — Keylong Town; 7 — Sissu Village; 8 — Patlikuhl Town.

Карта 1. Места сборов в Пакистане и Индии: 1 — долины Bagrot и Kergat; 2 — район Skardu District (без точной привязки); 3 — плато Deosai; 4 — озеро Surajtal; 5 — г. Keylong; 7 — дер. Sissu; 8 — пос. Patlikuhl.

1929. He reported 172 species of Arachnids, 163 of which are spiders, and 93 species and subspecies were described as new to science. Simultaneously, another paper dealing with spiders from Karakoram was published by Reimoser [1935]. He reported 20 species and 18 more specimens not identified to species level. Two species were described as new to science.

More recently Denis [1958] and Roewer [1960a,b, 1961, 1962a,b] studied the fauna of the adjacent Afghanistan country and described several dozen new species. Since then, no special papers devoted to spiders of this region were published. Afterwards several other species have been mentioned in taxonomic revisions or descriptions of the older material [Prószyński, Zochowska, 1981; Wesolowska, 1986; Marusik, 1993; Danilov, 1997; Ovtchinnikov, Inayatullah, 2005; Ovtchinnikov, 2006; Ovtchinnikov et al., 2008, 2009; Logunov et al., 2011; Marusik, Ballarin, 2011a,b; etc.].

Recently, new material was collected by Italian and Czech zoologists, and the senior author of this paper, in the northern Pakistan and India. We had an opportunity to examine these specimens. Among them we were able to identify only a few species which were either known from the original descriptions, or recently revised but not yet recorded in this area. Main goal of this paper is to provide the names of new species and genera records of the families Lycosidae, Gnaphosidae and Theridiidae to Pakistan and/or India.

Material and methods

Microphotographs were made with an Olympus Camedia E-520 camera attached to an Olympus SZX16 stereomicroscope at the Zoological Museum, University of Turku, Finland. Digital images were composed using “CombineZP” image stacking software and edited with Corel Photo Paint X4 and Corel Paint Shop Pro Photo X2. Photographs were taken using paraffin based dishes with different sized holes to keep the samples in the required position. Epigynes were macerated in KOH.

The specimens studied in this work are preserved in the collections of the Museo Civico di Storia Naturale di Verona, Italy (MSNV) and the Zoological Museum of Moscow State University, Russia (ZMMU). All measurements are in millimetres.

Survey of species

GNAPHOSIDAE

Berlandina afghana Denis, 1958, reinstated
Figs 1, 3–6.

B. a. Denis, 1958: 92, f. 14 (♀).

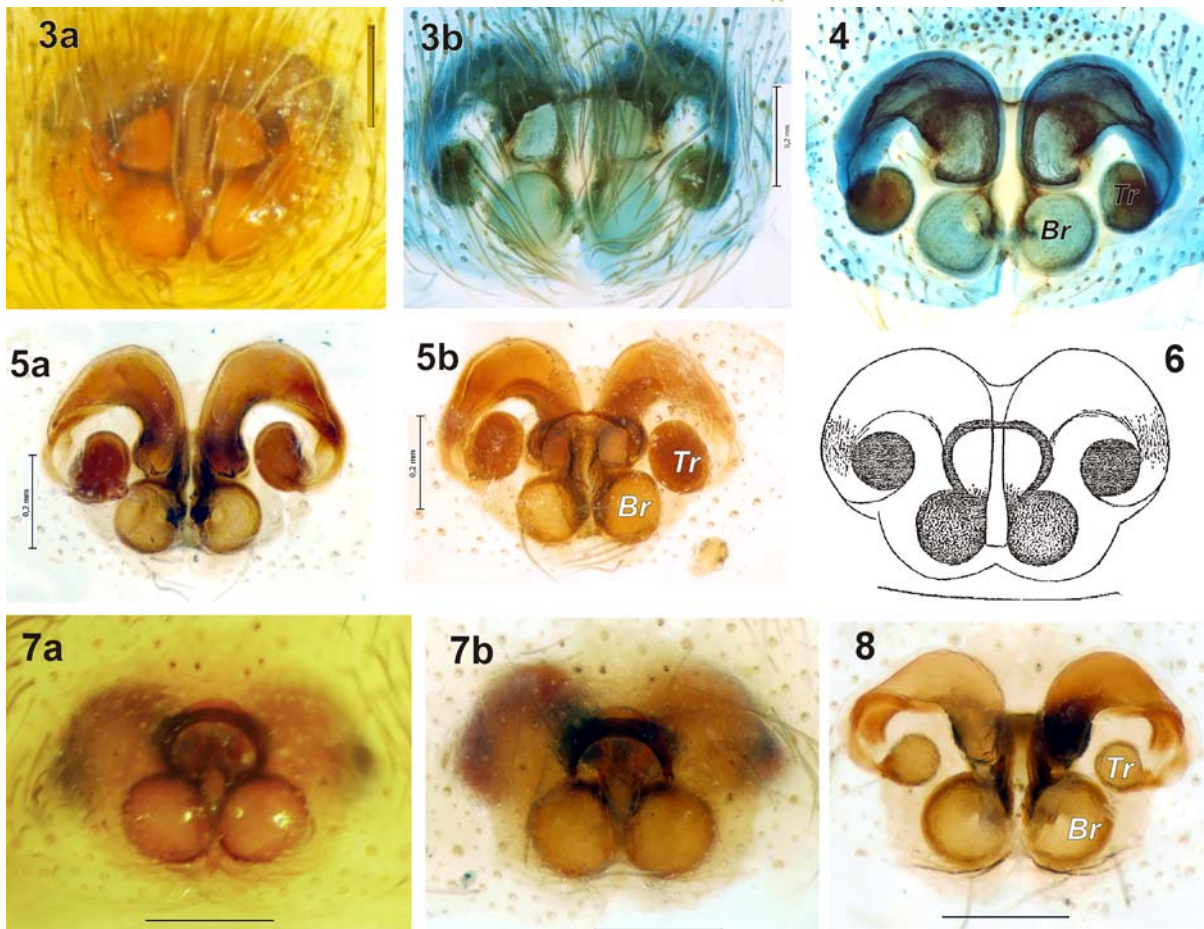
B. a. spinatarsis Denis, 1958: 92, f. 15 (♀).

MATERIAL EXAMINED. PAKISTAN: 1 ♀ (MSNV) Gilgit-Baltistan, Skardu Distr., 2300 m, 1.07.1976 (G. Osella).



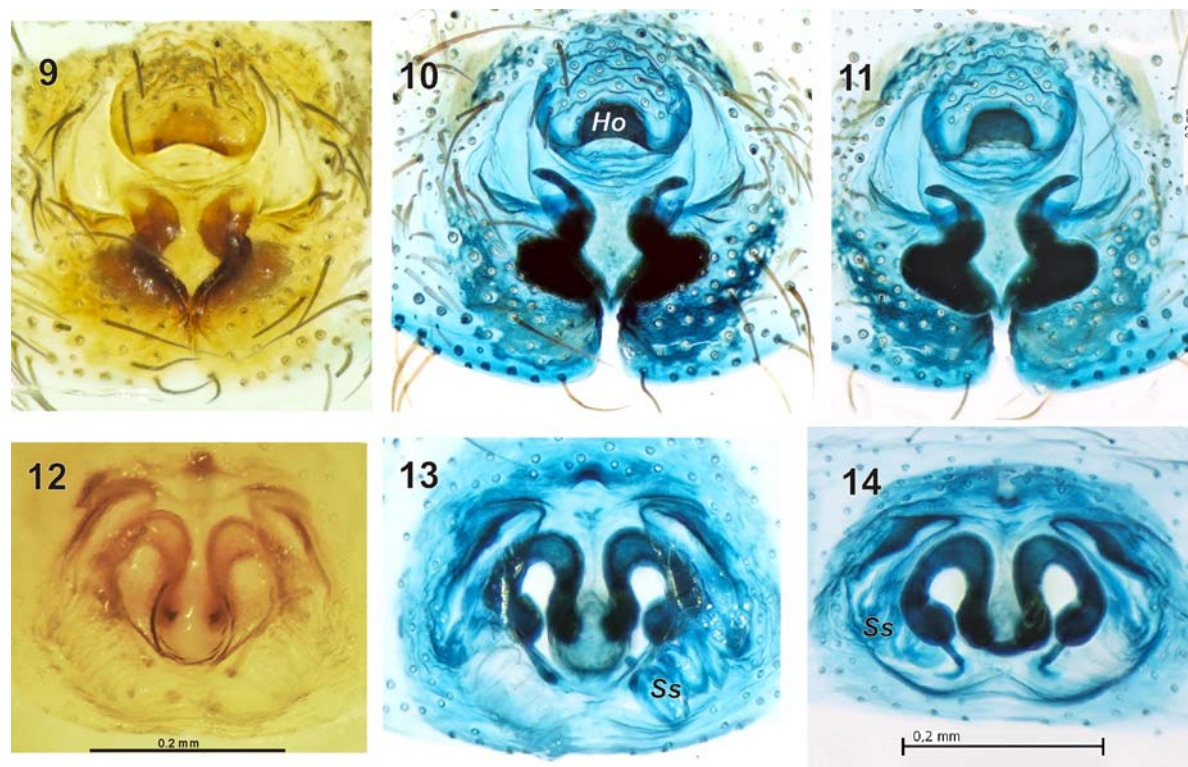
Figs 1–2. Females of *Berlandina afghana* (1) and *Leptodrassex memorialis* (2).

Рис. 1–2. Самки *Berlandina afghana* (1) и *Leptodrassex memorialis* (2).



Figs 3–8. Epigyne of *Berlandina afghana* (3–6) and *B. plumalis* (7–8, from Israel): 3, 5b, 6–7 — epigyne, ventral; 4, 5a, 8 — epigyne, dorsal. 3–5 — specimens from Pakistan. 6 — after Denis [1958]. Abbreviations: *Br* — basal receptacle, *Tr* — terminal receptacle.

Рис. 3–8. Эпигина *Berlandina afghana* (3–6) и *B. plumalis* (7–8, из Израиля): 3, 5b, 6–7 — эпигина, снизу; 4, 5a, 8 — эпигина, сверху. 3–5 — из Пакистана. 6 — по Denis [1958]. Сокращения: *Br* — базальная рецептакула, *Tr* — терминальная рецептакула.



Figs 9–14. Epigyne of *Gnaphosa dege* (9–11) and *Leptodrassex memorialis* (12–14): 9–10, 12–13 — ventral; 11, 14 — dorsal. Abbreviations: *Ho* — hood of scape, *Ss* — spiraled structure.

Рис. 9–14. Эпигина *Gnaphosa dege* (9–11) и *Leptodrassex memorialis* (12–14): 9–10, 12–13 — снизу; 11, 14 — сверху. Сокращения: *Ho* — карман скапуса; *Ss* — спиральная структура.

COMMENTS. Denis [1958] described a new species *B. afghana* with two subspecies (*afghana* and *spinirtarsis*), from Afghanistan. Later, *B. afghana* was synonymized by Levy [1995] with *B. plumalis* (O. Pickard-Cambridge, 1872). Comparison of specimens from Pakistan (Figs 3–5), and these from Israel (type locality of *B. plumalis*) revealed that they are not conspecific. Specimens from Israel (Figs 7–8) have basal receptacle (*Br*) much larger than terminal (*Tr*), while in the Pakistanian specimen, and in the specimen drawn by Denis [1958; cf. Fig. 6], the receptacles are subequal in size.

Gnaphosa dege Ovtsharenko, Platnick et Song, 1992
Figs 9–11.

G. d. Ovtsharenko et al., 1992: 72, f. 259–260 (♀).

G. d.: Song et al., 1999: 448, f. 261B (♀).

G. d.: Song et al., 2004: 95, f. 52A–B (♀).

MATERIAL EXAMINED. **KYRGYZSTAN**: 6 ♀♀ (ZMMU), Dzhetyymbel Mts, Suyok Pass, 3800 m, 10–13.06.1997 (D. Obydov). **PAKISTAN**: 1 ♀ 2 juv. (MSNV) Gilgit-Baltistan, Skardu Distr., Doesai Plateau, from 3900 to 4200 m, 27.06.2008 (L. Latella). **INDIA**: 5 ♀♀ 3 juv. (ZMMU), [IN-15] Himachal Pradesh, Surajtal Lake, 32°46'N 77°24'E, 4800 m, 14.06.1999 (Yu.M. Marusik).

COMMENTS. Although there are three taxonomic entries to this species, it is actually known only by the type series: seven females from Kyrgyzstan and eastern Sichuan, China. The new records from India and Pakistan

extend the known range southward and indicate that it probably occurs in Tajikistan and Xizang (Tibet, China) as well. It is likely that *G. namulinensis* Hu, 2001, described and known from Xizang, might be a junior synonym of *G. dege* since *G. namulinensis* has the same shape and size of epigyne and vulva. Samples from India, collected in only one location, show females of different sizes (total length from 6.5 to 9.5, and carapaces from 3.1 to 4.0 long). There are slightly different shapes and widths of the epigyne septum and fovea (0.36–0.43), but the vulva appearance is equal in all the specimens. The illustration provided in the original description does not show the pocket (hood, *Ho*) of the scape.

Leptodrassex memorialis (Spassky, 1940)
Figs 2, 12–14.

Leptodrassex m. Spassky, 1940: 355, pl. 7, f. 2–5 (♂♀).

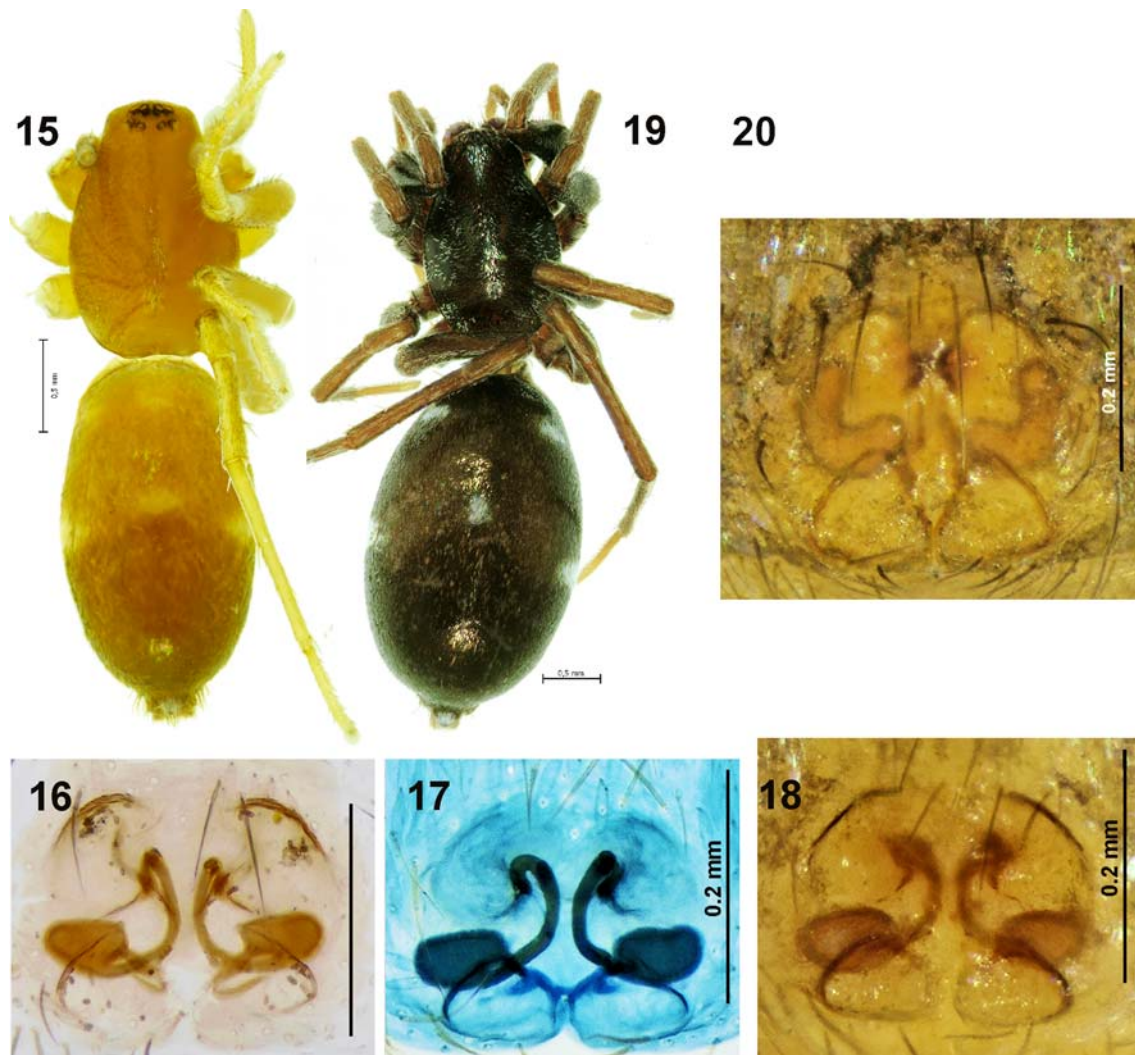
Leptodrassex nemoralis: Eskov, Marusik, 1995: 77, f. 45–47 (♂♀).

L. m.: Kovblyuk, Nadolny, 2010: 192, f. 20–39 (♂♀).

For the complete list of references see Platnick [2014].

MATERIAL EXAMINED. **PAKISTAN**: 1 ♀ (MSNV) Gilgit-Baltistan, Skardu Distr., 2300 m, 1.07.1976 (G. Osella).

COMMENTS. While making photographs of the macerated epigyne we noticed the presence of unusual spiraled structure (*Ss*) inside the closed chamber (Figs 13–14). The endogyne has a complicated structure with several folds.



Figs 15–20. Females of *Micaria lenzi* (15–18) and *M. pulcherrima* (19–20): 15, 19 — habitus; 17–18, 20 — epigyne, ventral; 16 — epigyne, dorsal.

Рис. 15–20. Самки *Micaria lenzi* (15–18) и *M. pulcherrima* (19–20): 15, 19 — внешний вид; 17–18, 20 — эпигина, снизу; 16 — эпигина, сверху.

Previously, this species was known from southern Russia, Crimea, northeastern Kazakhstan, and Mongolia [Platnick, 2014]. The present record extends the known range of this species about 6 degrees to the south.

Micaria lenzi Bösenberg, 1899
Figs 15–18.

M. l.: Wunderlich, 1979: 277, f. 6, 29a-d, 51a-c (♂♀).
M. l.: Mikhailov, Marusik, 1995: 102, f. 31–32, 37 (♂♀).
M. l.: Song et al., 1999: 452, f. 264D, O (♂♀).

For the complete list of references, see Platnick [2014].

MATERIAL EXAMINED. PAKISTAN: 1 ♀ (MSNV) Gilgit-Baltistan, Skardu Distr., 2300 m, 1.07.1976 (G. Osella).

COMMENTS. This species has a Transpalearctic range and is known from Europe to Chukotka (northeastern Asia). It was previously recorded from this region as *M. mutilata* Caporiacco, 1935 (a junior synonym of *M. lenzi*) by Caporiacco [1935].

Micaria pulcherrima Caporiacco, 1935
Figs 19–20.

M. p.: Caporiacco, 1935: 221, pl. 6, f. 8 (♂♀).

M. p.: Danilov, 1997: 114, f. 2A–D (♂♀).

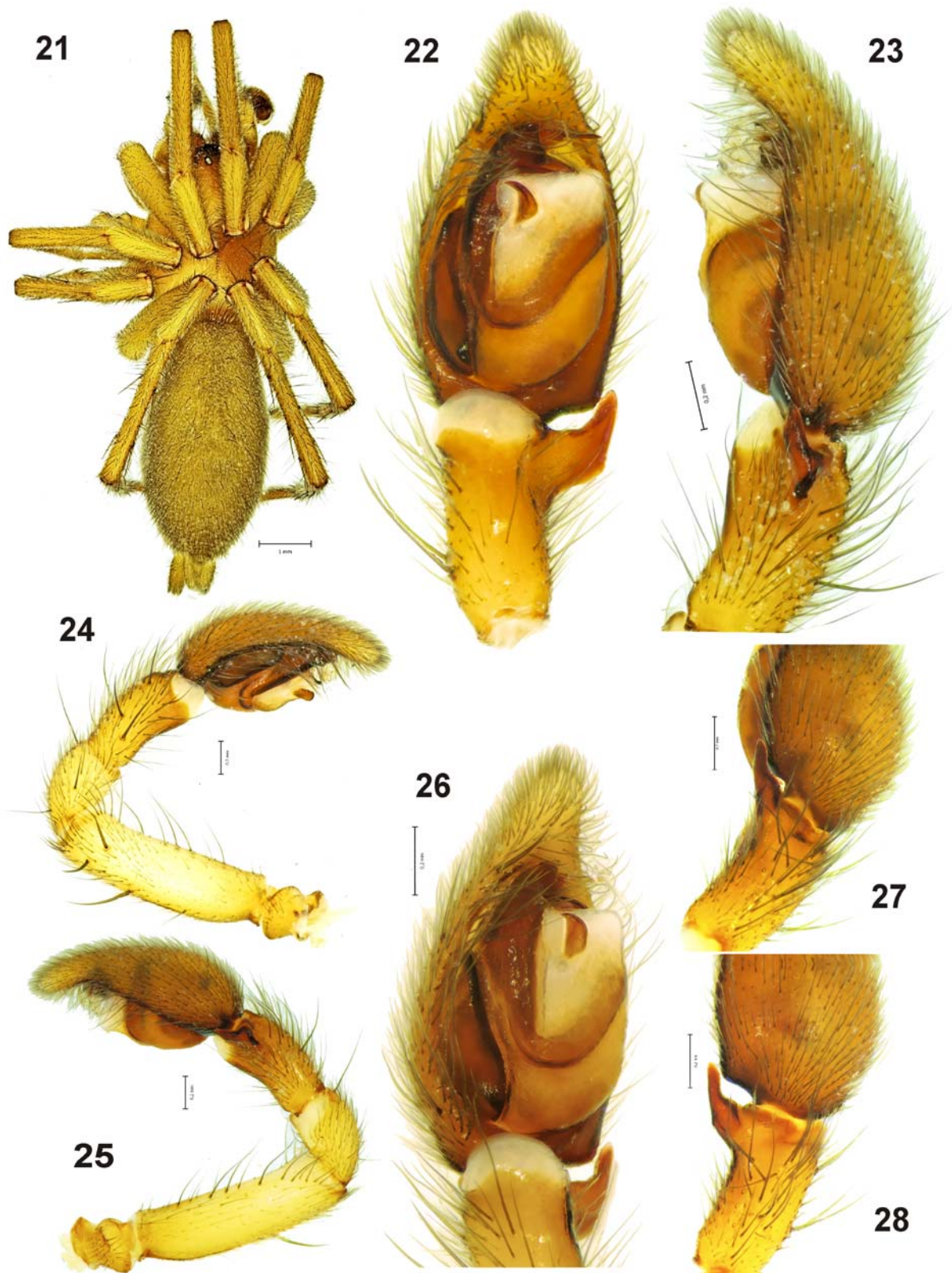
M. p.: Song et al., 1999: 452, f. 264E, P (♂♀).

M. p.: Song et al., 2004: 179, f. 106A–E (♂♀).

For the whole list of taxonomic references, see Platnick [2014].

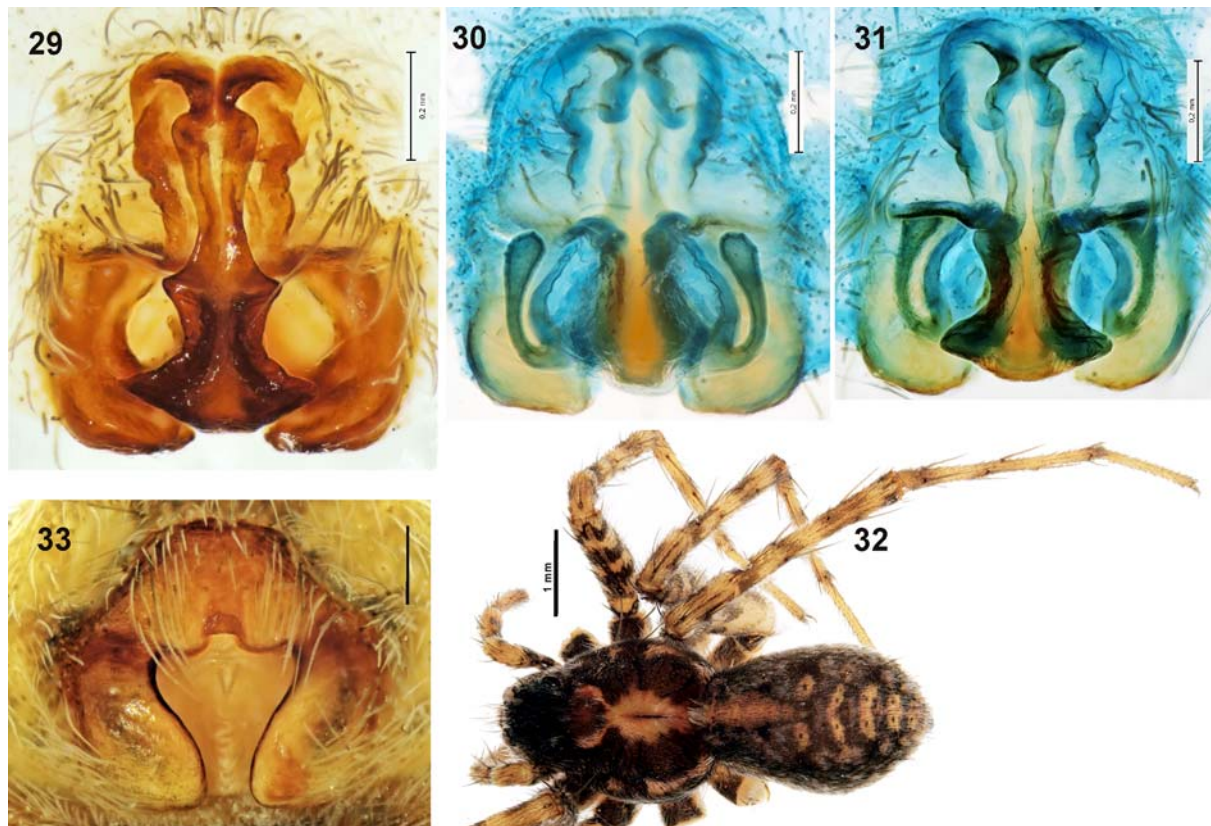
MATERIAL EXAMINED. INDIA: 1 ♀ 1 juv. (ZMMU) [IN-16], Himachal Pradesh, Keylong City environs, 32°34'N, 77°01'E, 3100–3400 m, 12–17.06.1999 (Yu.M. Marusik); 3 ♂♂ ♀♀ (ZMMU) [IN-14], Sissu Village, 32°28'N, 77°07'E, 3150 m, pitfall traps, 9–17.06.1999 (Yu.M. Marusik); 5 ♂♂ 5 ♀♀ 2 juv. (ZMMU), Sissu Village, 32°28.1'N 77°07.9'E, 3150–3500 m, 8–10.06.1999 (Yu.M. Marusik).

COMMENTS. This species has a rather wide range, and was known from northern Pakistan and India (Jammu and Kashmir regions) to Hebei in China [Song et al., 2004], north to Tuva and Buryatia [Marusik et al., 2000] in Russia. The new record extends the known range about 400 km to the south.



Figs 21–28. Male of *Parasyrisca alai*: 21 — habitus; 22 — palp, ventral; 23, 25 — palp, retrolateral; 24 — palp, prolateral; 26 — palp, prolateral-ventral; 27–28 — palp, retrolateral-dorsal.

Рис. 21–28. Самец *Parasyrisca alai*: 21 — внешний вид; 22 — пальпа, снизу; 23, 25 — пальпа, ретролатерально; 24 — пальпа, пролатерально; 26 — пальпа, пролатерально-снизу; 27–28 — пальпа, ретролатерально-сверху.



Figs 29–33. Females of *Pardosa algooides* (29–32) and *P. haupti* (33): 29, 31, 33 — epigyne, ventral; 30 — epigyne, dorsal; 32 — habitus.

Рис. 29–33. Самки *Pardosa algooides* (29–32) и *P. haupti* (33): 29, 31, 33 — эпигина, снизу; 30 — эпигина, сверху; 32 — внешний вид.

Parasyrisca alai Ovtsharenko, Platnick et Marusik, 1995

Figs 21–28.

P. a. Ovtsharenko et al., 1995: 30, f. 100–102 (♂).

MATERIAL EXAMINED. **PAKISTAN**: 1 ♂ (MSNV) Gilgit-Baltistan, Skardu Distr., Doesai Plateau, from 3900 to 4200 m, 28.06.2008 (L. Latella).

COMMENTS. To date, this species was known from a single entry, and only from the male holotype from Kyrgyzstan. The new find in Pakistan extends the known range of about 500 km (or 4.5°) to the south. Both the species and genus are new to Pakistan.

LYCOSIDAE

Pardosa algooides Schenkel, 1963

Figs 29–32.

P. uncatata Schenkel, 1963: 365, f. 211a-b (♂, preoccupied by Banks [1894]).

P. a. Schenkel, 1963: 367, f. 212–213 (♀).

P. ladakhensis Tikader, 1977: 144, f. 1-3 (♀).

P. a.: Song et al., 1999: 329, f. 192K, R (♂♀).

For the complete list of taxonomic references, see Platnick [2014].

MATERIAL EXAMINED. **INDIA**: 1 ♀ (ZMMU), Jammu & Kashmir, Rupshu, Tso Moriri – Peldo (ca. 32.870°N, 78.337°E),

4540 m, 24.08.1999 (L. Klimeš); 1 ♀ (ZMMU), Jammu & Kashmir, Rupshu, Kyigar Tso and above Tso Moriri, 4750–5800 m, 18–23.08.1999 (L. Klimeš). **PAKISTAN**: 2 ♀♀ (MSNV), Northern Areas, Gilgit Distr., Bagrot Valley, 18.06.2008 (L. Latella).

COMMENTS. This species has a wide range and was known from Ladakh (Jammu & Kashmir, India) to Qinghai and south to Sichuan (China) and Bangladesh. Although it was known from the adjacent India, this species has not been reported from Pakistan. The new record extends the known range of about 150 km to the West.

Pardosa haupti Song, 1995

Fig. 33.

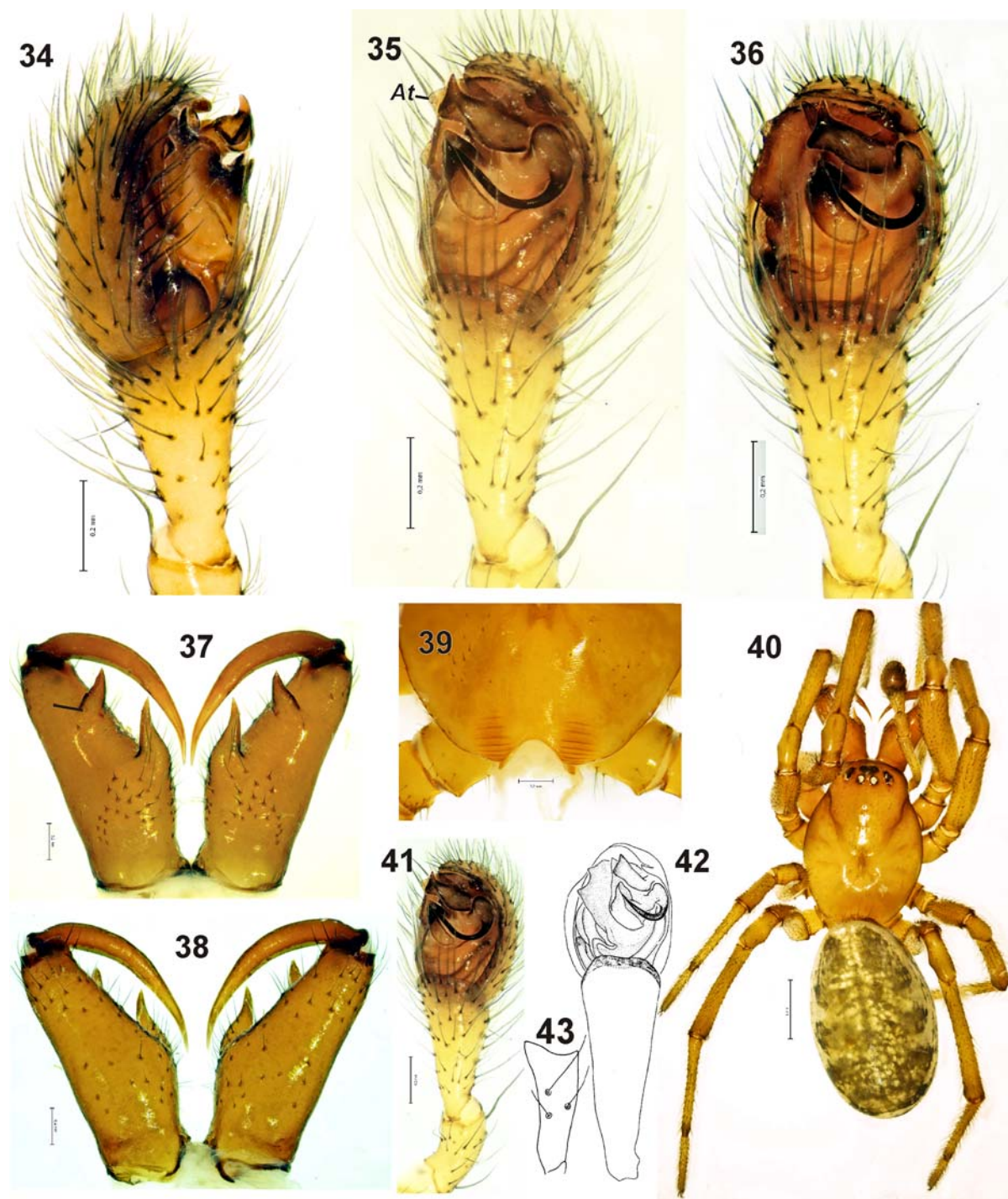
P. h. Song in Song, Haupt, 1995: 2, f. 2A–D (♂♀).

P. h.: Song et al., 1999: 331, f. 194L–M. 195B (♂♀).

P. h.: Hu, 2001: 211, f. 110.1–4 (♂♀).

MATERIAL EXAMINED. **INDIA**: 2 ♀♀ (ZMMU), Jammu & Kashmir, Rupshu, Kyagar Tso and above Tso Moriri (33.110°N 78.310°E), 4750–5800 m, 18–23.08.1999 (L. Klimeš).

COMMENTS. So far, this species was known from three provinces in China: Gansu, Qinghai and Xinjiang. The new record extends the known range far to the south-west. The presence of this species in the Jammu and Kashmir Province suggests that it may also occur in adjacent Tibet and Pakistan.



Figs 34–43. Male of *Enoplognatha diodonta*: 34–36 — male palp, prolateral, ventral and retrolateral; 37–38 — chelicerae, anterior and posterior; 39 — back side of carapace showing stridulatory ridges; 40 — habitus; 41–42 — palp, ventral; 43 — palpal tibia, retrolateral. 42–43 — after Zhu [1998]. Abbreviation: *At* — apical tooth of the median apophysis.

Рис. 34–43. Самец *Enoplognatha diodonta*: 34–36 — пальпа самца, пролатерально, снизу и ретролатерально; 37–38 — хелицеры, спереди и сзади; 39 — задняя часть карапакса, показаны стридуляционные борозды; 40 — внешний вид; 41–42 — пальпа, снизу; 43 — голень пальпы, ретролатерально. 42–43 — по Zhu [1998]. Сокращение: *At* — апикальный зубчик медиального отростка.

THERIDIIDAE

Enoplognatha diodonta Zhu et Zhang, 1992

Figs 34–43.

E. d. Zhu, Zhang, 1992: 26, f. 6A–G (♀).*E. d.*: Zhu, 1998: 318, f. 214A–G (♂♀).*E. d.*: Song et al., 1999: 118, f. 58K–N (♂♀).

MATERIAL EXAMINED. **PAKISTAN**: 1 ♂ (MSNV) Northern Areas, Gilgit Distr., Bagrot Valley, 2160 m, 25.10–2.11.2008 pitfall trap (L. Latella & R. Ahmed); 3 ♂♂ (MSNV) Kergat Valley, 26.10–3.11.2008, pitfall trap (L. Latella & R. Ahmed). **INDIA**, *Himachal Pradesh*, 4 ♀♀ (ZMMU), Patlikuhl Town, 32°07.4'N, 77°08.8'E, ca. 1200 m, 28–29.05.1999 (Yu.M. Marusik); 1 ♀ (ZMMU), same locality, 17–23.06.1999 (Yu.M. Marusik).

COMMENTS. Until now this species was known only from China and exclusively in three south-eastern provinces: Guangxi, Zhejiang and Hunan [Song et al., 1999]. These records are new to Pakistan and India and extend the known range of about 8° to the north and 28° to the west. Males from northern Pakistan have the same shape of bulbus as in specimen illustrated by Zhu & Zhang [1992] with an apical tooth (*At*) on the median apophysis, unusual for the genus *Enoplognatha*. All other species belonging to this genus show a basal tooth only. Males from Pakistan differ from the figures provided by Chinese authors by having a shorter palpal tibia. Zhu [1998] illustrates two different kinds of palpal tibia, one very long (Fig. 42) and one of normal size (Fig. 43), exactly the same size as in Pakistanian specimens. It is likely that on Fig. 42 tibia is drawn together with the patella.

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