

New data on the jumping spider fauna of Pakistan (Araneae: Salticidae)

Новые данные о фауне пауков-скакунчиков Пакистана (Araneae: Salticidae)

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КЛЮЧЕВЫЕ СЛОВА: Aranei, Нижний Дир, распространение, новые находки, таксономия.

ABSTRACT. Two genera — *Portia* Karsch, 1878 and *Rhene* Thorell, 1869 — and six species — *Myrmarachne kiboschensis* Lessert, 1925, *M. prava* (Karsch, 1880), *Plexippus clemens* (O. Pickard-Cambridge, 1872), *Portia albimana* (Simon, 1900), *Rhene flavigera* (C.L. Koch, 1846) and *Thyene bivittata* Xie et Peng, 1995 — are recorded from Pakistan for the first time. A map showing their records in Pakistan is provided.

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РЕЗЮМЕ. Два рода — *Portia* Karsch, 1878 и *Rhene* Thorell, 1869 — и шесть видов — *Myrmarachne kiboschensis* Lessert, 1925, *M. prava* (Karsch, 1880), *Plexippus clemens* (O. Pickard-Cambridge, 1872), *Portia albimana* (Simon, 1900), *Rhene flavigera* (C.L. Koch, 1846) и *Thyene bivittata* Xie et Peng, 1995 — впервые отмечаются из Пакистана. Дана карта находок этих видов в Пакистане.

Introduction

Salticidae is the largest spider family with 647 valid genera and 6166 valid species described worldwide [WSC, 2020]. The knowledge on salticid diversity of Pakistan is poor and a relatively small number of species has been reported [Ali *et al.*, 2018]. A few publications included descriptions of the salticids from Pakistan [Dyal, 1935; Butt, Beg, 2000; Mushtaq *et al.*, 1995a,b], but failed to provide adequate descriptions and/or illustrations that would allow a correct identifi-

cation. Thus a number of species remain poorly known and, in the absence of the pertinent type material, it is impossible to identify them. For instance, the whereabouts of Dyal's types [1935] is unknown, whereas the types by Butt & Beg [2000] have been lost. Recent authors [Logunov, 2000; Azarkina, 2004; Logunov *et al.*, 2011; Wesołowska, Freudenschuss, 2012; Ali *et al.*, 2018; Logunov, Ponomarev, 2020] attempted to clarify and provide up to date taxonomic descriptions of the Pakistan salticid fauna.

The present study is aimed at providing records of two genera and six species that are new to Pakistan. Additionally, records of some other salticids from the country is discussed and clarified as well.

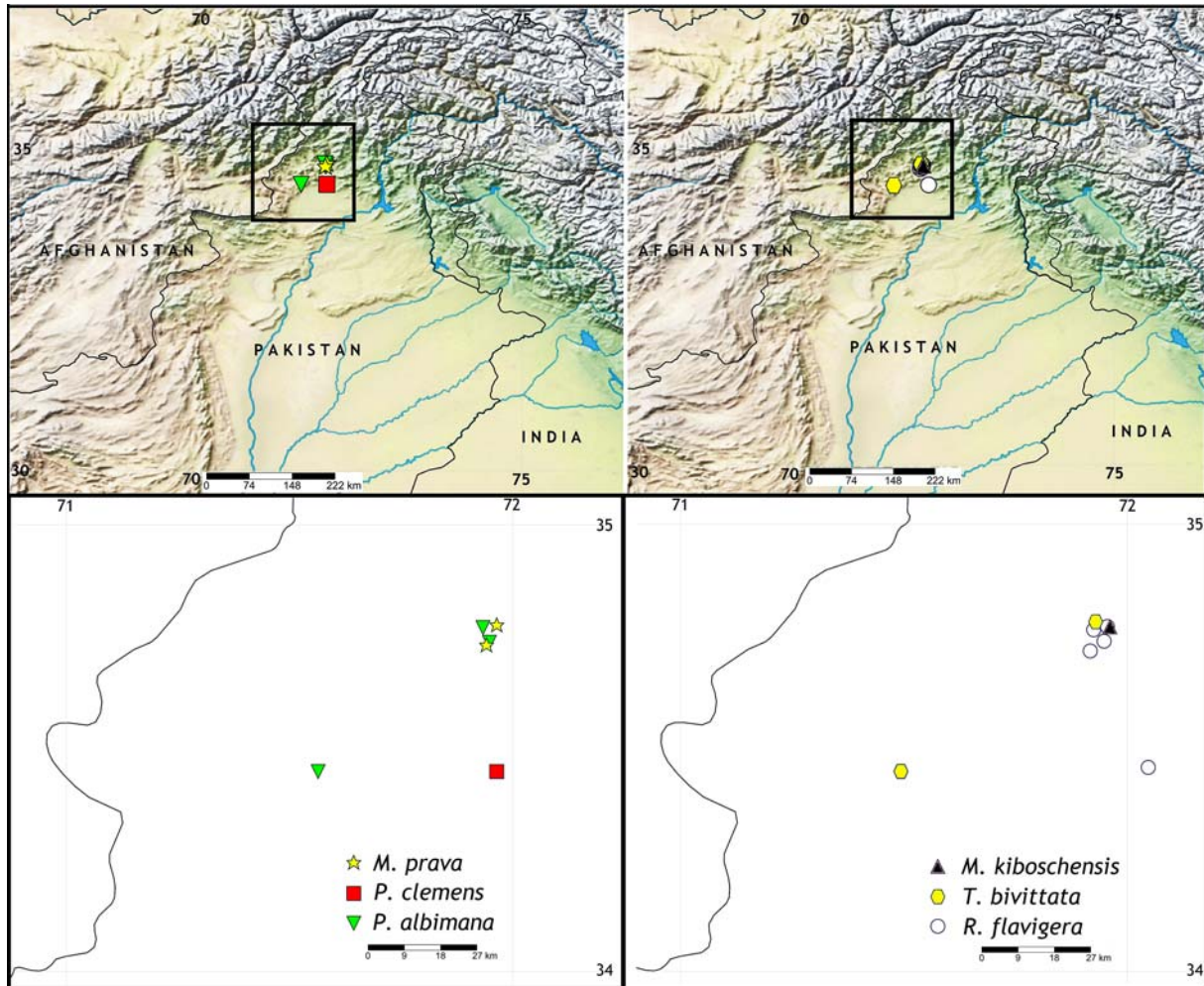
Materials and methods

Spiders were hand-collected from different localities of Dir Lower Khyber Pakhtunkhwa (KP), Pakistan. Specimens were preserved in 80% ethanol and studied under a Labomed (LB-344) stereomicroscope. Identifications were based on diagnostic drawings and keys provided by Wanless [1978a,b], Jastrzębski [2006], Xie & Peng [1995], Prószyński [1992] and Benjamin [2015]. Nomenclature follows WSC [2020]. Reference lists include only the works that are useful for identification of a corresponding species. The studied specimens are kept in the Museum of the Department of Zoology, Islamia College University (MICU), Peshawar, Pakistan.

Survey of species

Myrmarachne kiboschensis Lessert, 1925
Map.

Myrmarachne kiboschensis Lessert, 1925: 441, figs 18–22 (D♂♀).



Map. Salticid records from Lower Dir District, Pakistan.

Карта. Точки находок сольцид в области Нижний Дир, Пакистан.

Myrmarachne kiboschensis: Wanless, 1978a: 78, figs 47A–G, 48A–K (♂♀); Żabka, 1985: 247, figs 337–341 (♂); Prószyński, 1992: 187, figs 93–98 (♂♀)

MATERIAL. PAKISTAN: 1 ♂ (MICU, 878), Dramdal Hills, Talash, Dir Lower, Khyber Pakhtunkhwa (34.77047°N, 71.96101°E), 1368 m a.s.l., 7.04.2019, M. Sajid.

DISTRIBUTION. The species is known from Botswana (Africa) to Vietnam [WSC, 2020]. It was recently recorded from India [Kananbala *et al.*, 2011] and is reported from northern Pakistan for the first time.

Myrmarachne prava (Karsch, 1880)
Map.

Myrmarachne prava: Benjamin, 2015: 26, figs 23A–E, 24A–D, 25A–D, 27 A–C, 28A–E (♂♀); Caleb, 2016b: 414, figs 55–65 (♀).

MATERIAL. PAKISTAN: 1 ♀ (MICU, 667), Galegay Khwar, Talash, Dir Lower, Khyber Pakhtunkhwa (34.77611°N, 71.96443°E), 1048 m, 2.12.2018, M. Sajid; 3 ♀♀ (MICU, 695–697), Toot Shah Hill, Talash, Dir Lower, Khyber Pakhtunkhwa (34.73122°N, 71.94133°E), 995 m a.s.l., 23.12.2018, M. Sajid.

DISTRIBUTION. The species was earlier known from India and Sri Lanka [WSC, 2020] and is first reported from Pakistan; the latter record represents the westernmost limit of the species range.

Plexippus clemens (O. Pickard-Cambridge, 1872)
Map.

Plexippus clemens: Logunov, 2010: 87, figs 7–12 (♂♀); El-Hennawy *et al.*, 2015: 131, figs 1–7 (♂♀); Caleb, 2016a: 274, figs 6–10 (♂).

MATERIAL. PAKISTAN: 1 ♂ (MICU, 896), Nagri Payeen, Talash, Dir Lower, Khyber Pakhtunkhwa (34.44751°N, 71.96430°E), 1005 m a.s.l., 22.04.2019, M. Sajid.

DISTRIBUTION. This species seems to have a wide distribution and is known from Algeria, Israel, Turkey, China, Yemen and India [WSC, 2020]. The present record falls within the known distribution range. Its record from Iran was mentioned to be doubtful [WSC, 2020]; yet it could occur in Iran and adjacent countries from where it has not been recorded yet.

Portia albimana (Simon, 1900)
Map.

Linus albimanus Simon, 1900: 33 (D♂).

Portia albimana: Wanless, 1978b: 107, figs 12A–D (♂).

MATERIAL. PAKISTAN: 1 ♂ (MICU, 111), Nagri Payeen, Talash, Dir Lower (34.44752°N, 71.56420°E), 1005 m a.s.l., 11.07.

2018, M. Sajid; 2 ♀♀ (MICU, 107, 114) Nagri Payeen Zomabaqay Hills (34.73711°N, 71.94795°E), 1068 m a.s.l., 1.07.2018, M. Sajid; 3 ♀♀ (MICU, 875–877) Dramdal Hill, Talash, Dir Lower Khyber Pakhtunkhwa (34.76981°N, 71.93357°E), 1292 m a.s.l., 7.04.2019, M. Sajid.

DISTRIBUTION. The species is distributed from India to Vietnam. Present study confirms its existence in adjacent Pakistan and represents the westernmost record of the species range.

Rhene flavigera (C.L. Koch, 1846)

Map.

Rhane flavigera C.L. Koch, 1846: 14: 86, figs 1340 (D♂).

Rhene flavigera: Prószyński, 1984: 119–121 (♂, D♀); Żabka, 1985: 443, figs 541–543 (♀).

MATERIAL. PAKISTAN: 1 ♀ (MICU, 85) Barcharay Hill, Talash, Dir Lower, Khyber Pakhtunkhwa (34.71660°N, 71.91692°E), 1290 m a.s.l., 18.06.2018, M. Sajid; 2 ♂♂, 1 ♀ (MICU, 112, 113, 118), Nagri Payeen (Zomabaqay Hill), Talash, Dir Lower, Khyber Pakhtunkhwa (34.73844°N, 71.94799°E), 968 m a.s.l., 1.07.2018, M. Sajid; 3 ♂♂, 2 ♀♀ (MICU, 151–153), Nagri Payeen (Zomabaqay and Walay Hills), Talash, Dir Lower, Khyber Pakhtunkhwa (34.73844°N, 71.94799°E), 968 m a.s.l., 3.07.2018, M. Sajid; 1 ♀ (MICU, MP-180), Banda (Hill), Talash, Dir Lower, Khyber Pakhtunkhwa (34.77111°N, 71.95526°E), 1374 m a.s.l., 5.07.2018, M. Sajid; 2 ♀♀ (MICU, 299, 300), Ajo and Pato Hills, Talash, Dir Lower, Khyber Pakhtunkhwa (34.76397°N, 71.92471°E), 1242 m a.s.l., 21.07.2018, M. Sajid; 2 ♀♀ (MICU, 64, 65), Nagri Payeen (Godar), Talash, Dir Lower, Khyber Pakhtunkhwa (34.73844°N, 71.94799°E) 968 m a.s.l., 23.08.2018, M. Sajid; 2 ♂♂ (MICU, 908, 909), Barcharay Hill, Talash, Dir Lower, Khyber Pakhtunkhwa (34.71660°N, 71.91692°E), 1290 m a.s.l., 5.06.2019, M. Sajid; 1 ♀ (MICU, 961), Khanpur, Adenzai, Dir Lower, Khyber Pakhtunkhwa (34.45613°N, 72.04696°E), 757 m a.s.l., 3.08.2019, M. Sajid.

DISTRIBUTION. The species is known from China to Vietnam and Indonesia (Sumatra) [WSC, 2020]. The record from Pakistan represents the westernmost limit of the species distribution. Both the genus and species are new to Pakistan. The species has not been recorded from India yet, but it is likely to occur there.

Thyene bivittata Xie et Peng, 1995

Map.

Thyene bivittata Xie et Peng, 1995: 105, figs 1A–E (D♂).

Thyene bivittata: Jastrzębski, 2006: 1, figs 1–5 (♂).

MATERIAL. PAKISTAN: 1 ♂ (MICU, 812), Goro, Talash, Dir Lower, Khyber Pakhtunkhwa (34.44711°N, 71.49287°E), 766 m a.s.l., 7.04.2019, M. Sajid; 1 ♂ (MICU, 262), Pato, Talash, Dir Lower, Khyber Pakhtunkhwa (34.78179°N, 71.92913°E), 1648 m a.s.l., 21.07.2018, M. Sajid; 2 ♂♂ (MICU, 129), Goro, Talash, Dir Lower, Khyber Pakhtunkhwa (34.44718°N, 71.49282°E), 766 m a.s.l., 2.09.2018, M. Sajid; 4 ♂♂ (MICU, 374–377), Goro, Talash, Dir Lower, Khyber Pakhtunkhwa (34.44721°N, 71.49285°E), 768 m a.s.l., 23.09.2019, M. Sajid.

DISTRIBUTION. *T. bivittata* was originally described from China [Xie, Peng, 1995] and then recorded from Nepal [Jastrzębski, 2006]. The present record from Pakistan lies at the westernmost limit of the species range.

Discussion

A total of 37 specimens were examined in the present study resulting in the identification of four genera and six species. All the specimens were collected from

different localities in Lower Dir District in Khyber Pakhtunkhwa Province of Pakistan. All the six recorded species — *Myrmarachne kiboschensis*, *Myrmarachne prava*, *Plexippus clemens*, *Portia albimana*, *Rhene flavigera* and *Thyene bivittata* — are new to the salticid fauna of Pakistan. Four of them (*M. prava*, *P. albimana*, *R. flavigera* and *T. bivittata*) have their westernmost distributional limits of the known ranges.

To date, no reliable information on an overall diversity of the Pakistani Salticidae is available. WSC [2020] lists about 48 species reported from Pakistan, while Metzner [2020] lists 78 species. However, the latter list contains some mistakes and unverified data. For instance, *Myrmarachne melanotarsa* Wesolowska et Salm, 2002 and *Phintella incerta* Wesolowska et Russell-Smith, 2000, which were originally described from Kenya and Tanzania respectively, are also included. Likewise, the listed *Phintella indica* (Simon, 1901), *Marpissa tigrina* Tikader, 1965, *Stenaelurillus lesserti* Reimoser, 1934 and *Pilia escheri* Reimoser, 1934 are known from India only. The occurrence of the following six species is also doubtful requiring confirmation by reference to the pertinent material: *Habronattus coecatus* (Hentz, 1846), *Holcolaetis vellerea* Simon, 1910, *Langona bristowei* Berland et Millot, 1941, *Myrmaplata plataleoides* (O. Pickard-Cambridge, 1869), *M. robusta* (Peckham et Peckham, 1892) and *Telamonia dimidiata* (Simon, 1899). The record of *Heliophanus abditus* Wesolowska, 1986 could be provisionally accepted, since its data label mentions ‘Kurrucke’ which seems to refer to Karachi in Pakistan. Metzner’s list also includes some species reported by Dyal [1935] – e.g., *Myrmarachne laeta flava* Narayan, 1915, *Plexippus rubroclypeatus* (Lessert, 1927), *Phintelloides versicolor* (C.L. Koch, 1846), *Plexippus paykulli* (Audouin, 1826) — but these records are not included in the Pakistani list by WSC [2020].

With the present new data the list of Pakistani Salticidae reaches up to at least 69 species. More collecting efforts are required to document the entire salticid fauna of Pakistan. Many species currently known from neighbouring countries such as India, China, Afghanistan and Iran are likely to occur in Pakistan as well, and a total number of the Pakistani salticids is expected to rise significantly.

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Compliance with ethical standards

Conflict of Interest: The authors declare that they have no conflict of interest.

Ethical approval: No ethical issues were raised during our research.

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