

Important Notes on the spider *Brettus cingulatus* thorell, 1895 (Araneae: Salticidae) from India

V. K. Patil^{1*} and V. P. Uniyal²

¹College of Forestry, Dr. B.S.Konkan Krishi Vidyapeeth, Dapoli, Ratnagiri, Maharashtra 415712, India

²Wildlife Institute of India, P. B.# 18, Chandrabani, Dehradun, Uttarakhand 248001, India

Abstract

The recent synonymy of Salticid species *Brettus albolimbatus* with *B. cingulatus* is supported on the basis of several specimen collected in a recently concluded study and improved diagnosis is provided. Thus, the range of *B. cingulatus* is extended to the western India and China making it a widespread species which was earlier known only from Myanmar.

Keywords: Spider, *Brettus cingulatus*, *Brettus albolimbatus*, Salticidae

Introduction

Brettus Thorell, 1895 is a genus of large and beautifully colored jumping spiders. It was erected by Thorell (1895) for *Brettus cingulatus* from the then Burma. Simon (1900) added 2 species from India and Sri Lanka. Simon (1901) later synonymized *Brettus* with *Portia* Karsch, 1878. One species was added to this genus by Peckham and Peckham (1903) from Madagascar. Another species from Sulawesi was added by Merian in 1911. Wanless (1978) resurrected the genus *Brettus* from the synonymy of *Portia* while revising the later genus. The next year, Wanless (1979) revised *Brettus* providing detailed descriptions and illustrations and adding one new species. Recently, Logunov and Azarkina (2008) described a new species from Brunei. As of now, there are 6 nominal species described under *Brettus* (World Spider Catalog, 2017). Only one species *B. madagascarensis* (Peckham and Peckham 1903) is reported from Madagascar. Rest of the species – *B. adonis* Simon, 1900 (Sri Lanka), *B.*

anchorum Wanless, 1979 (India, Nepal), *B. cingulatus* Thorell, 1895 (Myanmar, India, China, Sri Lanka, Thailand, Malaysia, Indonesia), *B. celebensis* (Merian, 1911) (Sulawesi), *B. storki* Logunov & Azarkina, 2008 (Brunei) – are reported from South and South-East Asia. However, taxonomic information on both sexes is available only for 4 of these 6 species.

In India, until recently, *Brettus* was represented by 2 species – *B. albolimbatus* Simon, 1900; and *B. anchorum* Wanless, 1979. Ahmed *et al.* (2017) synonymized *B. albolimbatus* with *B. cingulatus*. It is noteworthy that Patil (2016) had proposed this synonymy in an unpublished thesis. The hypothesis was based on examination of male and female specimen from same locality and sometimes from same sample. In this paper, we fortify the recent synonymy of *B. albolimbatus* with *B. cingulatus* and provide further information based on Patil (2016). *B. albolimbatus* was initially described by Simon (1900) based on a female specimen from Trichinopoly, India.

Materials and methods

The spiders were collected during fieldwork carried out in Dapoli taluka (of Ratnagiri district in Maharashtra state of India during October 2013-June 2014). The study area lies between the West Coast and western slopes of Western Ghats. The study involves comparison of spider diversity in wooded habitats including sacred groves, reserve forests and fruit-orchards. The spiders were collected, photographed and preserved in 75 percent alcohol. They were examined with the help of a Labomed stereo microscope and photographs were taken with a camera attachment. All measurements were made with an eyepiece graticule and are expressed in mm. The specimens are deposited in the spider collection of College of Forestry, DBSKKV, Dapoli.

*Corresponding author: vinarachna@gmail.com

Taxonomy

Brettus cingulatus Thorell, 1895 (Figures 1A-G)

B. c. Thorell, 1895; Wanless, 1978, 1979, 1984;

B. albolimbatus Simon, 1900; Wanless, 1979; Peng & Kim, 1998; syn. n.

B. semifimbriatus Simon, 1900;

Brettus serratopalpis Davis, 2012 (unpublished thesis);

Portia semifimbriata Simon, 1901;

Portia albolimbata Simon, 1901;

Portia foveolata Strand, 1912;

Portia cingulata Reimoser, 1925 (mention of females without description).

Remarks

In all, 114 specimen of the genus *Brettus* were collected in this study; most of them were immature. However, all the mature females examined (n = 3) by us resembled the prevalent description of *B. albolimbatus* (fig 1,3,4); and all the mature males examined (n = 7) resembled that of *B. cingulatus* (fig 2,5,6). The consistency of capture of these specimen from same locality and even within same samples led us to believe that these two were synonyms and *B. cingulatus* held the seniority. The holotypes of the two species were recorded from Myanmar and India respectively. Both these countries share a large proportion of their spider fauna. Therefore, we propose to synonymize *B. albolimbatus* with *B. cingulatus*. We provide improved diagnosis and description of males from India.

However, we note that Sebastian and Peter (2009) have mentioned and given photos of both male and female of *Brettus albolimbatus* without any taxonomic description. Further, Davis (2011) attempted to describe a new species *B. serratopalpis* which has not yet been validated through formal publication. But we contend, as also done in Ahmed (2017), that his diagnosis is mistaken. It is based on male palp having downwardly serrate basal-retrolateral margin of cymbium; in fact, their etymology of specific name is based on this character. However, this character can be seen in *B. cingulatus* in Wanless

(1979; figures 1A to G). Moreover, male specimen from present study also show this character. Our inference is that Davis probably did not detect the more diagnostic character of cymbial spur. It is quite possible because this spur is almost invisible in ventral view of the palp (see fig 1A in Wanless 1979 and figure 1F here).

Diagnosis

Males of *B. cingulatus* can be easily distinguished from those of *B. adonis*, *B. anchorum* and *B. storki* on the basis of palpal tibial apophyses and cymbial modifications. *B. cingulatus* possesses a pointed cymbial spur on the ectal margin in addition to proximal excavations. This is absent in all other species. Additionally, the RTA of *B. cingulatus* is expanded ventrally into a broad flask-like vacuole from which arises a duct. This expansion is apparently absent in *B. storki* (figs 1-4 in Logunov and Azarkina 2008), narrow and long in *B. adonis* (figs 1B, D, F, H in Wanless 1979) and conjoint in *B. anchorum* (figs 23D, F in Wanless 1984). The tibia in *B. cingulatus* also bears a much shorter dorsal tubercular prominence which is relatively longer in all other species. Another curious character is presence of a femoral organ on the proximal-ventral side of femora I in males of *B. cingulatus* (Wanless 1984). All male specimen examined in the present study show this character. So far, such a character has not been studied and reported in any other *Brettus* species.

Material examined

1♀, CFOR-S100, 1.XI.2010, Dapoli, Nilam Bhuvad; 1♀, CFOR-S219, 6.IX.2012, Dapoli, Vinayak Patil; 1♀, CFOR-S761, 24.V.2014, Sadavali, Rajesh Reddy & Vinayak Patil; 1♂, CFOR-S561, 1.VI.2014, Jamage, Rajesh Reddy & Vinayak Patil; 1♂, CFOR-S675, 17.V.2014, Umbarle, Rajesh Reddy & Vinayak Patil; 1♂, CFOR-S710, 21.V.2014, Pangari, Rajesh Reddy & Vinayak Patil; 2♂, CFOR-S732 & CFOR-S741, 23.V.2014, Gavtale, Rajesh Reddy & Vinayak Patil; 1♂, CFOR-S775, 26.V.2014, Dhankoli, Rajesh Reddy & Vinayak Patil; 1♂, CFOR-S780, 27.V.2014, Kudavale, Rajesh Reddy & Vinayak Patil. The collection localities mentioned here are the villages with sacred groves in which the specimen were collected. They all come under

Dapoli taluka of Ratnagiri district in Maharashtra, India.

Description

Male - Measurements: Total length=5.9, Carapace length = 2.8 long, Carapace width = 2 wide, Carapace height = 1.6 high, Abdomen length = 3.2 long, Abdomen width =1.5 wide.

Carapace longer than wide, rhomboidal in lateral view; orange brown and covered with iridescent hairs; a wide band comprised of recumbent, silky white hairs runs across the clypeus and continues along the margins to the posterior end. All eyes except AME with irregular black surrounds. AER:1.4 long, MER:1.1 long, PER:1.2 long, Ocular quad length 1.8

Chelicerae brown and possess 3 and 4 teeth and Labium and maxillae pale brown. Sternum oval, dark brown with lateral areas lighter.

Legs long and strong with metatarsi and tarsi relatively very thin. Varying shades of brown on different segments and pairs of legs with femora and tibia covered with some iridescent hairs. Tibia I, II with conspicuous ventral fringes of dark long setae and tibia IV with fringes restricted to distal part. Tibia III without any fringes. Leg formula – 4 1 2 3.

Abdomen longer, orange brown covered with iridescent hairs, dorsum decorated with bright yellow patches – 2 lateral ovals in the anterior half and a transverse band in the posterior half – surrounded by darker areas. Ventrum dirty yellow with a black longitudinal patch throughout with a central lighter area.

Palp as shown in figures 5, 6 and discussed adequately in remarks and diagnosis above.

Distribution

China, India, Myanmar, Sri Lanka, Thailand, Malaysia, Indonesia (Sumatra)

Natural History

B. cingulatus was one of the most common salticid species found in the present study. It was the third most abundant species after *Asemonce tenuipes* (O. Pickard-Cambridge, 1869) and *Epeus indicus* Proszynski 1992.

Its abundance was relatively very low in disturbed sacred groves and in cashew orchards as compared to larger and undisturbed sacred groves.

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References

- Ahmed J., Khalap R., Hill D. E., Sumukha J. N. and Mohan, K. 2017. First record of *Brettus cingulatus* from India, with a review of *Brettus* in South and Southeast Asia (Araneae: Salticidae: Spartaecinae). *Peckhamia*. 151: 1-13.
- Davis S. 2011. Systematic study on salticidae (Arachnida: Araneae) from Kerala, India – with notes on habit and habitat of common forms. PhD thesis submitted to Mahatma Gandhi University, Kottayam, Kerala, India.
- Logunov D. V. and Azarkina, G. N. 2008a. New species of and records for jumping spiders of the subfamily Spartaecinae (Aranei: Salticidae). *Arthropoda Selecta* 16: 97-114.
- Merian P. 1911. Die Spinnenfauna von Celebes. Beiträge zur Tiergeographie im Indo-australischen Archipel. *Zoologische Jahrbücher, Abteilung für Systematik, Geographie und Biologie der Tiere* 31: 165-354.
- Peckham G. W. and Peckham E. G. 1903. New species of the family Attidae from South Africa, with notes on the distribution of the genera found in the Ethiopian region. *Trans. Wis. Acad. Sci., Arts Lett.* 14: 173-278.
- Peng X. J. and Kim J. P. 1998. Four species of jumping spiders (Araneae: Salticidae) from China. *Korean J. Biol. Sci.* 2: 411-414.
- Platnick N. I. 2014. The world spider catalog, version 15. American Museum of Natural History, online at <http://research.amnh.org/entomology/spiders/catalog/index.html> DOI: 10.5531/db.iz.0001.
- Sebastian P. A. and Peter K. V. 2009. Spiders of India. Universities Press, Hyderabad. 614 pp.
- Simon E. 1900. Etudes arachnologiques. 30e Mémoire. XLVII. Descriptions d'espèces nouvelles de la famille des Attidae. *Annales de la Société Entomologique de France* 69: 27-61.
- Simon E. 1901. Histoire naturelle des araignées. Paris 2: 381-668.
- Strand E. 1912. Über einige Spinnen aus Travancore in Indien. *Archiv für Naturgeschichte* 78: 144-148.
- Thorell T. 1895. Descriptive catalogue of the spiders of Burma. London, pp. 1-406.
- Wanless F. R. 1978. A revision of the spider genus *Portia* (Araneae: Salticidae). *Bull. Brit. Mus. Nat. Hist. Zool.* 34: 83-124.

Wanless F. R. 1979. A revision of the spider genus *Brettus* (Araneae: Salticidae). *Bull. Brit. Mus. Nat. Hist. Zool.* 35: 183-190.

Wanless F. R. 1984. A review of the spider subfamily Spartaeinae nom. n. (Araneae: Salticidae) with descriptions of six new genera.

Bull. Brit. Mus. Nat. Hist. Zool. 46: 135-205.

WSC. 2017. World Spider Catalog. Natural History Museum Bern, online at <http://wsc.nmbe.ch>, version 18.5, accessed on 12/11/2017.

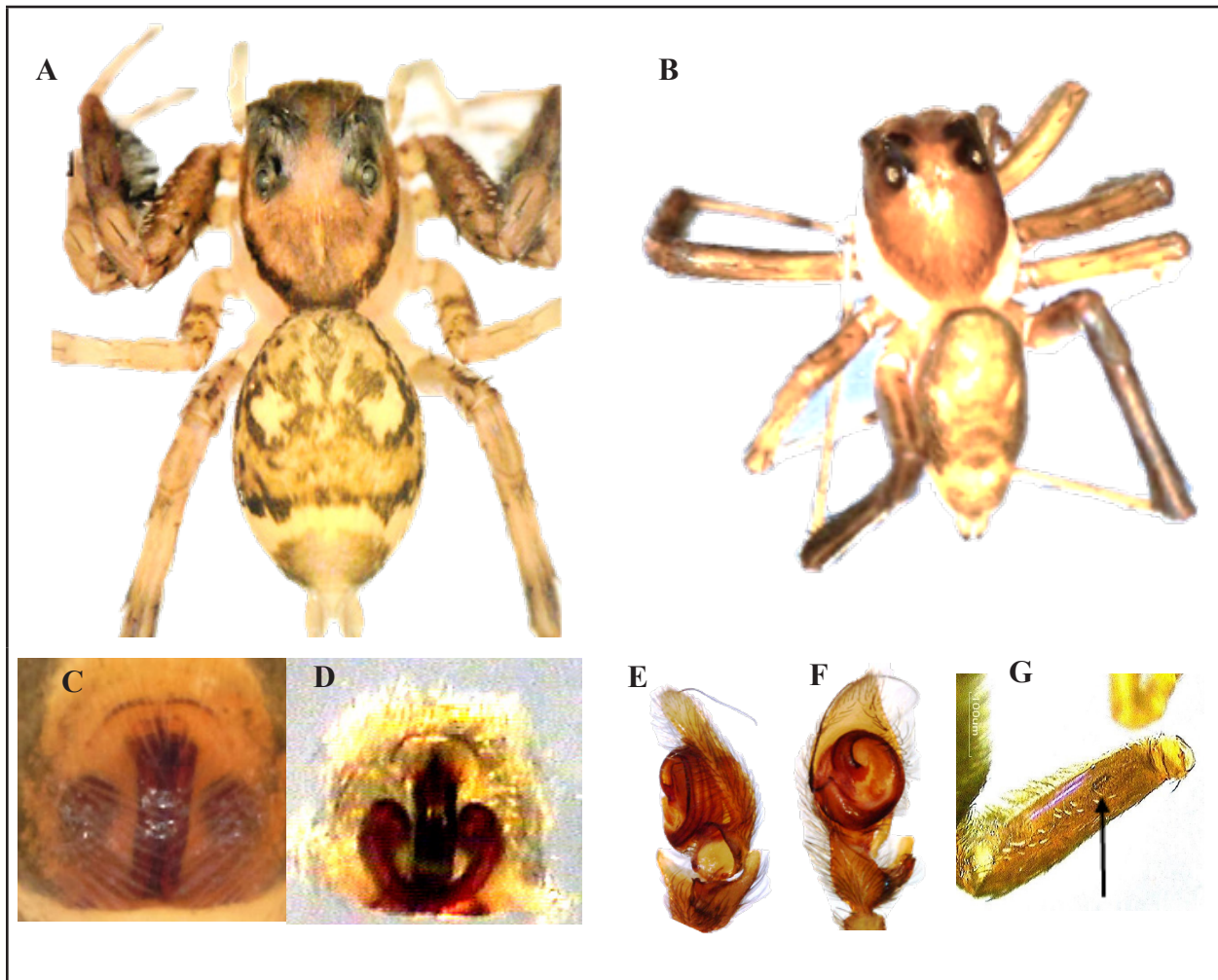


Figure 1. *Brettus cingulatus* from Dapoli, Maharashtra, India (A) habitus female, (B) habitus male, (C) epigyne external, (D) internal genitalia, (E) male palp retrolateral, (F) male palp ventral, (G) male left femur showing femoral organ.