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Salticidae from the Himalaya. New species of the genus *Carrhotus* THORELL, 1891 (Araneae: Salticidae)*

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ABSTRACT. Two new species of the jumping spider genus *Carrhotus* THORELL, 1891: *C. s-bulbosus* from Nepal, and *C. sufflavus* from Bhutan, are described, diagnosed and illustrated. New localities from Nepal of *C. operosus* JASTRZĘBSKI, 1999 are given.

Key words: arachnology, taxonomy, faunistics, Salticidae, *Carrhotus*, new species, Nepal, Bhutan, Himalaya.

INTRODUCTION

The genus *Carrhotus* was erected by THORELL in 1891 for *Plexippus viduus*. PLATNICK (2009) listed 23 nominal species belonging to this genus, but PRÓSZYŃSKI (2009) only 22 species. In fact these lists differ in as many as five species. An exhaustive characterisation of this genus is present in the literature (JASTRZĘBSKI 1999, MURPHY & MURPHY 2000). The genus *Carrhotus* is distributed mainly in Oriental region. However, first Himalayan representatives of this genus were described at the end of twentieth century (JASTRZĘBSKI 1999). Species described in following paper increase the list of Himalayan species of *Carrhotus* to nine, what makes up about 40% of all species of the genus (Fig. 7).

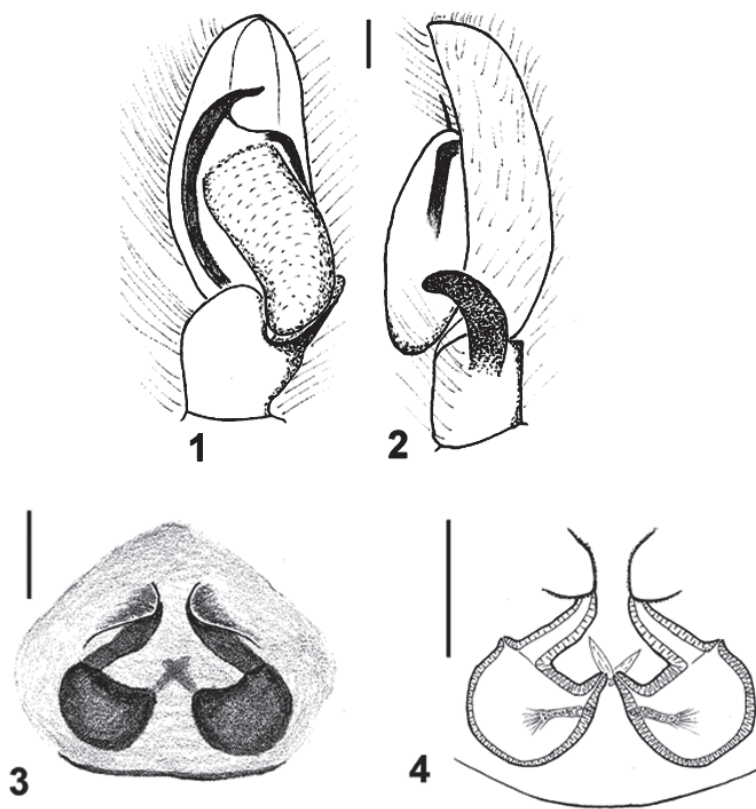
*Results of the Himalaya Expedition of J. MARTENS No. 266. - For No. 265; see: Ornithological Monographs, 2009.

MATERIAL AND METHODS

Material for this study was provided by Naturmuseum und Forschungsinstitut Senckenberg, Frankfurt a. M. (the collection of Prof. J. MARTENS, Mainz) (SMF) and Naturhistorisches Museum, Basel (the collection made by Dr W. WITTMER, Dr O. STEMMER, Dr C. BARONI-URBANI and Dr M. WÜRMLI) (NHMB).

The drawings were made using a grid system. Descriptions of colours pertain to wet specimens. Dissected epigynes were macerated in 10% KOH for 24 h. The photographs were taken by Canon PowerShot A620 attached to a stereomicroscope Nikon SMZ800. Further adjustments of the images were made with Helicon Focus. The format of leg spination follows PLATNICK & SHADAB (1975). All measurements are in mm.

Abbreviations used: AEW - anterior eye width, AL - abdomen length, CL - cephalothorax length, CW - cephalothorax width, EFL - eye field length, m a.s.l. - meters above sea level, PEW - posterior eye width, pm - prolateral metatarsal spines, pt - prolateral tibial spines, rm - retrolateral metatarsal spines, rt - retrolateral tibial.



1, 2. *Carrhotus s-bulbosus* n. sp.: 1 – palpal organ, central view, 2 – the same, lateral view; 3, 4. *C. sufflavus* n. sp.: 3 – epigyne, 4 – internal structure. Scales: 0.2 mm

DESCRIPTIONS

***Carrhotus s-bulbosus* n. sp.**

(Figs 1-2, 5)

ETYMOLOGY

Named after the S-shaped bulbus.

DIAGNOSIS

This new species can be differentiated from the related *C. sannio* by: bulbus - elongated, S-shaped; embolus - short; and tibial apophysis - wide, flat, bent towards down, with blunt tip.

DESCRIPTION

Male. Holotype. Cephalothorax dark brown. Along thoracic part longitudinal, light brown belt, tapering posteriorly. Abdomen grey with longitudinal white, herring-bone pattern and white dots forming strips. Spinnerets grey. Clypeus dark brown with sparse, long, white hairs. Chelicerae brown, its fangs lighter. Maxillae and labium brown. Sternum orange. Venter grey with white stains. Palps dark brown. Tip of cymbium lighter. Bulbus elongated, S-shaped. Embolus short. Tibial apophysis wide, flattened, bent towards down with blunt tip. Legs: coxae, trochanters and tarsi - pale yellow, outer segments - dark brown. Scopula absent. Legs formula: tI: p1-1-1 r1-1-1; mI: p1-1 r1-1; tII: p1-1 r1-1; mII: p1-1 1-1.

Measurements: CL 2.24, CW 1.72, EFL 0.92, AEW 1.64, PEW 1.40, AL 2.04.

Female unknown.

MATERIAL

Holotype: male, Nepal: Sankhua Sabha Distr., Arun Valley, betw. Mure and Hurure, mixed broad-leaved forest, 2050-2150 m, 9.-17.06.1988, coll. MARTENS & SCHAWALLER (SMF); 2 paratypes, same data.

***Carrhotus sufflavus* n. sp.**

(Figs 3-4, 6)

ETYMOLOGY

Named after colouration of specimen: fawn - *sufflavus*.

DIAGNOSIS

In comparison with *C. kamjeensis* and *C. coronatus* it can be distinguished by oval copulatory openings and straight, slanted insemination ducts.

DESCRIPTION.

Male unknown.

Female. Holotype. Eye field pale yellow. Surroundings of AME - brown, outer - black. Thoracic part brown, covered with short, white hairs, along its lower margin yellow belt. Abdomen pale grey with large, white herring-bone pattern and white dots forming strips. Spinnerets pale grey. Clypeus and chelicerae pale yellow. Maxillae and labium yellow, its tips white. Sternum light yellow. Venter white. Pedipalps white. Epigyne triangular. Copulatory openings oval. Insemination ducts straight, slanted. Spermathecae oval. Two pairs of accessory glands, both placed in the wall of spermathecae: first pair close to exit of insemination ducts; second one near fertilization ducts. Legs white. Scopula absent. Spines formula: tI: p1-1 r1-1; mI: p1-1 r1-1; tII: p1-1 r1-1; mII: p1-1 r1-1.

Measurements: CL 1.50, CW 1.08, EFL 0.60, AEW 0.93, PEW 0.93, AL 2.76.

MATERIAL

Holotyp, female, Bhutan: Tongsa, 2150 m, 24.06.1972, coll. WITTMER, STEMMER, BARONI-URBANI & WÜRMLI (NHMB).

HABITAT

Bhutan: evergreen deciduous forest, 2150 m a.s.l.

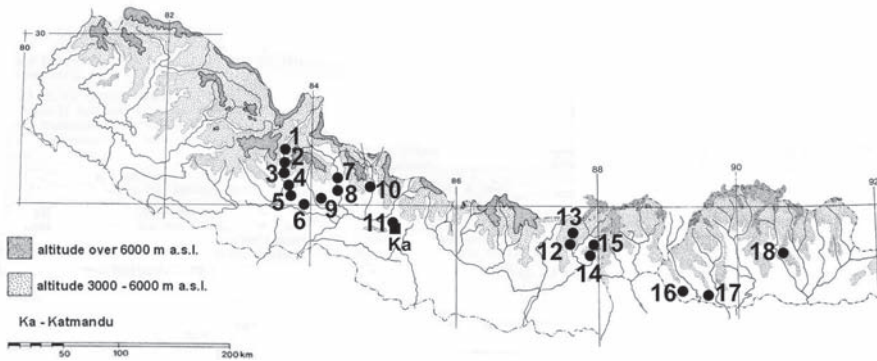


5-6. Dorsal view of *Carrhotus*: 5. *C. s-bulbosus*, male; 6. *C. sufflavus*, female

***Carrhotus operosus* JASTRZĘBSKI 1999**

REMARK

C. operosus is an exclusively Himalayan species. Except previous localities (JASTRZĘBSKI 1999), this species was found in Nepal: 1 female, Kaski Distr., oberhalb Dhampus, Laubwald, 2100 m, 8-10.05.1980, coll. MARTENS & AUSOBSKY. 1 female, Eastern Dhaulagiri, Thakkhola between Lumlé and Kharé, 1650 m, 16.12.1969, coll. MARTENS.



7. Collecting localities of *Carrhotus* species (after ŽABKA 1989, modified): Nepal: 1- Lethe, 2450-2600 m; 2 - right banks of Lethe Khola, 2400 m; 3 - Chadziou Khola near Gasa, 2600 m; 4 - Dana to Tatopani, 1300-1500 m; 5 - Beg Khola village to Bega, 1050-1650 m; 6 - between Lumlé and Kharé, 1650 m; 7 - Labubesi-Gorlabesi, 900-1000 m; 8 - Suteo-Labubesi, 700-800 m; 9 - below Dhampus, Siuketh-Tal, 1300 m; 10 - surrounding of Bahundanda, 1100-1250 m; 11 - Kathmandu Valley, Bareshwar, 1400 m; 12 - between Darapangma and Khandbari, 1100-1400 m; 13 - between Mure and Hurure, 2050-2150 m; 14 - Yamputin, 1650-1800 m; 15 - Sablako Pass to Lambudin, 1300-1600 m; Bhutan: 16 - Samchi, 300 m; 17 - Kamjee, 1400 m; 18 - Tongsa, 2150 m; According to species: *C. sannio*: 7, 14, 16; *C. viduus*: 5, 16; *C. erus*: 4, 9, 10, 11, 12, 15; *C. kamjeensis*: 17; *C. samchiensis*: 16; *C. catagraphus*: 8; *C. operosus*: 1, 2, 3, 6, 9; *C. s-bulbosus*: 13; *C. sufflavus*: 18.

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