

# The Peruvian short-tailed whip scorpion *Surazomus chavin* – rediscovery after three decades and first photographic documentation

(Arachnida, Schizomida, Hubbardiidae)

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*Surazomus chavin* Pinto-da-Rocha, 1996 has been rediscovered at the type locality in Panguana, Dept. Huanuco, Peru, after nearly three decades. As an addition to the original description the small and eyeless arachnid is photo-documented for the first time, combining autofluorescence and light microscopy. Analysis of original and new material results in emendations concerning some morphological features, e. g. the number of articles and the positions of setae on the female flagellum, and details of the male pedipalp.

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## Introduction

Some authors still place the Schizomida (short-tailed whip scorpions) beside the Thelyphonida (whip scorpions) as one of the two suborders of the Uropygi (Ruppert et al. 2004). However, most authors consider them as a separate order in the Arachnida (Shultz 1990, Reddell & Cokendolpher 1995, Harvey 2002).

Distribution of the schizomids is worldwide, mainly in tropical and subtropical regions. Habitats of these small and eyeless arachnids are well reported to include humid leaf litter, caves, the undersides of stones, or tree bark (Reddell & Cokendolpher 2002). Although two families, 46 genera, and around 260 described species are recognized already, *Surazomus chavin* is the only species reported from Peru (Harvey 2007).

## Material and methods

Between May 1984 and May 1985 forty specimens of both sexes were collected by Dr. M. Verhaagh (Staatliches Museum für Naturkunde Karlsruhe, Germany)

with pitfall traps in the Amazonian primary evergreen rain forest of ACP Panguana, Dept. Huanuco, Peru (9°37'S, 74°56'W). Based on this material, the species was described in 1996 by R. Pinto-da-Rocha (Museu de Zoologia, São Paulo, Brazil).

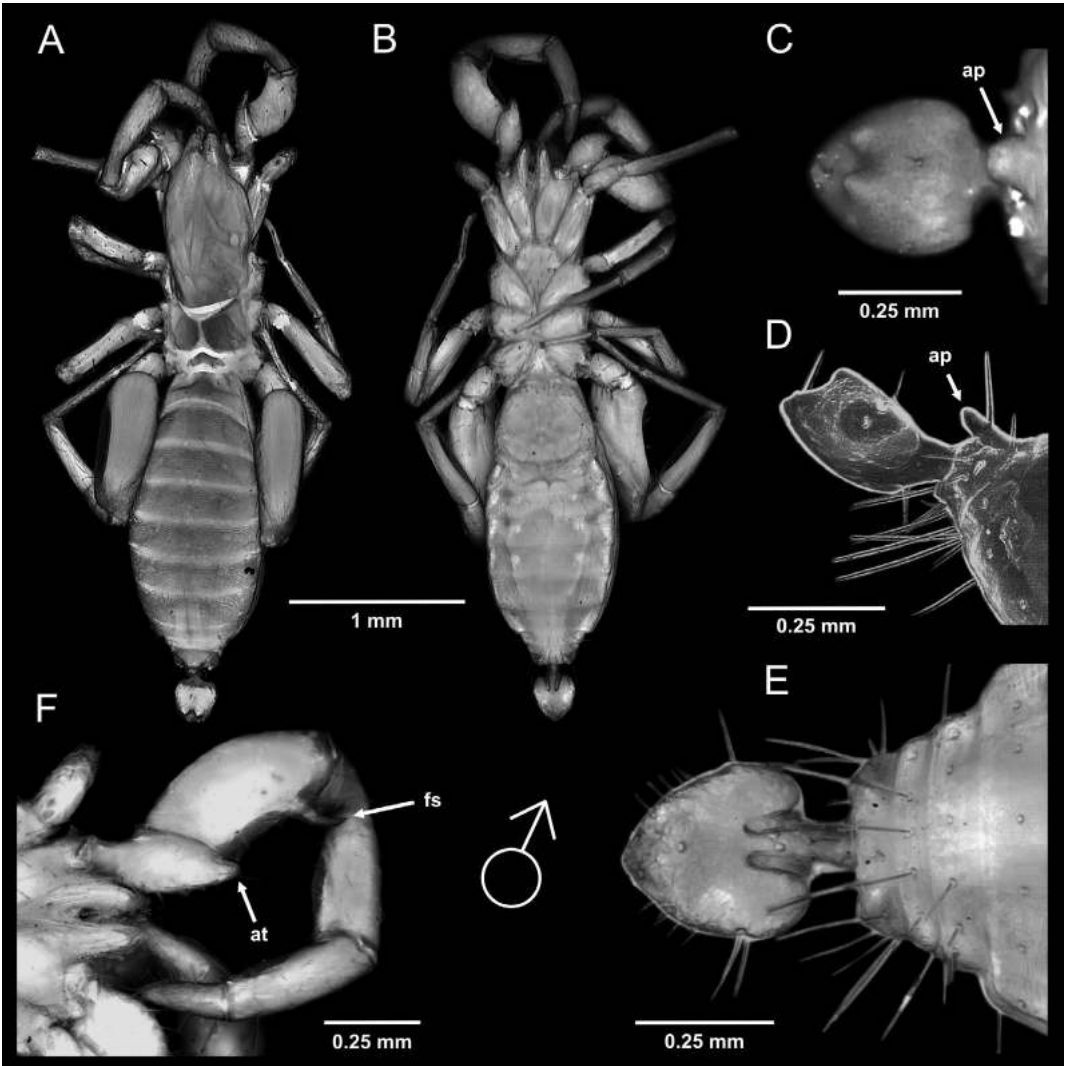
During a stay in September/October 2013 at the biological field station and protection area ACP Panguana, the present author collected one female specimen through Winkler extraction from leaf litter and upper soil layer.

To confirm determination one male (SMNK Schiz 31) and one female specimen (SMNK Schiz 02) from the original series – both determined by Pinto-da-Rocha, but of uncertain type status – were examined non-invasively along with the freshly collected female (ZSMA20142001), using a BLOREVO Keyence BZ-9000 fluorescence microscope under autofluorescence conditions combined with light microscopy.

## Results

### Male specimen from original series

Body length without flagellum: 3.1 mm. Features revealed by photo-examination under autofluorescence conditions correspond with the original



**Fig. 1.** Male specimen from original series: **A.** Dorsal view; **B.** Ventral view; **C.** Flagellum (dorsal); **D.** Flagellum (lateral); **E.** Flagellum (ventral); **F.** Left pedipalp (outer side). **ap**, abdominal process; **at**, apical tip of trochanter; **fs**, femoral spur.

description, except for the position and shape of the pedipalpal femoral spur, and the shape of the apical tip of the trochanter. In the description the femoral spur is drawn more or less straight, but actually it is clearly arcuated towards the patella, and its position is more distal at about 60 % of femoral length. The shape of the pointed tip located apically on the pedipalpal trochanter is much more pronounced than in the original drawing (Fig. 1). Presence of the mesal spur on the inner side of the pedipalpal trochanter is confirmed.

#### Female specimen from original series

Body length without flagellum: 4.6 mm. Most features revealed by photo-examination correspond with the original description, including the position of the spermathecae. However, detected by autofluorescence, the flagellum consists of 4 articles rather than only 3 (Fig. 2), and the description of the flagellum setation needs to be corrected as given in Table 1:

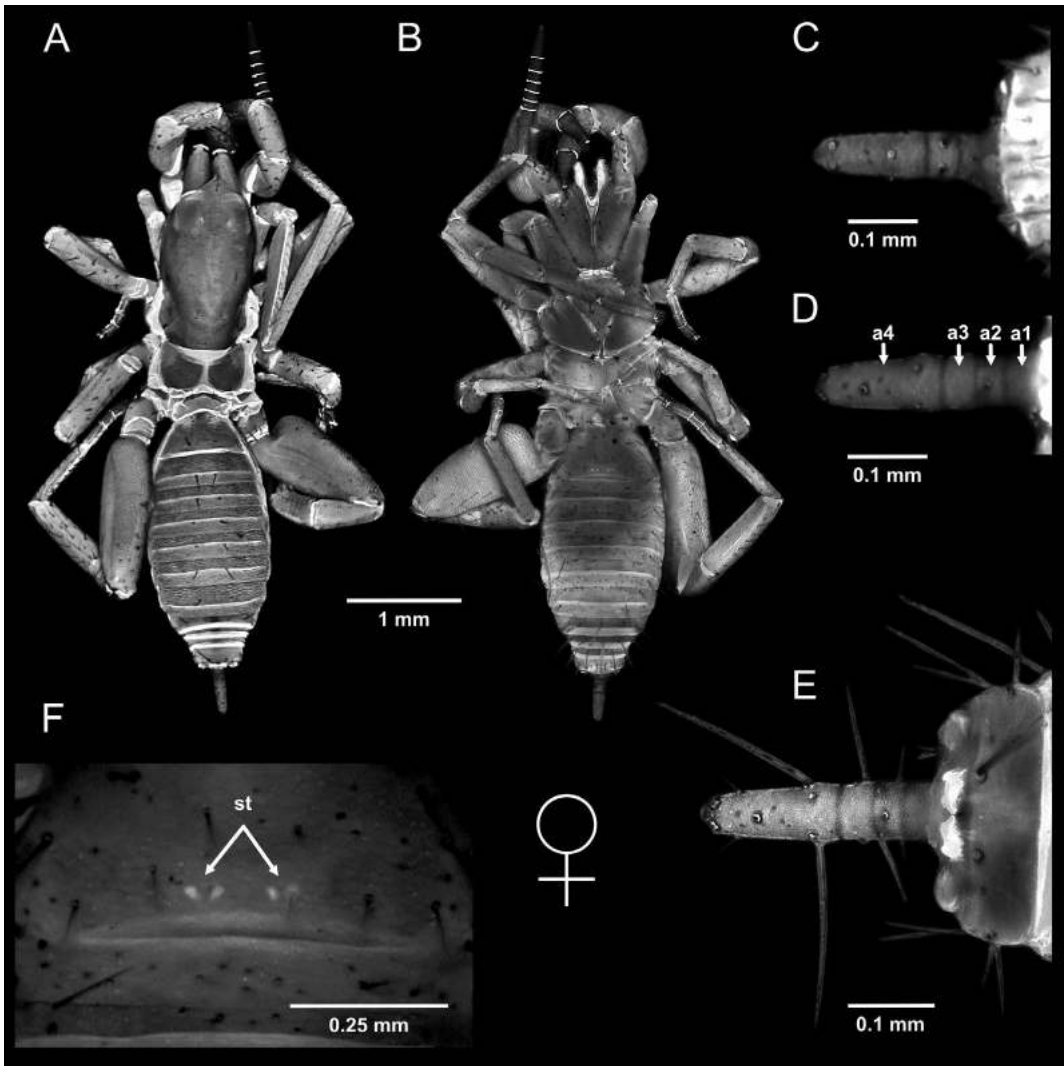


Fig. 2. Female specimen from original series: A. Dorsal view; B. Ventral view; C. Flagellum (ventral); D. Flagellum (dorsal); E. Flagellum (dorsal); F. Spermathecae. a1–a4, flagellum articles (from proximal to distal); st, spermathecae.

Tab. 1. Setation of the female flagellum (articles 1 to 4 from proximal to distal).

	number of setae			
	article 1	article 2	article 3	article 4
dorsal view	0	1	0	5(2,1,2)
ventral view	0	3(1,2)	2	3(1,2)

#### Female specimen from 2013

Body length without flagellum: 3.4 mm. The photo-examination confirms the species identification. All morphological aspects correspond with the original material (Fig. 3).

#### Acknowledgements

Many thanks to Dr. Juliane and Erich Diller (both ZSM) for the invitation to Panguana, to Franz Wachtel (Grünwald) for his help and expertise in

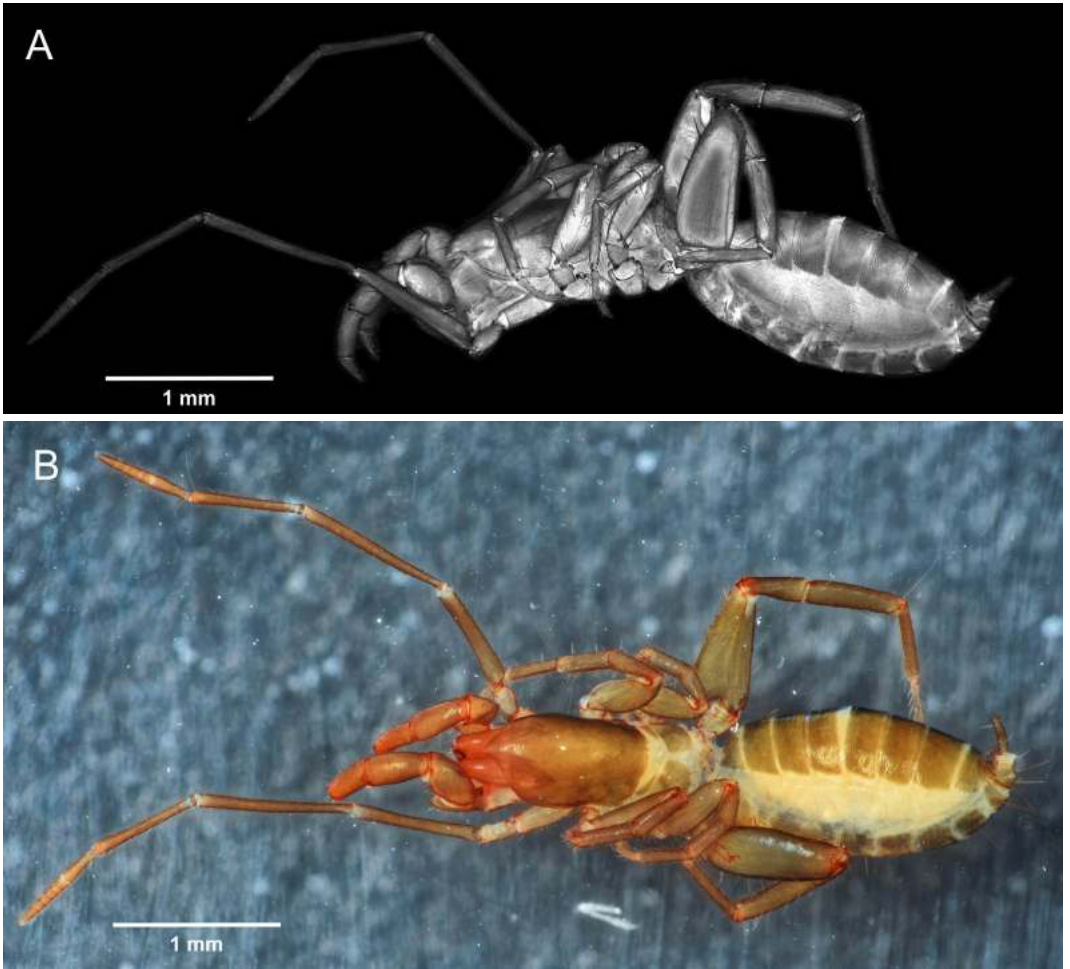


Fig. 3. Female specimen from 2013: A. Lateral view; B. Dorsolateral view (photo: Jörg Spelda, ZSM).

the field and allocation of the Winkler Extractor, to Dr. Joachim Haug, Dr. Carolin Haug and Isabel Dittmann (LMU, Munich) for the autofluorescence photos, to Dr. Hubert Höfer (Staatliches Museum für Naturkunde Karlsruhe) for providing material, to Martin Spies (ZSM) for polishing the English, and last but not least to Prof. Dr. Roland Melzer (ZSM), who made this fieldtrip possible for me.

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