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A redescription of *Heliophanus pygmaeus* WESOŁOWSKA et RUSSELL-SMITH, 2000, a small beetle-like salticid from Africa (Araneae: Salticidae)

WANDA WESOŁOWSKA

Zoological Institute, Wrocław University, Sienkiewicza 21, 50-335 Wrocław, Poland,
e-mail: tomwes@biol.uni.wroc.pl

ABSTRACT. Redescription of *Heliophanus pygmaeus* WESOŁOWSKA et RUSSELL-SMITH, 2000 is provided. Female of the species was hitherto incorrectly described as the female of *Xuriella prima* WESOŁOWSKA et RUSSELL-SMITH, 2000. New distributional data are presented.

Key words: arachnology, Araneae, Salticidae, *Heliophanus*, *Xuriella*, redescription, Afrotropical Region, beetle mimicry.

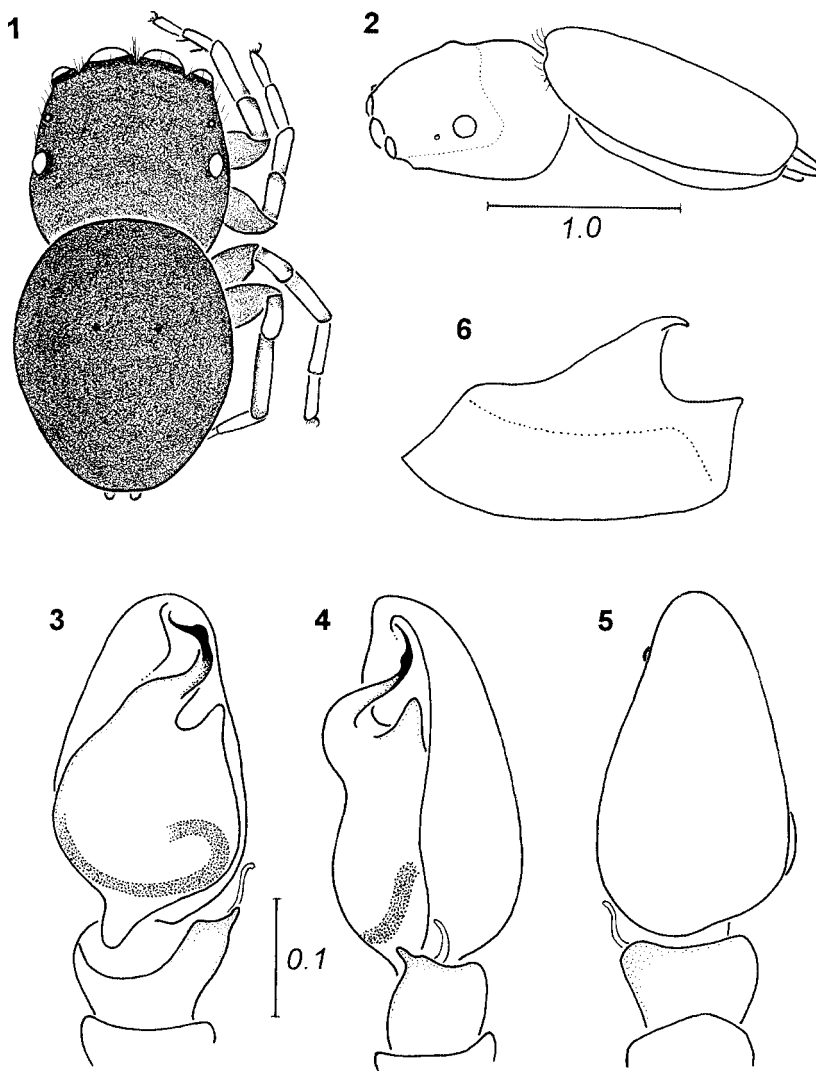
Heliophanus pygmaeus is a diminutive, beetle-like jumping spider, adult specimens reach only 2 mm. This epigeic salticid was collected in pitfall traps from woodland or grassland with bushes (WESOŁOWSKA & RUSSELL-SMITH 2000) or found in litter (see below).

The species was described from the Mkomazi Game Reserve in Tanzania on the basis of the males. The females, caught separately, were incorrectly connected to the male of another beetle-like species, *Xuriella prima* WESOŁOWSKA et RUSSELL-SMITH, 2000. The latter species belongs to the subfamily Dendryphantinae; its eyes of the second row are close to the anterior row. In the female of *H. pygmaeus* the second eye row is placed further away (in the mid of eye field). This feature had been overlooked though, and the overall external similarity resulted in the decision of describing this spider as *X. prima*.

New material from Western Africa, where spiders of both sexes were collected together, allowed to decide unequivocally on their conspecificity. The

descriptions of both sexes are provided below. *H. pygmaeus* occurs also in Zimbabwe (CUMMING & WESOŁOWSKA, unpubl.).

Relationships of *H. pygmaeus* remain unknown and are difficult to recognise. On the one hand, the presence of the femoral apophysis on the male's palp, a character typical for *Heliophanus*, but otherwise quite exceptional in salticids, justifies its placement in *Heliophanus*. On the other hand, the female genitalia



1-6. *Heliophanus pygmaeus* WES. et RUS.-SM., male: 1-2 - general appearance, dorsal and lateral views, 3-5 - palpal organ, ventral, lateral and dorsal views, 6 - palpal femur, prolateral view

resemble those of the so-called *Icius-Pseudicius* complex of genera, and the beetle resemblance impedes the evaluation of the external morphological similarities of *H. pygmaeus*. Though no beetle mimics have been recorded so far in *Heliophanus* or in the *Icius-Pseudicius* complex, this type of mimicry is rather common in spiders (including salticids) and has probably developed independently several times. Such convergent evolution could easily obscure the phylogenetic relationships among species, as shown e.g. by PRÓSZYŃSKI (1971) in his revision of Coccothecinae, the salticid subfamily consisting exclusively of the beetle-like genera.

***Heliophanus pygmaeus* WESOŁOWSKA et RUSSELL-SMITH, 2000**

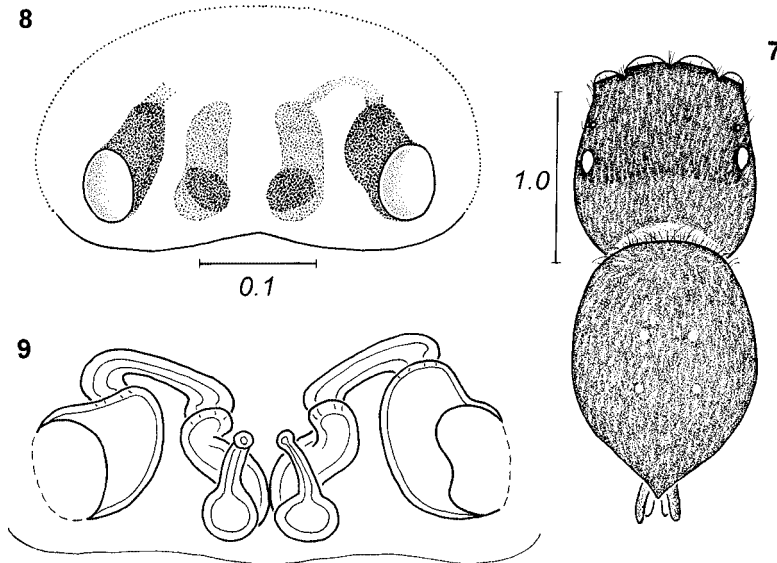
(Figs 1-13)

Heliophanus pygmaeus WESOŁOWSKA & RUSSELL-SMITH 2000: 36.

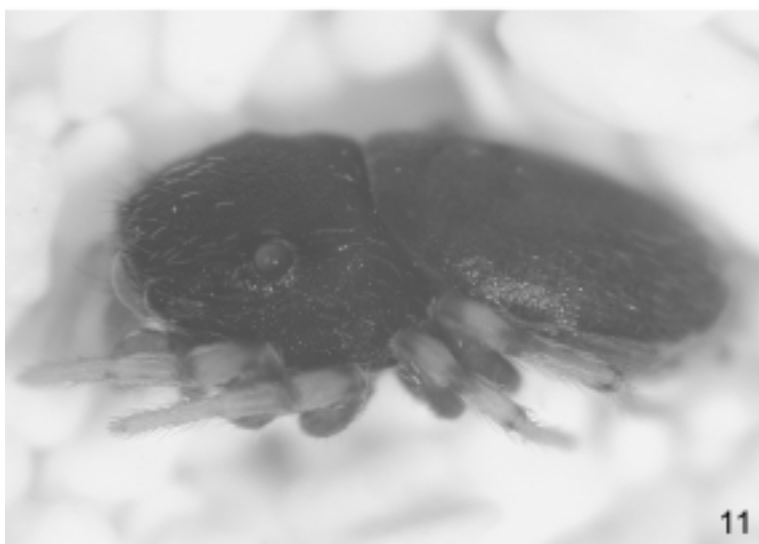
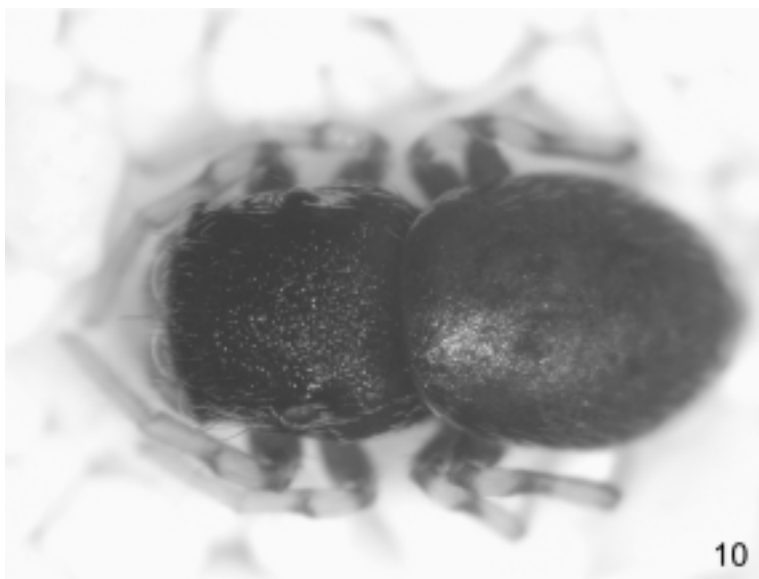
Xuriella prima WESOŁOWSKA & RUSSELL-SMITH 2000: 115, part: female only.

MATERIAL

Senegal: Sonkorong, région de Thyssé, 13°46'N 15°32'W, in litter, old fallow woodland, 3 males, 2 females, 14.VI.1994, leg. A. RUSSELL-SMITH, Hungarian Natural History Museum (Budapest).



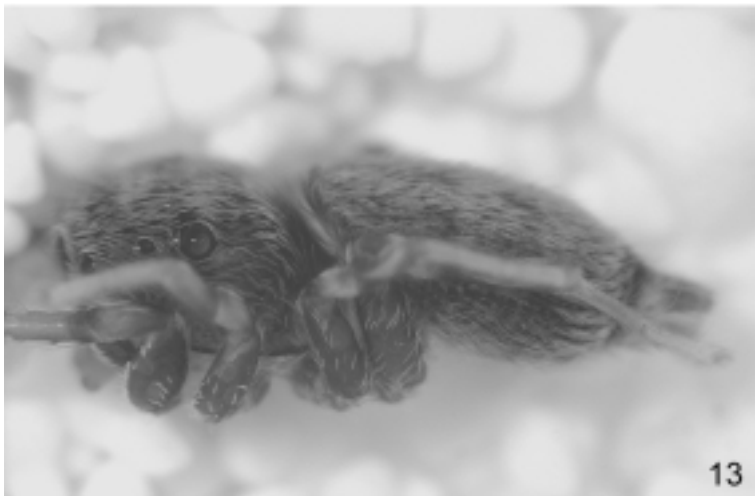
7-9. *Heliophanus pygmaeus* WES. et RUS.-SM., female: 7 - general appearance, dorsal view, 8-9 - epigyne and its internal structure



10-11. *Heliophanus pygmaeus* WES. et RUS.-SM., male, general appearance, dorsal and lateral views

DESCRIPTION

Male. Measurements [in mm]. Carapace length 0.9-1.0, width 0.7-0.9, height 0.3-0.5. Abdomen length 0.9-1.3, width 0.7-1.0. Eye field length 0.4-0.5, anterior width 0.6-0.8, posterior width 0.7-0.9. Leg spination. I: Fm d 1-1-1, Tb v 1-1, Mt v 2-2; II Fm d 1-1-1, Tb v 1-0, Mt v 1-1; III and IV Fm d 1-1. General appearance in Figs 1-2, 10-11. Very small, squat, flattened spider. Carapace medium high,



12-13. *Heliophanus pygmaeus* WES. et RUS.-SM., female, general appearance, dorsal and lateral views

rather broad, slightly broadening posteriorly. Posterior slope of carapace gently sloping, slightly concave, covered by anterior part of abdomen. Eye field large, slightly trapezoid, anterior eyes surrounded by small black scales. Carapace dark brown, eye field black with punctured-reticulate microsculpture. Some brown bristles near anterior eyes, scarce delicate greyish hairs on dorsal surface, slightly denser on slopes. Clypeus extremely low. Chelicerae dark brown, unidentate. Mouthparts brown. Sternum heart-shaped, dark. Abdomen rounded, very flattened, with large scutum covering whole dorsum (Fig. 2). Scutum strongly sclerotized, its posterior edge obtuse. Dorsal surface of abdomen with metallic shine, bald, only few long dark bristles at anterior margin. Venter dark, with two longitudinal lines composed of light dots and a pair of small patches at base of spinnerets. Spinnerets short, anterior yellowish, posterior brown. Legs short. Coxae, trochanters and femora brown, patellae yellow with narrow brown rings at bases and tips, tibiae light with dark tips (only tibia III with rings at base and tip and with dark streak on prolateral surface), metatarsi and tarsi yellow. Spines of background colour, leg hairs diminutive, colourless. Pedipalps light brown. Bulbus with distinctive posterior lobe and process at base of embolus (Fig. 3). Embolus with small protuberance at its centre (Figs 3-4). Tibial apophysis very short, long filiform appendix placed dorsally to apophysis (Figs 3-5). Femoral apophysis big, hooked (Fig. 6).

Female. Measurements. Carapace length 1.0, width 0.9, height 0.4-0.5. Abdomen length 1.1-1.3, width 0.9-1.0. Eye field length 0.5, anterior width 0.8, posterior width 0.9. Leg spination. I: Fm d 1-1-1, Tb v 2-2, Mt v 2-2; II Fm d 1-1-1, Tb v 1-0, Mt v 2-2; III and IV Fm d 1-1. General appearance in Figs 7, 12-13. A little bigger than male. Whole body very hairy; hairs short dense greyish (Fig. 7). Coloration slightly lighter than in male. Anterior eyes surrounded by grey scales. Maxillae greyish yellow. Abdomen without scutum, sigilla clearly visible, end of abdomen pointed. Venter greyish brown, light patches near spinnerets base bigger than in male. Legs similarly coloured as in male, but tibiae darker, with brown streaks on lateral surfaces, or uniformly brown. Pedipalps yellow, covered with light hairs, only femora darker. Epigyne oval, short and broad with two rounded openings located laterally (Fig. 8). Seminal ducts narrow, their initial parts hidden in deep heavily sclerotized cups, receptacles elongated (Fig. 9).

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