

***Euathlus latithorax* (Strand, 1908) is a synonym of *E. vulpinus* (Karsch, 1880) (Araneae, Theraphosidae, Theraphosinae)**

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Summary

Euathlus vulpinus (Karsch, 1880) and *E. latithorax* (Strand, 1908) are very similar species which were distinguished only by the position of a digitiform projection on the spermathecal receptacles, situated proximally in *E. latithorax* and distally in *E. vulpinus*. The spermathecal morphology is additionally characterised by the sinusoidal anterior margin and nodular fundus. We found a female *Euathlus* specimen from Concepción, Chile that shares the characteristics of both species. The left receptacle has a distal digitiform projection, while the right receptacle has a proximal digitiform projection, suggesting that the position of the digitiform projection could vary among individuals. For this reason, *E. latithorax* is considered a junior synonym of *E. vulpinus*. The digitiform projection on the spermathecal receptacles of *E. vulpinus* could be interpreted as an additional lobe, this condition (multilobular spermathecae) having previously been considered absent in the subfamily Theraphosinae and ancestral within Mygalomorphae.

Introduction

The Theraphosinae Thorell, 1870 (Theraphosidae) is a speciose subfamily that is distributed exclusively in the New World, showing high diversity in the southern region of North America, and in Central and South America. It comprises more than fifty recognised genera, which exhibit a great degree of morphological homogeneity, and for this reason the taxonomy of the group reveals considerable difficulties and misunderstandings (Schiapelli & Gerschman, 1979; Raven, 1985; Goloboff, 1993; Pérez-Miles *et al.*, 1996).

Euathlus Ausserer, 1875 is characterised by the reduced number of labial cuspules, absence of stridulatory setae, absence of retrolateral scopula on femur IV, claws without teeth, type III, IV and III/IV intermediate urticating setae, transverse fovea, paired spermathecal receptacles that diverge laterally, and the palpal organ morphology (Pérez-Miles *et al.*, 1996; Gallon, 2005). The genus *Euathlus* is restricted to South America and occurs in Argentina, Chile and Ecuador, with four described species (Platnick, 2009). The type species is *Euathlus truculentus* L. Koch, 1875.

Ashantia Strand, 1908 was considered a synonym of *Harpactirella* Purcell, 1902 (Harpactirinae Pocock, 1897) by Raven (1985: 149), because of the absence of a cheliceral scopula and lyra, few labial cuspules and the wide clypeus. Raven considered the larger spider size and the undivided scopulae on tarsi II found only in *Ashantia* insufficient to warrant generic recognition. Later, Gallon (2005) examined the only female specimen on which the species *Ashantia latithorax* Strand, 1908 was based, and established *Ashantia* as a junior synonym

of *Euathlus*, correcting the erroneous geographical distribution. The type locality of *A. latithorax* (Ghana, West Africa) was considered erroneous because of the presence of type III, IV and III/IV intermediate urticating setae on the abdomen. Urticating setae have been found exclusively in New World Theraphosidae and absent in Old World theraphosid subfamilies (Cooke *et al.*, 1972; Pérez-Miles *et al.*, 1996; Bertani & Fukushima, 2004).

Euathlus vulpinus (Karsch, 1880) and *E. latithorax* (Strand, 1908) are very similar species which were distinguished only by the position of a digitiform projection on the spermathecal receptacles, situated proximally in *E. latithorax* (Gallon, 2005: fig. 4) and distally in *E. vulpinus* (Gallon, 2005: fig. 5; Schmidt, 1996b: fig. 1). Gallon (2005) suggested that the two species are possibly synonymous, but he did not have enough evidence at the time and maintained *E. latithorax* and *E. vulpinus* as separate species.

A single female *Euathlus* specimen from Concepción, Chile, put into question the validity of *E. latithorax* and led us to establish its synonymy with *E. vulpinus*. The spermathecal receptacles of this specimen are described here.

Material examined

Euathlus 1♀ (MZUC-UCCC 35275) from Concepción, Chile (36°50'S, 73°03'W), Prov. Concepción, VIII Reg. Chile (leg. J. N. Artigas; 21 December 1995).

Euathlus vulpinus 1♀ (MZUC-UCCC 35276) from Río Infernillo, Provincia de Ñuble, Chile.

Euathlus truculentus 1♀ (MZUC-UCCC 35274) from Valle Nonguen (37°00'S, 72°30'W), Concepción, Prov. Concepción, VIII Reg. Chile (leg. C. Arocena; 18 November 1995).

All material deposited in Museo Zoológico, Universidad de Concepción, Chile (MZUC). We did not examine type material. Measurements were taken from digital photographs using Image Tool for Windows, ver. 3.00, developed by Wilcox *et al.* (2002). All measurements are in mm.

***Euathlus vulpinus* (Karsch, 1880) (Figs. 1–2)**

Orthothrichus vulpinus Karsch, 1880: 390.

Euathlus vulpinus: Schmidt, 1996a: 14; 1996b: 67, unnumbered fig.; 1998: 10, fig. 1; Peters, 2003: 175, fig. 696; Gallon, 2005: 199, fig. 5.

Ashantia latithorax Strand, 1908: 770; 1916: 50. **New synonymy.**

Euathlus latithorax: Gallon, 2005: 199, figs. 1–4.

Diagnosis: *Euathlus vulpinus* (Karsch, 1880) differs from *E. truculentus* L. Koch, 1875 and *E. pulcherrimaklaasi* (Schmidt, 1991) by the presence of a digitiform projection on the spermathecal receptacles (Fig. 1) and by the spermathecal fundi being large and circular in the last two species (Schmidt, 1991: figs. 2 and 6). The spermathecal receptacles of *E. vulpinus* are characterised by the sinusoidal anterior margin, nodular fundus and digitiform projection. This digitiform projection can be located proximally or distally on the spermathecal

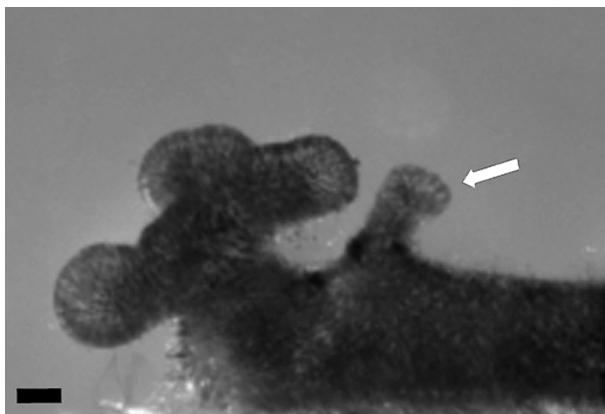


Fig. 1: *Euathlus vulpinus*, female from Concepción, Chile (MZUC-UCCC 35275). Left spermathecal receptacle, dorsal view. Digitiform projection arrowed. Scale line=0.1 mm.

receptacles, and this variation can occur in the same individual (Fig. 2). This evidence supports the new synonymy here established.

Description of spermathecal receptacles: Two spermathecal receptacles, completely separated (0.37 apart), diverging laterally at 180°, asymmetrical. Sinusoidal anterior margin. Rounded fundus clearly distinct, with neck and multiple nodules (Figs. 1 and 2). Major axis of spermathecal receptacle transverse and straight. Walls of spermathecae with medium-sized granules. Left receptacle with distal digitiform projection, right receptacle with proximal digitiform projection (Fig. 2). Left spermathecal receptacle: total length 1.35, width 0.41, fundus diameter 0.20, digitiform projection length 0.16, width 0.08, neck diameter 0.24. Right spermathecal receptacle: total length 1.39, width 0.5, fundus diameter 0.20, digitiform projection length 0.12, width 0.08, neck diameter 0.23.

For a complete description of the species see Gallon (2005).

Discussion

Euathlus is phylogenetically related to a basal unresolved group of theraphosine genera, probably supported by the presence of type IV urticating setae (Pérez-Miles *et al.*, 1996; Pérez-Miles, 2000) or the absence of type I urticating setae. The paired spermathecal receptacles that conspicuously diverge laterally are a feature shared only with *Paraphysa* Simon,

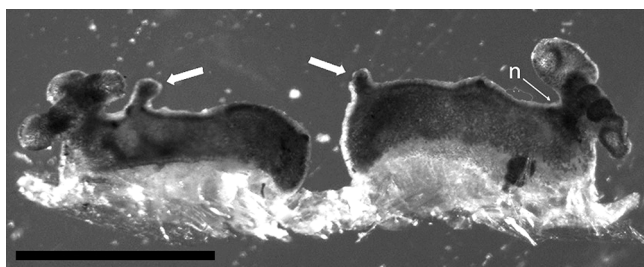


Fig. 2: *Euathlus vulpinus*, female from Concepción, Chile (MZUC-UCCC 35275). Spermathecal receptacles, dorsal view. Left receptacle has a distal digitiform projection and right receptacle has a proximal digitiform projection. Neck (n). Scale line=1.0 mm.

1892 and *Kochiana* Fukushima, Nagahama & Bertani, 2008.

Euathlus and *Paraphysa* have a confused taxonomy, as some species have been located in both genera and additionally in *Phrixotrichus* Simon, 1889 (Pérez-Miles *et al.*, 1996; Schmidt, 1996a). The monophyly of *Euathlus* and *Paraphysa* was recently discussed (Perafán & Pérez-Miles, 2008).

Euathlus latithorax and *E. vulpinus* were distinguished only by the position of a digitiform projection on the spermathecal receptacles (Gallon, 2005). The female specimen studied here shares the characteristics of both species, showing that the position of the digitiform projection can vary within an individual and among individuals. For this reason *E. latithorax* is considered a junior synonym of *E. vulpinus*.

The unilobular spermathecal receptacle has been considered as an apomorphy of the Theraphosinae (Pérez-Miles, 1992; Pérez-Miles *et al.*, 1996). However, the digitiform projection on the spermathecal receptacles of *E. vulpinus* could be interpreted as an additional lobe. Spermathecal receptacles with multiple lobes are considered ancestral within the Mygalomorphae (Brignoli, 1978; Kraus, 1978) and also in other subfamilies of the Theraphosidae such as the Ischnocolinae and Aviculariinae (Pérez-Miles *et al.*, 1996). The genus *Euathlus* is basal in the basal group of the Theraphosinae (Pérez-Miles *et al.*, 1996; Pérez-Miles, 2000), consequently the apomorphic unilobular spermathecal receptacle could have been acquired by a group of derived Theraphosinae but not by all theraphosid genera.

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