

Females of the *Walckenaeria*-species (Araneae, Linyphiidae) in the Czech Republic

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Abstract

The key to females of nineteen *Walckenaeria*-species occurring in the Czech Republic is presented. Two nomenclatorial problems within the genus *Walckenaeria* are solved.

Key words: Spiders, *Walckenaeria*

Introduction

The genus *Walckenaeria* now includes the old genera *Walckenaeria*, *Wideria*, *Cornicularia*, *Prosopotheca*, *Trachynella* and *Tigellinus* (see WUNDERLICH 1972). There are nineteen Czech species now included in this genus. Eighteen of them are included in the key (MILLER 1971) and in the check-list (BUCHAR et al. 1995) of the Czech arachnofauna. *W. alticeps* was distinguished in the material determined formerly as *W. antica* according to WUNDERLICH (1972) and KRONESTEDT (1980) during last years. On the other hand, *W. simplex* is not included in the key of Central European species (HEIMER & NENTWIG 1991). Several additional problems and forgotten facts exist.

Results and discussion

The figure of the epigyne of *W. cuspidata* presented in the key of Central European Spiders (HEIMER & NENTWIG 1991) is redrawn from the book of WIEHLE (1960) and is untypical (WUNDERLICH 1972).

It was discovered by WUNDERLICH (1970) that the male known as *Wideria polita* (SIMON, 1881) is in fact the male of *W. incisa*. WUNDERLICH (1970) described a new species *Walckenaeria vidua* after a male, which is by SIMON (1884, 1926), and also by WIEHLE (1960) erroneously taken as a male of *W. incisa*.

Several mistakes are connected with the data given in the MILLER's key. MILLER (1971) presents two species with a designation "*milleri* WUNDERL., 1971".

1. "*Wideria milleri* WUNDERL., 1971". A female is described on the page 286, a male cephalothorax of *W. milleri* is presented on Table LI, Fig. 26 (not on "Table 60, Fig. 26", which is erroneously given by WUNDERLICH, 1972) and Table LII, Fig. 4. However, the male is described as *W. suspecta* (KULCZ., 1882) on the page 254. WUNDERLICH (1972) writes on the page 399 (not "339", which is erroneously given by BRIGNOLI, 1983): "I did not present the taxon *Wideria milleri* WUNDERLICH". MILLER gives records from forests in High Tatra. The material from High Tatras with labels "*W. suspecta*" in MILLER's own handwriting is deposited in National Museum, Prague. In sixteenth, J. WUNDERLICH obtained from F. MILLER the material from High Tatras and planned to name it after F. MILLER. Afterwards, J. WUNDERLICH determined the material as *W. suspecta* and informed F. MILLER, but he changed the name in the description of a male only (probably during corrections in the proof); the name

milleri remains in the description of a female and in the text to figures. The species is included and diagnosed in the MILLER's key, so *Wideria milleri* MILLER, 1971 is a junior synonymum of *Walckenaeria suspecta* (see BRIGNOLI 1983).

2. "*Baryphyma milleri* WUNDERL., 1971". A short description is given on the page 254. However, the male palp (Table LI, Fig. 17; not "1-7", which is erroneously given by BRIGNOLI, 1983) is designated in the figure legend as *Baryphyma pratense* (BLACKWALL, 1861), the female of *Baryphyma pratense* is described (page 292, Table LI, Fig. 18). The male palp, the general description, and habitat demands fit to *Baryphyma pratense*. The male of *Baryphyma milleri* is not described in another text part. MILLER gives records from wetlands near Soběslav. The material from Soběslav with labels "*Baryphyma pratense*" in MILLER's own handwriting is deposited in National Museum, Prague. In the copy of the key, which has Prof. J. BUCHAR, is at the name *Baryphyma milleri* the note in MILLER's own handwriting: "*Baryphyma pratense*". No connection to J. WUNDERLICH exist (WUNDERLICH in litt.). The name *Baryphyma milleri* is an inadvertent error. This name is on the same page on which the original name "*W. milleri* Wunderl., 1971" was replaced by correct name "*W. suspecta* (Kulcz., 1882)". The fragment "*milleri* Wunderl., 1971" was probably inserted in the paragraph with the description of *Baryphyma pratense* as a result of false interpretation of MILLER's marginal notes during corrections in the proof. All speculations about the synonymy of *Baryphyma milleri* Miller, 1971 with *Walckenaeria suspecta* (Kulczyński, 1882) are quite false (BRIGNOLI 1983; PLATNICK 1993).

The key of Central European Spiders (HEIMER & NENTWIG 1991) comprises three additional species, known from close neighbourhood, which can be recorded also in the Czech Republic. *W. incisa* was recorded in Germany (WIEHLE 1960) and Slovakia (GAJDOŠ et al. 1999). The information on the occurrence of *W. incisa* in the Czech Republic (JELÍNEK & SVATOŇ 1995) is based on misidentification (Jelínek in litt.). *W. stylifrons* was recorded in Germany, e.g. Giessen, Berlin, Tübingen (WUNDERLICH 1972). *W. clavicornis* is an arctic-alpine species, known from Scandinavia and the Alps (THALER 1976).

Males of *Walckenaeria*-species are easily distinguished by consideration of the form of a carapace and palpal organs. The most complicated case, the distinguishing of *W. antica* and *W. alticeps*, was solved by KRONESTEDT (1980) and repeated by ROBERTS (1987). However, the determination of females can cause problems; it is demonstrated with notes about possible misidentifications in the key of PALMGREN (1976). We arrange the key of females of *Walckenaeria*-species with fotos of epigynes in order to make the determination of females of this species-rich genus more comfort.

Key to the females of the *Walckenaeria*-species in the Czech Republic

- 1 Tibiae of legs I and II usually darkened 2
- Tibiae of legs I and II not darkened 4
- 2 Epigynal plate with distinct dark lateral margins, which curve inside anteriorly. Oval receptacles only are visible before epigynal plate (Fig. 1). Carapace yellow-brown, with head region a little darker *W. atrotibialis* (O. P.-CAMBRIDGE, 1878)
- Epigynal plate without distinct lateral margins. Elongated receptacles and ducts are visible before epigynal plate. Carapace brown, unicolorous 3
- 3 Outer margin of receptacles, which are visible through the cuticle, bilobate, also examined oblique from the front (Fig. 2). It is necessary to clear the vulva in the case of uncertainty in distinguishing from the next species (Fig. 20) *W. antica* (WIDER, 1834)
- Outer margin of receptacles, which are visible through the cuticle, trilobate, examined oblique from the front (Fig. 3). It is necessary to clear the vulva in the case of uncertainty in distinguishing from the previous species (Fig. 21) *W. alticeps* (DENIS, 1952)
- 4 Epigyne approximately quadratic, with a long scapus (Fig. 4) . *W. dysderoides* (WIDER, 1834)
- Epigyne without a long scapus 5
- 5 Epigyne distinct more broad than long, receptacles distinct transverse elliptic. Posterior margin of the epigyne twice wavy bended (Fig. 5) *W. cucullata* (C. L. KOCH, 1836)

- Epigyne of another form 6
- 6 Carapace raised into a conical elevation, carrying the eyes (Fig. 22), large dark epigynal field with trapezoid plate (Fig. 6) *W. acuminata* BLACKWALL, 1833
- Carapace is not raised into conical elevation 7
- 7 Epigyne with median elongated field 8
- Epigyne without median elongated field 9
- 8 Median elongated field extends anteriorly in the oval area (Fig. 7)
..... *W. kochi* (O. P.-CAMBRIDGE, 1872)
- Median elongated field does not extend anteriorly, it ends with a little pale tongue (Fig. 8) ...
..... *W. unicornis* O. P.-CAMBRIDGE, 1861
- 9 The receptacles only are visible through the cuticle. The epigyne is more broad than long, it occupies one third of the abdominal breadth only 10
- The receptacles and also elongated ducts are visible through the cuticle. The epigyne is mostly large and occupies at least one half of abdominal breadth 14
- We can arrive to this point of the key during determining of *W. antica* and *W. alticeps*, in the case, we do not distinguish them by the darkened tibiae of legs I and II. Their epigyne occupy only one third of abdominal breadth, but elongated receptacles and ducts between them are visible before the epigynal plate (Fig. 2, 3). Go to the point 3.
- 10 Epigyne with a transverse, forward bended fissure. The ridge on its posterior margin forms together with the longitudinal middle line the picture of an anchor (Fig. 9). Carapace yellow-brown, with head region a little darker *W. furcillata* (MENGE, 1869)
- Epigyne without a transverse fissure. Carapace unicolorous, or head region a little darker (*W. corniculans*) 11
- 11 The carapace arched (Fig. 23). Epigyne with a simple trapezoid plate, receptacles visible beside epigynal plate (Fig. 10) *W. vigilax* (BLACKWALL, 1853)
- The carapace sagged (as in Fig. 24). Receptacles visible before the margins of the epigynal plate 12
- 12 Ocular area distinctly distant from the carapace margin, examined from above (Fig. 26). Epigyne with a transverse furrow and with divergent margins posteriorly (Fig. 11)
..... *W. simplex* (CHYZER, 1894)
- Ocular area not distant from the carapace margin, examined from above (Fig. 25). Epigyne with trapezoid plate 13
- 13 Carapace orange with head region a little darker, sternum orange. Epigyne Fig. 12
..... *W. corniculans* (O. P.-CAMBRIDGE, 1875)
- Carapace and sternum brown. Epigyne Fig. 13. *W. monoceros* (WIDER, 1834)
- 14 Epigyne extends behind the epigastric furrow by broad lip with dark, thickened margin. The receptacles and ducts, visible through the cuticle, are situated before the epigynal margins (Fig. 14) *W. cuspidata* (BLACKWALL, 1833)
- Epigyne of another form 15
- 15 Epigynal plate divided by longitudinal furrow. The ducts, visible through the cuticle, are oriented nearly to the sides (Fig. 15) *W. capito* (WESTRING, 1861)
- Epigynal plate is not divided. The ducts, visible through the cuticle, are oriented oblique forward 16
- 16 Epigyne with pale, anteriorly distinct separated field, which seems be inserted under the lateral lobes. Receptacles of bean-form (Fig. 16) *W. obtusa* BLACKWALL, 1836
- Darker epigynal field is not separated anteriorly, and seems overlap lateral lobes. Receptacles rounded 17
- 17 Posteriorly bended margin of the epigyne extends behind the epigastric furrow. Two pairs of ducts are visible before the epigynal plate (Fig. 17). The distance of posterior median eyes smaller than their diametre *W. nodosa* O. P.-CAMBRIDGE, 1873

- Epigynal plate with streight posterior margin. The distance of posterior median eyes approximately equals their diametre 18
- 18 The carapace deeply sagged. Posterior median eyes ellipsoid. The ducts, which are slightly visible through the cuticle, are oriented approximately parallel forward, then diverge (Fig. 18) *W. mitrata* (MENGE, 1868)
- The carapace slightly sagged. Posterior median eyes rounded. The ducts, which are distinct visible through the cuticle, diverge (Fig. 19) *W. nudipalpis* (WESTRING, 1851)

Consideration spider size (Table 1) and the position of the trichobothrium on metatarsus I (Table 2) can be useful in some cases.

Acknowledgement

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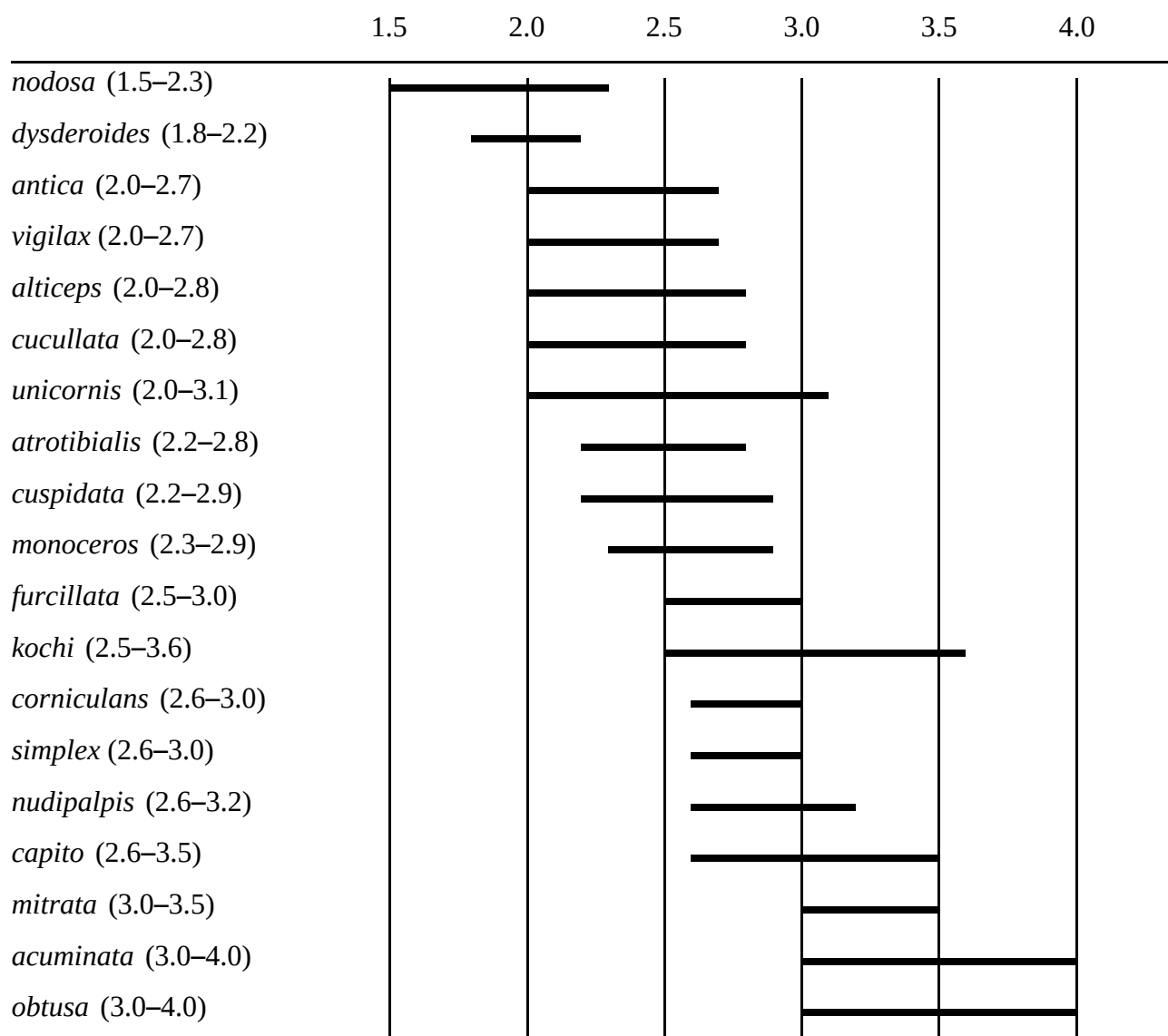


Table 1. Body length. The maximal range of values given by WIEHLE (1960), MILLER (1971), ROBERTS (1987), and HEIMER & NENTWIG (1991). Two specimens from the Czech Republic were measured in the case of *W. simplex*.

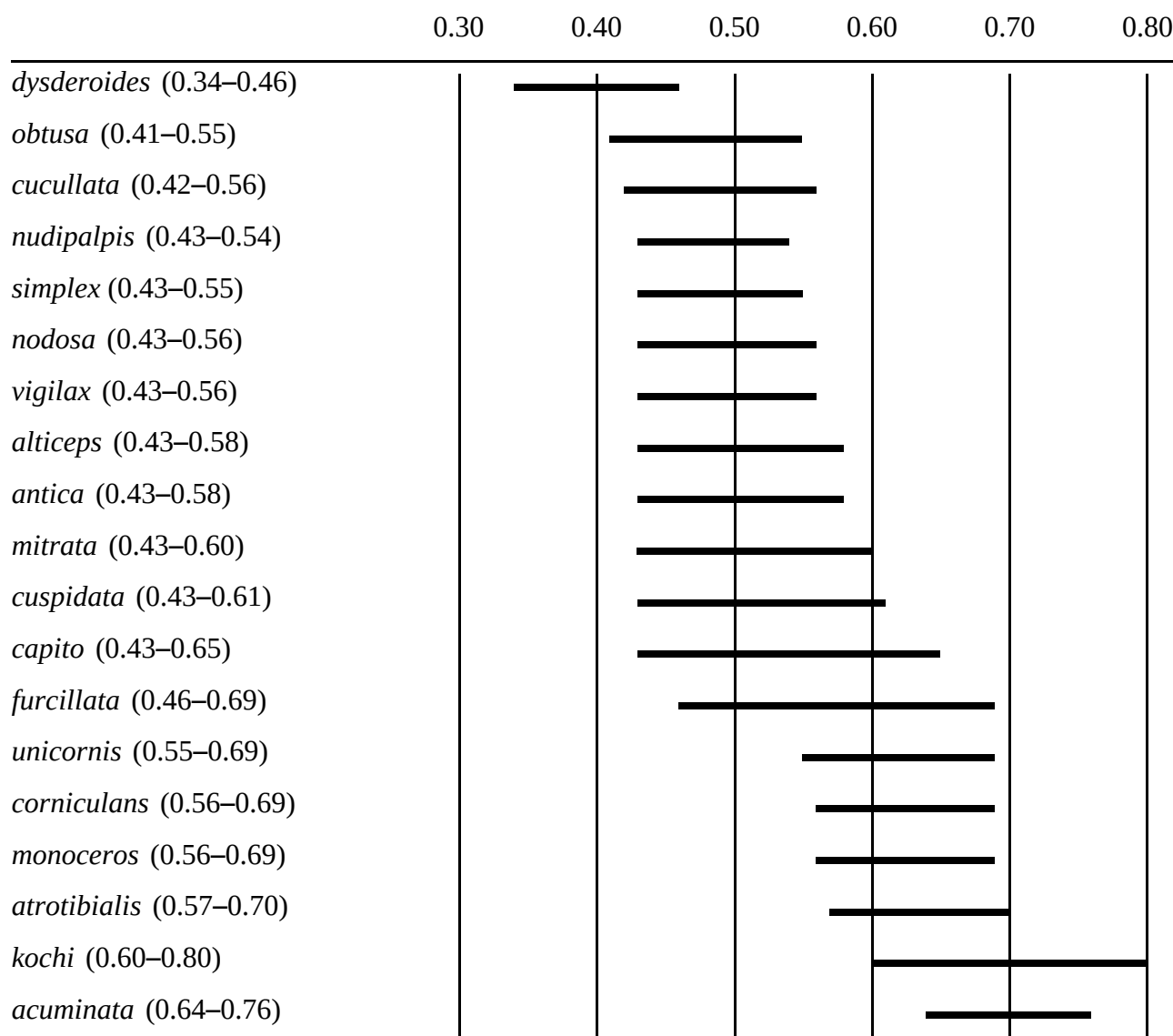
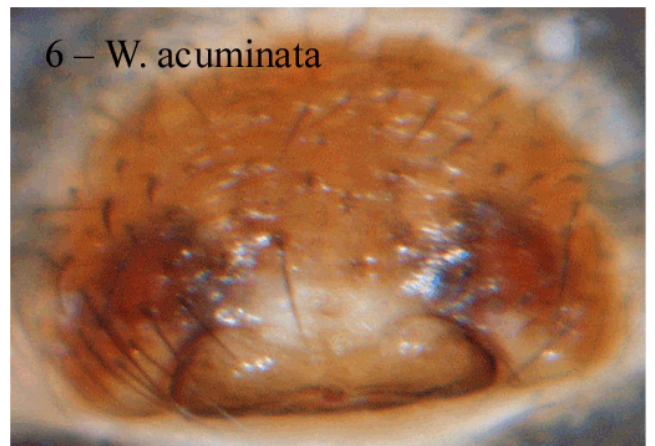
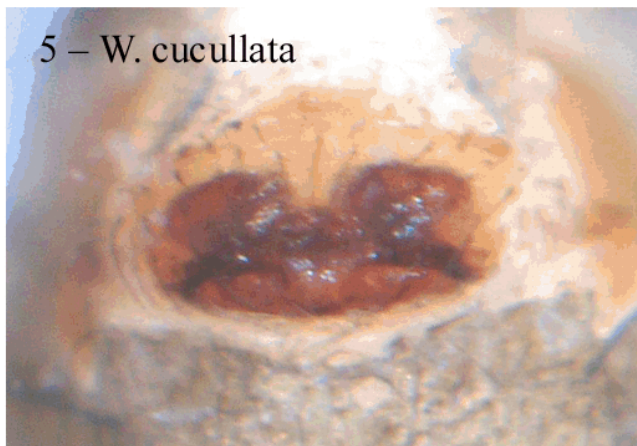
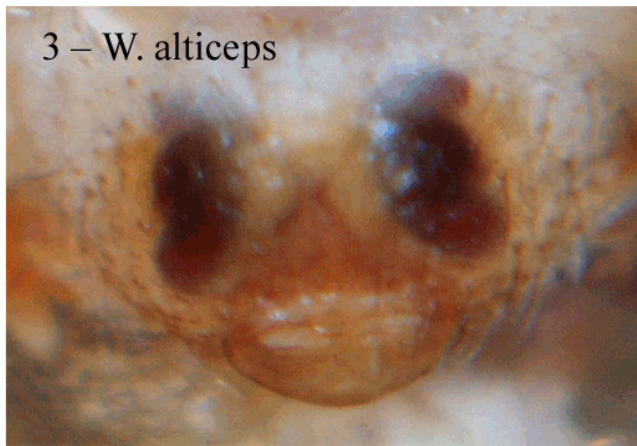
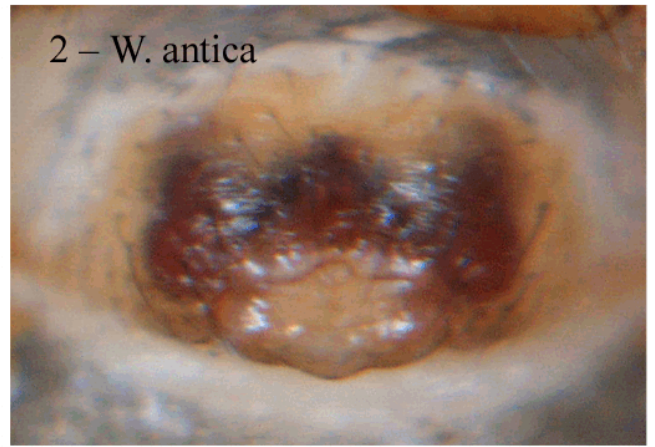
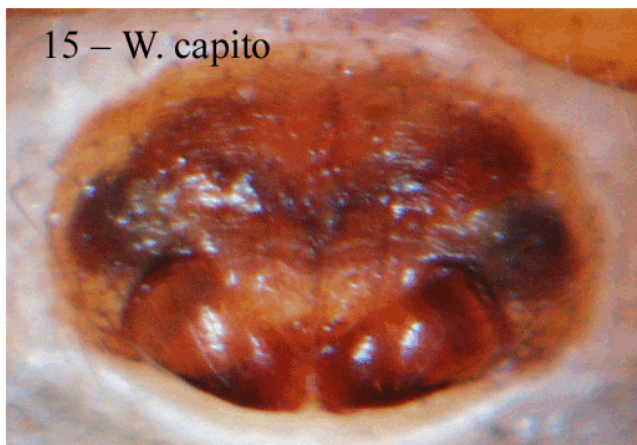
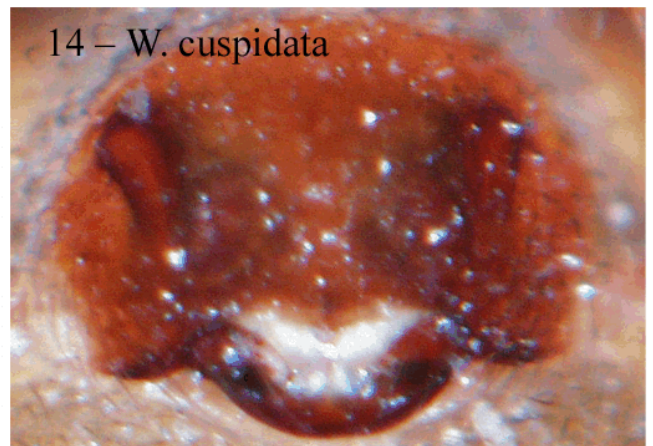
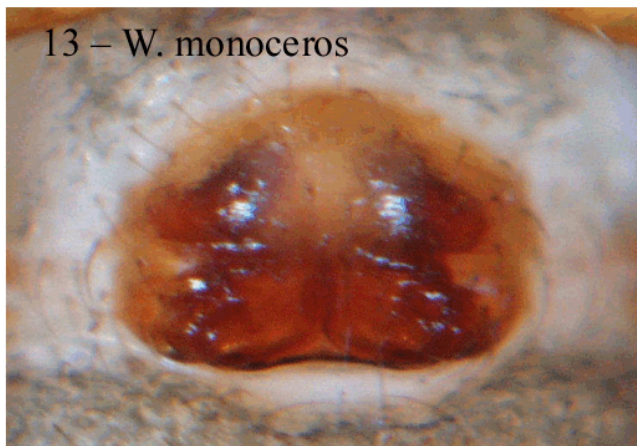
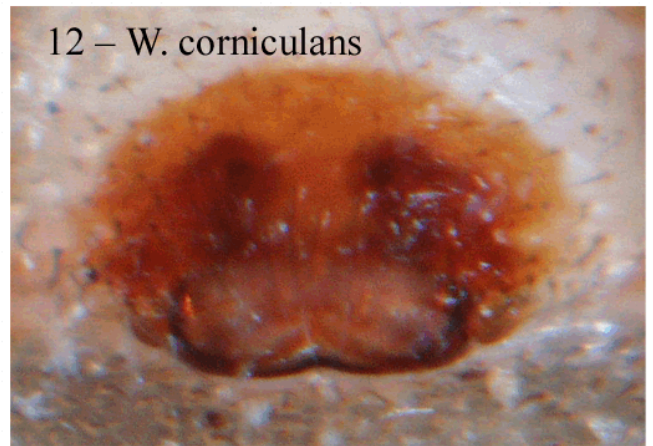
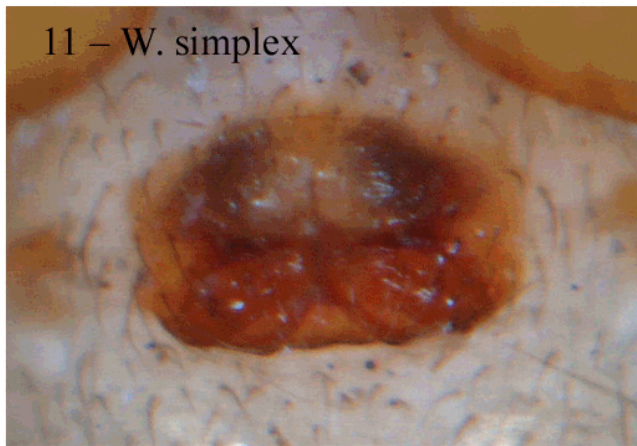
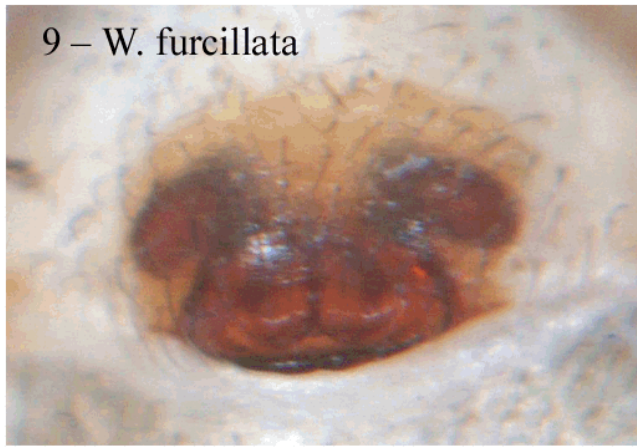


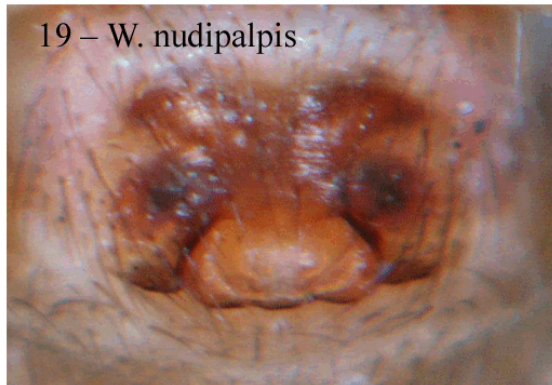
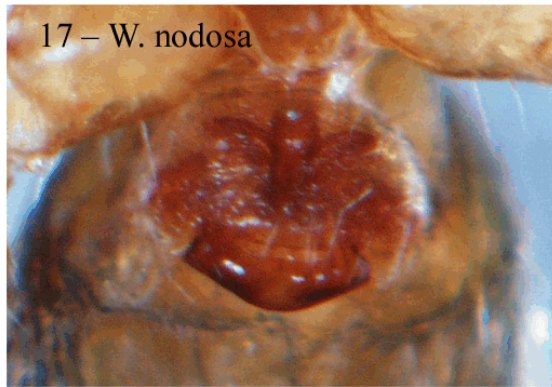
Table 2. Position of trichobothria on Mt I. The maximal range of values given by WIEHLE (1960), MILLER (1971), WUNDERLICH (1972), PALMGREN (1976), and ROBERTS (1987).



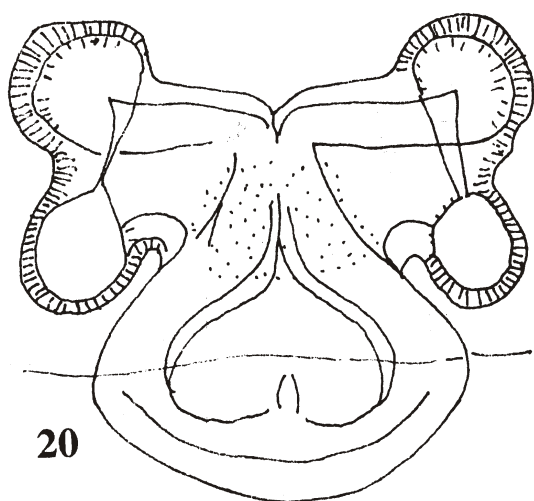
Figs. 1 – 8: Epigynes.



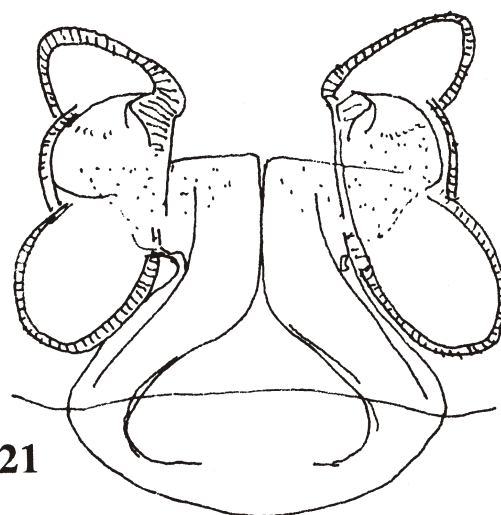
Figs. 9 – 16: Epigynes.



Figs. 17 – 19: Epigynes.



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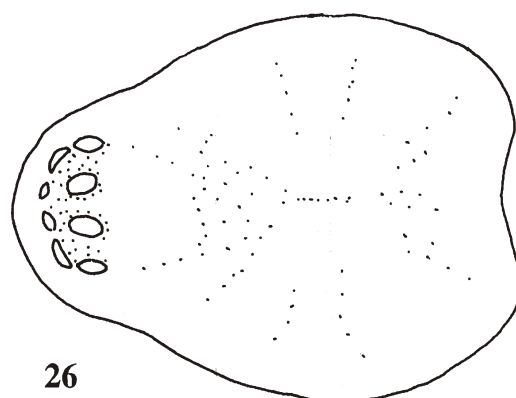


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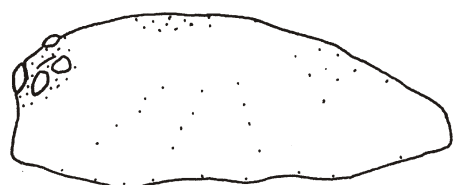
Figs. 20–21: Adnexae. 20–*W. antica*, 21–*W. alticeps*.



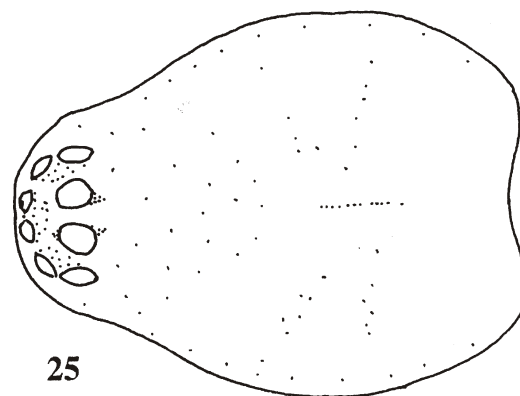
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Figs. 22–26: Carapaces. 22–*W. acuminata*, 23–*W. vigilax*, 24, 25–*W. corniculans*, 26–*W. simplex*.