

## Salticidae (Arachnida: Araneae) of Oriental, Australian and Pacific Regions, XI. A new genus of Astieae from Western Australia

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**Abstract** – *Megaloastia mainae* gen. et sp. nov., an unusual long-legged spider from Western Australia is described and figured. Remarks on morphology, behaviour and evolution of Salticidae are presented.

### INTRODUCTION

In comparison to some other spider families, the representatives of Salticidae are well defined and easy to recognize. They have compact body form, unique eye pattern, short and stout legs, rather simple genitalia and complex mating behaviour. They are cursorial long-sighted jumpers, hunting actively during the day. Salticids may communicate by stridulation, substrate and web vibration, visual and chemical signals (Jackson 1982, 1986a 1987; Maddison and Stratton 1988). They live solitary, communal and (perhaps) even social existence (Jackson 1986c; Maddison 1987). Salticidae may be found on vegetation, open ground, on/under rocks and stones, on tree trunks, under bark, in leaf litter. Many salticid genera mimic other arthropods (Elgar 1993), mostly ants, but also flies (Morrison 1981), wasps (Reiskind 1976; Żabka 1992), beetles and pseudoscorpions (Platnick 1984). The spider described here is certainly one of the most spectacular jumping spiders and seems an interesting model for behavioural and evolutionary research.

### MATERIAL AND METHODS

The paper is based on the specimens collected in the remote Kimberley region of Western Australia and deposited in Western Australian Museum, Perth (WAM). Methods of specimen examination, terminology and measurement taken were described earlier (Żabka 1990).

Abbreviations used: AEW – anterior eyes width, ag – accessory gland, AL – abdomen length, CL – cephalothorax length, CW – cephalothorax width, EFL – eye field length, fd – fertilization duct, m – metatarsus, p – prolateral spines, PEW – posterior eyes width, r – retrolateral spines, t – tibia.

### *Megaloastia* gen. nov.

#### Type species

*Megaloastia mainae* sp. nov.

### Diagnosis

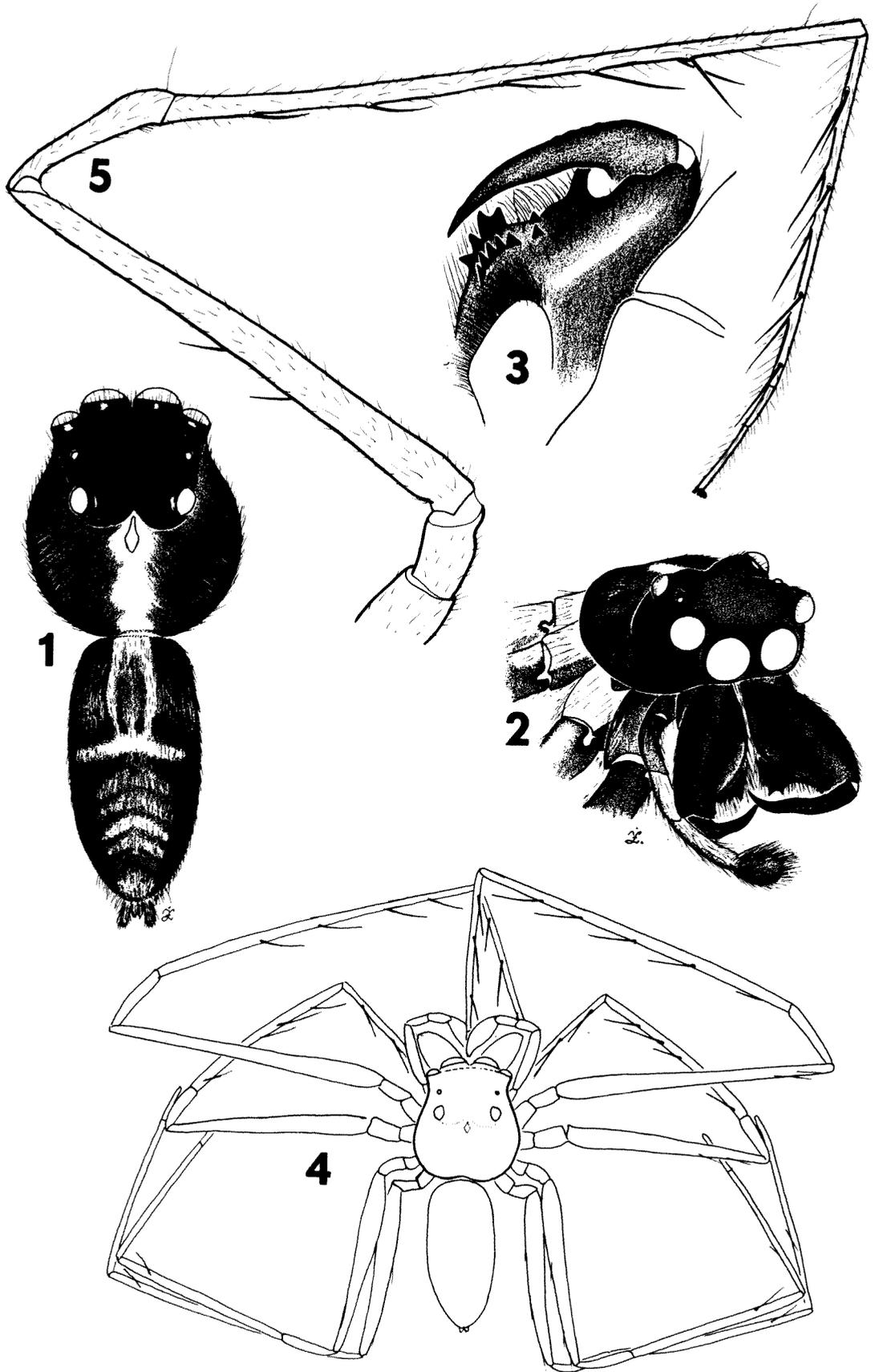
A web-building spider. Legs very long, in males up to 4.5 centimeters, thin. Genitalia similar to some representatives of Astieae, fovea deep and wide, chelicerae of plurident pattern.

### Description

Medium to large salticid. Cephalothorax robust. Cephalic part distinctly elevated, posterior eyes set on tubercles. Thorax with gentle posterior slope, oval, fovea deep. Abdomen elongate. Clypeus low, about 15% of anterior median eyes diameter. Chelicerae robust, inclined anteriorly, with plurident dentition. Maxillae and labium elongate, the first twice as long as wide. Sternum wide, with small marginal indentations, its anterior border little wider than base of labium. Legs extremely long, slender, spread laterally, armed with numerous spines (especially tibiae and metatarsi). Male palpal organ with single tibial apophysis, embolus short and wide. Tegulum without apophyses, distal cymbium elongate, tapering. Epigyne with caudal lobe, internal genitalia simple in structure, spermathecae one-chambered.

### Relationships, Biology and Distribution

The last fifteen years showed the importance of behavioural research for phylogenetic considerations. Despite their cursorial way of life, many salticids spin retreats, nests and even webs (Jackson 1988, 1989) and it seems very likely that early ancestral salticids were web-builders and web-invaders that evolved acute vision and became cursorial hunters (Jackson and Blest 1982; Jackson 1986b; Jackson and Hallas 1986). In most cases, the web-building Salticidae represent Pluridentati division. Only a few belong to Fissidentati and Unidentati, the latter being the most derived. The field observations of *Megaloastia* are very fragmentary but they prove its web-building behaviour, the character being very important, but difficult to comment without further



Figures 1-5 *Megaloastia mainae* sp. nov., ♂ holotype: 1, dorsal aspect; 2, frontal view; 3, cheliceral dentition; 4, general appearance; 5, first leg, retrolateral view.

research. The genus has very distinctive morphological similarities to the Australasian Astieae (Wanless 1988). The caudal lobe of epigyne, simple internal genitalia and plurident cheliceral dentition are found in *Astia*, *Arasia* and *Sondra*. The structure of male palps is similar to that in *Astia* and *Helpis*. The legs, however, are much longer than in any known salticids and make the genus so distinctive. *Megaloastia* has been recorded on webs constructed under large boulders from a few localities in Kimberleys, Western Australia.

### Etymology

The generic name is a combination of words "megas" = large, and *Astia*, a possible relative, and it is feminine in gender.

### *Megaloastia mainae* sp. nov.

Figures 1–16

### Material Examined

#### Holotype

♂, Mt Trafalgar, Western Australia, Australia, 15°17'S, 125°04'E, 12 June 1988, B.Y. Main (WAM 93/10).

#### Allotype

♀, same data as holotype (WAM 93/11).

### Paratypes

**Australia: Western Australia:** 1♂, CALM site 28/3, 4 km W. of King Cascade, 15°36'S, 125°15'E, 12–16 June 1988, T.A. Weir (WAM 93/1690); 3♀, N. of Larryoo, 14°51'S, 126°49'E, underside of large boulder, creek bed, 13 June 1992, M.S. Harvey, J. M. Waldock (WAM 93/1691–3).

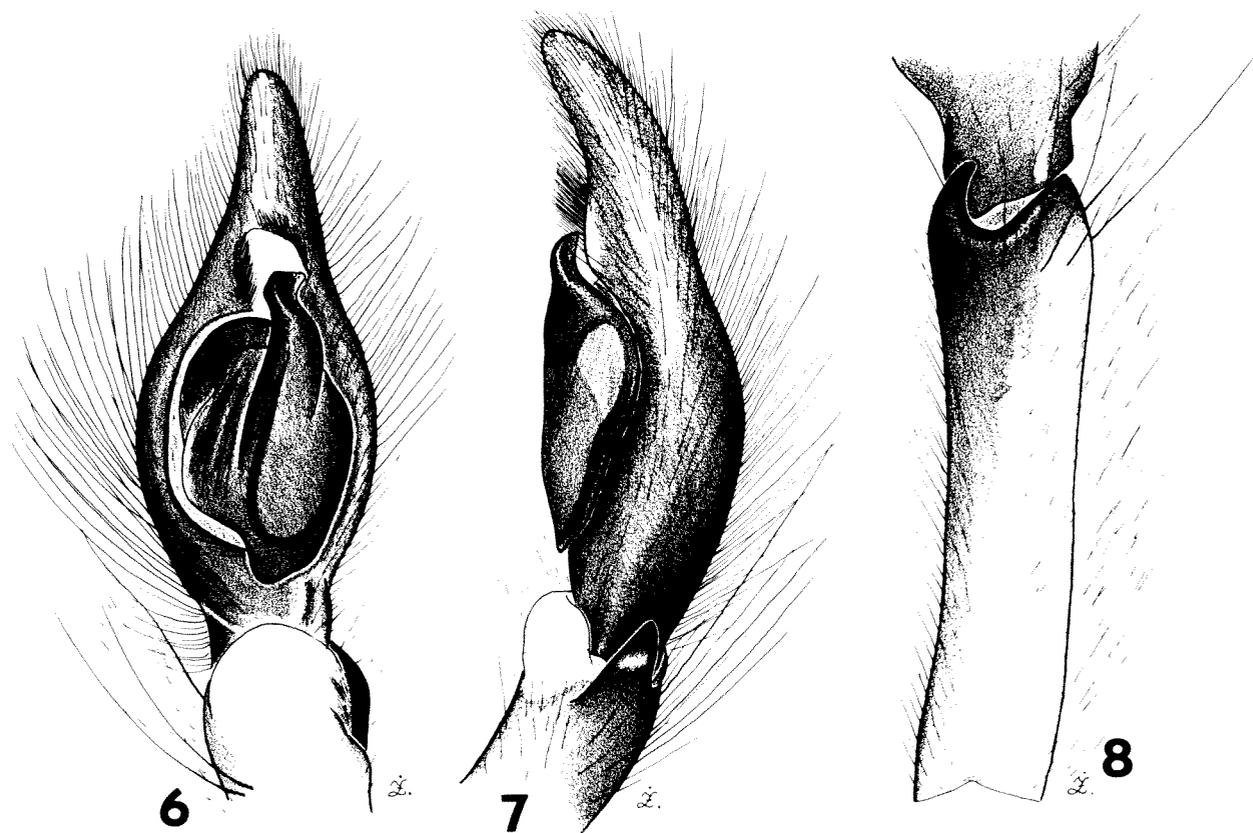
### Diagnosis

The species can be distinguished by male palpal organ (Figs 6–8) and female genitalia (Figs 10–14).

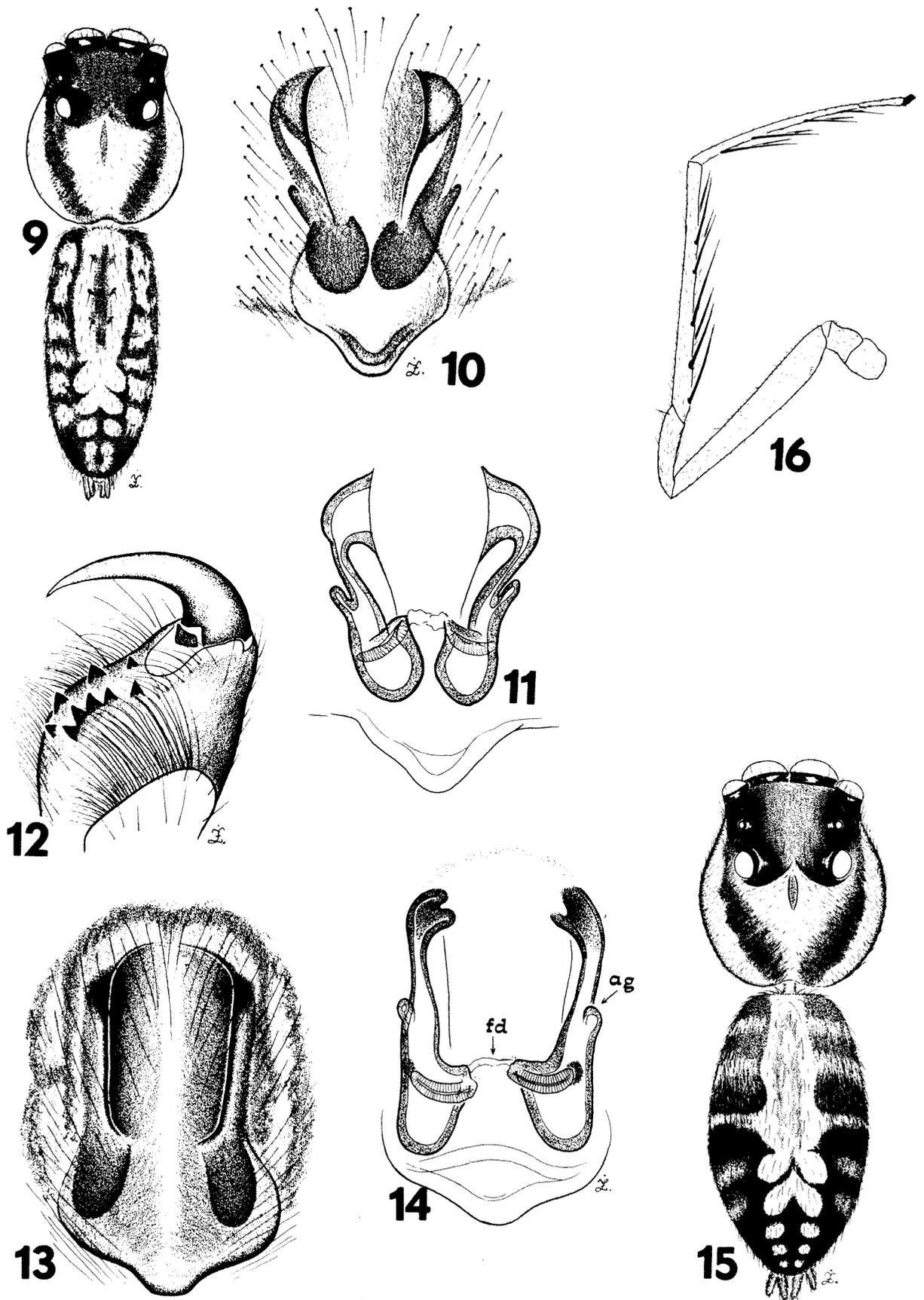
### Description

#### Male holotype (Figs 1–2, 4)

Cephalothorax wide and robust, cephalic part distinctly elevated, posterior eyes on tubercles. Eye field chestnut-coloured, eye surrounds black with scarce white hairs. Thorax with gentle posterior slope, oval and wide, brown, with central yellow stripe. Fovea deep and vast. Abdomen elongate, grey-brown with dirty-yellow central pattern. Dark and light surfaces covered with brown and white hairs respectively. Clypeus and chelicerae dark-brown, the latter with plurident dentition (Fig. 3). Maxillae and labium long, dark-brown with lighter tips. Sternum wide, grey-brown, marginally darker, venter anteriorly dirty-brown, further dirty-beige, darker centrally. Legs (Fig. 5) extremely long and slender, spread laterally, armed



Figures 6–8 *Megaloastia mainae* sp. nov., ♂ holotype: palpal organ.



Figures 9–16 *Megaloastia mainae* sp. nov. 9–12, ♀ allotype: 9, dorsal aspect; 10, 11, epigyne and internal genitalia; 12, cheliceral dentition. 13–16, ♀ paratype: 13, 14, epigyne and internal genitalia; 15, dorsal aspect; 16, first leg.

with long spines. First legs proximally dark-brown, distally gradually lighter, their index (CL ÷ leg length) to 8.7. Other legs lighter, from brown to yellow. Dorsal coxae, trochanters and proximal femora yellow, patellae yellow medially.

Palpal organ clothed with long light and brown hairs, its structure showed in Figs 6–8.

Tibial and metatarsal spination: tI–II: p1-1-1-1-1, r1-1-1-1-1; mI–II: p1-1-1-1, r1-1-1-1; tIII–IV: p1-0-0-0-1, r1-0-0-0-1; mIII–IV: p1-0-0-1, r1-0-0-1.

Dimensions (mm). Legs: (from femur to tarsus):

I: 12.76 + 4.40 + 15.80 + 9.88 + 1.84 = 44.68,

II: 8.66 + 3.04 + 9.42 + 6.84 + 1.52 = 29.48,

III: 8.20 + 2.58 + 8.66 + 7.75 + 1.67 = 28.86,

IV: 7.90 + 2.43 + 8.66 + 8.96 + 1.52 = 29.47.

CL 5.01, CW 4.56, AEW 3.49, PEW 2.81, EFL 2.28, AL 6.08.

#### Female allotype (Fig. 9)

Eye field orange, eye surrounds dark-brown with whitish, yellow and longer brown hairs. Thorax yellow-orange with brownish pattern, covered with sparse white and brown hairs. Abdomen covered with sparse brown hairs, centrally yellow, laterally grey-brown with light spots. Spinnerets dirty-yellow. Clypeus dark-orange with whitish and yellow hairs. Chelicerae (Fig. 12) and maxillae brown with light tips, sternum yellow with slightly darker margin. Venter grey with central beige stripes. Pedipalps proximally and ventrally yellow, distally and dorsally dark-brown, fringed with numerous light-grey, white and brown hairs, tarsi with 2 retrolateral spines. Legs long and slender, proximally yellow, distally and dorsally darker, metatarsi light-brown. First leg index below 5. Spines long, numerous on tibiae and metatarsi I and II.

Epigyne and internal genitalia presented in Figs 10–11, similar to the genus *Astia*.

Tibial and metatarsal spination: tI–II: p1-1-1-1-1-1(1), r1-1-1-1-1-1(-1); mI–II: p1-1-1-1, r1-1-1-1; tIII–IV: p0-0-0-0-1, r0-0-0-0-1; mIII–IV: p0-1-0-2, r0-1-0-2.

Dimensions (mm). Legs: (from femur to tarsus):

I: 6.08 + 2.43 + 6.84 + 4.56 + 1.36 = 21.27,

II: 5.62 + 1.97 + 5.62 + 3.95 + 1.06 = 18.22,

III: 5.47 + 1.82 + 4.86 + 4.86 + 1.21 = 18.22,

IV: 4.71 + 1.82 + 5.62 + 5.77 + 1.21 = 19.13.

CL 4.25, CW 3.49, AEW 2.88, PEW 2.43, EFL 1.90, AL 4.86.

#### Variation

Paratypes vary in size and colour (Fig. 15), their legs relatively longer or shorter. Also spines vary in number and in pattern, even on left and right leg of a single specimen. Epigynes show distinctive individual variability (Figs 13–14), being slightly different in every specimen.

#### Etymology

The specific name is proposed in honour of Dr Barbara York Main, an Australian arachnologist, one of the collectors of the material studied.

#### ACKNOWLEDGEMENTS

Dr Mark Harvey and Ms Julianne Waldock sent specimens for study and Mark Harvey provided information on habitat and biology. Dr David Richman and an anonymous referee provided useful comments on the typescript.

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