

The Redescription of *Corynethrix obscura* L. Koch, 1876 (Araneae: Thomisidae)—a Crab Spider of a Monotypic Genus from Australia

PAWEŁ SZYMKOWIAK^{1*} AND AGNIESZKA DYMEK²

¹ Department of Animal Taxonomy and Ecology, Institute of Environmental Biology,
A. Mickiewicz University, Collegium Biologicum, Umultowska 89, 61-614 Poznań, Poland
pawel.szymkowiak@amu.edu.pl

² Parkowa 4, 64-800 Chodzież, Poland

ABSTRACT. *Corynethrix obscura* L. Koch, 1876 from Peak Downs, Queensland, Australia is redescribed and fully illustrated. The representatives of this species are characterized by small size, a body covered with clavate and spatulate setae and a distinctive pattern on the dorsum of the opisthosoma. The paper includes taxonomic remarks on three genera within the subfamily Bominae.

SZYMKOWIAK, PAWEŁ, AND AGNIESZKA DYMEK, 2011. The redescription of *Corynethrix obscura* L. Koch, 1876 (Araneae: Thomisidae)—a crab spider of a monotypic genus from Australia. *Records of the Australian Museum* 63(1): 99–102.

The crab spiders of Australia remain a taxon that has been insufficiently investigated. For the majority of Australian species there are no revisionary studies that would allow species identification. Most of the available descriptions originate from the end of the 19th century and, since then, no studies have analysed type material. As a consequence, available information is frequently incomplete and unreliable.

Corynethrix obscura was described in 1876 by Ludwik Koch, on the basis of one female. A male is still unknown. The original description lacked many morphological details and was poorly illustrated. So vague is the description, that almost any species of the three known genera of the subfamily Bominae (Thomisidae) might be misidentified.

Another species was described by Simon: *Corynethrix tuberculata* Simon, 1886. This species was subsequently excluded from the genus *Corynethrix* and made the type species of *Boliscus* Thorell, 1891 (Simon, 1895). Therefore *Corynethrix* Koch, 1876 is monotypic with *C. obscura* as the type species. Little is known of the biology and behaviour of this crab spider (Hawkeswood, 2003).

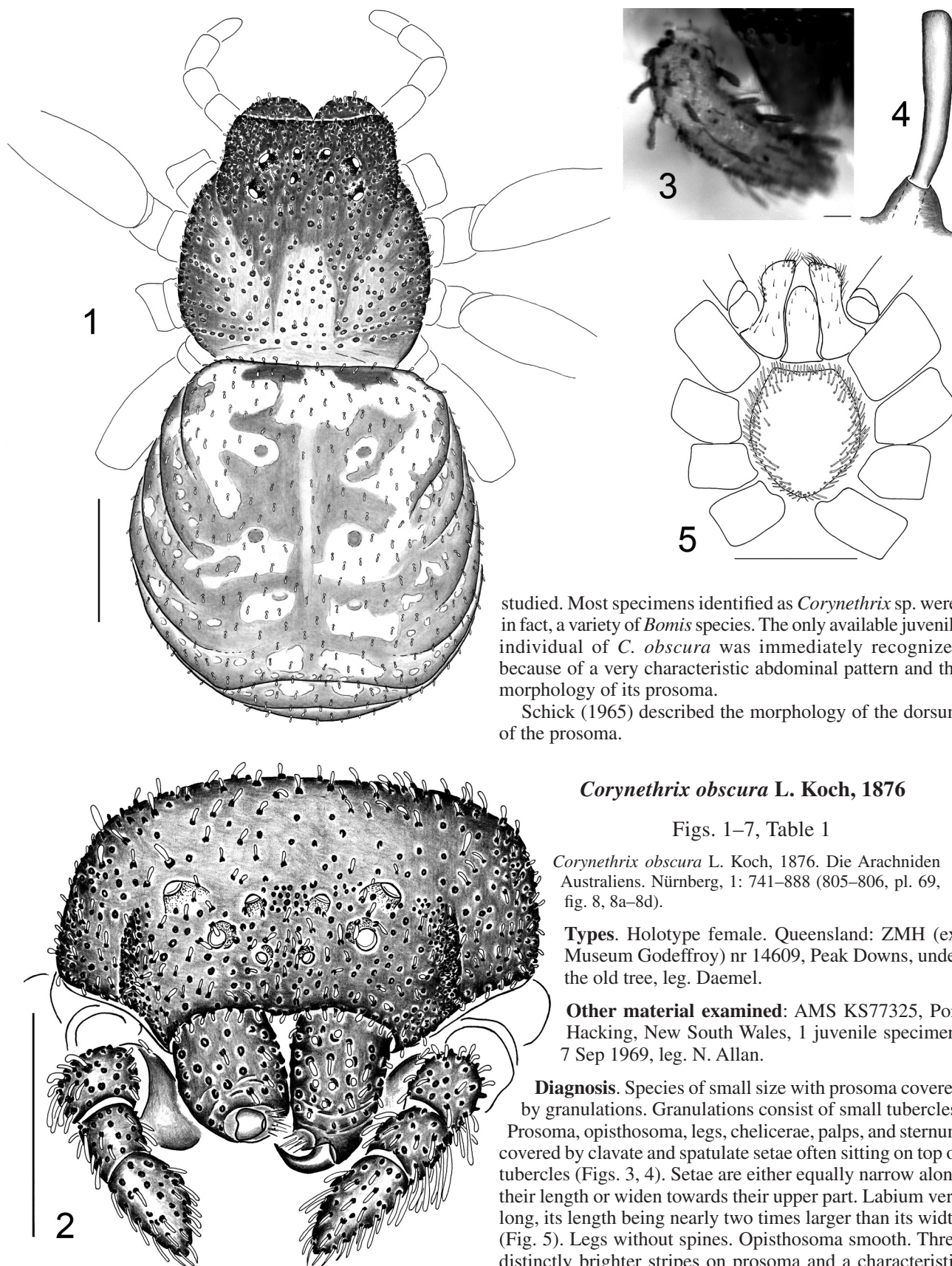
Material and methods

All measurements were performed using the Olympus SZX12 microscope with magnification of 11–144×. The photos were taken using an Arctam 500 MI camera and Quick Photo Camera 2.3 software. Black and white images were prepared using pencil and Rotring ink pens: 0.25 mm and 0.5 mm.

The following abbreviations and symbols are used: *AMS*, Australian Museum, Sydney; *AME*, anterior median eye; *ALE*, anterior lateral eye; *MOA*, median ocular area delineated by anterior median eyes *AME* and posterior median eyes *PME*; *PLE*, posterior lateral eye; *PME*, posterior median eye; *VTA*, ventral tibial apophysis of male palp; *x/y*, ratio of the distance between *PLE*=*PLE* and distance between *L*–*R* (distance between left and right margins of cephalothorax on the line running through *PLE*); *ZMH*, Museum of Zoology, Hamburg, Germany.

In order to obtain new specimens for taxonomic study, the collections of crab spiders of the Australian Museum, Sydney, and the Queensland Museum, Brisbane, were

* author for correspondence



Figs. 1–5. *Corynethrix obscura* (1) habitus; (2) prosoma, front view; (3) right palp; (4) the seta of the left palp; (5) labium, maxillae and sternum. Scale bars for 1, 2 and 5 are 1000 µm; for 3 is 50 µm, and for 4 is 100 µm.

studied. Most specimens identified as *Corynethrix* sp. were, in fact, a variety of *Bomis* species. The only available juvenile individual of *C. obscura* was immediately recognized because of a very characteristic abdominal pattern and the morphology of its prosoma.

Schick (1965) described the morphology of the dorsum of the prosoma.

***Corynethrix obscura* L. Koch, 1876**

Figs. 1–7, Table 1

Corynethrix obscura L. Koch, 1876. Die Arachniden Australiens. Nürnberg, 1: 741–888 (805–806, pl. 69, fig. 8, 8a–8d).

Types. Holotype female. Queensland: ZMH (ex. Museum Godeffroy) nr 14609, Peak Downs, under the old tree, leg. Daemel.

Other material examined: AMS KS77325, Port Hacking, New South Wales, 1 juvenile specimen, 7 Sep 1969, leg. N. Allan.

Diagnosis. Species of small size with prosoma covered by granulations. Granulations consist of small tubercles. Prosoma, opisthosoma, legs, chelicerae, palps, and sternum covered by clavate and spatulate setae often sitting on top of tubercles (Figs. 3, 4). Setae are either equally narrow along their length or widen towards their upper part. Labium very long, its length being nearly two times larger than its width (Fig. 5). Legs without spines. Opisthosoma smooth. Three distinctly brighter stripes on prosoma and a characteristic pattern of white spots and bands on opisthosoma, which branch and spread to sides (Figs. 1, 6). On both sides and the rear part of the dorsum of opisthosoma bright longitudinal spots are arranged parallel to each other. Lateral eyes are located on small protuberance but not on tubercles. All eyes

with bright, distinctive tapetum inside. Median and lateral lenses are equal (ALE=PLE>AME=PME).

Redescription of female holotype. *Size.* Body length 5.25 mm, prosoma length 2.28 mm, prosoma width 2.1 mm, prosoma length/width ratio 1.09, opisthosoma length 2.97 mm, opisthosoma width 2.91 mm (length/width ratio 1.41), Fig. 1. —*Prosoma.* Flat with characteristic granulations arranged evenly in dorsal part and with very short flat-shaped setae on most granulations/tubercles. Almost every tubercle of the clypeus and lateral sides of prosoma covered with numerous setae (Fig. 2). Less numerous setae on mesodiscus, metadiscus and allatum. Lack of granulations and setae on posterior declivity. Transparent setae appear white against dark prosoma. Palps with longest flattened setae on the entire body (Figs. 3, 4). Dorsal part of prosoma sloping slightly towards clypeus. Mesodiscus and metadiscus slightly arched. MOA area slightly concave. Sloping clypeus apparent as seen from above, darker than rest of prosoma. Setae arising from tubercles sometimes forming rows along under-integument muscle bands. Prosoma is widest at position where I and II pair of legs are situated and highest in line between posterior declivity and metadiscus. Rear edge very short and strongly sloping downwards. —*Clypeus.* Slightly rough, prominently sloping downwards. Ratio of clypeus (clypeus height/AME-AME) $2.5/1.4 = 1.8$. Clypeus highest at side-edges, entirely covered with granulations, mostly near margin. Each granulation provisioned with distinctive setae (Fig. 2). —*Eyes.* Bright colour in adults or grey in juveniles. Front row of eyes slightly curved. Rear row wider than front row. Biggest ocelli chambers ALE (ALE>PLE>AME=PME), biggest lenses AME. Lenses show very characteristic pattern in which median eyes are of equal size with respect to one another and so too are lateral eyes (ALE=PLE>AME=PME). Eyes characterized by largest distance between PLE-PLE, and smallest between AME-AME (AME-AME 0.14 mm, AME-ALE 0.16 mm, ALE-ALE 0.61 mm, ALE-PLE 0.23 mm, PME-PME 0.20 mm, PME-PLE 0.27 mm, PLE-PLE 0.845 mm). Lateral eyes ALE and PLE situated on small protuberances but not on tubercles as usually recorded in some genera of crab spiders (e.g., *Diaea*, *Demonax*, *Rhaebobates*, *Tharpyna*, *Thomisus*, *Tmarus*). Length of MOA area exceeds its width: length 0.38 mm, width in anterior position 0.305 mm, width in posterior position 0.33 mm. x/y ratio $0.795 \text{ mm} / 1.425 \text{ mm} = 0.56$. —*Chelicerae.* Massive, thickly covered with dense granulations. All granulates ending with clavate setae. Fangs very short and small (Fig. 2). Near fang, prolaterally, on internal side of each chelicera, small bright area with few sharp, narrow spines and one long, sharp seta at base. —*Labium, maxillae.* Length of labium and maxillae exceeds their width. Labium (length/width) $0.575 \text{ mm} / 0.305 \text{ mm}$, length of maxillae/width of labium+maxillae $0.74 \text{ mm} / 0.97 \text{ mm}$. Maxillae flat, long, rounded on top and ending with dense scopula (Fig. 5). —*Sternum.* Slightly convex

Table 1. The measurements of the holotype female's legs in mm.

leg	tarsus	metatarsus	tibia	patella	femur	total
I	—	—	—	—	—	—
II	—	0.55	0.75	0.535	1.275	—
III	0.36	0.38	0.575	0.61	1.02	2.945
IV	0.435	0.47	0.61	0.51	0.955	2.980

and arched, shield-shaped with numerous, distinctive long setae on margins and shorter ones on central surface (Fig. 5). Length exceeds width (length/width ratio $1.085 \text{ mm} / 0.930 \text{ mm} = 1.16$). —*Legs.* Pair of tarsal claws at end of each leg, claws on legs III and IV with small number of teeth (1–2). Femora in upper and lower parts slightly convex, variously covered with thick clavate spines. At top of tibiae, tarsi and metatarsi long clavate spines (spines of same length, arranged evenly on tibiae and arranged densely on tarsi and metatarsi).

Opisthosoma. Nearly rounded, smooth, without granulations and with several lateral folds and two distinct pairs of apodemes. Frontal margin significantly angular, not rounded (Fig. 1). Cuticula covered evenly with one type of small clavate setae, not located on granulates. Epigyne distinctively marked. Central part of ventral side of abdomen without clavate setae but with tiny, short and acute ones. Spinnerets and anal tubercle small. —*Reproductive organs.* Epigyne with well defined central hood and two rounded, highly transparent spermathecae, showing through integument (Fig. 7). Spermathecae darkening towards their lateral margins. Reproductive plate rounded on top with some delicate furrows on lower part and with numerous, long spini- and fusiform setae around. —*Coloration and markings.* Prosoma, clypeus and chelicerae dark brown. Clypeus and lateral parts of prosoma darker than rest of tagma. On dorsal side of prosoma three distinctive, brighter stripes. Middle stripe distinctively wider and brighter than rest. Other stripes sloping downward towards margins of prosoma. Chelicerae orange-brown, brighter near fangs. Labium and maxillae red-brown near upper margin, and light yellow elsewhere. Sternum shining and covered by transparent/white setae. II pair of legs dark brown, evenly coloured. III and IV pairs of legs brighter (light yellow-brown). Opisthosoma black-brown with numerous white broad spots positioned dorsally and one white stripe in center. On rear half, close to center, three pairs of rounded spots, creeping towards spinnerets and longitudinal, bright spots arranged parallel to each other on both sides of opisthosoma (Figs. 1, 6). Venter of opisthosoma light yellow with white-yellow, sharp hairs. Spinnerets brown-yellow.

Distribution. Peak Downs (Queensland), Port Hacking (New South Wales), Australia.

Taxonomic remarks on the related genera. There are three genera within the subfamily Bominae in Australia. The species which belong to *Boliscus* Thorell, 1891, *Bomis* L. Koch, 1874 and *Corynethrix* L. Koch, 1876 are spiders of small size, covered by granulations or small tubercles on the prosoma and they have thick and short legs (Ono, 1988). *Corynethrix* differs from *Boliscus* by having the opisthosoma without tubercles, from *Bomis* by having the prosoma much flattened with the clypeus characterized by a small height, and from both of the above-mentioned genera by having clavate setae on the prosoma, opisthosoma and on legs. Only the female of *C. obscura* is known.

Notes. Etymology is not explained in the paper alongside the original description. *Obscura* means dark, unclear, indistinct. The name (probably) refers to the body size and colouring which is dark-brown in *C. obscura*. It is possible that the cryptic pattern allows individuals to blend with the background of a tree trunk.



Fig. 6. The pattern on the dorsum of the abdomen of *Corynethrix obscura*. Scale bar 200 μ m.

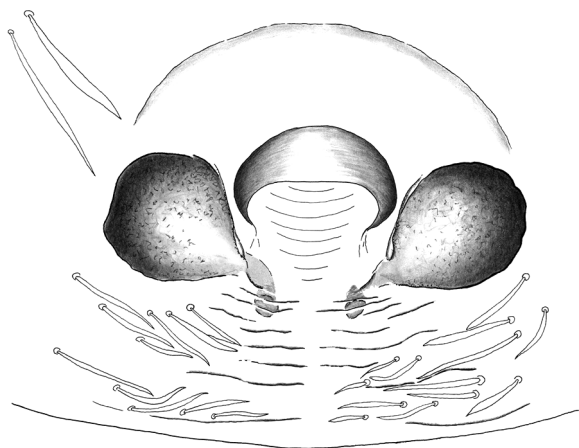


Fig. 7. The epigyne of *Corynethrix obscura*. Scale bar 100 μ m.

The female holotype is missing right leg I and left legs I and II, the tarsi on the right and left leg II and the claw on the right chelicera. It was impossible to analyze vulval structures because of the Zoological Museum Hamburg regulations preventing dissection of holotype specimens.

ACKNOWLEDGMENTS. The authors would like to thank Dr Hieronymus Dastych, a curator of the Arachnida collection in the Zoologisches Museum und Institut, Hamburg, for making it possible to study a type specimen and Mr Graham Milledge, a curator of the Arachnida collection in the Australian Museum, Sydney, for providing specimens for study. I am grateful to Dr Dan Bickel for some valuable corrections. This paper has been partially funded by the Polish State Committee for Scientific Research (grant no. 2 P04C 087 28) and it was possible to examine material in the collections of the AMS and NHML thanks to the a EU grant (Synthesys GB-TAF-4354, 2008) and an Australian Museum Visiting Fellowship (2008–2009).

References

- Hawkeswood, T.J., 2003. *Spiders of Australia: An introduction to their Classification, Biology and Distribution*. Pensoft, Sofia-Moscow, 264 pp.
- Koch, L., 1876. *Die Arachniden Australiens*. Nürnberg. 1: 741–888.
- Ono, H., 1988. *A Revisional Study of the Spider Family Thomisidae (Arachnida, Araneae) of Japan*. National Science Museum, Tokyo, 252 pp.
- Schick, R.X., 1965. The crab spiders of California (Araneida, Thomisidae). *Bulletin of the American Museum of Natural History* 129(1): 1–180.
- Simon, E., 1895. *Histoire naturelle des araignées*. Paris, 1 (second edition): 761–1084.