

On Western Australian *Austrarchaea* (Araneae, Archaeidae)

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Summary

The genus *Austrarchaea*, formerly known only from eastern Australia, is represented in Western Australia by a new species, *A. mainae*.

Introduction

Spiders of the family Archaeidae, and their close relatives, have long been of interest to biogeographers because of the austral distribution of present-day forms, and the occurrence of fossil taxa in northern hemisphere deposits. Recent Archaeidae, as limited by Forster & Platnick (1984), are known only from Madagascar, South Africa and Australia. Only three species have been described from Australia, all assigned to the endemic genus *Austrarchaea*: *A. nodosa* (Forster) and *A. daviesae* Forster & Platnick from Queensland, and *A. hickmani* (Butler) from Victoria and New South Wales. A fourth species, the first to be found in Western Australia, is described below. I am deeply indebted to Drs Barbara York Main of the University of Western Australia and L. E. Koch of the Western Australian Museum for making these fascinating specimens available for study, and to Dr Mohammad U. Shadab of the American Museum of Natural History for assistance with illustrations.

Austrarchaea mainae, n. sp. (Figs. 1-7)

Types

Male holotype taken in a pitfall trap at a site (burned 17 years earlier) in Torndirrup National Park, Albany, Western Australia (1-8 June 1983; P. Dyer, J. Lyon; registration number 1987/24), and female allotype from same locality (3-10 August 1983; P. Dyer, J. Lyon; registration number 1987/25), deposited in Western Australian Museum, Perth.

Etymology

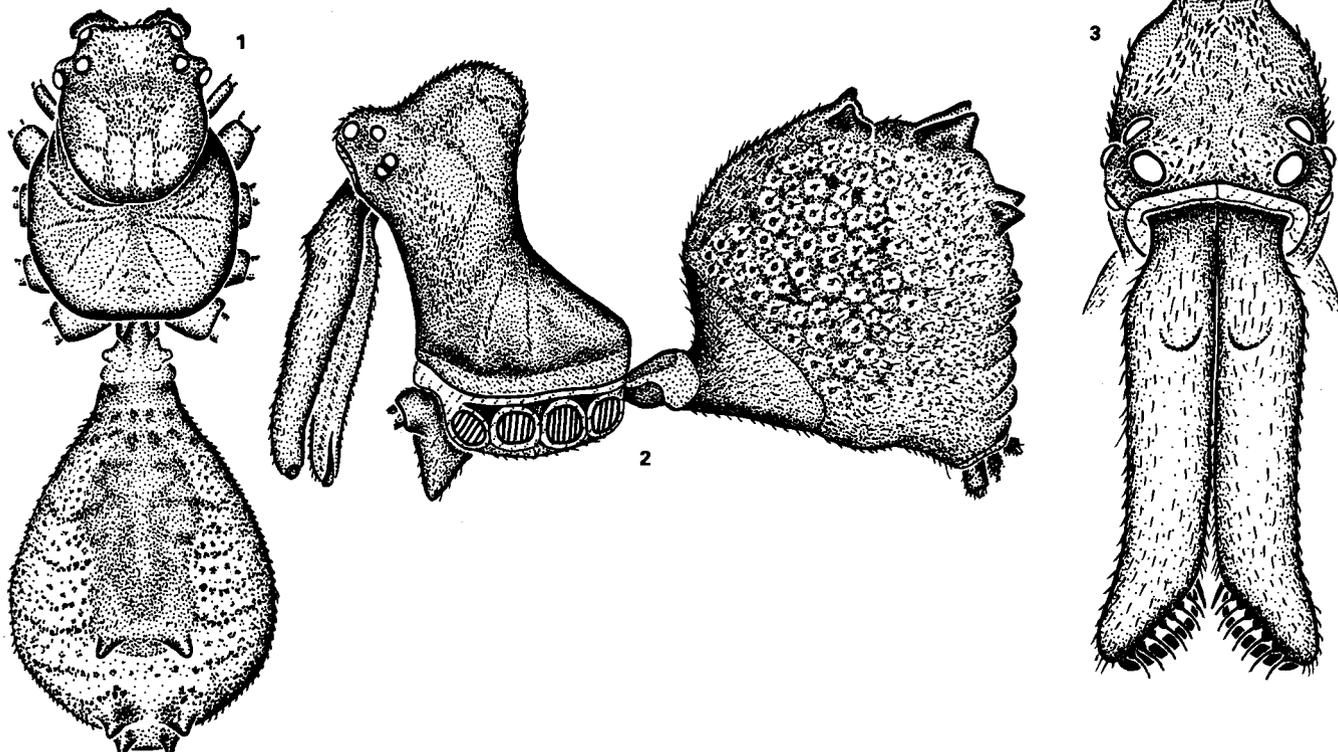
The specific name is a patronym in honour of the noted Western Australian arachnologist, Dr Barbara York Main.

Diagnosis

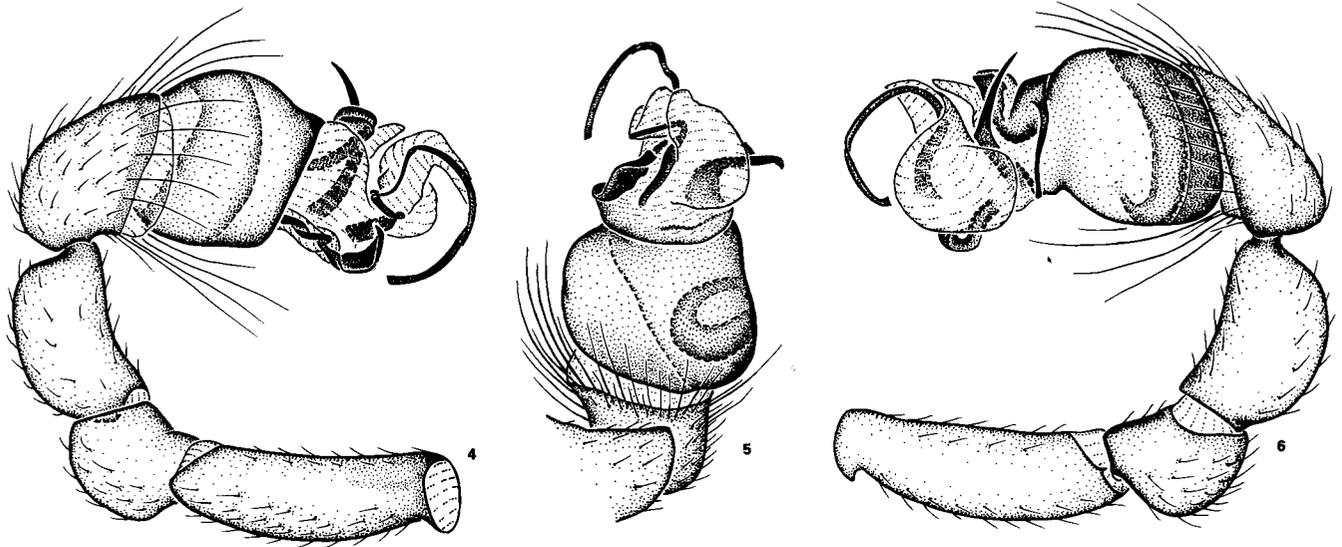
This species differs from *A. hickmani* and *A. daviesae*, and resembles the south-eastern Queensland *A. nodosa* (Forster), in having three pairs of abdominal tubercles (Figs. 1, 2). Males can be distinguished from those of *A. nodosa* by the much larger and longer embolus (Figs. 4-6), females by the more numerous, and longer, receptacula (Fig. 7).

Male

Total length (all measurements in mm) 3.66. Carapace 1.61 long, 0.98 wide, 1.59 high. Abdomen 1.73 long, 1.13 wide, 1.80 high. Cephalothorax and chelicerae dark reddish brown. Abdomen pale brown with five transverse rows of black reticulations joining on venter, numerous scattered, round orange sclerotizations, and heavy, orange dorsal scutum



Figs. 1-3: *Austrarchaea mainae*, n. sp., male. 1 Carapace and abdomen, dorsal view; 2 Ditto, lateral view; 3 Carapace and chelicerae, anterior view.



Figs. 4-6: *Austrarchaea mainae*, n. sp., left male palp. **4** Prolateral view; **5** Ventral view; **6** Retrolateral view.

extending back to level of first pair of abdominal tubercles. Legs reddish orange; femora and tibiae with proximal and distal dark rings.

Pars cephalica depressed immediately behind eyes, sloping gradually to apex at about two-thirds its length, without distinct "horns"; in anterior view, middle one-half of posterior margin elevated, bearing two smooth areas separated by three rows of scale-like, procumbent, white setae; two similarly smooth areas situated sublaterally (Fig. 3); sides of carapace tuberculate, with rows of setae on enlarged, pustulate bases. Anterior median eyes larger than other, subequal eyes; lateral eyes of each side contiguous, median eyes of each side almost so; anterior medians separated by almost three times their diameter, by almost twice their diameter from anterior laterals; posterior medians separated by about seven times their diameter, by about twice their diameter from posterior laterals; median ocular quadrangle much wider behind than in front or than long. Sternum longer than wide but almost as wide posteriorly as anteriorly, excavated around coxal margins, with white setae on enlarged, pustulate bases; posterior margin with enlarged tubercle separating coxae IV. Endites inclined around labium but not meeting medially; serrula well-developed as translucent ridge of teeth; labrum with pair of small lateral tubercles; labium short, triangular. Chelicerae 1.46 long, with proximal lobe protruding anteriorly (Fig. 2); three rows of peg teeth: anterior row of two, most distal of which opposes most proximal of seven in medial row, posterior row of eight or nine, grading into normal setae at proximal end; retromargin with three true teeth and large cheliceral gland mound; stridulatory plate occupying distal third-quarter of posterolateral surface.

Abdomen triangular in lateral view, with three pairs of sclerotized paramedian tubercles (Figs. 1, 2) on posterior surface, middle pair largest; entire surface bearing flattened, white setae. Six spinnerets; anteriors wide, two-segmented; medians tiny, possibly non-functional; posteriors short, widely separated; colulus absent.

Legs clothed with short, stiff setae but without spines; trichobothria present on tibiae and distally on metatarsi; apparently absent on tarsi. Leg formula 1432; femur I 1.73 long. Palp with long, thick embolus protruding far distad of bulb (Figs. 4-6).

Female

As in male except for the following. Total length 4.11. Carapace 1.60 long, 1.01 wide, 1.80 high. Abdomen 2.29 long, 1.63 wide, 2.36 high. Abdominal reticulations fused between round sclerotizations, forming dark background around each sclerotization; dorsal scutum absent. Metatarsi with distal dark ring. Palpal tarsus with small but distinct claw. Chelicerae

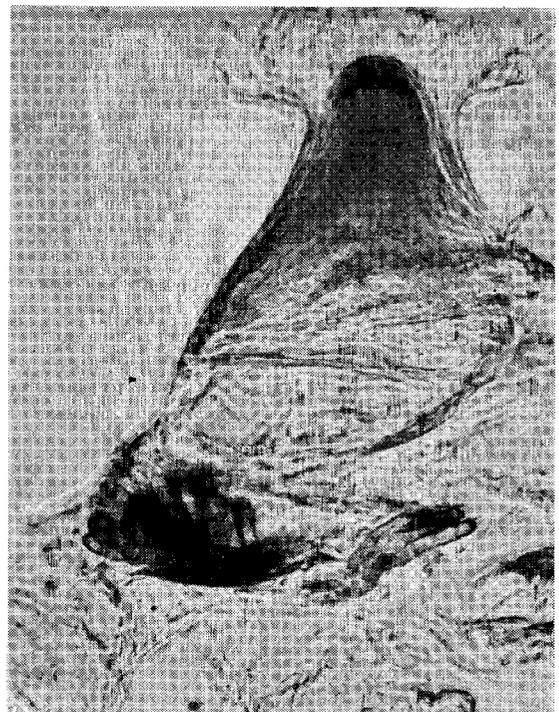


Fig. 7: *Austrarchaea mainae*, n. sp., anterior portion of internal female genitalia, showing receptacula of one side.

1.63 long, with proximal lobe scarcely detectable. Femur I 1.82 long. Anterior portion of internal genitalia with several elongate receptacula (Fig. 7) on each side.

Other material examined

One juvenile taken at the type locality, 2-9 November 1983 (P. Dyer, J. Lyon, registration number

1987/23, Western Australian Museum).

Reference

- FORSTER, R. R. & PLATNICK, N. I. 1984: A review of the archaeid spiders and their relatives, with notes on the limits of the superfamily Palpimanoidea (Arachnida, Araneae). *Bull. Am. Mus. nat. Hist.* **178**: 1-106.

Bull.Br.arachnol.Soc. (1991) **8** (8), 261-264

Field and laboratory observations on prey items taken by the wolf spider, *Lycosa lenta* Hentz (Araneae, Lycosidae)

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Summary

Field and laboratory studies were conducted on the dietary intake of adult female *Lycosa lenta* Hentz from central Florida. Their natural diet included insects (85.7%) and arachnids (14.3%). Orthopteran insects comprised 44.4% of the total prey items, followed by arachnids, Hemiptera (11.3%), and Lepidoptera (9.8%). Acridid grasshoppers and cockroaches accounted for 28.5%. Hard-bodied insects or those which are well defended such as blister and bombardier beetles, stinkbugs and velvet ants, were avoided. These spiders prefer prey organisms smaller than themselves.

Introduction

In North America, wolf spiders (Lycosidae) are often common representatives of the ground-dwelling arthropod fauna (Gertsch, 1949). Although the predatory habits of these wandering, non-web building spiders are well known (Edgar, 1969; Ford, 1978; Rovner, 1980), little information is available concerning the prey taken by these and other spiders in the field (Nentwig, 1986, 1987). Our knowledge of the prey taken by non-web builders is limited to relatively few species compared to that of web builders (Nentwig & Wissel, 1986; Nentwig, 1987). Specimens of intact prey as well as prey remains can be readily collected from webs. Non-web builders, on the other hand, usually carry only one prey item in their chelicerae at any given time and are characterized by a relatively short ingestion time and low hunting success rate (Holling, 1966; Nakamura, 1972; Nentwig, 1986).

While studying the behavioural ecology and

physiology of lycosid spiders, numerous specimens of *Lycosa lenta* Hentz from central Florida were collected with prey in their chelicerae. This provided an opportunity to analyze the prey captured and ingested by this spider. These spiders are typically nocturnal and are most frequently found on sandy substrates (Gertsch, 1949; personal observation). The purpose of the present study was to identify the types of prey captured by *L. lenta* in the field as well as to assess its dietary intake in the laboratory, in order to understand more fully the feeding ecology of this species. This is relevant in the light of recent interest in the importance of spiders as biological control agents (Riechert & Lockley, 1984).

Methods

Field observations on adult female *L. lenta* were conducted nightly (between 2100 to 0200 hrs) during May through August, 1987-1988. These spiders were associated with a mesic microhabitat surrounded by sand-pine dunes as previously described by Muma (1973), located on the west side of Florida State Road 540, 9.4 km south of Winter Haven. Dominant vegetation included scattered sand pine (*Pinus clausa*), turkey oak (*Quercus laevis*), scrub oak (*Q. ilicifolia*), saw palmetto (*Serenoa repens*) and several grasses (Small, 1933; Davis, 1967). One hundred and thirty-three spiders with prey in their chelicerae were collected and placed in alcohol for subsequent identification. Since adult females were encountered much more frequently than were males or immature spiders, only the results for females are reported in this study. The mean body length (MBL) for all females was 18.9 mm and ranged from 16.4 - 22.3 mm. Prey items were in various stages of digestion, which made identification possible only to order or family in most cases.

Additional female spiders were collected and taken back to the laboratory to study their prey intake. Individuals were placed in plastic containers (15 × 10 ×