

## A new species of *Migas* (Araneae, Migidae), with notes on *Heteromigas* in Tasmania

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### Summary

A new species of *Migas*, *M. plumleyi*, is described from Launceston, Tasmania. A supplementary description of *Heteromigas dovei* Hogg and notes on the morphology of spiderlings are given. Spiderlings of *Heteromigas*, unlike any adult migid, have a procurved fovea.

### Introduction

During three trips to Tasmania in 1979 and 1987, we sought fresh material of the two migid species known from Tasmania, *Migas nitens* Hickman from Cornelian Bay in Hobart and *Heteromigas dovei* Hogg from Launceston. Raven (1984b) noted that neither were found in 1979, and figured both species from material donated to him by the late Professor V. V. Hickman. During 1987, through funding provided first by the Tasmanian National Parks and Wildlife Service and second by National Science Foundation grant BSR-8312611 to Dr Norman I. Platnick, of the American Museum of Natural History, New York, we were successful. While collecting *Heteromigas dovei* at night a new species of *Migas*, described below, was collected. Also, a large female and young of *Heteromigas dovei* were taken in their burrow.

### Materials and methods

These are standard for the Araneae and may be found in Raven (1984b). All measurements are in mm except eyes which are given in graticule units. Spermathecae were dissected off, mounted dorsal side up on an excavated slide in lactic acid, and drawn with a Wild M5 microscope and camera lucida.

### Migid morphology

Longitudinal fang keels diagnostic of the Migidae (Raven, 1985) are found both in *Heteromigas* (Figs. 9, 10) and *Migas* (Figs. 8, 11); also the medial tooth at the base of the fang is diagnostic of the Miginae (Figs. 8, 11).

### *Migas nitens* Hickman, 1927 (Figs. 4, 8, 11, 13)

*Migas nitens* Hickman, 1927: 52, figs. 1-3, pl. IV, figs. 1, 2; Hickman, 1929: 96, figs. 1a, 1b; Raven, 1984b: 381.

### Types

Syntypes: 1 female, Prince of Wales Bay, Derwent Park, 1 female, Cornelian Bay, New Town, Hobart,

42°54'S., 147°18'E., Tasmania, V. V. Hickman, 30 December 1925, in QVM, examined.

### Diagnosis

Males with stridulatory serrations laterally on chelicerae, without distal megaspine on tibia I; palpal bulb bilobed with very long thin reflexed embolus. Spermathecae with sigmoid receptacula.

### Description (Supplementary to Raven, 1984b)

*Trichobothria*: Bases corrugiform near the aperture (Fig. 13); tarsal organ (Fig. 13) a low dome with distinct concentric grooves around central mound, a condition similar to that in diplurids (see Raven, 1984a, fig. 30).

*Spermathecae*: Two, each a slender, sinuous duct gradually widening to become spheroidal lobe (Fig. 4).

### Distribution and habitat

Females of *Migas nitens* were taken from soil-covered cliffs about 2 m above the water of the Derwent River. The spiders were located at night. The burrows were up to 4 cm deep with no branches and were built directly into the soil. The door was thin, slightly concave, soil-covered but firm.

### Other material examined

Tasmania: Cornelian Bay, Hobart: 2 females, 17 February 1961, V. V. Hickman, Australian National Insect Collection, CSIRO Entomology, Canberra; 3 females, R. J. Raven, J. A. Gallon, T. B. Churchill, 22-23 January 1987, QM S1314.

### *Migas plumleyi*, sp. nov. (Figs. 1-3, 7)

#### Types

Holotype female, Cataract Gorge, Trevallyn, Launceston, 41°27'S., 147°08'E., R. J. Raven, T. B. Churchill, N. I. Platnick, 5 May 1987, QM S1285; 1 damaged female, same data as holotype, QM S1297; 1 female, same locality, J. Gallon, 7 February 1987, QM S1315.

#### Diagnosis

Females most closely resemble those of *M. nitens* in having preening combs on metatarsi IV. However, they differ from *M. nitens* in the absence of spines on the patellae of the legs, the relatively smaller posterior median eyes, and the straight, rather than folded spermathecae. Males unknown.

#### Etymology

The specific epithet is a patronym in honour of Mr N. J. B. Plumley, of Launceston, through whose foresight and generosity an 18-month systematic ecological survey of the spiders of north-east coastal heathlands in Tasmania has been funded in association with the Queen Victoria Museum, Launceston. We have no doubt the study will prove to be a landmark in ecological studies of spiders in Australia.

*Holotype female QM S1285*

Carapace 3.32 long, 3.16 wide. Abdomen 3.36 long, 3.36 wide. Total length 6.40.

*Colour in alcohol:* Recently moulted. Entirely light green-brown. Paratype female: carapace brown with black abdomen.

*Carapace* (Fig. 1): Cuticle glabrous. Fovea short, shallow, strongly recurved. One pair of long foveal bristles and 1 fine pair behind them. 3 long and 3 finer anteromedial setae. Posterior margins with few fine black hairs. Two bristles between PME, 1 long between AME, several on clypeal margin.

*Eyes* (Fig. 2): Group wider in front (67/57), much wider behind than long (57/25). Front row straight, back row distally recurved. Ratio of AME:ALE:PME:PLE, 7:14:10:9. MOQ front width:back width:length, 23:40:22. Eye interspaces (as AME diameters): AME-AME 1.3, AME-ALE 1.6, ALE-PLE 1.3, PME-PLE 0.3, PME-PME 1.9.

*Chelicerae:* Very short, geniculate. Fangs with two longitudinal ridges along their length and medial tooth basally (Fig. 7). Promargin with three thick teeth, retromargin with five smaller teeth; no intermediate granules evident.

*Labium* (Fig. 7): 0.64 long, 0.80 wide. 20 pointed cuspules in anterior half.

*Maxillae* (Fig. 7): 0.96 long in front, 1.20 long behind, and 0.68 wide. 20-23 pointed cuspules extending to about two-thirds maxillae.

*Sternum* (Fig. 7): 2.20 long, 1.92 wide. Margins with thin setae. Posterior sigilla distinct, oval, 0.24 long,

0.28-0.40 from margin.

*Legs:* Measurements in Table 1. Leg formula 4123. All legs of similar diameter. Spines: Femora aspinose but with erect dorsal setae. No spines on patellae or tarsi of legs; no ventral spines on legs I, II. Group of 5-7 setae on retroventral metatarsi IV form preening combs. Leg I: tibia, p3, r7 (3 long, 4 short), metatarsus, p6 (4 long, 2 short), r8 (3 long, 5 short). Leg II: tibia, p3, r7 (2 long, 5 short), metatarsus, p7 (4 long, 3 short), r8 (3 long, 5 short). Leg III: metatarsus, v1. Leg IV: metatarsus, v2. Palp: patella, proventral 1, tibia, p2, r3, tarsi, p5 (3 long, 2 short), r6 (3 long, 3 short).

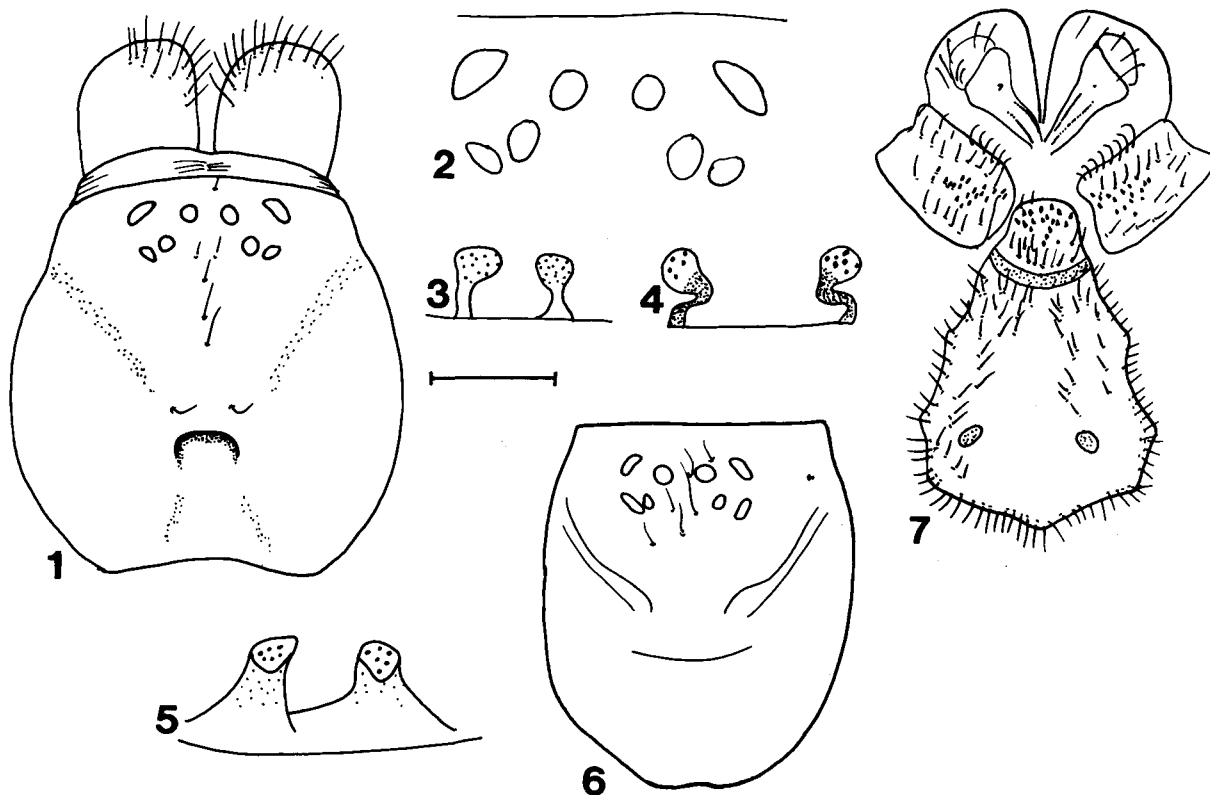
*Trichobothria:* 3-4 in each row along half the tibiae, about 8 retrodorsally on metatarsi, about 7 retrodorsally on tarsi.

*Claws:* Palpal claw with two short teeth basally; leg I with three unequal teeth on paired claws, third claw smoothly curved and bare; leg IV with 1-2 teeth on paired claws and third claw abruptly hooked near base.

*Spinnerets:* Posterior medians 0.40 long, 0.22 wide, and 0.04 apart. Basal, middle, and apical articles of posterior laterals 0.52, 0.12, 0.10 long respectively.

	I	II	III	IV	Palp
Femur	2.40	2.04	1.72	2.04	1.40
Patella	1.48	1.36	1.12	1.44	0.92
Tibia	1.44	1.28	1.08	1.48	0.92
Metatarsus	1.16	1.20	1.04	1.56	
Tarsus	0.44	0.60	0.88	0.88	0.96
Total	6.92	6.48	5.84	7.40	4.20

Table 1: Leg measurements of *Migas plumleyi*, female holotype.



Figs. 1-7: *Migas* and *Heteromigas* species. 1-3, 7. *M. plumleyi*. 1 Carapace, dorsal view; 2 Eyes, dorsal view; 3 Spermathecae, dorsal view; 7 Sternum, maxillae, labium, chelicerae and fangs, ventral view. 4 *Migas nitens*, spermathecae, dorsal view. 5, 6 *Heteromigas dovei*. 5 Spermathecae, dorsal view; 6 Carapace, dorsal view, spiderling showing procurved fovea.

*Spermathecae*: Two, each a straight, slender duct with enlarged spheroidal lobe (Fig. 3).

*Distribution, habitat, and remarks*

*Migas plumleyi* was found in thin parchment-like sacs about 2 cm long. The sacs were similar in colour to the surrounding moss or soil and had a thin lid. They were found both at night and during the day on moss-covered boulders along the Cataract Gorge. All nests were found in moss. That type of burrow (a nest resting on or attached to the substrate) contrasts with those of *Migas nitens* which, as in the case of most mygalomorphs, are built into the ground. The above-ground nest is apparently typical of *Migas* in New Zealand (Wilton in Forster & Wilton, 1968).

*Material examined*

Only the types.

*Heteromigas dovei* Hogg, 1902 (Figs. 5, 6, 9, 10, 12)

*Heteromigas dovei* Hogg, 1902: 123, figs. 22a, 22b; Hickman, 1926: 178, figs. 5, 6; Raven, 1984b: 385, figs. 11-13.

*Types*

2 females, syntypes, Table Cape, 40°56'S.,

145°45'E., Tasmania, Mr Dove, British Museum (Natural History), examined.

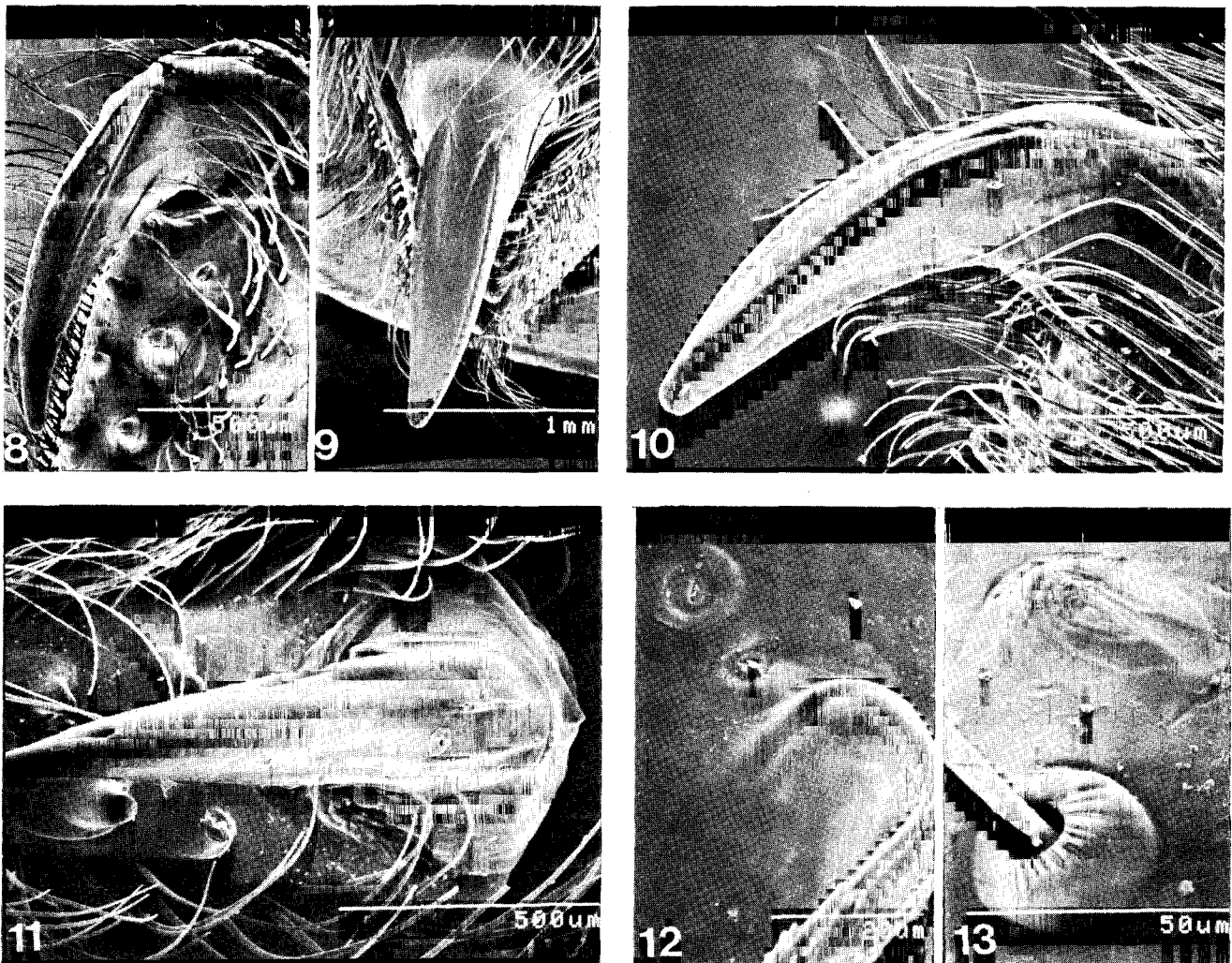
*Description* (Supplementary to Raven, 1984b)

*Trichobothria*: Bases corrugiform near the aperture (as in Fig. 13, *M. nitens*) but not for the full base as in dipluroids (Raven, 1985). Tarsal organ (Fig. 12) a low smooth dome with about 4 pinhole apertures centrally; shallow concentric grooves are present. In *Migas*, however, the tarsal organ (Fig. 13) although also a low dome has distinct concentric grooves around a central mound, a condition similar to that in diplurids (see Raven, 1984a, fig. 30).

*Spermathecae*: Two, each consisting of a broadly funnel-shaped basal region with a short folded lobe (Fig. 5).

*Distribution and remarks*

A male, females and juveniles of *Heteromigas dovei* were taken from burrows in the soil near paths along the Cataract Gorge. The burrows were straight and made up to 10 cm directly into the soil. No enlarged chamber or rejectamenta were evident at the burrow's end. The lid was impregnated with soil, concave and



Figs. 8-13: Scanning electron micrographs. 8-11. Outer surface of fang. 8, 11 *Migas nitens*; 9, 10 *Heteromigas dovei*. 12, 13. Tarsal organ. 12 *Heteromigas dovei*; 13 *Migas nitens* (also showing base of trichobothrium).

firm. An immature male moulted in a tube when transported to Queensland. Our experience has been that artificial sudden changes of climate seem to catalyse moulting. Apparently, *H. dovei* is still quite common in the suburbs of Launceston.

#### *Morphology of spiderlings*

Forty-six spiderlings were taken with a female in her burrow. Most spiderlings were pallid, hirsute, but otherwise had most significant characters of the adult; one spiderling was pigmented. The claws had teeth, the maxillae had cuspules, the caput was arched, and the eight eyes were present in a wide group. However, the fovea was slightly but distinctly procurved (Fig. 6). Raven (1985) proposed that the most parsimonious cladogram including the Migidae required the recurved midid fovea to be apomorphic in relation to the plesiomorphic procurved fovea characteristic of the Fornicephalae (and a synapomorphy of that group). Hence, the appearance of a procurved fovea in an early developmental stage of the Migidae lends support to that hypothesis.

#### *Other material examined*

Cataract Gorge, Trevallyn, Launceston, Tasmania, 41°27'S., 147°08'E.: 5 females, 1 male, J. A. Gallon, R. J. Raven, T. B. Churchill, February 1987, QM S1403; 1 female, 46 young, T. B. Churchill, N. I. Platnick, R. J. Raven, May 1987, QM S1469. Punch Bowl Reserve, Launceston: 1 female, 26 August 1971, A. Goldfinch, QVM; 1 female, 20 August 1979, J. Bailey, QVM; 1 female, QVM No. 1957-13-54; 1

male, QVM No. 1957-13-57. 1 male, Trevallyn, Launceston, 30 October 1978, Mrs Cox, QVM.

#### **Acknowledgements**

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