Two new genera of terrestrial isopods (Crustacea: Isopoda: Oniscidea) from north-western Western Australia

H. Dalens*

Abstract
Oniscidea collected from the Kimberley region and Barrow Island, Western Australia belong to the families Ligiidae, Olibrinidae, Philosciidae and Armadillidae. The family Olibrinidae is recorded for the first time from Australia. Two new genera of Armadillidae, Kimberleydillo gen. nov. and Barrowdillo gen. nov., and two new species, Kimberleydillo waldockae sp. nov. and Barrowdillo pseudopyrgoniscus sp. nov., are described.

Introduction
This publication deals with the specimens of terrestrial isopods collected during the months of August and September 1991 from cave and non-cave habitats by Ms J.M. Waldock and Dr W.F. Humphreys from Barrow Island. Specimens prefixed WAM are lodged in the Western Australian Museum, those prefixed DH are in the personal collection of the author.

Systematics

Family Ligiidae Brandt and Ratzeburg, 1831

Genus Ligia Fabricius, 1798

Ligia exotica Roux, 1828

Ligia exotica Roux, 1828, pl.13, fig.9; Roman, 1977: 119, figs 6-7.
Megaligia exotica Verhoeff, 1926: 348; Van Name, 1936: 48.

Material examined

Remarks
This cosmopolitan species is the most widely distributed in the world, except Europe. In Australia, in spite of the fact that most records of Ligia have been assigned (Green 1962: 83) to Ligia australiensis Dana, 1853, it seems that this species is limited to the south-eastern and southern coasts of Australia from New South Wales to South Australia and in Tasmania (Green 1974: 238). The other records should be assigned to Ligia exotica.

* Laboratoire d'Ecologie des Invertébrés terrestres, Centre de Recherches souterraines et édaphiques du CNRS, Université Paul Sabatier, 118 route de Narbonne, 31062 Toulouse Cedex, France.
Two new genera of terrestrial isopods

Family Olibrinidae Budde-Lund, 1913

Genus Olibrinus Budde-Lund, 1913

Olibrinus sp.

Material examined

Diagnosis
This species is elongated, with long antenna, the flagellum of which is multiarticulate. The pleon is narrower than the peraeon. Frontal line is absent, but a supra-antennalline is present. Pleopod exopodites 1 and 2 without respiratory area.

Description
Small elongated animal of 5.2 mm x 1.6 mm. The colour whitish to the naked eye, but magnified (x18), a thin network of pale brown is apparent, thicker on cephalon. A brown spot present on the ventral face of the meros on every peraeopod. Eyes reduced, each with five ommatidia embedded in a black pigmentary spot. Pleon narrow with apex of epimera visible from above. Pleotelson triangular and wider than long. Uropods with long protopodites; insertion of endopodite on projection of the bottom of the protopodite.

Remarks
This is the first record of the family Olibrinidae in Australia. Roman (1977) gave an account of the different species of Olibrinus with their distribution. This was discussed again by Taiti and Ferrara (1991) who placed the Japanese genus Marinoniscus as a synonym of Olibrinus. Six of the ten described species come from the shores of the Indian Ocean; the three remaining species are from Japan and one from Hawaiian Islands. The Barrow Island specimen may well be of an undescribed species but, an adequate description cannot be presented from a single female specimen.

Family Philosciidae Vandel, 1952

Genus Laevophiloscia Wahrberg, 1922

Laevophiloscia yalgoonensis Wahrberg, 1922

Philoscia (Laevophiloscia) yalgoonensis Wahrberg, 1922: 130.

Material examined
Remarks

This species was redescribed by Vandel (1973). It is common in Western Australia, being found both epigean and in caves. It is probably a recent entry into caves as specimens living in caves hardly differ from outside forms.

Family Armadillidae Brandt and Ratzeburg, 1831

Genus Kimberleydillo gen.nov.

Type species
Kimberleydillo waldockae sp. nov., herein designated.

Diagnosis
Unable to conglobate with dorsal surface not strongly but regularly curved, suggesting Cylisticus habit; neither schisma nor peraeon ventral lobes. Flagellum of antenna 2-jointed. Five pairs of pseudotracheae and uropod protopodite flattened and situated between sides of telson and epimera of pleon segment 5. Telson with trapezoidal proximal part and subrectangular distal part; apex slightly rounded.

Remarks
The fact that this genus is unable to conglobate and all the interlocking structures are absent, places this genus in the subfamily Australiodillinae Vandel, 1973 with the genera Australiodillo Verhoeff, 1926 and Neodillo Dalens, 1990. Kimberleydillo is, however, distinct from these genera by the dorsal surface being regularly curved, while the margins are more or less extended horizontally in Australiodillo and Neodillo. In addition the pleotelson is indented in Australiodillo and entire in Kimberleydillo. The antennulae seem four jointed in Neodillo and three jointed in Kimberleydillo. The reduced pigmentation, the translucence of tegument and the lengthening of the antenna seem to be steps towards troglomorphy.

 Kimberleydillo waldockae sp.nov.

Figures 1-9

Holotype
Tunnel Creek, 17° 37'S, 125° 09'E, Kimberley, Western Australia, dark zone on calcite extrusion; Ms J.M. Waldock, 11 August 1991, WAM 128-91, female.

Paratypes
Tunnel Creek, Kimberley, Western Australia, dark zone on calcite extrusion; Ms J.M. Waldock, 11 August 1991. WAM 129-91, 1 male and WAM 130-91, 1 female, DH: 1 female.

Diagnosis
Lateral parts of posterior margin of peraeon segments sinuated but gradually less from anterior to posterior segments. Telson with apex not indented.

259
Two new genera of terrestrial isopods

Figures 1-4 *Kimberleydillo wallockae* sp. nov., 1, whole animal in dorsal view; 2, whole animal in lateral view; 3, cephalon in dorsal view (S.E.M.); 4, cephalon in frontal view (S.E.M.).
Figures 5-9 Kimberleydillo waldockae sp. nov., 5, pleotelson in dorsal view; 6, pleotelson in ventral view; 7, right maxilliped; 8, first (8a) and second (8b) male pleopods; 9, female (9a) and male (9b) exopods of pleopods.
Two new genera of terrestrial isopods

**Description**
Small, the holotype, which is the largest specimen, is 5.9 mm x 2.6 mm; the smallest, the male, is 3.8 mm x 1.5 mm. On a greyish and more or less translucent background a brown-grey network stands out clearly when magnified (x18), more dense on the posterior margin of each peraeon segment.

Black eyes each with 13 to 16 ommatidia. Frontal line uninterrupted and straight, protruding slightly above the vertex. Face smooth, slightly convex, without outline of shield. Posterior margins of peraeon segments I-II distinctly sinuated. Lateral margins of peraeon segment 1 thin. No interlocking structures. Lateral margins of pleon segment 5 slightly divergent. Tegument smooth. A1 3-jointed with distal article slender bearing 4 to 5 aesthetascs toward apex. A2 with 2-jointed flagellum, the distal segment being twice as long as the first. Total length of the antennae/total length of body = 0.80. Md with simple molar penicil. Mx1 with apparently only 9 teeth; penicils of the inner branch spindle-shape elongated. Peraeopods long and slender. Uropod with long exopodite. Five pairs of pseudotracheae with an invagination on every one of the pleopod exopodites. The female has the first pleopod exopodite reduced to the respiratory area; the exopodites progressively increase in size from the first to the fifth.

**Distribution**
Known only from the dark zone of a cave.

**Derivation of name**
The generic name alludes to the type locality, the epithet honours Ms J. M. Waldock, the collector.

**Genus Barrowdillo gen.nov.**

**Type species**
*Barrowdillo pseudopyrgoniscus* sp. nov., herein designated.

**Diagnosis**

**Remarks**
The structure of the pleopod exopodites which are found in this genus are, among all Oniscidea, only known in the sub-family Buddelundiiinae Verhoeff, 1926. Until now, this subfamily was represented only by the single genus *Buddelundia* Michaelsen, 1912. The ornamentation and, above all, the epimera extending horizontally and the absence of a schisma in peraeon epimeron I distinguish the new genus *Barrowdillo* from *Buddelundia*. The lack of a schisma, the high frontal lamina and the sharply protopodite of uropods seem to be primitive characters for an Armadillidae, but spherical conglobation, ornamentation and reduction of endopodites and exopodites of uropods are synapomorphies.

262
H. Da!cns

Barrowdillo pseudopyrgoniscus sp.nov.
Figures 10-20

Holotype

Paratypes

Diagnosis
Dorsum with distinct ornamentation. Lateral margins of the body parallel; spherical conglobation. Frontal lamina straight, without medial incision and raised well above the vertex. Interlocking structures on the seven peraeopod segments.

Description
Holotype specimen 9.6 mm x 4.8 mm. Dorsal surface convex but the epimera of peraeon and pleon, and the telson are splayed out horizontally. Cephalon, peraeon, pleon and pleotelson with developed tubercles arranged in alternate rows (3 on the cephalon, 3 on the protergite and 4 on metatergite of the first pereon, 3 on the next peraeon segments, 1 on pleon segments 3-5 and 3 tubercles on the pleotelson).

Cephalon with frontal lamina protruding above the vertex. Black and small prominent eyes each with 12-13 ommatidia, not joined. Peraeon segment I with an endolobe on the internal face of epimeron. On the same face of peraeon segment II a tooth shaped internal lobe. On third and fourth peraeon segments the interlocking structures are inconspicuous, better marked from V to VII segments, but missing on pleon segments. A1 3-jointed with 6-7 aesthetasc subapically situated. Short and stocky antenna, with 2-jointed flagellum, the distal article being three times length of the first. Mandible with simple molar penicil. and a wisp of six or seven small penicils between lamina mobilis and molar penicil. Maxillula with inner branch rounded at the apex, bearing 2 long penicils, outer branch with 4+6 teeth. Maxilliped with stout thorn on the endite. Peraeopods with reduced dactylos. Uropod with protopodite becoming sharp at the apex, with reduced endopodite and minute exopodite. Second pleopods of male with endopodites curved distally.

Distribution
This species is known only from two caves in Barrow Island, but it is not a troglobite and probably also lives outside caves.

Derivation of name
The name of the genus is derived from its place of discovery and the name of the species in an allusion to Pyrgoniscus which is similar in appearance.
Two new genera of terrestrial isopods

Figures 10-12  *Barrowdillo pseudopyrgoniscus* sp. nov., 10, whole animal in dorsal view; 11, whole animal in lateral view; 12, whole animal in ventral view.
Figures 13-18  *Barrowdillo pseudopyrgoniscus* sp.nov., 13, whole animal rolled in lateral view; 14, cephalon in dorsal view; 15, cephalon in frontal view; 16, telson in dorsal view; 17, telson in ventral view; 18, dorsal tegumentary surface of the third pleonite (S.E.M.).
Two new genera of terrestrial isopods

Figures 19-20  *Barrowdillo pseudopyrgoniscus* sp. nov., 19, left maxilliped; 20, first (20a) and second (20b) male pleopods, and exopods (20c) of third, fourth and fifth pleopods; the fifth male exopod is not visible on the whole animal, being completely covered and hidden by the fourth.
H. Dalens

Acknowledgements

I thank Dr W.F. Humphreys of the Western Australian Museum, Perth, for reading the manuscript, Miss A.J.A. Green of Launceston, Tasmania and Dr A.J. Bruce of the Northern Territory Museum, Darwin, for their pertinent comments.

References


Received 21 May 1992 Accepted 31 December 1992 Published 1 June 1993