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A NEW SPECIES OF *APTENOCANTHON* MATTHEWS FROM NORTH QUEENSLAND. (COLEOPTERA : SCARABAEIDAE : SCARABAEINAE)

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ABSTRACT

*Aptenocanthon monteithi* sp. nov. is described from the Atherton Tableland area in northern Queensland. The nearest relatives are from mountains in eastern New South Wales.

INTRODUCTION

The dung beetle genus *Aptenocanthon* was erected by Matthews (1974) for the species *A. hopsoni* Carter (formerly *Panelus* and a second new species, *A. rossi*. Both species were known only from wet, high altitude localities in central New South Wales, Barrington Tops and Mt Wilson respectively. Both species were poorly known, but *A. hopsoni* has since been taken in numbers at Barrington Tops, from altitudes of 500 m to 1400 m, in both dung baited pitfall traps and sieved litter (T.A. Weir, pers. comm.), and *A. rossi* has been recorded at Mt Irvine at 750 m at dung baited pitfall traps (Williams and Williams 1982).

It is thus with some interest that a new species was taken recently on top of the Bellenden-Ker Range in north Queensland, 1900 km north of the previous records for the genus. The specimens were taken by an expedition, organized jointly by the Queensland Museum and the Earthwatch Organization, to study the change in insect fauna with altitude on Mt Bellenden-Ker, a locality noted for relict and other interesting species in both the botanical and insect world. Subsequently, further specimens of the same species were taken on mountain areas on the Atherton Tableland proper, namely the Mt Fisher and Mt Haig areas, 45 km S.W. and 40 km N.W. from the original Bellenden-Ker locality respectively.

Genus *Aptenocanthon* Matthews

*Aptenocanthon* Matthews 1974, *Aust. J. Zool.*, *Supp. Ser.* No 24, pp. 93-97. Type species *Panelus hopsoni* Carter, 1936.

*Aptenocanthon monteithi* sp. nov. (Figs. 1 and 2)

Holotype: Queensland Museum T8592 ♂, Bellenden-Ker Range, N. Qld., Summit TV Stn.,

1560 m, 25-31.x.1981, Earthwatch/Qld. Museum, QM Berleseate No. 372, 17.16S, 145.51E, Rainforest. Sieved litter.

Allotype: Queensland Museum T8593 ♀, Bellenden-Ker Range, N. Qld., Summit TV Stn., 1560 m, 25-31.x.1981, Earthwatch/Qld. Museum, Pitfall trap in rainforest.

Paratypes (34): Bellenden-Ker Range, Summit TV Stn., 1560 m, 17.x-5.xi.1981, Earthwatch/Qld. Museum (5 ♂♂, 4 ♀♀), same data 1-7.xi.1981, (1 ♂), same data 25-31.x.1981 (3 ♂♂). Mt Bartle Frere, 0.5 km north of South Peak, 1500 m, 6-8.xi.1981, Earthwatch/Qld. Museum, (4 ♂♂); Mt Bartle Frere, NW/Centre Peak ridge, 1400-1500 m, 7-8.xi.1981, Earthwatch/Qld. Museum, (3 ♂♂). Mt Fisher, 7 km SW Millaa Millaa, N. Qld., 1050-1100 m, 27-29. IV. 1982, Monteith, Yeates and Cook, (1 ♂, 1 ♀), 26 km up Tinaroo Ck Rd., via Mareeba, N. Qld. 11.xi.1982, Morgan, Brown and Storey, (1 ♀), same data 10-30.xi.1982, (2 ♀♀), same data 1-23.xii.1982, (1 ♀), same data 23.xii.1982-12.i.1983, (2 ♀♀), same data 12-28.i.1983, (1 ♀), same data 28.1-16.ii.1983, (1 ♀). (Paratypes placed in Queensland Museum, ANIC Canberra, South Australian Museum, Queensland D.P.I., Coll. R.I. Storey, Mareeba, H.F. Howden, Ottawa, A. Walford-Huggins, Julatten, P. Allsopp, Toowoomba, G. Williams, Taree).

Total length 3.3-4.1 mm. colour black, legs reddish brown antennae yellow brown.

Male

*Head*: Clypeal teeth small, close together, U-shaped between, rest of margin feebly sinuate to genal angles which are angulate, margin very feebly beaded. Surface nitid, densely punctuate with moderate simple punctures, effaced along edge of clypeus, glabrous. Dorsal part of eyes small, about 4 facet rows wide, separated by

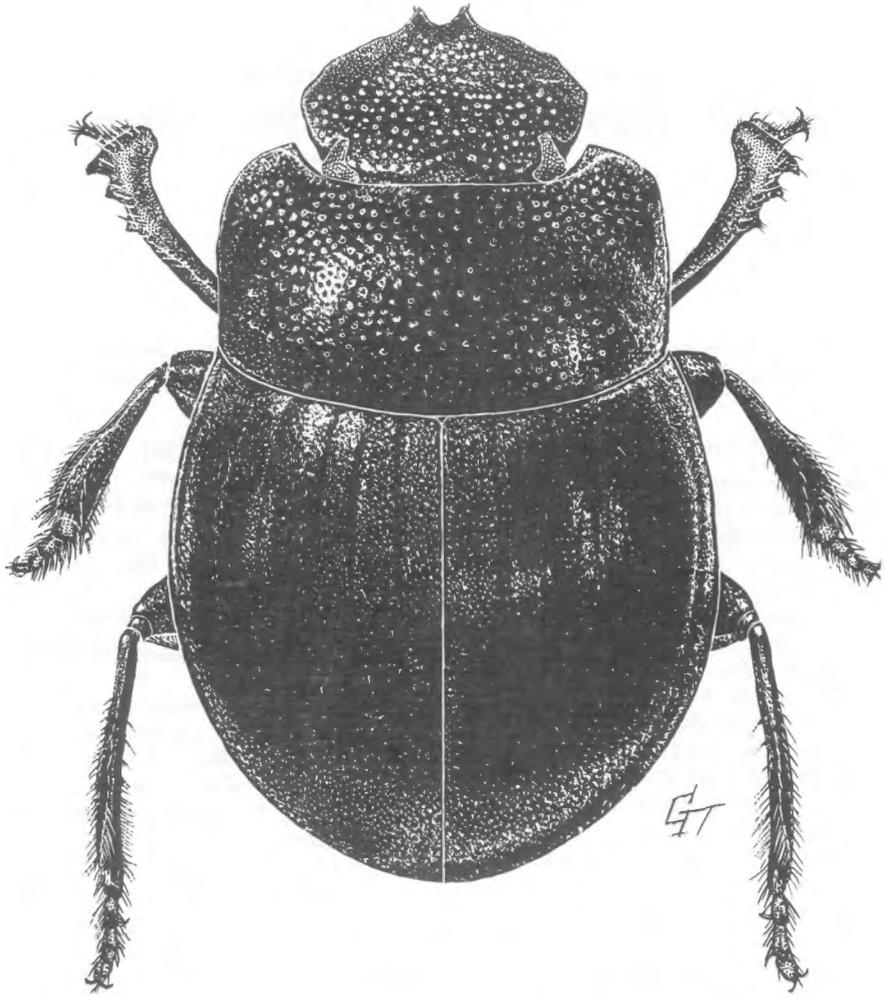


FIGURE 1: *Aptenocanthon monteithi* sp. nov., male paratype.

about 8-10 eye widths, canthus incomplete. *Pronotum*: Anterior angles quadrate, feebly projecting, lateral angles very obtuse, rounded, posterior angles obtuse. Pronotal surface smooth, nitid, punctate with moderate simple punctures which are effaced along lateral margin and posterior angles, reduced in centre of disk, glabrous. Lateral edge rounded to deflexed portion, finely margined. *Elytra*: Striae on disk effaced, almost undetectable, impunctate, intervals feebly convex, very finely punctate, surface feebly shagreened, glabrous. Surface deflexed outside 7th stria, forming pseudepipleura about 2/3 length of elytra, the

edge beaded with a slightly raised nitid area between it and the 7th stria, with two fine striae between edge of pseudepipleura and the feebly sinuate epipleura. *Hind Wing*: Entirely absent. *Sterna*: Mesosternum with a few large superficial umbilical punctures on edges. Median lobe of metasternum nitid, impunctate, lateral lobes with numerous large, shallow umbilical punctures. *Legs*: Fore tibia with inner edge broadly concave, outer edge with three short teeth on apical 1/3, distal edge straight, transverse, with inner apical angle produced into a broad inwardly projecting truncate lobe, tibial spur short, triangular. Middle and hind legs unmodified. *Abdomen*: Pygidium

strongly convex, smooth nitid, scattered very fine punctures, glabrous. Each sternite with several large punctures near ends, in a shallow depression which is deepest on 6th. Aedeagus with parameres asymmetrical, as in Fig. 2.

#### Female

Fore tibia with inner apical angle not produced into a truncate lobe, tibial spur and teeth on outer edge slightly larger. Abdominal sternites expanded. Otherwise similar to male.

#### COMMENTS

The specimens from the Bellenden-Ker Range were all taken above 1400 m in a habitat described by Tracey and Webb (1975) as simple Microphyll Vine-Fern Forest grading into thicket at the absolute summit. It was not taken at lower altitudes at this locality even though sites at 5, 100, 500 and 1054 m were collected intensively. However, the two additional localities are at lower altitudes, in the vicinity of 1000 m. Individuals were taken in pitfall traps, dung baited traps and in sieved litter.

The species is named for Dr G.B. Monteith who was involved with the organizing of the Earthwatch expedition and has contributed much to the knowledge of Australian Scarabaeinae.

The following adaptations of Matthews (1974) key should aid in separating the three species:

- 1) Pygidium with a strong transverse basal groove; elytral striae distinct, with prominent punctures on intervals; central N.S.W.....2  
Pygidium without a basal groove; elytral striae almost obsolete, intervals very finely punctate; north Queensland  
..... *monteithi* sp. nov.
- 2) Elytral intervals flat, glabrous; lateral elytral carina sharply defined basally; outer edge of epipleura strongly sinuate .....*hopsoni* Carter  
Elytral intervals convex, densely setose; lateral elytral carina feeble, broadly rounded; epipleura normal.....*rossi* Matthews

#### DISCUSSION

Some problems were encountered in placing *monteithi* within the genus *Aptenocanthon*. Specimens of both *A. hopsoni* and *A. rossi* were available for comparison. It agrees with these species in size and general appearance, secondary sexual characters, shape of mentum and labial palps, size of eyes and flightless condition. Differences include shape of the lateral edge of the pronotum, shape of pseudopipleura, nine as

opposed to eight elytral striae, and lack of pygidial sculpturing. It is this author's opinion that grouping the three species in one genus is more useful than creating a new genus as they are closer to each other than to related genera. The lack of basal pygidial groove in *monteithi* is interesting, as it is a feature of *Aptenocanthon* and related genera — the Australian *Tesserodon* Hope and the New Caledonian *Onthobium* Reiche, though in the Australasian *Ignambia* Heller and New Zealand *Saphobius* Sharp it is lacking. The Australian genus *Lepanus* Balthasar is similar in having variable pygidial sculpturing and is more heterogeneous than *Aptenocanthon* as envisaged here.

Australian dung beetles of the tribe Scarabaeini all fall within the subtribe Canthonina, which though found almost worldwide has a basically southern distribution, being best represented in the neotropical region. Australian species make up 14% of the world species diversity (Matthews, 1974). Australian Canthonina can be further divided into two groups — those with simple claws and pseudopipleura and those with dentate or subdentate claws and without pseudopipleura. *Aptenocanthon* falls within the first group, usually referred to as the mentophilines. Matthews (1974) considered this the most primitive of the two groups, both structurally and in behaviour, with ball-rolling being unknown in the group.

The mentophiline group shows a basic Gondwanan distribution, with genera in Australia, New Zealand and New Caledonia. The genus *Ignambia* also occurs in New Guinea, as well as Australia and New Caledonia (Howden, 1981). Scarabaeinae as a whole occur in warm temperate to tropical climates. Some genera in Australia are southern (*Aulacopris* White and *Cephalodesmius* Westwood) and others such as *Tesserodon* and *Ignambia* are essentially tropical. *Amphistomus* Landsberge has a complex of species along the eastern and northern coasts. The situation in *Aptenocanthon*, with such widely separated flightless mountain top species is unique in Australian Scarabaeini, though a flightless species of *Aulacopris* is now known to occur in north Queensland and will be described in a subsequent paper. This distribution in flightless species of insects with southern genera being found on north Queensland mountain tops has been recorded in other families: *Hackeriella* (Peloridiidae) and *Kumaressa* (Aradidae) in Hemiptera and *Lissapterus* (Lucanidae) in Coleoptera. Recent

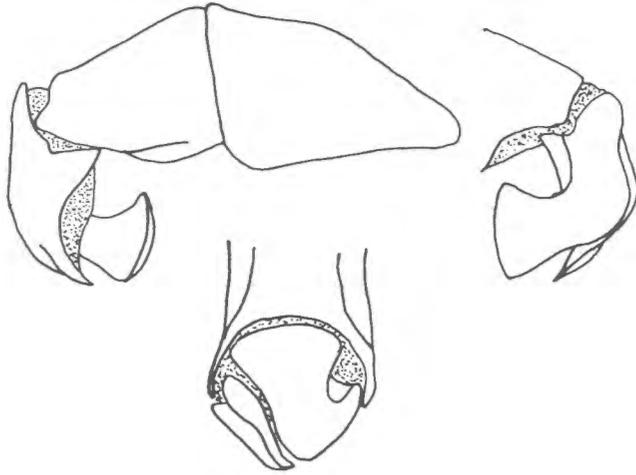


FIGURE 2: Aedeagus, *A. monteithi* sp. nov.

publications by Monteith (1980) and Kikkawa et al. (1981) have given summaries of the phenomenon and its importance to studies in Australian biogeography.

The discovery of *A. monteithi* gives further support to the view that high mountain tops in north Queensland, and the Bellenden-Ker range in particular, are major refugia for wet area plants and insects in Australia.

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