REVISION OF AUSTRALIAN PSEUDOMICROCARA ARMSTRONG (COLEOPTERA: SCIRTIDAE)

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Summary
The Australian genus Pseudomicrocara Armstrong (Coleoptera, Scirtidae) is revised, with descriptions and illustrations of the male genitalia of all species and a key to the species. Forty species are recognized: Pseudomicrocara aquilonaris sp. nov., P. buspinosus sp. nov., P. angulatus (Blackburn), P. anobioides Armstrong, P. anthophilia sp. nov., P. atkinsoni (Waterhouse), P. bawbawensis sp. nov., P. beccus sp. nov., P. cinctus (Blackburn), P. conniculatus sp. nov., P. costellifera (Carter), P. dasys sp. nov., P. davidsoni (Carter), P. decipiens sp. nov., P. desraeae sp. nov., P. falsiparvus sp. nov., P. hamoni sp. nov., P. hangayi, sp. nov., P. hyalios sp. nov., P. infuscatus Armstrong, P. insitata sp. nov., P. lamingtonensis sp. nov., P. loftyensis sp. nov., P. maculiventris Armstrong, P. megarhynchos sp. nov., P. minor Armstrong, P. montivagans (Blackburn), P. occidentalis Armstrong, P. olliffi (Blackburn), P. orientalis Armstrong, P. parvus sp. nov., P. picta Armstrong, P. rufusensis sp. nov., P. sepiasimulatus sp. nov., P. serratus sp. nov., P. spilotus (Blackburn), P. thunguttiensis sp. nov., P. triidos sp. nov., P. variabilis Armstrong and P. variegata (Carter). Pseudomicrocara dixoni Armstrong is synonymised with P. atkinsoni and P. elstoni Armstrong with P. minor. Pseudomicrocara spencei Armstrong and P. elongata Armstrong are considered not to belong to the genus.

Introduction
The Scirtid genus Pseudomicrocara was erected by Armstrong (1953) to accommodate 17 species of Australian Scirtidae including a number of previously described species placed in the Palaearctic genus Helodes Latreille. Helodes is clearly a different genus with, among many differences, flattened hind tarsi, long metacoxal plates, thin mandibles and very different male genitalia.

Arriving at a definition of Pseudomicrocara has been difficult. Armstrong (1953) loosely defined it from related genera as having the ‘terminal joint of the labial palpi arising from the end of the penultimate and mandibles without teeth’. Unfortunately several of the species he included have labial palpi with the apical segment arising from the side of the penultimate segment and many have mandibles with teeth, including the type of the genus, P. orientalis Armstrong (1953). Species that I have included in this revision under Pseudomicrocara are diagnosed by the following set of characters: normal hind legs; well developed setae on dorsal surface; antennal segment 3>=segment 2 in length, scape not greatly enlarged; mandibles with 0–1 teeth; pronotum about as wide as base of elytra, semicircular or with front angles rounded and not projecting forward, without well developed pits on hind margin, epipleuron not strongly defined internally by a raised carina (except in P. spilotus (Blackburn)); ovipositor with normal, relatively thin coxites (not broadly triangular). This is a rather negative, ‘leftovers’ definition but will have to suffice until more is known about the other Australian genera and character polarities established. Defined in this way, P. spencei Armstrong 1953 (new genus) and P. elongatus Armstrong 1953 (?Heterocyphon) do not belong in the genus and are not dealt with further.

As defined above Pseudomicrocara includes a lot of seemingly disparate species and I strongly suspect that eventually it will be shown to consist of a number of unrelated genera. I have, in the traditional subjective way, grouped species into several species groups, some more convincing than others, and a number of unassociated species, based on characters of the pronotum, mouthparts and male genitalia. To do more will require a broadly based cladistic study and/or a molecular study.
The relationship of *Pseudomicrocara* (or its various species groups) to other genera, both within and without Australia, is beyond the scope of this revision. Also, at least within Australia, it is probably not sensible to attempt this until more is known of the different genera, including a number still to be described. The most likely genera in Australia that *Pseudomicrocara* can be confused with are *Cyphon* Paykull, 1799, *Heterocyphon* Armstrong, 1953 and *Peneveronatus* Armstrong, 1953. *Peneveronatus* can be recognised by its large size (> 6mm long), square pronotum with a base much narrower than the base of the elytra and *Heterocyphon* by its three strong mandibular teeth and two well-developed pronotal pits on the hind margin of the pronotum. *Cyphon* (Australian species) are small (1 – 4 mm long), have a transverse pronotum with the front angles weakly projecting forward, the mandibles without an area of small spines in the mola region and complex male genitalia without a stylus.

**Methods**

For many specimens, particularly those of less common species, preparations of the mouthparts and male and female genitalia were made. Specimens were softened by placing them in water in a sonicator for one to two hours, dissected in a drop of water or mountant, and the parts mounted on card using a drop of P.V.A. wood-working glue (Aquadhere) which is transparent when dry or on a microscope slide using Downs medium, a polyvinyl alcohol, lactic acid, phenol mountant. Illustrations were drawn on a computer using Photoshop CS, using a digital photograph as the starting point, and reference to specimens for detail. Drawings of the male aedeagus were, when necessary, slightly stylised by splaying the parameroids outwards by 10–15 degrees in order to better show their shape and the shape of the trigonium. In nature and in most preparations they are more nearly parallel to the trigonium. The coloured habitus figures were taken using a Leica M8 binocular microscope and a photomontaging program. The digital images were manipulated to a standard configuration and enhanced using Photoshop CS.

**Source of specimens**

Specimens used in this revision came from the following collections.

**AM**, Australian Museum, Sydney; **ANIC**, Australian National Insect Collection, Canberra; **QPIM**, Queensland Department of Primary Industries, Mareeba; **HUNG**, Hungarian Natural History Museum, Budapest; **NHM**, Natural History Museum, London; **NMV**, Museum of Victoria, Melbourne; **QM**, Queensland Museum, Brisbane; **SAMA**, South Australian Museum, Adelaide; **UQIC**, University of Queensland Insect Collection, Brisbane; **UTAS**, University of Tasmania Geography Department (P. B. McQuillan), Hobart.

**Characters used**

*Eyes*. There is considerable variation in the relative size of the eyes between species. As a surrogate measure of the size of the eyes I have used the distance, measured in eye facet widths, between the lateral edge of the eye and the lateral edge of the head, with the larger the eye the nearer to the margin of the head (Figs 12 – 16), and the dorsal distance between the eyes which is comparatively smaller if the eyes are large.

*Frons*. In some species the whole front of the head (muzzle region) is extended (Fig. 18). This is reflected in the length of the frons. I have measured it from the front edge of the antennal indentation.

*Antenna*. The antennae are very ‘normal’ for Scirtidae, and show only moderate variation within the genus. The scape is only moderately enlarged, segments 2 and 3 are relatively short, and the apical segment is usually a little longer than the others. There is some variation in the proportional lengths of segments 2 – 4 which can be used to differentiate some species. Modest sexual dimorphism
exists in *P. minor* and *P. olliffi* with many, but not all, females having the outer apical angles of some of segments 4 – 10 variably expanded.

**Maxillary palpi.** These vary somewhat particularly in stoutness. I have described them in the descriptions but have not been able to use the character to differentiate species or groups.

**Labial palpi.** The shape of and orientation of the segments of the labial palpi is very variable between species but is relatively uniform within species. In particular, the apical segment can arise from the tip of the penultimate segment (segment 2) (e.g. Fig. 31) or at right angles to it and half way down its inner side (e.g. Fig. 38) or positions intermediate to these. In addition, the shape of the second segment varies which can affect the orientation of the apical segment. This character is most useful in differentiating both groups and species. Whether or not it proves to be a useful character cladistically remains to be seen as quite often similar character states appear to be present in what otherwise seem to be unrelated species.

**Paraglossa.** The front edge of the paraglossa tends to be either straight (e.g. Fig. 38) or quite deeply bilobed (e.g. Fig. 47). The straight edge is quite strongly correlated with labial palpi in which the apical segment is strongly orientated inwards and, conversely, a bilobed paraglossia is usually associated with more normal labial palpi.

**Mandibles.** The structure of the mandibles, in particular the presence/absence/ strength of teeth, varies considerably and is useful taxonomically. The inner base of the mandible (mola region) may have a variably sized area of short stout spines (e.g. Figs 31, 35). The presence of these and the size of the area covered by them are useful taxonomically.

**Pronotum.** I have found the overall shape of the pronotum to be one of the most useful taxonomic characters in the genus, if somewhat subjective. What I have called the ‘basic shape’ of the pronotum – either semicircular with broadly rounded sides (Fig. 2) or rectangular with the front angles relatively sharply rounded or approaching right angles (Fig. 1) – is as judged from a view point directly above the centre of the pronotum. The more forward the viewing point the more rectangular the pronotum can appear. Those groups with the basic shape rectangular also have the pronotal epipleura differentiated on the inside by a carina which reaches well past the front edge of the coxal cavity (Fig. 10). This carina is lacking, or very short, in species judged to have a semicircular pronotum. It needs to be noted that in all species there is a more inward carina running forward from the coxal cavity which tends to delimit the space the head lies against. In the *P. anobioides* Armstrong group the semicircular pronotum is extended forward slightly (Figs 3, 7), somewhat in the manner of beetles of the family Anobiidae. In both *P. anthophilia* sp. nov. and *P. spilotus* (Blackburn) the pronotum is notably narrower than the base of the elytra (Fig. 4) and the pronotal epipleura well differentiated (Fig. 11).

**Ventral surface.** I have looked in vain for taxonomically useful characters on the underside. The width of the tip of the pronotal process and the shape of the metacoxal plates do vary between individuals and species but not in a way that I have been able to use.

**Dorsal surface.** There is some variation in the strength of the punctures and/or surface granulation/rugosity on the head but I have found it difficult to use this taxonomically and have not done so. In some species the area between the eyes is slightly depressed. The strength of the dorsal punctuation, particularly any variation between the pronotum and elytra varies between species and is useful in some instances to separate species. In some species, notably in the *P. anobioides* group, the punctures are small and dense with short setae which form velvet-like patterns in places. Feint longitudinal ridges on the elytra, best seen by varying the viewing angle, are present in some species. In one species, *P. costellifera* (Carter), there are a number of relatively strong longitudinal ridges on the elytra.

**Abdominal segments.** The apical abdominal segments are essentially as described by Watts (2004) for *Scirtes* Illiger. There is some variation between the species in the structure of sternite 9 and tergite 9 most notably in a tendency to become bilobed to a moderate degree and, in the case of
sternite 9, different degrees of sclerotization. In one species, *P. desraeae*, the apex of the 9th tergite is extended by two long, robust, spine-like projections (Fig. 74b) in much the same way as some species of *Cyphon*. Because of the poor quality of many of the preparations – which concentrated on the genitalia – resulting from the age and small number of available specimens in many, the abdominal segments in less than half the species have been adequately studied and it is quite possible that a more thorough study of these segments would reveal taxonomically useful data. In female *P. olliffi* (Blackburn) there is a crescent of denser setae close to the rear margin on sternite 6 (ventrite 4) not present on the male (Fig. 19).

**Male genitalia.** I have used characters of the male genitalia to differentiate the species and also, in some cases, to group them. The basic structure in *Pseudomicrocara* is relatively simple. The aedeagus consists of a basal piece and an apical trigonium, with a parameroid on each side (e.g. Fig. 50). A tegmen lies dorsally to the aedeagus and has two or more parameres which tend to wrap around the front part of the aedeagus (e.g. Fig. 50). In the majority of species these structures are simple, but in the *P. cinctus* (Blackburn) group the tegmen is often more highly developed and the parameres multilobed and its basal portion is closely attached to the basal piece of the aedeagus (e.g. Fig. 54). A similar situation occurs in some species in the *P. anoboides* group. In addition to the tegmen and aedeagus, species in the *P. variabilis* Armstrong, and *P. orientalis* species groups, have an additional segment immediately before the genital capsule which has a thin, forward pointing, triangular extension on each side (e.g. Fig. 50). This segment has been named the ‘stylus’ by Nyholm (1972). A few species in the *P. anoboides* species group have either a thickening of the basal lateral margins of the tegmen (*P. triidos* sp. nov., Fig. 73), a seemingly separate strongly sclerotized short strut in the same position (*P. megarhynchos* sp. nov., Fig. 71) or a moderately well developed stylus (*P. anoboides*, Fig. 72). The homologies of these structures with each other and with the better developed styli of other species groups are unclear. *Pseudomicrocara anthophilia* has a pair of additional triangular sclerites on either side of the aedeagus that appear to be free floating (Fig. 87).

**Female genitalia.** These are similar to those described for *Scirtes* (Watts 2004).

**Sexual dimorphism.** There is little external difference between the sexes of most species but in a few the antenna are slightly different between the sexes. In *P. minor* Armstrong the antenna of the female are more elongate (Fig. 27): in *P. olliffi* the outer apical angle of antennal segment 4, and to a lesser extent other segments, are enlarged compared with the more normal shape found in the male (Fig. 25). In at least one species, *P. olliffi* Blackburn, the posterior edge of ventrite 4 in the female has a broad arc of denser setae (Fig. 19). The function of these is unknown.

**Biology**

Members of the *P. variabilis* species group, *P. anthophilia* and *P. spilotus* are commonly found on flowers and pollen grains have been found in their guts. Species in these groups all have rather delicate mandibles without teeth and would seem to be feeding on flowers. Within this group, one species, *P. megarhynchos* sp. nov., has an elongate muzzle, as does *P. hangayi* sp. nov. in the *P. orientalis* species group. In the buprestid genus *Castiarina* Gory & Laport this elongation is associated with nectar feeding species and the more normal muzzle with petal eating species (Barker 2006). This may also be the case here. Flower frequenting species are often collected copulating. Where known their larvae live among dead leaves and other debris at the edge of still or slowly moving water.

Most members of the *P. orientalis* species group are also known to have larvae which live among dead leaves at the sides of pools, but in this group, the habits of the adults are not known although I have found pollen grains in the gut of *P. hangayi* and adults of *P. atkinsoni* have occasionally been found on flowers. However I have repeatedly collected mature larvae of group members, and reared
them to adults within weeks of capture, from water bodies with no flowering plants anywhere nearby. This would suggest that flowers are not a necessary part of this group’s diet. Species in the large P. cinctus group are enigmatic. They are seldom collected and then usually at light or in flight intercept traps not always near water. Their larvae are unknown, although, if the sparsity of adults is any guide to their abundance, this may not be surprising. Their mandibles are more robust than those of species known to visit flowers. Taken together this suggests a lifestyle rather different from that of the other groups: perhaps non-aquatic larvae and adults feeding on tougher plant material than flowers.

More information of the biology of the different groups and species is given later.

Systematics

Groups of Pseudomicrocara

I have grouped the members of the genus Pseudomicrocara into a number of species groups, although the preliminary nature of these groupings must be emphasized.

**Pseudomicrocara variabilis** species group.

Pronotal shape semicircular or nearly so (e.g. Figs 2, 95, 96), mandible simple, mola region with extensive area of short stout spines (Figs 31, 32), male genitalia simple with well developed stylus (Figs 49 –56), (parameroids usually crotchet shaped; labial palpi simple; front edge of paraglossa deeply bilobed).

**Pseudomicrocara decipiens** sp. nov., **P. infuscata** Armstrong, **P. loftyensis** sp. nov., **P. minor** Armstrong, **P. occidentalis** Armstrong, **P. picta** Armstrong, **P. variabilis** Armstrong, **P. uncatus** sp. nov.

**Pseudomicrocara anobioides** species group.

Pronotal shape semicircular, extended forwards somewhat (Figs 3, 7, 98); mandible relatively thin, teeth relatively weak or absent, mola region without or with very few small, stout spines (Figs 40 – 43); apical segment of labial palpi tends to be offset, paraglossa with straight front edge; male genitalia relatively simple, trigonium bifid, parameroids short (except **P. inusitata** and **P. desraeae**), without or with poorly developed stylus (Fig. 70) (well developed in **P anobioides**), tegmen simple to complex (front edge of paraglossa straight, Figs 69 – 74).

**Pseudomicrocara anobioides** Armstrong, **P. desraeae** sp. nov., **P. hamoni** sp. nov., **P. inusitata** sp. nov., **P. megahynchos** sp. nov., **P. montivagans** (Blackburn), **P. triidos** sp. nov.

**Pseudomicrocara davidsoni** species group.

Pronotal shape rectangular (Fig. 50); mandible thin, toothed, tip long, with mola region with a small area of small, stout spines (Figs 38, 39); male genitalia simple, without stylus (except a very small one in **P. parvus**). (Figs 57–61), (eye margin wide (Fig. 13), labial palpi and front edge of paraglossa variable).

**Pseudomicrocara davidsoni** (Carter), **P. falsiparvus** sp. nov., **P. parvus** sp. nov., **P. variegata** (Carter), **P. rufusensis** sp. nov.

**Pseudomicrocara orientalis** species group.

Pronotal shape semicircular (e.g. Figs 2, 92); mandibles asymmetric, left hand one with relatively weak tooth, right hand one without tooth (both without teeth in **P. hangayi**), with small to moderate
area of stout spines in the mola region (lacking in *P. hangayi*) (Figs 33–37); male genitalia relatively simple, with well-developed stylus (Figs 62–68), (apical segment of labial palpi orientated inwards to some degree - except in *P. hangayi* and *P. angulatus*, front edge of paraglossa straight or moderately bilobed).

*Pseudomicrocara angulatus* (Blackburn), *P. atkinsoni* (Waterhouse), *P. aquilonaris* sp. nov., *P. hangayi* sp. nov., *P. olliffi* (Blackburn), *P. orientalis* Armstrong, *P. sepiasimulatus* sp. nov.

*Pseudomicrocara cinctus* species group.

Pronotal shape rectangular (Figs 1, 91); mandible robust, strongly toothed, mola region with only a small area of small, stout spines (Figs 44, 45); male genitalia complex, trigonium beak or knife-shaped, tegmen multilobed, tightly associated with aedeagus, without stylus (Figs 75–86), (labial palpi and front edge of paraglossa variable).

*Pseudomicrocara bawbawensis* sp. nov., *P. buspinosus* sp. nov., *P. cinctus* (Blackburn), *P. conniculatus* sp. nov., *P. costellifera* (Carter), *P. dasys* sp. nov., *P. hylaios* sp. nov., *P. lamingtonensis* sp. nov., *P. serratus* sp. nov., *P. thunguttiensis* sp. nov., *P. wongabelensis* sp. nov.

**Unassociated species.**

*Pseudomicrocara spilotus* (Blackburn). Pronotal shape rectangular (Figs 4, 97); mandible elongate, simple, mola region with moderately large area of short stout spines (Fig. 47); body surface velvety, elytra depressed slightly behind shoulders; male genitalia simple, with stylus (Fig. 88), (labial palpi simple, front edge of paraglossa bilobed).

*Pseudomicrocara anthophilia* sp. nov. Pronotal shape rectangular (Figs 8, 94); mandible elongate, mola region with moderately large area of short stout spines (Fig. 46); male genitalia complex, with stylus (Fig. 87), (labial palpi simple, front edge of paraglossa bilobed).

*Pseudomicrocara maculiventris* Armstrong. Pronotal shape semicircular; mandible without teeth, tip twisted, mola region without small spines (Fig. 48); elytra broad, flat; male genitalia simple, with stylus Fig. 89), (labial palpi simple, front edge of paraglossa almost straight).

In turn these can be grouped as follows.

a) Male genitalia with stylus, otherwise simple (except in *P. anthophilia*); mandibles without teeth or teeth weak and absent from one mandible, with well developed area of small, stout spines in mola region (except in some *P. orientalis* species group), pronotum semicircular.

*Pseudomicrocara variabilis* species group, *P. orientalis* species group, *P. spilotus*, *P. anthophilia*, *P. maculiventris*.

b) Male genitalia without stylus, complex; mandibles toothed, with small area of small, stout spines in mola region; pronotum rectangular.

*Pseudomicrocara cinctus* species group.

c) Male genitalia generally simple, without stylus or with poorly developed stylus; mandibles toothed, mola region with only a small area of small, stout spines.

*Pseudomicrocara davidsoni* species group, *P. anobioides* species group.
| Key to *Pseudomicrocara* Armstrong |
|-----------------------------------|
| 1 – One or both mandibles with teeth (e.g. Figs 34, 44) | 2 |
| – Both mandibles lacking teeth (e.g. Fig. 32) | 21 |
| 2 (1) – Mandibles asymmetric (left hand one with small tooth, right hand one without tooth or with a noticeably smaller tooth (e.g. Fig. 34), pronotum semicircular (e.g. Fig. 6), male genitalia with a well developed stylus (e.g. Fig. 62) | *P. orientalis* sp. gp 14 |
| – Mandibles each with a moderate to strong tooth (e.g. Fig. 45), pronotal shape variable, male genitalia without stylus or with poorly developed stylus | 3 |
| 3 (2) – Pronotum rectangular (e.g. Fig. 1), carina on inner edge of pronotal epipleura usually reaching at least 1/3 way to outside edge from front margin of procoxa (Fig. 10); 3.5 – 8.0 mm long; setae relatively sparse, not velvet-like | *P. anobioides* sp. gp in part 11 |
| – Pronotum elongate semicircular (e.g. Fig. 3), epipleural carina not reaching beyond front edge of procoxa (e.g. Fig. 9) 1.9 – 3.4 mm long; setae short, dense, may be velvet-like in places | 4 |
| 4 (3) – Third (apical) segment of labial palpi strongly orientated inwards, arising from side of second segment (e.g. Fig. 38); paraglossa with straight front edge (e.g. Fig. 38) | 5 |
| – Third (apical) segment of labial palpi orientated forwards, arising from about centre of apical edge of second segment (e.g. Fig. 31), paraglossa with bilobed front edge (e.g. Fig. 31) | 8 |
| 5 (4) – Elytra mottled (Fig 90); 6.4 – 7.8 mm long | *P. variegata* (Carter) |
| – Elytra uniformly coloured (e.g. Fig 92); 4.0 – 5.6 mm long | 6 |
| 6 (5) – Trigonium beak-like (e.g. Fig. 75); distance between edge of eye and edge of head width of four - five eye facets (e.g. Fig. 14) | *P. davidsoni* (Carter) |
| – Trigonium tip truncated (Fig. 60); parameroids simple, rounded or slightly crochet-shaped at tip; distance between edge of eye and edge of head approximately the width of three eye facets (Fig. 13) | 7 |
| 7 (6) – Antennal segment 3 > 2x length of segment 2 (Fig. 23); parameroids horn-like | *P. dasys* sp. nov. |
| – Antennal segment 3 < 2x length of segment 2 (Fig. 22); parameroids paddle-like | *P. conniculatus* sp. nov. |
| 8 (4) – Distance between lateral edge of eye and edge of head >= width of 4 eye facets; 2.6 – 4.1 mm long | *P. cinctus* sp. gp 19 |
| – Distance between lateral edge of eye and edge of head width of 1 – 3 eye facets; 4.3 – 8.0 mm long | 9 |
9 (8) – 3.5 – 4.1 mm long. Dorsal surface usually with distinct light/dark pattern (Fig. 93) (Tas)..................................................................................P. rufusensis sp. nov.

– 2.6 – 3.2 mm long. Dorsal surface uniformly testaceous except for lighter sutural region on elytron (Qld, NSW, Vic)..................................................................................10

10 (9) – Punctures on pronotum strong, most < puncture width apart, not much weaker than those on elytra; aedeagus elongate, trigonium thin (Fig. 57)...............P. falsiparvus sp. nov.

– Punctures weaker, most on pronotum => puncture width apart, much weaker than those on elytra; aedeagus squat, trigonium very broad (Fig. 59)...............P. parvus sp. nov.

11 (3) – Distance from edge of eye to edge of head about width of two eye facets (Fig. 16). (NQld)..................................................................................P. inusitata sp. nov.

– Distance from edge of eye to edge of head about width of three eye facets (Fig. 15)........12

12 (11) – Pronotum longer (Fig. 7), apical segment of labial palpi orientated inwards (e.g. Fig. 41), .................................................................................................................................13

– Pronotum shorter (Fig. 3), apical segment of labial palpi orientated forwards (e.g. Fig. 42); trigonium bifid (Fig. 72)........................................P. anoboides Armstrong

13 (12) – Length 2.3 – 2.7mm, 9th abdominal tergite without projections; trigonium trilobed (Fig. 73)...................................................................................................................P. triidos sp. nov.

– Length 2.7 – 3.0mm, 9th tergite with two prominent spine-like projections often clearly visible (Fig. 74b); trigonium bifid (Fig. 74b) ..................P. desraeae sp. nov.

14 (2) – Length minus head < 4 mm..........................................................................................15

– Length minus head > 4 mm..........................................................................................16

15 (14) – Elytra with well-marked dark/light pattern.................................P. aquilonaris sp nov.

– Elytra uniformly testaceous..................................................P. angulatus (Blackburn)

16 (14) – Elytra with two - four slightly raised longitudinal ridges, often only visible in certain lights; front edge of paraglossa bilobed or strongly sinuate, third (apical) segment of labial palpi arising from centre of second segment, orientated forwards (e.g. Fig. 34). 16

– Elytra smooth, other than strong punctures; front edge of paraglossa straight, third (apical) segment of labial palpi arising from inner corner of second segment, quite strongly orientated inwards (Fig. 36).................................P. atkinsoni Armstrong

17 (16) – Antennal segment 3 as long as or longer than segment 4 (Fig. 25); eyes relatively small, width between them about 4x dorsal width of eye; females often with some segments of antennae expanded a little at apexes (Fig. 26).................................P. olliffi Armstrong

– Antennal segment 3 about ½ length of segment 4 (Fig. 29); eyes relatively large, width between them about 3x dorsal width of eye; antennal segments not expanded......... 18

18 (17) – Mandible without an area of small spines in mola region (Fig. 34); trigonium tip broad (Fig. 62).................................................................P. orientalis Armstrong
– Mandible with a relatively large area of small, stout spines in mola region (e.g. Fig. 35); trigonium tip sharply pointed (Fig. 65).......................... P. sepiasimulatus sp. nov.

19 (8) – Elytron with at least six shallow longitudinal grooves........... P. costellifera (Carter)
– Elytron with at most two - three weakly raised carina........................................... 20

20 (19) – Elytra with creamy, enamel-like areas, particularly on shoulders and near apex (e.g. Fig. 91).............................. P. hylaios sp. nov., P. thunguttiensis sp. nov., P. serratus sp. nov., P. lamingtonensis sp. nov. Identifiable by male genitalia only (Figs 82 – 85).
– Elytra with pale sutural area, without creamy, enamel-like areas................. P. bawbawensis sp. nov., P. buspinosus sp. nov., P. cinctus (Blackburn), P. wongabelensis sp. nov., P. beccus sp. nov. Identifiable by male genitalia only (Figs 77 – 81).

21 (1) – Length > 8 mm; elytra with dark and light pattern; legs long, thin; antennal segments very elongate (Fig. 30); mandible with tip distinctly twisted (Fig. 48).......................................................... P. maculiventris Armstrong
Not as above............................................................................................................. 22

22 (21) – Pronotum noticeably narrower than elytral base (Figs 4, 8), pronotal shape rectangular (Figs 4, 8), carina on inner edge of epipleuron strong (Fig. 11), reaching well beyond front edge of procoxa................................................................. 22
– Pronotum not much narrower than base of elytra (e.g. Fig. 6), pronotal shape semicircular (e.g. Fig. 6), carina on inner edge of epipleuron not reaching much beyond front edge of procoxa (e.g. Fig. 9)............................................................... 24

23 (22) – Pronotum reddish-yellow in strong contrast to black head and elytra (Fig. 94)........................................................ P. anthophilia sp. nov.
– Light testaceous to greyish, elytron usually with zigzag darker pattern, setae relatively dense, velvet-like (Fig. 97)................................. P. spilotus (Blackburn)

24 (22) – Length > 5 mm; frons extended forwards, about length of first antennal segment (Fig. 18); mandible elongate, without an area of small, stout spines in mola region (Fig. 37).............................................................. P. hangayi sp. nov.
– Length < 5.5 mm; frons not strongly extended forwards (e.g. Fig. 17) (except in P. megarhynchos); mandible usually with area of small, stout spines in mola region (e.g. Figs 32, 40)............................................................. 25

25 (24) – Mandible with mola region with at most a few very small spines (e.g. Fig. 40); labial palpi tend to have apical segment orientated inwards (e.g. Fig. 40); front of paraglossa almost straight (e.g. Fig. 40); male genitalia without or with insignificant stylus (e.g. Fig. 70)................................. P. anobioides sp. gp. in part.... 26
– Mandible with mola region with extensive area of small, stout spines (e.g. Fig. 37); labial palpi simple (e.g. Fig. 37); front edge of paraglossa bilobed (e.g. Fig. 37); male genitalia with prominent stylus (e.g. Fig. 49)............. P. variabilis sp. gp............... 28
26 (25)  Muzzle elongate, about length of first antennal segment (e.g. Fig. 18); labial palpi with apical segment not, or only weakly, orientated inwards (Fig. 43); tip of mandible short (Fig. 43)………………………………………………………...P. megarhynchos sp. nov.
– Muzzle normal, about half-length of first antennal segment (e.g. Fig. 17); labial palpi with apical segment quite strongly orientated inwards (Figs 40, 41); tip of mandible long (Figs 40, 41)……………………………………………………………………………. 27

27 (26)  Width between eyes approximately 2x dorsal width of eye; pronotum light testaceous in contrast to darker elytra (one specimen uniformly testaceous)........P. hamoni sp. nov.
– Width between eyes 2.5 – 3.0x dorsal width of eye, no strong colour contrast between pronotum and elytra………………………………………………………………………….. 27

28 (25)  5.0 – 5.2 mm long (Western Australia)..........................P. occidentalis Armstrong
– 2.7 – 4.5 mm long (Western Australia, South Australia)..................................... 2

29 (28)  Punctures on pronotum weak, about size of seta base, much smaller than those on elytra………………………………………………………………………….. 31
– Punctures on pronotum moderately strong, not greatly smaller than those on elytra … 30

30 (29)  Elytra usually with distinct dark markings (Fig. 96), pronotum uniformly testaceous (S. East) …………………………………………………………………..P. picta Armstrong
– Elytra usually without colour pattern, if present pronotum also patterned……………. 31

31 (30)  Parameroids crotchet-shaped at tip, trigonium relatively wide (Fig. 50). (Tasmania & South East)……………………………………………………………………P. uncatus sp. nov
– Parameroids thumb-like, trigonium narrower, tip knuckle-shaped (Fig. 49) (Tasmania)……………………………………………………………………P. variabilis Armstrong

32 (30)  Pronotum uniformly reddish or yellowish in strong contrast to elytra (e.g. Fig. 94)..... 33
– Pronotum usually dark, head and elytra variable but if pronotum uniformly pale then elytra same colour………………………………………………………….. 34

33 (32)  Pronotum somewhat rectangular (Fig. 6); body narrower; trigonium slender, parameroids not hooked, tegmen tips reach well beyond apex of trigonium (Fig. 51)……………………………………………………………………P. loftyensis sp. nov.
– Pronotum semicircular (Fig. 2); body broader; trigonium moderate to wide, parameroids hooked, tegmen tips not reaching apex of trigonium (Fig. 52)...........P. decipiens sp. nov.

34 (32)  Length of antennal segment 3 > 1.3x length of segment 2 in females (Fig. 28) and most males (Fig. 27)……………………………………………………..P. minor Armstrong
– Length of antennal segment 3 =< length of segment 2 (Fig. 24); Western Australia……………………………………………………………………P. infuscatus Armstrong
Pseudomicrocara variabilis species group

The *P. variabilis* species group is the best defined of all the species groups within *Pseudomicrocara*. They are recognized by their small to medium size, broad semicircular pronotum, mandibles without teeth and with a large area of small spines in the mola region, well developed stylus and simple male genitalia. Three other species, *P. maculiventris*, *P. anthropilia* and *P. spilotus* share the mandibular characters and well-developed stylus but have very different pronotums and, in *P. anthropilia*, different male genitalia. These three species all seem to be rather isolated but may ultimately be shown to be members of a clade which includes *P. variabilis*.

Biology. Predominately beetles of the sclerophyll forests and alpine regions of southern and eastern Australia and Tasmania. Most of the specimens have been collected from flowers close to water. A number of them had pollen grains in their guts when dissected. I have reared *P. infuscatus*, *P. occidentalis* and *P. decipiens* from larvae collected in still water in spring and summer. From the localities I suspect that most species in the group have larvae that live in small dams and seasonally-dry creeks and swamps in forested country and that the adults feed on flowers, including rushes, near the larval habitat. An intriguing possible exception is *P. variabilis* the adults of which are exceedingly common on flowers in button-grass swamps in alpine areas of Tasmania yet the larvae have never been found despite considerable effort over a number of years and seasons. In fact no larval scirtids have been found in this habitat which, as well as *P. variabilis*, is home to *Macrohelodes* Blackburn, ‘Helodes’ *maculatus* Waterhouse and several undescribed genera in abundance. It must be considered that, despite abundant water at times, scirtids in this habitat do not have larvae which live in standing water. Hannappel and Paulus (1991) recorded two unidentified scirtid larvae found under bark in Mt Field National Park Tasmania and Klausnitzer (2006) records unidentified scirtid larvae collected from ‘humus-rich damp soil’ in New Zealand and I have collected the larvae of *Macrodascillus* Carter from inside wet logs in New England National Park, New South Wales. Thus it is clear that the larvae of some scirtid species do live out of standing water in very damp places. The Mt Field larvae seem too large and too morphologically different from known *P. variabilis* group larvae to be *P. variabilis* and are almost certainly another genus but this does not negate the possibility of *P. variabilis* having terrestrial larvae.

Pseudomicrocara decipiens sp. nov. Figs 2, 52

Holotype. Male. ‘SA Watts Gully Mt Crawford St For. 19/11/05 CHS Watts on Tea Tree flowers’. SAMA.

Paratypes. 21; 1, ‘Adelaide SA Griffith’, SAMA; 1, ‘Adelaide C Watts Oct. 1957’ SAMA; 1, ‘Acacia Plateau N.S.Wales H. Davidson’ ‘Pseudomicrocara montivagans (Blkb) Id by J Armstrong’, ANIC; 2, ‘2 km N Bateman’s Bay 3 Oct 1987 NSW C.Reid ex Mel ericiolilia’, ANIC; 2, ‘Bayswater’ ‘Victoria J.Dixon’, ANIC; 1, 37.43S 145.42E Cement Creek, 670m N. of Warburton 812 28 Jan–11 Feb 1987 A. Newton & M. Thayer’, ANIC; 1, ‘Dorrigo NSW’, ANIC; 2, ‘Heathmont Victoria J.E.Dixon’, ANIC; 1, 4–5.46S 149.06E 2 km S Horseshoe Lookout, Blackdown Tab. Qld 23–24 Apr.1981 A. Calder’, ANIC; 1, ‘Orange NSW J Armstrong’ ‘Pseudomicrocara montivagans (Blkb) Id by J Armstrong’, ANIC; 1, ‘Sydney x.37’ ‘K.K.Spence Collection’, AM; 1, ‘Tea Tree Gully 11/00. C.Watts’, SAMA; 1, ‘Williamstown SA Oct 60 C.W.’, SAMA; 5, ‘SA Watts Gully Mt Crawford St For 29/11/05 CHS Watts on Tea Tree flowers’, SAMA.

Description (number examined, 51)

Habitus. Length 3.0 – 4.4 mm. Elongate, sides parallel, setae relatively soft, moderate long and dense. Dark elytra in contrast to pale pronotum.

Head. Yellow to light testaceous; labrum lighter in dark forms. Frons extending forward about width of first segment of antenna from front edge of antennae, anterior margin straight or slightly
sinuate; labrum a little narrower than frons, about 2.5x as wide as long, front edge straight or weakly concave; punctures relatively sparse, small, little larger than setae bases; eyes moderately large, distance between eyes about 2.7x width of eye; edge of eye reaching to about width of two eye facets from lateral margin of head; antennae black to dark testaceous; segment 1 relatively small about as long as dorsal width of eye, hind margin straight, front margin curved, about 1.7x as long as wide; segment 2 small, barrel-shaped ; segment 3 about same length as segment 2, weakly triangular; segment 4 wider and a little more than 2.5x length of segment 3, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4. Maxillary palpi testaceous; moderately elongate, segments 2 & 3 weakly curved inwards, equal in length, segment 4 narrower, more cylindrical, slightly sinuate a little longer than segment 3. Labial palpi relative stout, segments subequal in length; segment 1 wider towards apex; segment 2 broad, triangular, outer edge much longer than inner; segment 3 thumb-like arising from inner corner of segment 2, orientated inwards. Paraglossa broad, front edge almost straight. Mandibles symmetrical, broad, tip moderately long, mola region with relatively large area of short stout spines.

**Pronotum.** Yellow to light testaceous. Basic shape semicircular (Fig. 2), moderately long, about 2x as wide as long, sides very weakly flanged, anterior-lateral angles smoothly rounded, front edge weakly curved, weakly hooded, lateral edge curved, hind edge strongly sinuate, beaded, many specimens with moderately large puncture on hind edge towards side. Punctures small not much larger than setae base, relatively sparse.

**Scutellum.** Variable colour, either same as pronotum or adjacent elytra; triangular, sides almost straight, slightly longer than base. Punctures as on elytra.

**Elytra.** Dark testaceous to black. Sides very slightly pinched behind shoulders, very slightly broader behind middle, narrowly and sharply flanged. Punctures small to moderately strong, most equal to or greater than a puncture width apart, larger than on pronotum.

**Ventral surface.** Dark testaceous, appendages lighter, pronotum yellow to light testaceous. Pronotal process very narrow between procoxae, narrowly oval at tip, tip expanded dorsal/ventrally. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina not reaching beyond base of procoxa. Metacoxal plates, relatively short, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

**Male.** Aedeagus simple (Fig. 52). Trigonium about 1/3 length of aedeagus, broad, weakly narrowing if at all to rounded tip, tip weakly downturned; parameroids broad, not reaching tip of trigonium, tips hooked; tegmen bilobed, parameres relatively narrow of even width along length, tips rounded, rugose on inside. Stylus well developed.

**Etymology.** Latin. ‘Decepio’ – to deceive. A reference to its superficial resemblance to *P. montivagans*.

**Notes**

This is the commonest and most widespread species within the five known species with strongly contrasting red/yellow pronotum and dark elytra previous identified in collections as *P. montivagans* Blackburn (Armstrong 1953). Three of these species, *P. montivagans*, *P. anthophilia* and *P. hamoni* do not belong in the *P. variabilis* group. The other, *P. loftyensis*, occurs sympatrically with *P. decipiens* and can be separated by characters given under that species. There is some variation in general shape, the strength of the dorsal punctation and the male genitalia within my concept of the species and further work may well show it to be composite. In particular, a series of five specimens from Black Mountain ACT (ANIC) may represent a separate species: they are more elongate, more strongly punctured than usual and have slightly weaker apical hooks on the parameroids.

**Biology.** Adults have been taken of *Leptospermum* flowers close to a small, seasonally-dry, creek in Eucalypt woodland in South Australia. The larvae have been found in the adjacent creek in spring
Additional specimens examined

**Australian Capital Territory.** 1, ‘ANU Campus ACT 25 Oct 79 M. Carver’, ANIC; 1, ‘Black Mt., ACT light trap 21.xi.65 E. Britton’, ANIC; 1, ‘Black Mt., A.C.T. light trap 17.1.68 M. S. Upton’, ANIC; 1, ‘Black Mtn ACT 9.1.1969 light trap S. Misko’, ANIC; 1, ‘Black Mtn., ACT light trap 26.1.66 I.F.Common’, ANIC. **New South Wales.** 1, ‘11 km N of Braidwood NSW 25.x.76 S. Allen’, ANIC; 1, ‘Bruxner Park 220m Coffs Harbour 9 Jul 1978 S. & J. Peck’, ANIC; 1, ‘Bugendore, NSW 10 Nov. 1968 J. C. Cardale’, ANIC; 1, ‘30.22S 152.48E Dorrigo Nat Pk 8 km E by S of Dorrigo NSW 17 Nov 1976 I. F. B. Common & E. D. Edwards’, ANIC; 1, ‘Frenchs Forest 29.8 1976 Epacris microphylla’, ANIC; 2, ‘Great Dividing Range Mt Coriceudgy 860m 32 50S 150 21E 23 X 2000 leg A. Podlussary’ HUNG; 1, ‘AUSTRALIA, NSW Manly Dam Reserve Sydney 9.1X.1983 leg. G. Hangay’ HUNG; 2, ‘Pine ck Forestry Coffs Harbour 31.10.63 NSW G. Montieth’, UQIC; 1, ‘30.30S 152.23E NSW Thungutti Camp New England N.P. 16–18 Nov 1990 A. Calder, at light’, ANIC; 1, ‘Upper Hunter’, AM. **Queensland.** 1, ‘Brisbane C. Watts’, SAMA. **South Australia.** 1, ‘Mt Lofty R C. Watts’, SAMA; 2, Myponga S. Australia A. H. Elston, AM; 1, ‘R. Murray S Australia A. H. Elston’, AM. **Tasmania.** 1, ‘42.40S 146.41E Tas 2.5 km W Mt Field NP c 600m 6 Feb 1992 C. Reid on Nothofagus cunninghami’, ANIC. **Victoria.** 1, ‘30m SW Canberra Jan1961 CW’, SAMA. 2, ‘Marysville VIC C. Watts’, SAMA; 1, ‘Vic Dixon’, ANIC. **Western Australia.** 3, ‘34.24S 117.57E Talyuberlup Picnic Area Stirling Rng NP WA 29/x–4/xi 1984 J. & N. Lawrence’, ANIC.

**Pseudomicrocara infuscatus** Armstrong. Figs 24, 56. **Pseudomicrocara infuscatus** Armstrong, 1953.

*Holotype.* ‘KG Sound’ ‘K33141’ ‘Near Cyphon adelaidae Blkb id by HJ Carter’ ‘Pseudomicrocara infuscata Armst Id by J. Armstrong’. Red label ‘Holotype’. Right hand specimen of two on card marked with an X, AM.

*Paratypes.* 4; 1, as for holotype; 2 on same card, ‘R.G.S.’ ‘Pseudomicrocara infuscatus Armst Id by J. Armstrong’ ‘On permanent loan from Macleay Museum University of Sydney’, two blue paratype labels, ANIC; 1, ‘K.G.Sound’ ‘Pseudomicrocara infuscatus Armst Id by J. Armstrong’, blue paratype label, ANIC.

*Description* (number examined, 124)

*Habitus.* Length 2.7 – 4.0 mm. Elongate oval, widest behind middle of elytra, setae relatively stiff, moderate long and dense.

*Head.* Dark, occasionally frons lighter; Frons extending forward about length of first segment of antenna from front edge of eye, anterior margin straight; labrum as wide a front of frons, about 2x as wide as long, front edge weakly curved; with small granules, towards front with small punctures small; eyes relatively small, distance between eyes about 4x width of eye; edge of eye about width of two eye facets from lateral margin of head. Antennae dark to light testaceous, bases of segments lighter; segment 1 relatively small about as long as dorsal width of eye, posterior edge straight, anterior edge curved, about 1.2x as long as wide; segment 2 small, barrel-shaped; segment 3 narrower as long as or a little shorter than segment 2, weakly triangular; segment 4 about 2x as wide as segment 3 and about 2.5x as long, narrowing slightly towards base, segments 5 – 10 subequal, relatively stout, a little shorter than segment 4; segment 11 1.4x length of segment 10. Maxillary palpi dark red-black; elongate; outer edge of segment 2 shorter than inner edge; segment 4 1.5x longer than segment 3, slightly conical. Labial palpi relatively stout; segment 1 wider towards apex; segment 2 broader, outer edge longer than inner; segment 3 longer, thinner, thumb-shaped, arising centrally from apex of segment 2, orientated weakly inwards. Paraglossa broad, front edge strongly bilobed. Mandibles symmetrical, broad, tip moderately long, mola region with large area of small, stout spines.
Pronotum. Yellowish to yellowish with darker disc to dark with extreme sides yellow. Basic shape semicircular, moderately long, about 2x as wide as long, sides weakly but quite widely flanged, anterior-lateral angles smoothly rounded, front edge straight or weakly curved, hooded, lateral edge weakly curved, hind edge sinuate, beaded. Punctures relatively sparse, size of base of a seta.

Scutellum. Colour same as adjacent areas of elytra. Equilateral triangle, rugose-punctate.

Elytra. Yellowish, to yellowish sides and darker disc, to completely dark testaceous, to black. Sides slightly curved, narrowly and sharply flanged. Punctures relatively strong, a little more than one puncture width apart, much larger than those on pronotum.

Ventral surface. Testaceous-yellow, slightly darker and lighter in places. Pronotal process very narrow between procoxae, very narrowly oval at tip, tip expanded dorsal/ventrally. Pronotal epipleura broad, almost flat, outer bifurcation of inner carina not extending beyond base of procoxa, inner bifurcation sub obsolete. Metacoxal plates relatively narrow, teardrop-shaped. Metafemur relatively broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 56). Trigonium about 1/3 length of aedeagus, broad at base, rapidly and unevenly narrowing to blunt tip, tip weakly downturned; parameroids relatively broad, reaching a bit beyond tip of trigonium, slightly grooved on outside near tip; parameres rather narrow, even width along length, rounded at tip. Stylus moderately developed.

Notes
By far the commonest Pseudomicrocara in Western Australia. The small third antennal segment separates it for P. minor and the relatively uniform colour and weak pronotal punctures separates it from P. decipiens and P. loftyensis. It appears closest to P. occidentalis but is smaller and less uniformly chocolate coloured.

Biology. Adults are very common in spring on flowers in swampy areas on the sand-plain south of Perth. Larvae are equally abundant in shallow swamps in the same area

Additional specimens examined

Western Australia. 1, ‘3–5.38S 115.29E 14km E by N Busselton WA 4 Oct 1981 I. D. Naumann, J. C. Cardale ex ethanol’, ANIC; 49, ‘WA 4 km SW Bunbury 33 21 49S 115 40 54E CHS Watts 3/10/03’, SAM; 1, ‘Mt Frankland, N. of Normalup W.A. 7 Oct.1970 D. H. Colless’, ANIC; 1, ‘Nannup, W.A. 28.ix.65 E. Britton’, ANIC; 1, ‘34.28S 115.55E 12km W by S. Pemberton WA 6 Oct 1981 I. D. Naumann, J. C. Cardale’, ANIC; 1, ‘Perth Aug 1957 P. S. Watts’, SAMA; 37, ‘12k W Serpentine WA 24/10/96 C. Watts’, SAMA; 28, ‘WA 2.5Km W Serpentine 23/9/00. C. H. S. Watts’, SAMA; 1, ‘Waroona, W.A. 30.ix.65 E. Britton’, ANIC; 1, ‘Wilga W.A. 17.xi.73 F. H. Uther Baker’, ANIC.

Pseudomicrocara loftyensis sp. nov. Figs 6, 51

Holotype. Male. ‘SA Watts Gully Mt Crawford St For. 19/11/05 C. H. S. Watts on Tea Tree flowers’, SAMA.

Paratypes. 7; 1, ‘Adelaide SA Griffith’, SAMA; 1, ‘Mt Lofty Rgs S. Australia R. J. Burton’, SAMA; 1, ditto ‘A. H. Eston’, SAMA; 4, ‘SA Watts Gully Mt Crawford St For. 19/11/05 C. H. S Watts on Tea Tree flowers’, SAMA.

Description (number examined, 8)

Habitus. Length 3.5 – 4.0 mm. Elongate, sides parallel, setae relatively soft, moderate long and dense. Dark elytra in contrast to pale pronotum.

Head. Testaceous. Frons extending forward about width of first segment of antenna from front edge of antennae, anterior margin straight or slightly sinuate; labrum a little narrower than frons, about
2.5x as wide as long, front edge straight or weakly convex; moderately densely covered with small setiferous granules; eyes moderately large, distance between eyes about 4x width of eye; edge of eye almost reaching lateral margin of head. Antennae testaceous basal three segments lighter; segment 1 relatively small about as long as dorsal width of eye, hind margin straight, front margin curved, about 1.7x as long as wide; segment 2 small, barrel-shaped; segment 3 about same length as segment 2, weakly triangular; segment 4 wider and a little more than 2x length of segment 3, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4. Maxillary palpi testaceous; moderately elongate, segments 2 & 3 weakly curved inwards, equal in length, segment 4 narrower, more cylindrical, slightly sinuate, a little longer than segment 3. Labial palpi relative stout, segments subequal in length; segment 1 narrow, wider towards apex; segment 2 broad, triangular, outer edge a little longer than inner; segment 3 thumb-like arising from slightly inwards of centre of apex of segment 2, orientated inwards. Paraglossa moderately broad, front edge moderately bilobed. Mandibles symmetrical, broad, tip moderately long, mola region with relatively large area of short stout spines.

Pronotum. Yellow to light testaceous. Basic shape semicircular, moderately long, about 2x as wide as long (Fig. 6), sides very weakly flanged, anterior-lateral angles smoothly rounded, front edge weakly curved, weakly hooded, lateral edge curved, hind edge strongly sinuate, beaded, some specimens with a weak, moderately large puncture, on hind edge towards side. Punctures small not much larger than setae base, relatively sparse.

Scutellum. Dark testaceous; triangular, sides almost straight, slightly longer than base. Punctures larger than on pronotum, smaller than on elytra.

Elytra. Dark testaceous. Sides very slightly pinched behind shoulders, very slightly broader behind middle, narrowly and sharply flanged. Punctures small to moderately strong, most equal to or greater than a puncture width apart, much larger than on pronotum.

Ventral surface. Testaceous, appendages lighter, pronotum yellow to light testaceous. Pronotal process very narrow between procoxae, narrowly oval at tip, tip expanded dorsal/ventrally. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina not reaching beyond base of procoxa. Metacoxal plates, relatively short, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 51). Trigonium about 1/3 length of aedeagus, narrow, apex rounded, weakly downturned; parameroids shorter than trigonium, broad, narrowing somewhat to rounded apex; parameres relatively large and broad, rounded at tips; stylus well developed.

Etymology. Named after the region in which it is found.

Notes

One of two species with a red pronotum and dark elytra within the *P. variabilis* group. *Pseudomicrocara loftyensis* is separated from the similarly coloured more widespread *P. decipiens* by the more elongate form, usually narrower distance between the edge of the eye and the edge of the head, the relatively thin trigonium, the parameroids not hooked at the tips and the lobes of the tegmen projecting well beyond the tip of the trigonium.

Biology. Adults have been collected during a short period in late spring from *Leptospermum* flowers close to a seasonally-dry small stream in dry sclerophyll forest. *Pseudomicrocara decipiens* and *P. minor* where collected from the same bushes at the same time. The larvae are not known but I assume that they live in the nearby stream – as do the larvae of *P. decipiens*. 
Pseudomicrocara minor Armstrong. Figs 20, 27, 28, 55

Pseudomicrocara minor Armstrong, 1953, p. 26, top.
= Pseudomicrocara elstoni Armstrong 1953, p. 26, middle. Syn. nov.

Types

Pseudomicrocara minor Armstrong

Holotype. Female, ‘Mt Lofty Rgs S. Australia A. H. Elston’ ‘462’ ‘Pseudomicrocara minor ARMSTR. Id J. Armstrong’ red ‘HOLOTYPE’ ‘A. H. Elston Collection’, on card, dissected, AM.

Pseudomicrocara elstoni Armstrong

Holotype. Female, ‘Melrose S. Australia A. H. Elston’ ‘Pseudomicrocara elstoni ARMSTR. Id by J. Armstrong’, red ‘HOLOTYPE’ ‘A.H.Elston Collection’, on card, dissected, AM.

Paratype. Male, ‘Melrose S. Australia A.H.Elston’ ‘Pseudomicrocara elstoni ARMSTR. Id by J. Armstrong’, blue ‘PARATYPE’, on card, dissected, partial genitalia, ANIC.

Pseudomicrocara minor has page preference.

Description (number examined, 80)

Habitus. Length 4.2–4.5 mm. Elongate, widest behind middle of elytra, setae relatively soft, moderate long and dense.

Head. Testaceous. Frons extending forward about 1/2 length of first segment of antenna from front edge of antennae, anterior margin straight; labrum a little narrower than frons, about 2x as wide as long, front edge weakly sinuate; punctures small, little larger than setae bases; eyes moderately large; edge of eye separated from lateral margin of head by about width of two eye facets; antennae testaceous; segment 1 relatively small about as long as dorsal width of eye, barrel-shaped, about 1.7x as long as wide; segment 2 small, round-oval; segment 3 1.5 – 2x length of segment 2, narrower, weakly triangular; segment 4 a little wider and a little less than 2x length of segment 3, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4, becoming progressively slightly narrower towards apex, segments 6 – 11 slightly expanded on rear apical corners (Figs 27, 28). Labial palpi stout, segments subequal in length; segment 1 wider towards apex; segment 2 outer edge longer than inner; segment 3 broad, thumb-like arising from middle of apex of segment 2, orientated inwards. Paraglossa broad, front edge moderately strongly bilobed. Mandibles symmetrical, relatively broad, tip moderately long, mola region with large area of short stout spines.

Pronotum. Testaceous. Basic shape semicircular/rectangular, moderately long, about 3.2x as wide as long, sides very weakly but quite widely flanged, anterior-lateral angles angularly rounded, front edge weakly curved, weakly hooded, lateral edge curved, hind edge strongly sinuate, beaded. Punctures relatively sparse, about size of seta base.

Scutellum. Same colour as adjacent elytra. Triangular, sides weakly convex, slightly longer than base. Punctures small, rugose, almost confluent, larger than on pronotum, as on elytra.

Elytra. Testaceous; sides very slightly pinched behind shoulders, slightly broader behind middle, narrowly and sharply flanged. Punctures moderately large, about a puncture width apart, becoming smaller towards apex.

Ventral surface. Testaceous with darker and lighter areas. Pronotal process very narrow between procoxae, narrowly triangular/oval at tip, tip expanded dorsal/ventrally, sides raised. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina not reaching much beyond base of procoxa. Metacoxal plates, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures, each ventrite with a shallow depression on each side.
Male. Aedeagus short, simple (Fig. 55); trigonium about ½ length of aedeagus, moderately broad at base, evenly narrowing to relatively broad apex, tip weakly upturned; parameroids broad, weakly hooked near tip, shorter than trigonium; parameres broad, relatively short, rounded at tips. Stylus relatively thin, delicate. Tergite 9 with relatively deep sharp notch on apical edge (Fig. 20). Antennal segments straighter (Fig. 27) than in the female (Fig. 28), at most only weakly expanded on apical outer angle; segment 3 often not much longer than segment 2.

Notes
I consider *P. elstoni* to belong to this species even though I have seen no male specimens of *P. minor*. The sex ratio of the specimens known to have been collected on flowers is highly skewed towards females (73 female/5 male). A moderate sized, elongate, uniformly testaceous species with rather rectangular pronotum (for the group) which is only weakly punctured. Recognized most readily by the relatively long thin antennae, particularly in the females. So far known only from the Mt Lofty and Lower Flinders Ranges in South Australia were it has been taken by beating and sweeping flowering plants close to water. I have seen one female specimen from Western Australia that may belong to this species.

Biology. Collected on flowers (rushes and *Leptospermum*) next to intermittent streams in late spring in dry sclerophyll woodland. The larvae are not known. At Melrose and Wilmington taken together with *Scirtes helmis* (Blackburn), whose larvae were also found in the adjacent streams.

Additional specimens examined

**South Australia.** 1, ‘SA Watts Gully Mt Crawford Forest 20/11/99 C. Watts’, SAMA; 1, ‘SA Kuipo 35.14S 136.41E C. Watts 5/10/95’, SAMA; 1, ‘SA Tea Tree Gully 2/12/01 C. Watts’, SAMA; 1, ditto ‘2/11/01’, SAMA; 1, ‘Mt Lofty Rgs S Australia R. J. Burton’, SAMA; 54, ‘Melrose on flowering rushes C. H. S. Watts 8/11/05’, SAMA; 18, ‘3 km SW Wilmington on flowering rushes C. H. S. Watts 8/11/05’, SAMA; 2, ‘Watts Gully Mt Crawford St For 29/11/05 C. H. S. Watts on Tea Tree flowers’, SAMA. **Western Australia.** 1, ‘6 km NW Kendrup, 16/9/00 C. H. S. Watts’, SAMA.

*Pseudomicrocara occidentalis* Armstrong. Fig. 54

*Pseudomicrocara occidentalis* Armstrong. 1953

**Holotype.** ‘Yanchep 32 mls N of Perth 13-23 X1.1935’ ‘W AUSTRALIA R. E. Turner BM1936–28’ ‘Pseudomicrocara occidentalis Armst Id by J. Armstrong’, with red and blue Holotype labels, BMNH.

**Paratypes.** 3, ‘Pseudomicrocara occidentalis Armst. Id by J Armstrong’, blue, ‘Paratype’. On separate cards, one male dissected; 1 without head. ANIC.

**Description** (number examined, 8)

**Habitus.** Length 6.0 – 6.6 mm. Oval, setae relatively soft, relatively short and dense.

**Head.** Dark testaceous, with light areas. Frons extending forward by almost length of segment 1 in front of front edge of antenna base, anterior margin curved; labrum a little narrower than frons, about 2.5 as wide as long, front margin slightly sinuate; punctures small, moderately dense, setiferous; eyes relatively large, distance between eyes about 3x width of eye; edge of eye almost reaching lateral margin of head. Antennae testaceous, basal segments and area near joints lighter; segment 1 a little shorter than dorsal width of eye, oval, about 2x as long as wide; segment 2 small, a little less than half as long as segment 1, bead-shaped; segment 3 a little longer and about as wide as segment 2, weakly triangular; segment 4 a little wider than segment 3 and about 2.3x as long, weakly narrowing towards base; segments 5 – 11 subequal, about length of segment 4. Maxillary palpi light testaceous; moderately stout segments 2 – 4 sub-equal in length, segment 4 narrower and more cylindrical than penultimate. Paraglossa broad, front edge weakly bilobed. Labial palpi
relatively stout, segment 1 narrow, expanding towards apex, segment 2 a little shorter, broad, triangular, inner edge a little shorter than outer; segment 3 a little longer than segment 2, finger-shaped, arising from middle of apex of segment 2, orientated inwards. Mandibles symmetrical, broad, tip short, inner edge smooth, mola region with large area of small, stout spines.

**Pronotum.** Testaceous, front and lateral margins narrowly light testaceous. Basic shape semicircular, about 1.8x as wide as long, sides broadly flanged, anterior-lateral angles smoothly rounded, front edge straight moderately hooded, lateral edge weakly curved, hind edge strongly sinuate, weakly beaded. Punctures relatively sparse, weakly impressed, somewhat smaller than those on adjacent elytra, many on disc reduced to only seta base.

**Scutellum.** Testaceous; triangular, sides weakly convex, a little longer than base; punctures as on disc of pronotum.

**Elytra.** Testaceous. Sides broadest just behind middle; narrowly and sharply flanged. Punctures setiferous, of moderate size, about a puncture width apart, becoming progressively smaller towards apex.

**Ventral surface.** Testaceous, darker and lighter in places. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina not reaching much further forward than about front edge of base of procoxa. Pronotal process very narrow between procoxae, only weakly expanded towards tip, Metacoxaal plates moderately long, teardrop-shaped. Metafemur relatively thin. Ventrites densely covered with small, rugose, setiferous punctures.

**Male.** Aedeagus simple (Fig. 54). Trigonium about 1/3 length of aedeagus, relatively thin, narrowing slowly to truncated tip, tip weakly downturned; parameroids relatively thin, reaching well beyond tip of trigonium, crotched-shaped at tip; parameres moderately broad, relatively even width along length, curved inwards in front to narrow tips. Stylus not discernable in the preparations of the two available males.

**Notes**

A relatively large species which at first sight resembles some members of the *P. orientalis* group. In two of the three specimens in which the mandibles are visible there is a roughness on the inner edges of the right hand mandible not seen in any other species in the *P. variabilis* group. This, together with the possible absence of a stylus and its relatively large size, suggests that this species may not be correctly placed in the *P. variabilis* group. Better material will be required to resolve this.

**Biology.** I have reared *P. occidentalis* from larvae collected at the side of a small, drying, seasonal roadside swamp. Superficially they resemble the dark larvae of *P. olliffi* or *P. orientalis*. Other than this nothing is known of its biology.

**Additional specimens examined**

**Western Australia.** 1, ‘The Gloucester Tree 4km SE Pemberton WA 3 Jan 1986 C. Reid under Eucalyptus bark’, ANIC; 3, ‘S.W.A HJC 12-13’ ‘H. J. Carter Coll P 20.4.22’, MV (paratotypes of *P. orientalis*); 3 (from larvae), ‘2k S Serpentine 17/10/06 CHS Watts’, SAMA.

*Pseudomicrocara picta* Armstrong. Figs 32, 53, 96

*Pseudomicrocara picta* Armstrong, 1953

**Holotype.** Male, ‘Baxter Victoria J.M.Dixon’ red ‘Holotype’ label, ‘20’ ‘Pseudomicrocara picta Armst Id by J. Armstrong’ ‘Preparation is of holotype P. Zwick 1972’ red ‘Holotype 446 on left Paratypes 447 & 448’. Identified by ‘T’, mounted on same card as 2 paratypes. Abdomen with genitalia extruded and mounted on clear plastic, MV.
Paratypes. 5; 2, as per holotype, one missing head & abdomen, MV; ‘1 male. Baxter Vic J.E.Dixon’ red ‘Paratype’ ‘Pseudomicrocara picta Armst id by J. Armstrong’, dissected, ANIC; 2, ‘Baxter Victoria J. E. Dixon’ red ‘Paratype’ ‘20’ ‘Pseudomicrocara picta Armst id by J. Armstrong’, ANIC.

Description (number examined, 24)

Habitus. Length 3.1 – 4.0 mm. Narrowly oval, sides sub parallel, setae moderately stiff, moderate long and dense. Often with distinct colour pattern on elytra.

Head. Dark testaceous; labrum lighter. Frons extending forward about 1/2 length of first segment of antenna from front edge of base of antennae, anterior margin straight or slightly curved; labrum a little narrower than frons, about 1.7x as wide as long, front edge straight or weakly concave; punctures small, little larger than setae bases; eyes moderately large, distance between eyes about 3.5x width of eye; edge of eye nearly reaching lateral margin of head; antennae light testaceous, basal segments lighter; segment 1 relatively small about as long as dorsal width of eye, hind edge straight front edge curved, about 1.7x as long as wide; segment 2 a little more than ½ length of segment 1, narrower, barrel-shaped; segment 3 about same length and width as segment 2, triangular, hind edge longer than front edge; segment 4 wider and about 2x length of segment 3, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4, becoming progressively slightly narrower towards apex. Maxillary palpi pale; moderately stout, segments 2 & 3 equal in length, segment 4 narrower, slightly conical, a little longer than segment 3. Labial palpi moderately stout, segments subequal in length; segment 1 narrow, wider towards apex; segment 2, weakly triangular, outer edge longer than inner; segment 3 thumb-like arising from middle of apex of segment 2, orientated slightly inwards (Fig. 32). Paraglossa broad, front edge moderately bilobed (Fig. 32). Mandibles symmetrical, relatively broad, tip long, mola region with large area of short stout spines (Fig. 32).

Pronotum. Testaceous often with darker areas on disc. Basic shape semicircular, moderately long, about 2x as wide as long, sides very weakly flanged, anterior-lateral angles smoothly rounded, front edge curved, moderately hooded, lateral edges curved, hind edge strongly sinuate, beaded. Punctures moderately large, shallow, most a little less than a puncture width apart.

Scutellum. Same colour as adjacent elytra. Triangular, sides weakly convex, slightly longer than base. Punctures as on elytra.

Elytra. Light testaceous, shoulders, sutureal region, three linear patches in front of middle, one large patch behind middle black, pattern fading in some to nearly all light testaceous. Sides very slightly pinched behind shoulders, slightly broader behind middle, narrowly and sharply flanged. Punctures as on disc of pronotum.

Ventral surface. Dark testaceous, appendages lighter. Pronotal process very narrow between procoxae, widening only slightly at tip, tip expanded dorsal/ventrally. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina not reaching beyond base of procoxa. Metacoxal plates rather long, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 53). Trigonium about 1/3 length of aedeagus, broad, slightly waisted, tip rounded; parameroids shorter than aedeagus, strongly crotched-shaped at apex; parameres relatively broad, relatively even width along length, tips rounded; stylus well developed.

Notes

The colour pattern on the elytra is quite variable but the three short longitudinal macula are traceable on most. This is the only P. variabilis group species with a dark pattern on the elytra although a dark pattern is present in P. spilotus, P. rufusensis and P. aquilonaris which all can be separated by group characters. The occasional poorly patterned example can be confused with P.
minor but it differs from this species by having antennal segments 2 and 3 approximately the same length and by having a much more strongly punctured pronotum.

**Biology.** Nothing is known of the biology of this distinctive species. From the locality records it appears to be a wet forest species.

**Additional specimens examined**

**Victoria.** 1, ‘37.41S 145.44E VIC Acheron Gap 750m NE Warburton 813 27 Jan–9 Feb 1987 A. Newton & M. Thayer’, ANIC; 3, ‘Baxter Victoria J. E. Dixon’ ‘Pseudomicrocara picta Armst. Comp. w. type J. A.’ ‘F.E.Wilson Collection’, MV; 3, ditto, bearing the label ‘Cyphon picta Blkb id by H. J. Carter’, ANIC. (These six specimens from Baxter are identically labelled and mounted as the holotype and paratypes and would seem to have been collected and mounted at the same time. They were not included in the type series by Armstrong but could be considered topotypes). 1, ‘37.34 145.53E VIC Cumberland Scenic Res (nr Cambarville) N E Warburton 813, 27 Jan–9 Feb 1987 A. Newton & M. Thayer’, ANIC; 3, ‘38.39S 143.42 E VIC Haines junct. 525m 1.9km W on Turtans Track 809 25 Jan–8 Feb 1987 A. Newton & M. Thayer’, ANIC; 8, ‘38.43S 143.35E Vic Otway NP 390m Binn Rd 4.3km N Cape Horn 808 26 Jan–8 Feb 1987 A. Newton & M. Thayer’, ANIC; 1, ‘38.45S 143.33E VIC Otway NP 260m Maits Rest 807 25 Jan–8Feb 1987 A. Newton & M. Thayer’, ANIC.

**Pseudomicrocara variabilis** Armstrong, Figs 49, 95

**Pseudomicrocara variabilis** Armstrong, 1953.

**Holotype.** Round red ‘TYPE’ label; ‘Hobart 91–88’; blue label ‘Holotype’ ‘Pseudomicrocara variabilis Armst Id J. Armstrong’, BMNH.

**Paratypes.** 15; 1, as for holotype except yellow ‘Paratype’ label, BMNH; 1, round yellow ‘Paratype’ label, ‘Hobart Tasmania J. J. Walker’ ‘GC Champion Coll BM 1927–409’, blue ‘Paratype’ label, ‘Pseudomicrocara variabilis Armst Id by J. Armstrong’, BMNH; 1, yellow ‘Paratype’ label, ‘Tasmania Hartz mts14.x11. 1932 3000ft’, blue ‘Paratype’ label, ‘Pseudomicrocara variabilis Armst Id by J. Armstrong’, BMNH; 4 on same card (2 damaged) with figs ‘1’ and ‘2’ on card; ‘Cradle Mt. Tasmania Carter & Lea’ ‘H. J. Carter Coll. P. 20.4.22’, blue fringed card ‘Paratype’ ‘Pseudomicrocara variabilis Armst id J. Armstrong’, blue ‘Paratype 449–452’, MV; 1 (Partial) ‘Hobart Tas J. J. Walker’, blue-fringed label ‘Paratype’ ‘Pseudomicrocara variabilis Armst id J. Armstrong’, ANIC; 1, ‘Hobart Tasmania J. J. Walker’ ‘G. C. Champion Coll BM 1927–409’, blue ‘Paratype’ ‘Pseudomicrocara variabilis Armst id J. Armstrong’, ANIC; 1, ‘Mt Wellington Tas Lea’, blue ‘Paratype’ ‘Pseudomicrocara variabilis Armst id J Armstrong’ ‘16’, ANIC; 1, ‘Launceston TAS. Lea’, blue label ‘Paratype’ ‘Pseudomicrocara variabilis Armst id J. Armstrong’ ‘2’, ANIC; 1, ‘N.W.Tasmania Cradle Valley 8,000feet 12.1.1923’ ‘Brit Mus 1925 – 120’, blue label ‘Paratype’ ‘Pseudomicrocara variabilis Armst. Id J. Armstrong’, ANIC; 2, mounted on same card, ‘Summit of Mt Wellington Tas (Lea)’ ‘17’, blue label ‘Paratype’ ‘Pseudomicrocara variabilis Armst id J. Armstrong’, ANIC; 1, blue margined label ‘Paratype’ ‘Pseudomicrocara variabilis Armst. Id J. Armstrong Cradle Mt T Turner 3.2.34’ (not P. variabilis, near Helodes maculatus Waterhouse), ANIC.

**Description** (number examined, 814)

**Habitus.** Length 3.0 – 4.3 mm. Narrowly oval, widest behind middle of elytra, setae relatively soft, moderate long and dense. Colour very variable.

**Head.** Black or dark testaceous; labrum black or yellow. Frons extending forward about 1/2 length of first segment of antenna from front edge of base of antennae, anterior margin straight or slightly curved; labrum a little narrower than frons, about 1.5x as wide as long, front edge straight or weakly
REVISION OF AUSTRALIAN *PSEUDOMICROCARA* ARMSTRONG (COLEOPTERA SCIRTIDAE)

concave; punctures small, little larger than setae bases; eyes moderately large, distance between eyes about 2.5x width of eye; edge of eye nearly reaching lateral margin of head; antennae black to dark testaceous; segment 1 relatively small about as long as dorsal width of eye, barrel-shaped, about 1.7x as long as wide; segment 2 small, barrel-shaped; segment 3 about same length as segment 2 narrow, weakly triangular; segment 4 wider and a little more than 2x length of segment 3, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4, becoming progressively slightly narrower towards apex. Maxillary palpi dark – light testaceous; moderately stout, segments 2 & 3 weakly curved inwards equal in length, segment 4 narrower, more cylindrical, slightly sinuate a little longer than segment 3. Labial palpi moderately stout, segments subequal in length; segment 1 narrow, wider towards apex; segment 2, outer edge longer than inner; segment 3 thumb-like arising from middle of apex of segment 2, orientated slightly inwards. Paraglossa broad, front edge quite strongly bilobed. Mandibles symmetrical, relatively broad, tip short, mola region with large area of short stout spines.

**Pronotum.** Black or black with sides yellow or yellow with darker area on disc. Basic shape semicircular, moderately long, about 1.8x as wide as long, sides very weakly but quite widely flanged, anterior-lateral angles smoothly rounded, front edge weakly curved, weakly hooded, lateral edge curved, hind edge strongly sinuate, beaded. Punctures moderately large, shallow, most a little less than a puncture width apart.

**Scutellum.** Same colour as adjacent elytra. Triangular, sides weakly convex, slightly longer than base. Punctures as on elytra.

**Elytra.** Black or yellow; Sides very slightly pinched behind shoulders, slightly broader behind middle, narrowly and sharply flanged. Punctures as on disc of pronotum.

**Ventral surface.** Black with appendages and parts of more posterior ventrites yellow. Pronotal process very narrow between procoxae, narrowly tear drop-shaped at tip, tip expanded dorsal/ventrally. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina not reaching beyond base of procoxa. Metacoxal plates, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

**Male.** Aedeagus simple (Fig. 49). Trigonium a little less than ½ length of aedeagus, waisted, tip broadened, truncated, setose, downturned; parameroids a bit shorter than trigonium, thumb-like or weakly crotchet-shaped, inner edges setose towards apex; parameres broad, even width along length, tips rounded; stylus well developed.

**Notes**

Very variable in size and colour with two predominant colour forms: black with lateral sides of the pronotum quite widely yellow and; light testaceous, often with darker areas on the disc of pronotum and the sutural region of the elytra. Most easily recognized by the relatively strong pronotal punctures, the knuckle-shaped tip to the trigonum and the finger-like parameroids without crotchet-shaped tips. Indistinguishable from *P. uncatus*, which occurs in the same localities, other than by the broad trigonum and hooked parameroids in *P. uncatus*. (See also under *P. uncatus*.) The distance between the eyes and the side of the head tends to be a little larger in *P. variabilis* than in related species, including *P. uncatus*.

**Biology.** One of the most abundant Scirtids in Tasmania, it is very common in swampy areas in higher regions on the flowers of *Leptospermum* and *Baeckea*. It is much rarer in lowland regions and in closed forest. Despite its abundance and considerable search effort, larvae have not yet been found.

**Additional specimens examined**

**Tasmania.** 1, ‘42.37S 146.21E S.W.Tasmania UV light 320m Condominium Ck 13 Feb 1980 L. Hill’, ANIC; 13, ‘Cradle Mtn Tasmania J. Armstrong’, ANIC; 2, ‘Cradle Mt NP. TAS Jan C. Watts’, SAMA; 108, ‘Cradle Valley TAS Cradle Valley-Lake St Clair N.Pk. 19/1/00 C. H. S. 21
C.H.S. WATTS

Watts’, SAMA; 8, ‘41.38S 145.47E TAS Cradle Mt L. St Clair NP Waldheim, Weindorfers For 940 Male. 911 14–30 Jan 1993 A. Newton & M. Thayer’, ANIC; 19, ‘41.38S 145.57E TAS Cradle Mtn L.St. Clair NP. Lake Dove Road 940m, 14 Jan. 1993 on flwrs. Leptospermum A. Newton & M. Thayer’, ANIC; 11, ‘42.10S 146.08E TAS 9km WSW of Derwent Bridge 21 January 1983 I. Naumann, J. Cardale’, ANIC; 7, ‘Dove Lake TAS Cradle Mountain- Lake St Clair N.Pk. 19/1/00 C. H. S. Watts’, SAMA; 13, ‘Dove Lake TAS Cradle Mountain-Lake St Clair N.Pk. 19/1/00 C. H. S. Watts’, SAMA; 2, ‘TAS Lake Dobson Mt Field N. Pk. 26/1/00 C. H. S. Watts’, SAMA; 39, ‘TAS Lake St Clair 4 km N Derwent Bridge 25/1/00 C. H. S. Watts’, SAMA; 26, ‘42.0S 146.0E TAS 7km SwbyW Derwent Bridge 16Jan –2 Feb 1983 I. D. Naumann & J. C. Cardale Malaise/ethanol’, ANIC; 1, ‘42.49S 146.23E Frodshams Pass TAS 24–25 Jan 1983 I. D. Naumann & J. C. Cardale’, ANIC; 11, ‘42.51S 146.14E TAS World Her. Area Gordon River Site 15 Feb 1997 P. Greenslade’, ANIC; 2, ‘42.53S 146.23E TAS World Her. Area Gordon River Site 17 Feb 1997 P. Greenslade’, ANIC; 6, ‘42.57S 146.21E TAS Lake St Clair Site 5 King William Ck west 16 Feb 1997, sweep P. Greenslade’, ANIC; 3, ‘42.13S 146.34E TAS Mt Field NP Twilight Tarn 1000m 7 Feb 1992 C. Reid on Leptospermum flwrs’, ANIC; 1, ‘41.50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh March 1991 I. D. Naumann, sweeping Leptospermum scrub and vicinity’, ANIC; 2, ‘41.50S 146.03E TAS Pelion Hut, 3km S Mt Oakleigh 11 Mar 1991 M. Horak, P. McQuillan I. Naumann, light trap’, ANIC 3, 42.0S 146.36E TAS Mt Field NP Eagle Tarn 7 Feb 1992 1040m on Leptospermum flowers C. Reid’, ANIC; 1, ‘42.41S 146.37E Mt Field N.P. nr Lake Fenton TAS 1000m, 31 Jan 1980 Lawrence & Weir’, ANIC; 3, ‘12.39S 146.34E TAS Mt Field NP Twilight Tarn 1000m 7 Feb 1992 C. Reid on Leptospermum flwrs’, ANIC; 6, ‘42.40S 146 34E TAS Mt Field NP Robert Tarn 1220m 7 Feb 1992 C. Reid on flwrs’, ANIC; 10, ‘AUSTRALIA TAS Wombat Moor 1060m 30 Jan –5 Feb 80 Euc. coccifrera woodland A. Newton & M. Thayer’, ANIC; 26, ‘41 52S 146 03E TAS Pelion Gap 2 km ENE Mt Ossa 1120 30 Nov 90 – 8 Jan 1991 E. Nielsen, E. Edwards malaise #6’, ANIC; 4, ‘41 50S 146 03E TAS Pelion Hut 3km S Mt Oakleigh 860 m 8 Jan– 12 Feb 1991 A. Calder. W. Dressier closed forest’, ANIC; 2, ‘41.52S 146.03E Pelion Gap 2km ENE Mt Ossa 29 Nov 1990, I. D. Naumann ‘ ANIC database 25 029794’, ANIC; 3, ‘42.10S 146.07E 4km SSE of Mt Rufus 800m TAS 26–28 Jan 1980 Lawrence & Weir’, ANIC; 2, ‘42.49S 146.22E 7km NE by E of Mt Wedge 550m TAS 3 Feb 1980 Lawrence & Weir’, ANIC; 2, ‘AUSTRALIA TAS Mount Wedge Forest Reserve 42.49S, 146.16E 13 February 1992 ‘ D. S. Horning Jr beating shrubs’, ANIC; 1, ‘Mt Wellington TAS, 3600’ 12 Jan 1960 D. K. McAlpine’, AM; 3, ‘42.53S 147.14E TAS Mt Wellington, 900m 5 Feb 1992 C. Reid waterfall below peak beating bushes’, ANIC; 3, ‘42.54S 147.13E TAS Mt Wellington Summit 1240m 5 Feb 1992 C. Reid under stones or on flowers’, ANIC; 4, ‘41.36S 145.41E TAS Murchison Hwy State Res. Murchison Hwy/Que R Mining Rd 680m 907 11–27 Jan 1993 A. Newton & M. Thayer’, ANIC; 1, ‘42.06S 145.44E Nelson R TAS 22 Jan, 1983 I. D. Naumann & J. C. Cardale’, ANIC; 47, ‘Pencil Pine Lodge TAS nr Cradle Mountain 20/1/00 C. H. S. Watts’, SAMA; 1, ‘41.11S 147.36E 7 km ESE Scottsdale TAS 12 Jan 1983 I. D.
Naumann and J. C. Cardale coll’, ANIC; 1, ‘Strahan Tasmania, J. Armstrong’, ANIC; 1, ‘42.43S 146.29E 2km ENE of Tim Shea 600m TAS 1 Feb 1980 Lawrence & Weir’, ANIC; 1, ‘Waldheim Chalet N.W.Tas. 11.1.48 Key, Carne & Kerr’, ANIC; 1, ‘Queenstown TAS 22.xi 1977 G. & G. Palmer’, ANIC.

**Pseudomicrocara uncatus** sp. nov. Figs 31, 50

*Holotype*. Male. ‘TAS Narcissus Bay Lake St Clair 18 Km NW Derwent Bridge 24/1/00 C.H.S.Watts’. Dissected and mounted on card, SAMA.

*Paratypes*. 101; 1, ‘Burnie TAS Jan C. Watts’, SAMA; 2, ‘Cradle Mtn Tasmania J. Armstrong’ SAMA; 1, ‘TAS Lake St Clair 4 Km N Derwent Bridge 25/1/09 C. H. S. Watts’, SAMA; 1, ‘TAS Lake Dobson Mt Field N. Pk 28/1/09 C. H. S. Watts’, SAMA; 1, ‘41.36S 145.41E TAS Murchison Hwy State Res. Murchison Hwy/Que R. Mine Rd 680m 907, 11–27 Jan 1998 A. Newton & M. Thayer’ ‘Noth cunn. Rainf. FMNH #93.22 window trap’, ANIC; 1, ‘42.49S 146.22E 7km NE by E of Mt Wedge 550m TAS 3 Feb 1980 Lawrence & Weir’, ANIC; 3, ‘41.38S 145.47E TAS Cradle Mt L. St Clair NP Waldheim, Weindorfers For 940 Male. 911 14–30 Jan 1993 A. Newton & M. Thayer’, ANIC; 1, ‘42.10S 146.08E TAS 7km SwbyW Derwent Bridge 21 January 1983 I. Naumann, J. Cardale’, ANIC; 1, ‘42.0S 146.0E TAS 7km SwbyW Derwent Bridge 16Jan – 2 Feb 1983 I. D. Naumann & J. C. Cardale Malaise/ethanol’, ANIC; 1, ‘42.41S 146.37E TAS Lake Fenton Mt Field NP, by dam 1000m 6 Feb 1992, C. Reid beating bushes’, ANIC; 3, ‘Cradle Mt Nat Pk TAS C. Watts’, (1 slide), SAMA; 1, ‘18 k SW Derwent Bridge TAS 29/11/00 C. H. S. Watts’ SAMA; 1, ‘16 K SW Geeveston TAS 3/12/00 C. H. S. Watts’, SAMA; 1, ‘9 K W Maydena TAS 1/12/00 C. H. S. Watts’, SAMA; 3, ‘Junction Murchinson Hwy & Cradle Mt Rd TAS 28/11/00 C. H. S. Watts’, SAMA; 1, ‘41.50S 146.03 E TAS Pelion Hut, 3km S Mt Oakleigh 5–10 Feb 1990 I D Naumann Malaise #2 rainf. Yellow trays under malaise’ ‘ANIC Database No 25 029792’, ANIC; 1 ‘41.51S 146.03E TAS 4km S Mt Oakleigh 1 Mar 1990 W.E.B.S Closed forest 880m Malaise #3’, ANIC; 1, ditto except ‘8 Feb’, ANIC; 2, ‘41.52S 146.03E 2km NE by N Mt Ossa 30 Nov 90 – 8 Jan 1991 E. Nielsen, T. Edwards F.I.T.#3 1000m’ ‘F.I.T ANIC 1146 closed forest litter #3’, ANIC; 6, ‘41 50S 146 03E TAS Pelion Hut 3km S Mt Oakleigh 18–23 Nov 1991 I. D. Naumann’, ANIC; 5, ‘41 50S 146 03E TAS Pelion Hut 3km S Mt Oakleigh 860 m 30 Nov 90– 8 Jan1991 E. Nielsen, E. Edwards malaise #1 closed forest’, ANIC; 4, ditto except ‘malaise # 4’, 6, ditto except ‘malaise # 5’, ANIC; 1 ditto except ‘malaise # 6’, ANIC; 1, ‘41 50S 146 03E TAS Pelion Hut 3km S Mt Oakleigh 860 m Feb 1990 W.E.B.S. malaise #1 closed forest’, ANIC; 1 ditto except ‘malaise #2’, ANIC; 1, ‘41 50S 146 03E TAS Pelion Hut 3km S Mt Oakleigh 860 m 8 Jan– 12 Feb 1991 A. Calder. W. Dressier malaise #1 closed forest’, ANIC; 2 ditto except ‘malaise #2’, ANIC; 3, ditto except ‘malaise #4’, ANIC; 2, ditto except ‘malaise #5’, ANIC; 38, ‘41 52S 146 03E TAS Pelion Gap 2 km ENE Mt Ossa 1120 30 Nov 90 – 8 Jan 1991 E. Nielsen, E. Edwards malaise #6’, ANIC; 1, ‘41 50S 146 03E TAS Pelion Hut 3km S Mt Oakleigh 860m I. Naumann, M. Horak malaise #4 closed forest’, ANIC; 1, ‘41 50S 146.03E TAS Pelion Hut 3 km S Mt Oakleigh, 5–10 Feb 1990 I. D. Naumann malaise #3 rainforest trays at bottom of trap’, ANIC; 1, ‘41 41S 146 03E TAS Pelion Hut 3 km S Mt Oakleigh, 18 – 23 Nov 1991 E. Nielsen, G. Clark’, ANIC.

*Description* (number examined, 145)

*Habitus*. Length 3.5 – 4.9 mm. Narrowly oval, widest behind middle of elytra, setae relatively soft, relatively stout and dense.

*Head*. Black or dark testaceous. Frons extending forward about width of first segment of antenna from front edge of base of antennae, anterior margin straight or slightly curved; labrum a little narrower than frons, about 2.5x as wide as long, front edge straight or weakly concave; covered with setiferous granules; eyes relatively large, distance between eyes about 3x width of eye; edge of eye nearly reaching lateral margin of head; antennae testaceous – black, basal segments and areas near joints of other segments often paler; segment 1 relatively small about as long as dorsal width of
eye, barrel-shaped, about 1.7x as long as wide; segment 2 small, barrel-shaped; segment 3 about same length or a little longer than segment 2, weakly triangular; segment 4 wider and a little more than 2x length of segment 3, narrowing weakly towards base, segments 5–11 subequal, about same length as segment 4, becoming progressively slightly narrower towards apex. Maxillary palpi testaceous; relatively stout, segments 2–4 subequal in length, segment 2 weakly curved inwards, segment 4 narrower, more cylindrical, slightly sinuate. Labial palpi relative stout, segments subequal in length; segment 1 narrow, wider towards apex; segment 2 broad, triangular, outer edge longer than inner; segment 3 thumb-like arising from middle of apex of segment 2, orientated inwards (Fig. 31). Paraglossa broad, front edge quite strongly bilobed (Fig. 31). Mandibles symmetrical, relatively broad, tip short, mola region with large area of short stout spines (Fig. 31).

Pronotum. Variably coloured from dark testaceous, usually with front and lateral margins diffusely paler to completely light testaceous. Basic shape semicircular, moderately long, about 2x as wide as long, sides very weakly but quite widely flanged, anterior-lateral angles smoothly rounded, front edge weakly curved, weakly hooded, lateral edge curved, hind edge strongly sinuate, beaded. Punctures setiferous, moderately large, very shallow, nearly confluent.

Scutellum. Same colour as adjacent elytra. Triangular, sides weakly convex, slightly longer than base. Punctures as on elytra.

Elytra. Variable from dark testaceous through light and dark testaceous areas to completely light testaceous. Sides very slightly pinched behind shoulders, slightly broader behind middle, narrowly and sharply flanged. Punctures small. Not much larger than setae bases, most about puncture width or a bit more apart.

Ventral surface. Black or dark testaceous with appendages and parts of pronotum lighter. Pronotal process very narrow between procoxae, small teardrop-shaped at tip, sides strongly raised, tip expanded dorsal/ventrally. Pronotal epipleura broad, moderately concave, outer bifurcation of inner carina not reaching beyond base of procoxa. Metacoxal plates, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 50). Trigonium about 1/3 length of aedeagus, broad, slightly waisted, apex weakly rounded, weakly downturned; parameroids a little shorter than trigonium, moderately crotch-shaped at apex; parameres relatively thin, same width along length, tips rounded; stylus well developed.

Etymology. Latin. ‘Uncatus’- hooked. A reference to the hooked parameroids.

Notes

Pseudomicrocara uncatus has a range of colour forms similar to those found in P. variabilis and many specimens are indistinguishable in colour and form and cannot be separated with confidence from P. variabilis other that by shape of trigonum and parameroids which are respectively broad and crotch-shaped in P. uncatus and thin and finger-shaped in P. variabilis. In general P. uncatus tend to be larger, always have a black head, rarely have a dark pronotum with broad well defined yellowish lateral margins and generally have a narrower distance between the edge of the eye and the edge of the head than in P. variabilis.

Pseudomicrocara uncatus resembles P. atkinsoni but can be distinguished by the quite different mandibles and male genitalia. Pseudomicrocara atkinsoni also has consistently dark elytra with the sutural region pale which is never the case in P. uncatus. In general facias P. uncatus also resembles P. minor which is a more elongate, flatter species with a long third antennal segment, much smaller and weaker punctations on the pronotum as well as different male genitalia (Fig. 55).

A relatively rare species which has been taken with the much commoner P. variabilis on flowers in button-grass swamps in Tasmania and, more commonly, by flight intercept traps in closed forest where it is much more abundant than P. variabilis. Two specimens from New South Wales, one
from Mt Kosciusko and one from Kiandra, appear to belong to this species. The larvae are not known.

Additional specimens examined

New South Wales. 1, ‘Kiandra NSW J. Armstrong’, ANIC. 1, ‘Betts Creek, 1760m Kosciusko Nat Pk. NSW Site 8 Feb 1982 pitfalls, Ken Green, coll.’ ‘ANIC COLEOPTERA Voucher No 83–0078’, ANIC.

Tasmania. 36, ‘41 52S 146 03E TAS Pelion Gap 2 km ENE Mt Ossa 1120 30 Nov 90 – 8 Jan 1991 E. Nielsen, E. Edwards malaise #6’, ANIC; 4, ‘41 50S 146 03E TAS Pelion Hut 3km S Mt Oakleigh 860 m 8 Jan– 12 Feb 1991 A. Calder. W. Dressier closed forest’, ANIC.

Pseudomicrocara anobioides species group

A group of small species which all have rather long semicircular pronotums, male genitalia without, or with weakly developed styli, a short trigonium with the apexes either bilobed or trilobed (except \( P. \) inusitata) and simple parameroids. Within the group there are three species, \( P. \) montivagans, \( P. \) megarhynchos and \( P. \) hamoni with mandibles without teeth, simple male genitalia and without or only a small stylus and another four species, \( P. \) anobioides, \( P. \) desraeae, \( P. \) triidos and \( P. \) inusitata with velvet-like setae, mandibles with a small tooth and quite complex male genitalia including species with a well developed stylus (\( P. \) anobioides) or a tegmen with dorsal and ventral portions (\( P. \) desraeae, \( P. \) inusitata). One species, \( P. \) inusitata, has one of the most morphologically modified male genitalia in the genus with, if my interpretation is correct, two enlarged parameroids, the trigonium reduced to a small papilla, the aedeagus virtually without a basal piece, thin, bilobed parameres and a tegmen with dorsal and ventral portions. In this latter character it resembles \( P. \) desraeae which, in addition, has a highly modified 9th tergite, unique for the genus. I have placed these two species in the \( P. \) anobioides group on the strength of their mouth parts, elongate pronotum, a similarity between the parameroids and those of other species in the group and a general similarity to \( P. \) triidos and \( P. \) anobioides.

Biology. Little is known of the biology of the group. They have most frequently been collected at light or in flight interceptor traps in dry-wet sclerophyll forest in Eastern Australia. The larvae of no species is known

Pseudomicrocara anobioides Armstrong. Figs 3, 15, 72

Pseudomicrocara anobioides Armstrong, 1953

Holotype. Male. ‘Brisbane: H. Hacker 3–10–26’ red ‘HOLOTYPE’ ‘QM Reg No T123501’ ‘Pseudomicrocara anobioides Armt Id by J. Armstrong’, QM. Central specimen on card with three specimens, indicated by an arrow.

Paratypes. 5; 2, as for holotype except additional blue ‘PARATYPE’ ‘QM Reg No T123502’ QM Reg No T123503’, on same pin as holotype, QM; 3, ‘Brisbane H. Hacker 18/9/11’ ‘Pseudomicrocara anobioides Armt. Id by J. Armstrong’, blue ‘PARATYPE’, on three cards on one pin, all dissected, ANIC.

Description (number examined, 7)

Habitus. Length 3.0 – 3.4 mm. Narrowly oval, setae relatively stiff, relatively short and dense.

Head. Dark testaceous. Frons extending forward by less than width of segment 1 of antenna in front of base of antenna, anterior margin straight; labrum a little narrower than frons, about 1.6x as wide as long, front margin straight; relatively densely granulate, setiferous; eyes relatively small, distance between eyes about 3.5x width of eye; edge of eye separated from lateral margin of head by width of four - five eye facets (Fig. 15). Antennae dark testaceous, basal segments lighter; segment 1 a little shorter than dorsal width of eye, subrectangular, about 1.7x as long as wide; segment 2
moderately large, about half as long as segment 1, almost round; segment 3 about as long, and a little narrower than segment 2, triangular; segment 4 much wider than segment 3 and about 2x as long, weakly narrowing towards base; segments 5 - 10, stout, subequal, shorter than segment 4, segment 11 elongate-oval, about 1.5x length of segment 10. Maxillary palpi testaceous; segments 2 - 4 stout, sub-equal in length, outer edges of segments 2 & 3 a little longer than inner. Paraglossa relatively broad, front edge almost straight. Labial palpi stout, segment 1 narrow, expanding towards apex, segment 2 shorter, broad, weakly triangular, inner edge much shorter than outer; segment 3 about as long as segment 2, broad, thumb-like, arising from middle of apex of segment 2, orientated inwards. Mandibles symmetrical, moderately broad, tip relatively short, inner edge with strong anterior tooth, edge behind this tooth uneven, mola region without small spines.

Pronotum. Testaceous. Basic shape semicircular; relatively long, about 2x as wide as long (Fig. 3), sides weakly flanged, anterior-lateral angles smoothly rounded, front edge curved, strongly hooded, lateral edge curved, hind edge weakly sinuate, very weakly beaded. Densely covered with moderately small, setiferous, doughnut-shaped, almost confluent granules.

Scutellum. Testaceous; triangular, sides slightly convex, a little longer than base; granulate as on pronotum.

Elytra. Testaceous to dark testaceous. Sides weakly curved, broadest just behind middle; narrowly and sharply flanged, weakly pinched behind middle. Granulate/punctate similar to pronotum, weaker towards apex.

Ventral surface. Testaceous, thorax darker. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina not reaching much further forward than the front edge of base of procoxa. Pronotal process very narrow between procoxae, not much wider at tip, sides margined. Metacoxal plates relatively broad, teardrop-shaped. Metafemur moderately thick. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 72). Trigonium broad, about 1/3 length of aedeagus, deeply bifid, arms thin, curved downwards; parameroids elongate, reaching a little beyond trigonium tip(s); parameres elongate, flat; stylus well developed.

Notes

Pseudomicrocara anobioiodes resembles P. inusitata and P. triidos in general shape, in the wide gap between the edge of the eye and the edge of the head, and fine, velvet-like setae but is a bit larger and has a slightly less elongate pronotum and with a bifid tip rather than a trifid tip to the trigonium. Unlike the other two species, P anobioiodes has a well-developed stylus.

Biology. Known from only a few specimens collected in Brisbane. Larvae unknown.

Additional specimens examined

Queensland. 1, ‘7.6 Km N, Dunwich Qld 16.1x.1981 M.A.Schneider’ ‘UQIC Reg #88701’, UQIC.

Pseudomicrocara desraeae sp. nov. Fig 74b

Holotype. Male. ‘Australia Narrabeen’ ‘NSW’ ‘23.xii 1983 leg. G. Hangay’ SAMA
Paratypes. 54; 1, ‘Australia, NSW Manly Dam Reserve/Sydney/9.1x.1983 leg. G. Hangay’, SAMA; 1, ‘Australia Narrabeen’ ‘NSW’ ‘28.x.1983 leg. G.Hangay’, SAMA; 2, ditto except ‘15.xi.1983’, SAMA; 7, ‘ditto except 3.xii.1983’, SAMA; 9, ditto except ‘10.xii.1983’, SAMA; 1, ditto except ‘23.xii.1983’, SAMA; 9 (3 slides), ditto except ‘25.xii.1983’, SAMA; 7 (1 slide), ditto except ‘22.11.1984’, SAMA; 2, ditto except, ‘20.x.1984’, SAMA; 5, ditto except ‘4.xii.1984’, SAMA; 5, ditto except ‘5.xii.1984’, SAMA; 1 (slide), ditto except ‘22.11.1984’ SAMA; 1, ditto except ‘25.xii.1984’, SAMA; 1, ditto except ‘17.xii.1984’, SAMA; 1, ditto except ‘2.1.1985’, SAMA; 1, ditto except ‘80 Gondola Rd 9.xi.1983’, SAMA.
**Description** (number examined, 54)

**Habitus.** Length 2.7 – 3.0 mm. Narrowly oval, setae moderately stiff, moderately short and dense.

**Head.** Tending to be hidden under pronotum. Testaceous. Frons extending forward by about width of segment 1 of antenna in front of margin of antenna, anterior margin straight; labrum about as wide as frons, about 2x as wide as long, front margin curved; relatively densely granulate, setiferous; eyes moderately large, distance between eyes about 3.7x width of eye; edge of eye separated from lateral margin of head by about width of about three eye facets. Antennae light testaceous; segment 1 a little shorter than dorsal width of eye, almost rectangular, about 2x as long as wide; segment 2 small, vase-shaped, about half as long as segment 1; segment 3 about as long as segment 2, narrower, weakly triangular; segment 4 a little wider than segment 3 and about 1.5x as long, weakly narrowing towards base; segments 5 – 10, stout, subequal, shorter than segment 4, segment 11 oval, about 1.5x length of segment 10. Maxillary palpi light testaceous; segments 2 & 3 stout, sub-equal in length, outer edges a bit longer than inner; segment 4 finger-like, about 1.5x as long as segment 3. Paraglossa relatively broad, front edge slightly convex. Labial palpi stout, segment 1 narrow, expanding towards apex, segment 2 a little shorter, broad, weakly triangular, inner edge a little shorter than outer; segment 3 broad, about as long as segment 2, arising slightly inwards from middle of apex of segment 2, orientated slightly inwards. Mandibles symmetrical, relatively broad, tip moderately long, inner edge with strong anterior tooth, edge behind this tooth uneven, mola region without area of small spines.

**Pronotum.** Testaceous. Basic shape semicircular; relatively long, about 1.6x as wide as long, sides weakly flanged, anterior-lateral angles smoothly rounded, front edge slightly convex, weakly hooded, weakly upturned, lateral edge curved, hind edge weakly sinuate, weakly beaded. Quite well covered with punctures, about size of seta base on disc, becoming somewhat larger laterally.

**Scutellum.** Testaceous; triangular, sides slightly convex, a little longer than base; punctures somewhat stronger than on disc of pronotum.

**Elytra.** Testaceous. Sides weakly curved, broadest just behind middle; narrowly and sharply flanged. Punctures moderately strong, larger than on pronotum, setiferous, about a puncture width apart, becoming weaker towards apex.

**Ventral surface.** Light testaceous, darker and lighter in places, appendages lighter. Pronotal epipleura very broad, weakly concave, outer bifurcation of inner carina not reaching much further forward than about front edge of base of procoxa. Pronotal process very narrow between procoxae, weakly expanded at tip, sides strongly margined. Metacoxal plates relatively broad, teardrop-shaped. Metafemur relatively thick. Ventrites densely covered with small, rugose, setiferous punctures.

**Male.** Aedeagus complex (Fig. 74b). Trigonium deeply bifid; parameroids long, relatively narrow, slightly toothed on outer edges, tips rounded; tegmen with upper and lower pieces, upper turning fork-shaped, lower with broad overlapping well sclerotized parameres, each with two strong, spine-like projections (Fig 74b); without stylus. All portions of genital complex strongly connected. Tergite 9 with two long thin robust projections (Fig. 74b); tergite 8 with strongly developed struts; sternite 9 deeply bilobed and quite strongly sclerotized.

**Etymology.** Named after Desrae Hamon for her support of this and related projects.

**Notes**

The male genitalia are unusual. The trigonium is deeply ‘U’ shaped as in most species in the *P. anaboides* group species. The tegmen seems devided into dorsal and ventral portions in a similar fashon to *P. inusitata* with the ventral portion much more robust and complex than in that species (Fig. 74b). The 9th tergite is unique among *Pseudomicrocara* in having two long, well sclerotized, projections from its hind edge. The tips of these are usually clearly visible projecting from the end of the abdomen in preserved specimens.
Closely resembles *P. anobioides*, *P. inusitata* and *P. triidos*. A little larger and darker coloured than *P. inusitata* and *P. triidos* and with smaller eyers than *P. inusitata* and hence the margin of the eye further from the margin of the head. Apart from the different male genitalia most specimens can be separated from these three species by the visible projections of the 9th tergite.

**Biology.** All specimens have been collected at light beside areas of swampy ground under relative thick tree cover. The larvae are unknown.

*Pseudomicrocara hamoni* sp. nov. Figs 41, 70

**Holotype.** Male. ‘Star valley Paluma N.Q.13.1.70 J.G.Brooks’ ‘J.G.Brooks Bequest, 1976’, ANIC.

**Paratypes.** 15; 1, ‘30. 22S 152.45E Dorrigo NP NSW 2–15 Oct 1984 I. Naumann, J. Cardale Malaise trap/ethanol’, ANIC; 1, ‘Crystal Cascades Cairns, N. Qld 19 Apr. 1967 D. H. Colless’, ANIC; 1, ‘Malanda Falls Res N. Qld, Malanda 750m 22.July 1982 S. & J. Peck’, SAMA; 1, ‘Paluma, Q (18.59S 146. 09E) 3 km W 2000’ 16.1.70 at light E. Britton’, ANIC; 1, ‘Mt Spec N.Q. 1/70 G.B.’, ANIC; 2, ‘16.04S 145 27E 1–1.5km up Rykers Ck Cape Trib. 10 Nov 1992 C. Reid beating bushes/trees’, ANIC; 2, ‘Dorrigo NSW W. Herron’, ANIC; 1, ‘Dorrigo NSWales’, ANIC; 1, ‘3km N Lansdowne nr Taree, NSW 19–26 Sept 1992 G. Williams, Malaise trap, riparian rainforest’, SAMA; 1, ‘30.30S 152.23E NSW Thungutti Camp, New England N.P. 16–18 Nov 1990 T. A. Weir, at light’, ANIC; 1, ditto except ‘A. Calder’, SAMA; 1, ‘AUSTRALIA n Qld Tolga 20. X11 1985 J. D. Brown light trap’, SAMA; 1, ‘AUSTRALIA n Qld Windsor Tableland 6-6. 11. 1991 Storey & Larson’, QPIM.

**Description (number examined, 13)**

**Habitus.** Length 4.0 – 5.1 mm. Elongate, widest behind middle of elytra, setae moderately soft, moderate long and dense.

**Head.** Light testaceous; eyes moderately large, distance between edge of eye and lateral margin of head about width of one eye facet; antennae dark testaceous, basal segments paler; segment 1 relatively small about as long as dorsal width of eye, hind margin straight front margin curved, about 1.5x as long as wide; segment 2 small, barrel-shaped; segment 3 about same length as segment 2 or a little longer, weakly triangular; segment 4 wider about 2x length of segment 3, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4. Maxillary palpi light testaceous; moderately elongate, segments 2 – 4 subequal, segments 2 & 3 weakly curved inwards, segment 4 narrower, more cylindrical, slightly sinuate. Labial palpi relative stout, segments subequal in length; segment 1 narrow, wider towards apex; segment 2 triangular, outer edge much longer than inner; segment 3 elongate/oval arising from near inner corner of apex of segment 2, orientated slightly inwards (Fig. 41). Paraglossa broad, front edge weakly curved (Fig. 41). Mandibles symmetrical, moderately broad, tip very long and thin, mola region with a few very small, stout spines (Fig. 41).

**Pronotum.** Light testaceous. Basic shape semicircular, moderately long, about 2x as wide as long, sides very weakly but quite widely flanged, anterior-lateral angles smoothly rounded, front edge weakly curved, very weakly hooded, lateral edge curved, hind edge strongly sinuate, beaded, a weak puncture on hind edge between middle and lateral edge on both sides. Punctures very small, size of setae base, sparse.

**Scutellum.** Same colour as pronotum. Triangular, sides weakly convex, slightly longer than base. Punctures a little stronger and denser than on pronotum.

**Elytra.** Dark testaceous to black (testaceous in one specimen), somewhat darker laterally; sides very slightly pinched behind shoulders, slightly broader behind middle, narrowly and sharply flanged. Punctures quite strong, most a little more than a puncture width apart, setiferous, becoming considerably weaker towards apex.
Ventral surface. Testaceous, appendages and pronotum lighter. Pronotal process very narrow between procoxae, narrowly oval at tip. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina not reaching much beyond base of procoxa. Metacoxal plates, teardrop-shaped. Metafemur relatively thin. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 70). Trigonium ¼ to 1/3 length of aedeagus, broad, quite deeply bifid at apex, width quite variable, tips of arms pointed, weakly downturned; parameroids a little longer than trigonium, narrow dorsally, tips pointed, wide and hooked at apex laterally; parameres moderately wide, even width along length, rounded at tips; stylus poorly developed, strut-like.

Etymology. Named after Howard Hamon who very ably drew the illustrations for this and other papers.

Notes

*Pseudomicrocara hamoni* is larger than *P. montivagans* and the eyes are comparatively much larger and the trigonium is shorter and much broader (Figs 69, 70). Most specimens have a distinctive red pronotum and dark elytra not yet seen in *P. montivagans*. Some specimens closely resemble the more southerly *P. variabilis* group species *P. loftyensis* and *P. decipiens* but the somewhat longer pronotum. the apical segment of the labial palpi orientated slightly inwards, the mandibles without an extensive area of small spines in the mola region and the lack of a stylus, indicate that they are actually only distantly related.

There is some variation in the thickness of the trigonium and the strength of the apical notch on the parameroid. The size of the eyes also varies to a moderate extent but is always comparatively large.

There appear to be two colour forms in the species. Most specimens have a light testaceous pronotum and contrastingly dark elytra but one specimen, from Dorrigo National Park, is uniformly testaceous.

Biology. All specimens with capture details have been caught in closed forest either at light or in flight intercept traps. The larvae are not known.

*Pseudomicrocara inusitata* sp. nov. Figs 16, 21, 74, 98

Holotype. Male. ‘3 mi. W of Mourilyan N.Q., sandy soil at light 5.xi.66. E.Britton’, ANIC.

Paratypes. 36; 1, ‘Atherton, N.Q. at light 6.xi.66. E. Britton’, ANIC; 7, ‘Cow Bay, N of Daintree, N. Qld 9–27.xii. 1983 I. C. Cunningham’, QPIM; 1, ‘Morgan R., Cape Flattery area N. Qld 30.xi.1980 R. I. Storey, N. Gough’, QPIM; 6, ‘15.03S 145.09E 3km NE of Mt Webb QLD 1–3 Oct. 1980 T. Weir’, 5 ANIC 1 slide SAMA; 4, ‘3 mi. W of Mourilyan N.Q., sandy soil at light 5.xi.66. E. Britton’, 3 ANIC, 1 SAMA; 16, ‘W. slopes of Seymour Ra N.Q., Dinner Ck. Rd., nr Innisfail; rainforest at light, 6.xi.66. E. Britton’, 13 ANIC, 3 SAMA; 1, ‘15,03S 145.09E 3 km NE of Mt Webb Qld 1–3 Oct. 1980 T. Weir’, on slide, ANIC.

Description (number examined, 37)

Habitus. Length 1.9 – 3.1 mm. Narrowly oval, setae relatively soft, relatively short and dense.

Head. Light testaceous. Frons extending forward by about width of segment 1 of antenna in front of base of antenna, anterior margin straight; labrum narrower than frons, about 2x as wide as long, front margin curved; relatively densely granulate, setiferous; eyes relatively small, distance between eyes about 3.5x width of eye; edge of eye separated from lateral margin of head by about width of two - three eye facets (Fig. 16). Antennae light testaceous; segment 1 a little shorter than dorsal width of eye, oval, about 2x as long as wide; segment 2 small, broadly oval, about half as long as segment 1; segment 3 a little longer and narrower than segment 2, weakly triangular; segment 4 a little wider than segment 3 and about 1.3x as long, weakly narrowing towards base; segments 5 – 10, stout, subequal, shorter than segment 4, segment 11 oval, about 1.5x length of segment 10.
Maxillary palpi light testaceous; segments 2 & 3 stout, sub-equal in length, outer edges a bit longer than inner; segment 4 conical, about 1.5x as long as segment 3. Paraglossa relatively broad, front edge almost straight. Labial palpi relatively stout, segment 1 narrow, expanding towards apex, segment 2 shorter, broad, weakly triangular, inner edge a little shorter than outer; segment 3 broad, about as long as segment 2, arising slightly inwards from middle of apex of segment 2, orientated slightly inwards. Mandibles symmetrical, relatively broad, tip moderately long, inner edge with strong anterior tooth, edge behind this tooth uneven, mola region without area of small spines.

_Pronotum_. Light testaceous. Basic shape semicircular; relatively long, about 1.6x as wide as long, sides weakly flanged, anterior-lateral angles smoothly rounded, front edge straight, weakly hooded, weakly upturned, lateral edge curved, hind edge weakly sinuate, very weakly beaded. Densely covered with punctures, about size of seta base on disc, becoming larger laterally.

_Scutellum_. Testaceous; triangular, sides slightly convex, a little longer than base; punctures as on disc of pronotum.

_Elytra_. Light testaceous. Sides weakly curved, broadest just behind middle; narrowly and sharply flanged. Punctures relatively small, setiferous, about a puncture width apart, becoming weaker towards apex.

_Ventral surface_. Light testaceous, darker and lighter in places. Pronotal epipleura very broad, weakly concave, outer bifurcation of inner carina not reaching much further forward than about front edge of base of procoxa. Pronotal process very narrow between procoxae, weakly expanded at tip, sides strongly margined. Metacoxal plates relatively broad, teardrop-shaped. Metafemur relatively thick. Ventrites densely covered with small, rugose, setiferous punctures.

_Male_. Aedeagus complex (Fig. 74). Trigonium reduced to small insignificant papilla; parameroids large, prominent, relatively narrow, outwardly curved, tips sharp; tegmen with dorsal and ventral portions, parameres of dorsal portion, narrow, distinct, with short backward pointing lateral projections in middle, parameres of ventral portion broader each with a backward pointed spine on outside, tips rounded with setae; without stylus. Tergite 9 with two apical cones on dorsal surface (Fig. 21); sternite 9 strongly bilobed.

_Etymology_. Latin. ‘Inusitata’ – unusual. A reference to the unusual male genitalia.

_Notes_

The male genitalia are unusual. The tegmen is complex with dorsal and ventral portions (It is possible that one of the pieces is derived from the stylus.) The trigonium and the basal piece of the aedeagus are vestigial at best. In contrast, the parameroids are well developed and prominent, their bases expanded, possibly to compensate in some way for the absent basal piece. Between the parameroids is a small conical papilla presumable the outlet for the vas deferens and the only portion of the trigonium remaining.

Closely resembles _P. anobioides_, _P. desraeae_ and _P. triidos_ but with larger eyes and hence the margin of the eye closer to the margin of the head, somewhat more elongate maxillary palpi and antennae and very different male genitalia.

_Biology_. From the locality records this is a species of the north Queensland wet forests. The larvae are unknown.

_Pseudomicrocara megarhynchos_ sp. nov. Figs 43, 71

_Holotype_. Male. ‘TAS Lake St Clair 4 km N Derwent Bridge 25/1/00 C. H. S. Watts’, SAMA.
Paratypes. 2; 1, ‘37.41S 145.29E VIC Yarra Riv. 4.5km SW Healesville 80m 825, 6 Feb. 1987 A. Newton & M. Thayer ‘dry scler along river FMNH #87–259 UV light’, head and genitalia on slide, ANIC; 1, ‘6km N Pioneer TAS 23/1/00 C. H. S. Watts’, on slide, SAMA.

Description (number examined, 3)

Habitus. Length 3.6 – 4.0 mm. Narrowly oval, widest behind middle of elytra, setae relatively soft, moderate long and dense.

Head. Rather small, weakly depressed in centre behind eyes. Testaceous. Frons extending forward a little less than length of first segment of antenna from front edge of antennae, anterior margin curved; labrum a little narrower than frons, about 1.7x as wide as long, front edge straight or weakly concave; quite strongly covered with small, setiferous, granules; eyes moderately large, distance between eyes about 3x width of eye; edge of eye nearly reaching lateral margin of head. Antennae testaceous, basal segments lighter; segment 1 relatively small about as long as dorsal width of eye, hind margin straight, front margin curved, about 1.7x as long as wide; segment 2 about ½ length of segment 1, barrel-shaped; segment 3 a little longer than segment 2, weakly triangular; segment 4 a little wider about 1.5x length of segment 3, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4, becoming progressively slightly narrower towards apex. Maxillary palpi light testaceous; moderately elongate, segments 2 – 4 subequal in length, segment 2 weakly curved inwards, segment 4 narrower, more cylindrical, slightly sinuate, a little longer than segment 3. Labial palpi stout, segments subequal in length; segment 1 narrow, wider towards apex; segment 2 triangular, outer edge a little longer than inner; segment 3 thumb-like, slightly curved, arising from about middle of apex of segment 2, orientated slightly inwards (Fig. 43). Paraglossa broad, front edge almost straight (Fig. 43). Mandibles symmetrical, relatively broad, tip short, inner edge smooth, mola region without small spines (Fig. 43).

Pronotum. Light testaceous. Basic shape semicircular, moderately long, about 2x as wide as long, sides very weakly flanged, anterior-lateral angles smoothly rounded, front edge weakly curved, weakly hooded, lateral edge curved, hind edge strongly sinuate, beaded. Punctures small, shallow, most a little less than a puncture width apart.

Scutellum. Same colour as pronotum. Triangular, sides weakly convex. Punctures as on elytra.

Elytra. Dark testaceous. Sides very slightly pinched behind shoulders, slightly broader behind middle, narrowly and sharply flanged. Punctures setiferous, relatively small, dense, less than a puncture width apart.

Ventral surface. Testaceous, pronotum and parts of appendages paler. Pronotal process very narrow between procoxae, narrowly oval at tip, tip expanded dorsal/ventrally. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina not reaching beyond base of procoxa. Metacoxal plates relatively long, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 71). Trigonium about 1/3 length of aedeagus, broad, bifid in apical ¼, lobes narrow, curving outwards and downwards; parameroids about as long as trigonium, broad, apexes slightly pointed on outside; parameres moderately broad, apexes rounded; without stylus.

Etymology. Greek. ‘Mega’- long; ‘Rhynchos’ – muzzle. A reference to its elongate muzzle.

Notes
In colour, punctation, general shape and male genitalia P. megarhynchos is similar to P. anobioides and P. inusitata but can be separated from these by its narrower head, elongate muzzle and lack of teeth on the mandibles. The metacoxal plates are a little more elongate than in those species.

Biology. Nothing known. All three specimens are from sclerophyll forest near water. The two Tasmanian specimens were collected from flowering Leptospermum.
Holotype. Male, mounted on card with red 3817 A2 and black ‘T’, red circular ‘TYPE’ label, ‘Blackburn coll 1910–236’ ‘Helodes montivagans, Blackb’. Genitalia extracted and mounted on separate card, BMNH. Type locality given as ‘Victoria; Alpine district’ by Blackburn.

Description (number examined, 16)

Habitus. Length 3.3 – 4.1 mm. Elongate, sides subparallel; setae relatively stiff, moderate long and dense.

Head. Relatively small, testaceous; frons extending forward about width of first segment of antenna from front edge of antennae, anterior margin straight or slightly curved; labrum a little narrower than frons, about 1.5x as wide as long, front edge straight or weakly concave; moderately densely covered with small setiferous granules; dorsal surface slightly depressed behind eyes; eyes moderately large, distance between eyes about 3x width of eye; distance from edge of eye to lateral margin of head width of two - three eye facets. Antennae testaceous, basal segments lighter; segment 1 relatively small about as long as dorsal width of eye, barrel-shaped, about 1.5x as long as wide; segment 2 small, barrel-shaped; segment 3 a little longer than segment 2, weakly triangular; segment 4 a bit wider and 1.7 – 2.2x length of segment 3, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4, becoming progressively slightly narrower towards apex. Maxillary palpi light testaceous; moderately stout, segments 2 & 3 weakly curved inwards equal in length, segment 4 narrower, conical, a little longer than segment 3. Labial palpi stout, segments subequal in length; segment 1 narrow, wider towards apex; segment 2 very broad, triangular, outer edge longer than inner; segment 3 broad, thumb-like, arising from inner corner of apex of segment 2, orientated inwards (Fig. 40). Paraglossa broad, front edge sinuate (Fig. 40). Mandibles symmetrical, moderately broad, tip very long, straight, mola region with very small area of short stout spines (Fig. 40).

Pronotum. Light testaceous. Basic shape semicircular, moderately long, about 2x as wide as long, sides moderately flanged, anterior-lateral angles smoothly rounded, front edge curved, weakly hooded, lateral edge curved, hind edge strongly sinuate, beaded, a moderately strong puncture on hind edge half way from centre to lateral edge on each side. Punctures relatively sparse, small, about size of seta base.

Scutellum. Same colour as pronotum. Triangular, sides weakly convex, slightly longer than base. Punctures as on elytra.

Elytra. Testaceous. Sides very slightly pinched behind shoulders, slightly broader behind middle, narrowly and sharply flanged. Punctures moderately large, setiferous, most a puncture width apart or a bit more.

Ventral surface. Testaceous, appendages and pronotum lighter. Pronotal process very narrow between procoxae, narrowly oval at tip, tip expanded dorsal/ventrally. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina reaching some way beyond base of procoxa. Metacoxal plates teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 69). Trigonium about 1/3 length of aedeagus, moderately broad, narrowing slightly to apex, apex bifid, each section pointing weakly outwards; parameroids about as long as trigonium, moderately broad, hooked outwards at apex, tips sharp; parameres relatively narrow, same width along length, tips weakly pointed; without stylus.

Notes
The type is fragile and I have not attempted to dissect the mouthparts. The previous preparation of the genitalia (which may be female) is too poor to be of use but the general shape, colour and punctuation of the holotype closely matches the other specimens included under this name in this paper.

An elongate species with a largish pronotum which is slightly lighter in colour than the elytra but nothing like to the same extent as in species such as _P. hamoni_, _P. loftyensis_ and _P. anthropilia_. The strong elytral punctures and relatively uniform testaceous colour separate it from most other species in the _P. anobioides_ group. I have seen two specimens that appear to belong to _P. hamoni_ that lack the distinctive red pronotum and dark elytra typical of that species. The much smaller eyes, as well as much narrower trigonium will separate _P. montivagans_ from any similarly coloured specimen of _P. hamoni_.

**Biology**. Nothing is known of the biology of this species. From the collecting localities the most likely habitat is small streams in sclerophyll forest.

**Additional specimens examined**

**New South Wales**. 6, ‘Orange N.S.W. J. Armstrong’ ‘Pseudomicrocara montivagans (Blackb) Id by J. Armstrong’, ANIC; 1, ‘AUSTRALIA, NSW Sunny Corner State Forest Davie Corner 33.20S 149.52E’ ‘Vince Lorimer. In leaf litter by creek’, AM. **Australian Capital Territory**. 1, ‘Tidbinbilla, A.C.T. 17.1.74, E. B. Britton’, ANIC; 1, ‘35.20S 149.15E ACT Molonglo Gorge August 1991 C. Reid coll.’, ANIC.

**Pseudomicrocara triidos** sp. nov. Figs 7, 73

**Holotype**. Male. ‘Summit of Jamberoo Pass, NSW Jamberoo, 34.39S, 156.47E 27.11.1969, E.B. Britton’, ANIC.

**Paratypes**. 3; 2, ‘26.01S 153.04E 1km E Mt Bilewilam 12 Oct. 1984 QLD I. Naumann, J. Cardale’, 1 ANIC 1 SAMA head and genitalia on slide; 1, ‘Brisbane 11/33’, on slide, SAMA; 1 Mt, Coolum, Q 26.33S 153.05E 15 x11. 68 at light Britton & Misko’, on slide, ANIC.

**Description** (number examined, 4)

**Habitus**. Length 2.3 – 2.7 mm. Narrowly oval, setae relatively soft, relatively short and dense.

**Head**. Dark testaceous. Frons extending forward by less than width of segment 1 of antenna in front of base of antenna, anterior margin straight; labrum a little narrower than frons, about 2x as wide as long, front margin weakly curved; relatively densely granulate, setiferous; eyes relatively large, distance between eyes about 3.5x width of eye; edge of eye separated from lateral margin of head by about width of one - two eye facets. Antennae light testaceous; segment 1 a little shorter than dorsal width of eye, subrectangular, about 1.6x as long as wide; segment 2 small, about half as long as segment 1, almost round; segment 3 a little longer and narrower than segment 2, weakly triangular; segment 4 a little wider than segment 3 and about 1.5x as long, weakly narrowing towards base; segments 5 – 10, stout, subequal, shorter than segment 4, segment 11 oval, about 1.5x length of segment 10. Maxillary palpi light testaceous; segments 2 – 3 moderately stout, sub-equal in length, outer edges longer than inner; segment 4 much narrower, about 1.5x as long as segment 3. Paraglossa relatively broad, front edge almost straight. Labial palpi relatively stout, segment 1 narrow, expanding towards apex, segment 2 shorter, broad, weakly triangular, inner edge a little shorter than outer; segment 3 about as long as segment 2, finger-like, arising slightly inwards from middle of apex of segment 2, orientated slightly inwards. Mandibles symmetrical, moderately broad, tip relatively short, inner edge with strong anterior tooth, edge behind this tooth uneven, mola region without area of small spines.

**Pronotum**. Light testaceous with vague darker markings. Basic shape semicircular; relatively long, about 1.7x as wide as long (Fig. 7), sides flanged, anterior-lateral angles smoothly rounded, front
edge straight, weakly hooded, weakly upturned, lateral edge curved, hind edge weakly sinuate, very weakly beaded. Quite densely covered with small setiferous granules.

Scutellum. Light testaceous; triangular, sides slightly convex, a little longer than base; granulate as on disc of pronotum.

Elytra. Light testaceous. Sides weakly curved, broadest just behind middle; narrowly and sharply flanged. Punctures small, setiferous, not much larger than seta bases, a little more than a puncture width apart.

Ventral surface. Light testaceous, darker and lighter in places. Pronotal epipleura very broad, weakly concave, outer bifurcation of inner carina not reaching much further forward than about front edge of base of procoxa. Pronotal process very narrow between procoxae, teardrop-shaped at tip, sides strongly margined. Metacoxal plates relatively broad, teardrop-shaped. Metafemur relatively thin. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus relatively simple (Fig. 73). Trigonium a little less than 1/3 length of aedeagus, broad, apex trilobed, lateral lobes curved inwards and downwards; parameroids about as long as trigonium, thin, sinuate, curved outwards and upwards, tips pointed; parameres relatively broad, weakly pointed at apex; stylus moderately developed.

Notes

This species resembles *P. anobioides*, *P. desraeae* and *P. inusitata* in general facias and the short velvet-like setae but is a bit smaller, has a somewhat longer pronotum (Figs 3, 7) and a distinctly trilobed tip to the trigonium. From *P. inusitata* it also differs in having a slightly wider distance between the eyes and the side of the head.

**Pseudomicrocara davidsoni species group**

A possibly artificial grouping of five species with a moderate to large distance between the margin of the eye and the margin of the head, moderately rectangular pronotum, mandibles with long tips and moderate to strong teeth, male genitalia simple and, except possibly in *P. parvus*, without a stylus. The grouping together of *P. rufusensis*, *P. parvus* and *P. falsiparvus* seems clear but the inclusion of *P. variegata* and *P. davidsoni* is more problematic.

The relatively large *P. variegata* with its spotted elytra stands out as the most likely misfit. At first glance it resembles those members of the *P. cinctus* group with enamel-like white areas on the elytra, but the elytral spotting is quite different and it lacks the complex male genitalia typical of that group. The four other species are smaller, more elongate and have a large distance between the edge of the eye and the side of the head. *Pseudomicrocara davidsoni* shares with *P. variegata* the small eyes and labial palpi with the apical segment arising at right angles well down the inner margin. This is in contrast to the other three species where it arises from the tip and is orientated forwards. The form of the labial palpi and the large distance between the edge of the eye and the edge of the head in *P. davidsoni* are also found in *P. conniculatus* and *P. dasys*. I have placed these species in the *P. cinctus* group rather than the *P. davidsoni* group primarily because of their strongly modified male genitalia which are very similar to those of other *P. cinctus* group species. *Pseudomicrocara rufusensis*, *P. inusitata*, *P. parvus* and *P. falsiparvus* are structurally quite similar and possible only distantly related to *P. davidsoni* and/or *P. variegata*.

Biology. I have collected the larvae of *P. davidsoni* from drying pools in summer-dry creeks in open woodland in Victoria and South Australia and adult *P. variegata* from beating vegetation in sclerophyll forest at Marysville, Victoria and adult *P. rufusensis* from Rufus Canal, Tasmania, from the blossom of Leatherwood trees. Otherwise nothing is known about the biology of species in this group other than what can be gleaned from labels. *Pseudomicrocara variegata* is moderately common and widespread in South Eastern Australian forests, *P. rufusensis*, *P. falsiparvus* and *P.
“parvus” have been collected by beating *Nothofagus* foliage in closed forests in Tasmania and New England respectively.

**Pseudomicrocara davidsoni** (Carter). Figs 5, 13, 38, 61

*C. davidsoni* Carter, 1935

**Pseudomicrocara davidsoni** (Carter, 1935); com. nov.

*Lectotype.* Male. ‘Hastings Riv N.S.Wales 1934 H.J.Davidson.’, blue ‘Paratype’ ‘Elodes davidsoni Cart HJC det.’, (dissected), ANIC.

*Paralectotypes.* 2: 1 male, ‘Hastings Riv N.S.Wales 1934 H. J. Davidson.’, blue ‘Paratype’ ‘Elodes davidsoni Cart HJC det.’, (dissected), ANIC; 1, ‘Hastings Riv N.S.Wales 1934 H. J. Davidson’ ‘Elodes davidsoni Cart Det H. J. Carter’, red and orange ‘Allotype’ labels, ANIC, badly damaged by *Anthrenus*.

Carter does not clearly identify his holotype. He mentions ‘two examples from the Hastings River district’ and that the holotype was given to him. There are three specimens in collections labelled ‘Hastings Riv NSW 1934 H. J. Davidson’ which can be considered syntypes. I herein designate the upper specimen on a pin with two specimens as the lectotype and the other two specimens from the Hastings River collected by H. J. Davidson in 1934 as paralectotypes. Other specimens labelled as paratypes from Gloucester (which is some distance from the Hunter River), in AM, cannot be considered part of the syntype series.

**Description** (number examined, 13)

**Habitus.** Length 4.9 – 5.6 mm. Narrowly oval, widest behind middle of elytra, setae moderately soft, moderate long and dense.

**Head.** Dark testaceous to testaceous. Frons extending forward only a short distance from front edge of antennae base, anterior margin curved; labrum small, much narrower than frons, about 2x as wide as long, front edge weakly sinuate; densely covered with granules, eyes relatively small, distance between eyes about 3.8x width of eye; edge of eye width of three - four eye facets from lateral margin of head (Fig. 13). Antennae testaceous, basal 3 segments and areas near joints paler; segment 1 about as long as width of eye, oval, about 2x as long as wide; segment 2 relatively small, bead-like; segment 3 about 1.5x as long, triangular; segment 4 broader than segment 3 and about 2x as long, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4, becoming progressively slightly longer and narrower towards apex. Maxillary palpi light testaceous; stout, segments 2 & 3 equal in length, segment 4 narrower, shorter, more cylindrical than segment 3.

Labial palpi relatively stout, segment 1 relatively thin, expanded towards apex, segment 2 elongate oval, segment 3 broad, about as long as segment 2, arising at right angles ½ way down inner edge of segment 2 (Fig. 38). Paraglossa moderately broad, anterior edge almost straight (Fig. 38). Mandibles symmetric, thin, tip relatively long, inner edge with strong anterior tooth, edge behind this tooth strongly serrated; mola region with a few small spines (Fig. 38).

**Pronotum.** Testaceous with vague darker markings. Basic shape rectangular, relatively short, about 2x as wide as long, sides weakly flanged, anterior-lateral angles angularly rounded, front edge curved, moderately hooded, lateral edge weakly curved, hind edge sinuate, weakly beaded with a weak small depression on each side half way to the side margin. Punctures moderately dense, about size of seta base.

**Scutellum.** Testaceous; triangular, sides weakly convex, about as long as base, granulate as on head.

**Elytra.** Testaceous. Sides slightly pinched behind shoulders, broader behind middle, narrow and sharply flanged, two - three very weak, longitudinal broad ridges. Punctures small, setiferous, a
little more than one puncture width apart, larger than those on pronotum, becoming slightly weaker towards apex.

**Ventral surface.** Testaceous. Pronotal process very narrow between procoxae, oval at tip, strongly margined, tip expanded dorsal/ventrally; pronotal epipleura broad, weakly concave, outer bifurcation of inner carina reaching to about half way to edge of pronotum from base of procoxa, Metacoxal plates moderately long, teardrop-shaped. Metafemur relatively thin. Ventrites densely covered with small, rugose, setiferous punctures.

**Male.** Aedeagus simple (Fig. 61). Trigonium about ½ length of aedeagus, moderately broad, narrowing somewhat towards tip, tip knuckle-shaped, moderately upturned; parameroids nearly as long as trigonium, distinctly crotchet-shaped; parameres moderately broad, relatively even width along length, tips rounded, rugose on insides; without stylus. Some specimens have a quite marked depression near lateral edge of each ventrite.

**Notes**

A medium sized, elongate to elongate/oval, reddish species with quite ‘shaggy’ setae in places. Occasional specimens have slightly asymmetric mandibles, possible due to uneven wear, but the strongly inwardly-orientated, third segment of the labial palpi, rectangular pronotum, relatively wide distance between the eye and the edge of the head and the lack of a stylus, separate it from any member of the *P. orientalis* group which are partial characterised by asymmetric mandibles. *Pseudomicrocara davidsoni* closely resembles *P. conniculatus* and *P. dasys*. The eyes are a little further from the edge of the head in these two species, particularly *P. dasys*, but, apart from this, only separable by the very different male genitalia. Both *P. conniculatus* and *P. dasys* (Figs 75, 76) have sharp beak-shaped trigoniums and complex parameroids and tegmens in contrast to the simple genitalia of *P. davidsoni*. I have placed them in the *P. cinctus* group solely on the evidence of the male genitalia.

**Biology.** A widely distributed, seldom collected species, ranging from closed forest in North Queensland and Northern New South Wales to adjacent to streams and ponds in arid regions of South Australia and Central Australia. The larvae are aquatic, living in still water in temporary ponds in open forest country. They are unusually pale cream in colour and swim actively with a sinuate motion similar to that used by Gyrinidae larvae. They have been collected together with the almost black larvae of *P. orientalis* and *P. olliffi* which seem to lack the swimming ability of *P. davidsoni*.

**Additional specimens examined**

**New South Wales.** 1, ‘Bogan R, N S Wales J.Armstrong’, SAMA; 1, ‘Grata N.S.W. J. Sedlacek’, ANIC; 2, ‘Gloucester N S. Wales 1934 H. J. Davidson’, ‘Elodes davidsoni Cart’ blue ‘Paratype 2372–2373’ ‘F. E. Wilson Collection’ (genitalia extruded), MV (see note under types); 1 ‘AUSTRALIA, NSW New England National Park 30 31S 152 22E 5 January, 1993’ ‘Vince Lorimer In pitfall trap human dung VWHL–259’, AM; 1,’ Sydney Dec1956 I. Wilson’, SAMA.

**Northern Territory.** 2, ‘Stanley Chasm NT 9/10/68 C. Watts’, SAMA.

**Queensland.** 1, ‘16 04S 145 27E Qld Cape Tribulation Pilgrim Sands 9 Nov 1992 C.Reid bushes & trees by beach’, ANIC.

**South Australia.** 1, ‘13 K W Meadows S.A 9.12.96. C. Watts’, SAMA; 1, ‘S. Australia Wilpena 1–5–80’ ‘R. M. Bohart Col’, SAMA.

**Victoria.** 1, ‘E. Ivanhoe Vic 27–2–63 P. G. Kelly’, ANIC; 5, ‘Wormangel Creek 9 K N Avenel 10/1/06 CHS Watts’, SAMA. **No locality.** 1, ‘1605 Helodes Id by A. M. Lea’, AM.

*Pseudomicrocara falsiparus* sp. nov Fig. 57

**Holotype.** Male. ‘30.22S 152.46E NSW Blackbutt Track Dorrigo N.P. 13–15 Nov 1990 A. Calder beating rainforest vegetation’, ANIC.
Paratype. Male. ‘30.22S 152.46E NSW Blackbut Track Dorrigo N.P. 13–15 Nov 1990 A. Calder beating rainforest vegetation’, slide mounted, SAMA.

Description (number examined, 2)

Habitus. Length 3.2 mm. Elongate, sides of elytra subparallel, setae relatively soft, relatively long and dense.

Head. Testaceous. Frons extending forward only a little more than width of antennal segment 1 in front of base of antenna, anterior margin straight; labrum a little narrower than frons, about 2x as wide as long, front margin slightly sinuate; relatively densely punctate, setiferous; eyes relatively small, distance between eyes about 4x width of eye; edge of eye separated from lateral margin of head by about width of three - four eye facets which are relatively small. Antennae testaceous, basal segments lighter; segment 1 a little shorter than dorsal width of eye, barrel-shaped, about 1.5x as long as wide; segment 2 relatively large, about half as long as segment 1, barrel-shaped; segment 3 a little longer than segment 2, weakly triangular; segment 4 wider than segment 3 and about 1.3x as long, weakly narrowing towards base; segments 5 – 10 subequal, shorter than segment 4, becoming progressively slightly wider towards apex; segment 11 oval, a little longer then segment 10. Maxillary palpi light testaceous; relatively stout, segments 2 & 3 sub-equal in length, inner edges a little shorter than outer; segment 4 a bit longer, conical. Paraglossa broad, deeply bilobed. Labial palpi relatively stout, segment 1 narrow, expanding towards apex, segment 2 shorter, broad, inner edge shorter than outer, segment 3 longer, thumb-like, slightly sinuate, arising from middle of apex of segment 2, orientated slightly inwards. Mandibles symmetrical, thin, tip moderately long, inner edge with strong anterior tooth, edge behind this tooth uneven, mola region with area of small, stout spines.

Pronotum. Testaceous. Basic shape rectangular/semicircular; moderately short, about 1.6x as wide as long, sides weakly flanged, anterior-lateral angles angularly rounded, front edge slightly curved, moderately hooded, lateral edge weakly curved, hind edge sinuate, weakly beaded. Punctures moderately large, setiferous, on disc a little less than a puncture width apart.

Scutellum. Testaceous; triangular, sides weakly convex, a little longer than base; punctures as on disc of pronotum.

Elytra. Dark testaceous, sutural region narrowly lighter. Sides subparallel, broadest just behind middle; narrowly and sharply flanged. Punctures as on pronotum, slightly less dense, becoming weaker towards apex, setiferous, relatively small and shallow, a little less than one puncture width apart, larger than granules on pronotum.

Ventral surface. Testaceous, appendages lighter. Pronotal epipleura broad, weakly concave, inner bifurcation of inner carina not reaching much further forward than about front edge of base of procoxa. Pronotal process very narrow between procoxae, diamond-shaped at tip, sides strongly raised. Metacoxal plates moderately broad, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple, elongate (Fig. 57). Trigonium about ¼ length of aedeagus, moderately broad, narrowing somewhat to rounded apex; parameroids a little longer than trigonium, broad, narrowing and slightly curved outwards towards apex, tips rounded; parameres relatively narrow, even width along length, tips rounded; without stylus.

Etymology. Latin. ‘Falio’ – false. An illusion to its similarity to P. parvus.

Notes

Pseudomicrocara falsiparvus is very similar to P. parvus but has distinctly different male genitalia (Fig. 59). The two known specimens have the dorsal punctation, particularly on the pronotum, rather stronger than in P. parvus.

Biology. Known only from closed-forest in the Dorrigo National Park. Larvae not known.
Pseudomicrocara parvus sp. nov. Fig. 59

Holotype. Male. ‘30.30S 152.23E NSW Wrights Lookout Track New England NP 16–18 Nov 1990 T. A. Weir’, ANIC.

Paratypes. 71; 1, ‘30.22S 152.46E NSW Blackbutt Track Dorrigo N.P. Nov 1990 T. A. Weir’, ANIC; 6, ‘30.29S 152.24E NSW Fern Tree Valley New England N.P. 16–18 Nov 1990 T. A. Weir’, 5 ANIC 1 SAMA; 1, ‘Hugh Nelson Ra., 21Km S Atherton, N Qld 12.x–5.xi, 1983 Storey & Brown’ ‘MDPI Intercept Trap, Site No. 16’, QPIM; 1, ‘Lamington N.P. QLD. 2 Nov.1982 M. Lowman rainforest’, ANIC; 1, ‘28.16S 153.10E Mt Bithongabel 1400m Lamington Nat Pk. Q.23 Oct. 1978 Lawrence & Weir’, ANIC; 8, ‘Dorrigo Nat Pk. NSW Nov 1982 M. Lowman rainforest’, ANIC; 2, ‘New England N.P. NSW 15 Nov 1982 J. Doyen’, ANIC; 6, ‘30.30S 152.23E NSW Tea Tree Falls Track New England N.P. 16–18 Nov 1990 T. Weir sweeping foliage’, ANIC, 1, ditto, slide, SAMA; 1, ‘30.30S 152.23E NSW Thungutti Camp New England N. P. 16–18 Nov 1990 A. Calder, at light’, SAMA; 22, ‘30.30S 152.23E NSW Wrights Lookout Track New England NP 16–18 Nov 1990 T. A. Weir’, ANIC; 1, ‘56JO443123 UTM 6626486 NSW, New England NP Site 1, 1490m 2 OCT. 2000 Nothofagus moorei forest C. M. Carr, pitfall T1 #4’, UTAS; 1, ditto except ‘3 OCT pitfall T1 #3’, UTAS; 5, ‘56JO512923 UTM 6851724 NSW., Border Ranges NP Site 1, 1116m 29 SEPT. 2000 Nothofagus moorei forest C. M. Carr, pitfall T2, #8’, SAMA; 6, ditto except ‘pitfall T2 #9’, 4 UTAS 2 SAMA; 1, ditto except ‘28 SEPT C. M. Carr, YP’, UTAS; 2, ‘56JO512960 UTM 6851680 NSW, Border Ranges NP Site 2, 1135m 29 SEPT. 2000 Nothofagus moorei forest C. M. Carr, pitfall T1, #4’, 1, UTAS, 1 on slide SAMA; 1, ditto except ‘pitfall T1’, UTAS; 1, ditto except ‘pitfall T2 #10’, UTAS; 1, ‘56JO512957 UTM 6851655 NSW. Border Ranges NP Site 3, 1126m 29 SEPT. 2000 Nothofagus moorei forest C. M. Carr, YP’, UTAS.

Description (number examined, 72)

Habitus. Length 2.6 – 3.2 mm. Elongate, sides of elytra subparallel, setae relatively stiff, relatively moderately long and dense.

Head. Dark testaceous, lighter towards the front. Frons extending for about width of segment 1 of antenna in front of base of antenna, anterior margin almost straight; labrum a little narrower than frons, about 2x as wide as long, front margin slightly sinuate; punctures small, setiferous, moderately dense; eyes relatively small, distance between eyes about 5x width of eye; edge of eye separated from lateral margin of head by about width of eight eye facets. Antennae light testaceous, basal segments lighter; segment 1 about dorsal width of eye in length, narrowly oval, about 1.8x as long as wide; segment 2 moderately large, about half as long as segment 1, barrel-shaped; segment 3 narrower than segment 2 and a little longer, weakly triangular; segment 4 as wide as segment 2 and about 1.5x as long as segment 3, weakly narrowing towards base; segments 5 – 10 relatively stout, subequal, shorter than segment 4, segment 11 oval, about 1.3x length of segment 10. Maxillary palpi light testaceous; moderately stout, segments 2 – 4 sub-equal in length and width, segments 2 & 3 slightly curved, segment 4 thumb-like. Paraglossa moderately deeply bilobed. Labial palpi relatively stout, segment 1 longest, narrow, expanding towards apex, segment 2 a little shorter, broad, outer edge longer than inner, segment 3 about as long as segment 2, thumb-like, arising from slightly inward of middle of apex of segment 2, orientated slightly inwards. Mandibles symmetrical, relatively narrow, tip long, thin, inner edge with strong anterior tooth, edge behind this tooth uneven, mola region with small area of very small, stout spines.

Pronotum. Testaceous. Basic shape rectangular; relatively short, about 2x as wide as long, sides weakly flanged, anterior-lateral angles angularly rounded, front edge slightly sinuate, weakly hooded, lateral edge weakly curved, hind edge sinuate, weakly beaded. Punctures small, well marked, setiferous, on disc about 1.5 puncture widths apart.
Scutellum. Light testaceous; triangular, sides approximately equal length; punctures as on disc of pronotum.

Elytra. Light to dark testaceous, sutural region lighter. Sides subparallel; narrowly and sharply flanged. Punctures setiferous, relatively strong, about a puncture width apart, much larger than those on pronotum, becoming smaller towards apex.

Ventral surface. Testaceous, darker and lighter in places. Pronotal epipleura broad, weakly concave, well delineated on inside by carina which nearly reaches outer edge. Pronotal process very narrow between procoxae, narrowly diamond-shaped at tip, sides strongly raised. Metacoxal plates moderately broad, teardrop-shaped. Metathemum moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 59). Trigonium nearly ½ length of aedeagus, broad, narrowing only slightly to rounded apex; parameroids about as long as trigonium, thumb-like; parameres broad, narrowing a bit towards apex, tip rounded; with small stylus.

Etymology. Latin. ‘Parvus’ – little. A reference to its small size.

Notes
One of the smallest Pseudomicrocara, smaller than many ‘Cyphon’ species. More or less uniformly light testaceous with strongly toothed mandibles and the edge of the eye well separated from the edge of the head. Uniquely among the P. davidsoni group there appears to be a small stylus (Fig. 59). Pseudomicrocara falsiparvus, known from only two specimens from the same geographic region, is similar but has stronger pronotal punctures and a much narrower penis (Figs 57, 78).

Biology. All the known specimens with collecting details have been taken from foliage or litter in rainforest in South East Queensland or North East New South Wales. The larvae are not known.

Pseudomicrocara rufusensis sp. nov. Figs 58, 93

Holotype. Male. ‘TAS Rufus Canal 8 km ssw Derwent Bridge 30/1/06 CHS Watts beating Nothofagus’, SAMA.

Paratypes. 56; 8, as for holotype, SAMA; 2, ‘Burnie TAS Jan C. Watts’, SAMA; 9, ‘Cradle Mt N Pk. TAS JAN C. Watts’, insect damaged, SAMA; 1, ‘Cradle Valley TAS, Cradle Mountain-Lake St Clair N.Pk. 19/1/00 C. H. S. Watts’, SAMA; 1, ‘Cradle Mt Tas 3.2.34 A.V. Turner’, ‘Elodes maculatus Waterh. Id by J. Armstrong’, ANIC; 1, ‘Franklin R. crossing Lyell Hwy, Tas. 16 Jan. 1960 D. K. McAlpine’, AM; 1, ‘AUSTRALIA Tas. Gordon Rd. 0.8km W. Florentine R. 550m 3 Feb 1980 Nothofagus etc A. Newton, M. Thayer’, ANIC; 1, ‘AUSTRALIA Tas. W side L. St Clair c750m 25–29 Jan. 80 Euc.- Acacia for A. Newton, M. Thayer’, ANIC; 3, ‘AUSTRALIA Tas Rufus Canal 13.5km WNW Derwent Bridge 800m 26–28 Jan 80 Nothofagus rainf. A. Newton, M. Thayer’, ANIC; 4, ‘AUSTRALIA Tas The gap. Florentine Rd. 15km WNW Maydena 600m 1 Feb 1980 Nothofagus etc A. Newton, M. Thayer’, ANIC; 1, ‘AUSTRALIA Tas Mt Field NP Lake Dobson Rd. 710m 30Jan–5 Feb. 1980 Nothof.-Euc. for. A. Newton, M Thayer’, ANIC; 13, ‘41.36S 145.41E TAS Murchison Hwy. State Res. Murchison Hwy/Que R. Mine Rd 680m 907 11–27 Jan. 1993 A. Newton & M. Thayer’, ANIC; 5, ‘41.50S 146.03E TAS Pelion Hut, 3 km S Mt Oakleigh 5–10 Feb 1990 A. Newton, M. Thayer’, ANIC; 5, ‘41.1S 146.4E TAS Riveaux Creek 20 Dec 1989 Tube 57 pyrethrin knockdown Dacrydium trunk P. Greenslade’, ‘ANIC COLEOPTERA Voucher No 88–0118’, ANIC; 5, ‘AUSTRALIA: Tasm. Rufus Canal, 13.5 km WNW Derwent Br 800m 26–28.1.1990 Nothofagus rainf. A. Newton, M. Thayer’, 4 ANIC 1 SAMA.

Descriptions (number examined, 469)
Habitus. Length 3.5 – 4.1 mm. Elongate, widest behind middle of elytra, setae relatively stiff, relatively long, moderately dense.

Head. Black to light testaceous, paler towards the front. Frons extending forward about 3/4 length of first segment of antenna from front edge of antennae, anterior margin straight or slightly curved; labrum a little narrower than frons, about 2x as wide as long, front edge sinuate to moderately concave; quite densely covered with moderately strong setiferous granules; eyes relatively small, distance between eyes about 4.5x width of eye; distance from edge of eye to lateral margin of head about width of six eye facets. Antennae black to light testaceous, basal segments and area near joints lighter; segment 1 relatively small, about as long as dorsal width of eye, barrel-shaped, about 1.7x as long as wide; segment 2 relatively large, about ½ length of segment 1, barrel-shaped; segment 3 relatively long 1.0 – 1.5x length of segment 2, weakly triangular; segment 4 wider and about 1.5x length of segment 3, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4. Maxillary palpi testaceous; moderately elongate, segments 2 & 3 weakly curved inwards equal in length, segment 4 narrower, slightly conical, about as long as segment 3. Labial palpi stout, segment 2 shorter than segments 1 & 3; segment 1 narrow, knuckle-shaped; segment 2 broad, outer edge longer than inner; segment 3 thumb-like, arising from about middle of apex of segment 2, orientated slightly inwards. Paraglossa broad, front edge strongly bilobed. Mandibles symmetrical, narrow, tip long, inner edge with anterior tooth, edge behind tooth uneven, mola region with very small area of very small, stout spines.

Pronotum. Varying from black to testaceous with darker disc to totally light testaceous. Basic shape semicircular/rectangular, moderately long, about 1.7x as wide as long, sides quite strongly flanged, anterior-lateral angles angularly rounded, front edge slightly sinuate, moderately to quite strongly hooded, lateral edge curved, hind edge sinuate, beaded. Moderately densely covered with small setiferous granules.

Scutellum. Same colour as adjacent elytra. Triangular, sides weakly convex, slightly longer than base. Granulate as on pronotum.

Elytra. Varying from black to all testaceous or, more frequently, testaceous with moderately well defined darker areas. Sides very slightly pinched behind shoulders, slightly broader behind middle, depressed slightly behind base, narrowly and sharply flanged. Punctures relatively large, well impressed, most about a puncture width apart.

Ventral surface. Testaceous, pronotum often lighter. Pronotal process very narrow between procoxae, narrowly triangular at tip, tip expanded dorsal/ventrally. Pronotal epipleura moderately broad, weakly concave, outer bifurcation of inner carina reaching to about ½ way from base of procoxa to outer margin. Metacoxal plates, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 58). Trigonium about ¼ length of aedeagus, broad at base, evenly narrowing to pointed or truncated tip; parameroids a little shorter than trigonium, relatively broad, tips slightly grooved or weakly bilobed; parameres relatively short, very broad, apexes rounded, inner edges spinose; without stylus.

Etymology. A reference to Rufus Canal where the species has been collected.

Notes
The small, relatively narrow pronotum, large distance between the edge of the eye and the edge of the head and the colour pattern on the elytra of most specimens, separate it from all other Pseudomicrocara. In many ways it resembles ‘Helodes’ maculatus Waterhouse from Tasmania but has much weaker mandibular teeth, long tips to the mandibles and less well developed pronotal epipleura. The relatively long muzzle, narrow pronotum and slightly depressed area at the base of the elytra are distinctive and tend to link the species with P. spilotus.
Biology. Most specimens have been caught in or at the edge of *Nothofagus* closed forest. I have collected it on the flowers of the Leatherwood tree. The larvae are not known.

**Addition specimens examined**

**Tasmania.** 1, ‘AUSTRALIA: Tasm Gordon R Rd. nr Little Florentine R. 440m 3.11.1980 Nothofagus etc A. Newton, M. Thayer’, ANIC; 1, ‘42.06S 146.10E Lake St Clair 750m TAS 25–17 Jan 1980 Lawrence & Weir’, ANIC; 5, ‘SW Tasmania Lower Gordon R 42.42S 145.53E 42.41S 145.53E Howard, Hill’ ‘Feb 1977 Litter’, ANIC; 1, ditto except ‘42.38S 145.53E 42.37S 145.56E Feb 1978’, ANIC; 2, ‘41 50S 146.03E TAS 4km S Mt Oakleigh 8 Jan–12 Feb 1991 A. Calder, W. Dressier F.I.T. #2 880m’, ANIC; 1, ‘41 52S 146.03E TAS 2 km NebyN Mt Ossa 8 Jan–12 Feb 1991 A. Calder, W. Dressier F.I.T. #3 100m’, ANIC; 28, ‘42.10S 146.87E 4 km SSE of Mt Rufus 800m TAS 26–28 Jan 1980 Lawrence & Weir’, ANIC; 4, ‘42.49S 146.22E 7km NebyE of Mt Wedge 550m 3 Feb 1980 Lawrence & Weir’, ANIC; 1, ‘Parawa N.W.Tas Dec 1936’, ANIC; 131, ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh 860m 8Jan–12 Feb 1991 A. Calder, W. Dressier malaise #4 closed forest’, ANIC; 20, ditto except ‘malaise #5’, ANIC; 12, ditto except ‘malaise #1’, ANIC; 1, ditto except ‘malaise #3’, ANIC; 3, ditto except ‘malaise #2’, ANIC; 1, ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh March 1991 I. Naumann, crepuscular sweeping’, ANIC; 3, ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh 12–15 Feb 1991 A. Calder, W. Dressier sweeping grass tufts’, ANIC; 1, ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh 12–15 Feb 1991 A. Calder, W. Dressier ex yellow pan traps’, ANIC; 5, ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh 12–15 Feb 1991 A. Calder, W. Dressier’, ANIC; 4, ditto except ‘8 Jan–12 Feb F.I.T. #1’, ANIC; 16, ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh 5–10 Feb 1990 I. D. Naumann’, ANIC; 37, ditto except ‘rainforest’, ANIC; 2, ditto except ‘rainf. yellow traps’, ANIC; 5, ditto except, ‘open forest, Malaise y. trays under malaise’, ANIC; 2, ditto except ‘Malaise #2 rainforest’, ANIC; 1, ditto except ‘Malaise #3 rainforest at bottom of trap’, ANIC; 23, ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh 860m 6 Feb. 1991, sweeping closed forest edge. I. Naumann’, ANIC; 6, ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh 860m 13 Feb –7 Mar 1991 I. Naumann, M. Horak male malaise #1 closed forest’, ANIC; 1, ditto except ‘malaise #2’, ANIC; 1, ditto except ‘malaise #3’, ANIC; 10, ditto except ‘malaise #4’, ANIC; 15, ditto except ‘malaise #5’, ANIC; 5, ditto except ‘malaise #6’, ANIC; 7, ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh 860m Feb. 1990 closed forest crepuscular’, ANIC; 7, ‘41 50S 146.03E TAS 4km S Mt Oakleigh 8 Feb. 1990 W.E.B.S. closed forest 880m male malaise #3’, ANIC; 4, ditto except ‘1 Mar.’, ANIC; 1, ‘41 51S 146.03E TAS 4km S Mt Oakleigh 13Feb–7 Mar.1991 I. Naumann, M. Horak FIT #2 880m’, ANIC; 1, ‘41 52S 146.03E TAS Pelion Gap 2km ENE Mt Ossa 1120m 13 Feb–7 Mar 1991 I. Naumann, M. Horak malaise #6’, ANIC; 1, 4km S Mt Oakleigh 880m 13Feb–7 Mar.1991 I. Naumann, M. Horak malaise #3 closed forest’, ANIC; 31, ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh 860m Feb 1990 W.E.B.S. male malaise #1 closed forest’, ANIC; 1, ditto except ‘malaise #2’, ANIC; 3 ‘41 50S 146.03E TAS Pelion Hut 3km S Mt Oakleigh 860m 7 mar –9 Apr. 1991 E. Edwards, J. Barry male malaise #5 closed forest’, ANIC; 5, ditto except ‘malaise #4’, ANIC; 2, ‘AUSTRALIA: Tas The Gap Florentine Rd 15 km WNW Maydena 600m 1 Feb 1980 Nothofagus etc A. Newton, M. Thayer’, ANIC; 1, ‘42.430S 146.29E 2 km ENE of Tim Shea 600m TAS 1 Feb 1980 Lawrence & Weir’, ANIC.

**Pseudomicrocara variegata** (Carter). Figs 39, 60, 90

*Elodes variegata* Carter, 1935

*Pseudomicrocara variegata* (Carter 1935), Armstrong, 1953

= *Elodes tigrina* Carter, 1935

*Pseudomicrocara tigrina* (Carter, 1935), Armstrong, 1953

**Types**

*Elodes variegata* Carter
Holotype. ‘Warburton V F.E. Wilson 1.2.26’, ‘Elodes variegata Cart id by HJCarter’ red ‘Holotype 2668’ ‘FE Wilson Collection’, MV.

Paratypes. 3; 1, ‘Belgrave, V F. E. Wilson Jan 1922 F. E. Wilson collection’ ‘Elodes variegata’, ‘Pseudomicrocara variegata (Cart) id by J. Armstrong’ blue ‘Paratype 2360’ ‘in moss’, MV; 1, ‘Millgrove, V Jan 1927 F. E. Wilson’ blue ‘Paratype’, ANIC; 1, ‘Dorringo N.S.Wales’ blue ‘Paratype’ ‘Elodes variegatus Cart Id by H. J. Carter’, ANIC.

Elodes tigrina Carter

Holotype. ‘in cop F’, male symbol, red ‘Holotype’ ‘Kosciusko 11 Feb’24 Nicholson’ red ‘Holotype’, ‘On permanent loan from MACLEY MUSEUM University of Sydney’ ‘Elodes tigrina Cart’, ANIC. Damaged by verdigris, remounted 2006. Sex given as male but no surviving genitalia.

Paratype. Same data as holotype except, red ‘allotype’ yellow ‘Allotype’, ANIC. Damaged by verdigris, remounted 2006. Sex given as female but no surviving genitalia.

Descriptions (number examined, 74)

Habitus. Length 6.4 – 7.8 mm. Elongate, parallel-sided, setae soft, moderate long, dense.

Head. Light testaceous. Frons extending forward about width of first segment of antenna from front edge of antennal base, anterior margin straight or weakly curved; labrum narrower than frons, about 2x as wide as long, front edge straight; granulate; eyes moderately large, distance between eyes about 3.6x width of eye; edge of eye separated from lateral margin of head by width of three - four eye facets. Antennae thin, dark testaceous-yellow, bases of segment lighter; segment 1 about as long as dorsal width of eye, posterior edge straight, anterior edge curved, about 1.5x as long as wide; segment 2 small, round; segment 3 1.5x longer, narrowing towards base; segment 4 as wide as segment 3 and about 2.4x as long, cylindrical segments 5 – 11 subequal, initially a little shorter than segment 4, becoming progressively slightly longer and narrower towards apex. Maxillary palpi yellow; stout, apical three segments subequal in length, apical segment thumb-like, weakly curved outwards. Segment 1 of labial palpi thin, wider towards apex; segment 2 broad, sub triangular; segment 3 flat, paddle-like, arising from about half way along inner side of segment 2 (Fig. 39). Paraglossa broad, front edge almost straight (Fig. 39). Mandibles symmetrical, relatively thin, inner edge with strong tooth, edge behind this tooth uneven, mola region with small area of small spines (Fig. 39).

Pronotum. Light testaceous with darker markings towards rear. Basic shape rectangular to weakly semi circular; about 2.1x as wide as long, sides moderately and widely flanged, anterior-lateral angles smoothly rounded, front edge hooded, straight, lateral edge curved, hind edge sinuate, weakly beaded. Setae arising from middle of small, low, round, nearly confluent mounds, stronger laterally.

Scutellum. Light testaceous. Equilateral triangle; sculptured as on pronotum.

Elytra. Light testaceous with distinct darker patterning. Sides sub-parallel, narrowly and sharply flanged, two - three very weak, longitudinal, broad ridges. Densely covered with shallow, nearly confluent, setiferous punctures, many no larger than setae bases.

Ventral surface. Light testaceous, slightly darker and lighter in places. Pronotal process very narrow between procoxae, tip diamond-shaped, front edge strongly raised, tip expanded dorsal/ventrally. Pronotal epipleura broad, weakly concave, lateral bifurcation of inner carina not reaching much beyond base of procoxa. Metacoxal plates relatively broad, teardrop-shaped. Metafemur relatively thin. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 60). Trigonium about ½ as long as aedeagus, broad in basal half, narrowing in apical half to rounded tip, tip downturned; parameroids a little longer than trigonium,
moderately broad, tips rounded with small spine on outside, rugose inside near tip; parameres very broad, tips rounded; without stylus.

Notes

Pseudomicrocara variegata is readily recognised by its relatively large size, mottled elytral pattern, reminiscent in some ways to some members of the P. cinctus group, eg. P. hylaios, but the pale spotting is more extensive and without the enamel-like appearance of members of that group. The relatively wide distance between the edge of the eye and the edge of the head, strongly inwardly orientated apical segment of the labial palpi and simple male genitalia suggest that it is not a member of that group. I have placed it with some hesitation in the P. davidsoni group.

Biology. Relatively common in collections. All specimens with the collecting method noted, were collected at light or in flight intercept traps. From the collection localities it lives in heavily forested regions from the coast up to Mt Kosciusko National Park.

Additional specimens examined

Australian Capital Territory. 2, ‘Jervis Bay ACT 7 Nov 1956 E. F. Riek’, ANIC. New South Wales. 1, ‘30.22S 152.44E NSW Dorrigo N.P. 13–15 Nov 1990 T. A. Weir surfaces at night’, ANIC; 6, ‘30.22S 152.44E NSW Dorrigo Camp Dorrigo N.P. 13–15 Nov 1990 A. Calder at light’, ANIC; 1, ‘Gerringong Falls Jamberoo Pass W of Kiama NSW 22.3.86’, ‘S. G. Watkins Collection Donated 2001’, ANIC; 1, ‘Kosciusko 11 Feb. 24 Nicholson’, ANIC; 7, ‘AUstralia, SE NSW Kosciusko N.P. Smiggings Hole, 1800m’ at light 15.1.1981 leg, Hangay & Vojnits ‘no 125’, HUNG; 1, ‘3 mi. NW of Mt Keira, NSW 7.iii.67 I. F. B. Common’, ANIC; 1, ‘34.24S 150.50E Mt Keira scout camp NSW e.320m 4/5 Mar 1981 Lawrence & Calder’, ANIC; 1, ‘Narrabeen near Sydney N.S.W. A. Musgrave 23.x.1921’, AM; 1, ‘7 km W Nearim’ MV; 1, ‘Noorinbee,V. 12.Nov.1969 A. Neoiss’, MV; 1, ditto ‘20.11.1965’, MV; 1, ‘30.39S 152.23E NSW Thungutti Camp New England N.P. 16–18 Nov.1990 A. Calder, at light’, ANIC; 13, ‘30.30S 152.23E NSW Thungutti Camp, New England N.P. 16–18 Nov 1990 T. A. Weir at light’, ANIC; 2, ‘Tumut Pond N.S.W. J. Sedlacek’, ANIC; 1, ditto ‘J. Armstrong’, ANIC; 15, ‘3 mi NW of Mt Keira, N.S.W. 7.3.67 I. F. B. Common’, ANIC; 1, ‘New England NP 1500m Thungutti Camp 14–15 Nov 1982 J. Doyen coll.’; ANIC. Victoria. 1, ‘3 km W Beenak, Vic 7.Jan 1972. A. Neoiss’, MV; 2, ‘Marysville Vic. C. Watts’, SAMA; 1, ‘Millgrove, Vic 26.3.1958 A.N’, MV; 1, ‘Mt. Howitt, Vic Jan–Feb 1978 K. G. Simpson’, MV; 1, ‘Mt Timbertop Jan 59.Vic Ian Edwards’, MV; 1, ‘Porepunkah, Vic 27.1.1960 A.N’, MV; 1, ‘Vic Tarago River 1.Mar.1972 Neoiss’, MV; 1, ‘Toorongo Falls NE Noojee Vic 17 Dec 1970 A. Neoiss’, MV.

Pseudomicrocara orientalis species group

A group of mostly moderately sized species with semicircular pronotums, well developed male genital stylus, relatively simple male genitalia and mandibles asymmetrically toothed. Without a knowledge of the male genitalia and mandibles some species in this group can be confused with members of both the P. cinctus and P. davidsoni species groups. In particular, P. davidsoni in which some specimens, when the teeth are worn down, can have asymmetric mandibles. The more semicircular shape of the pronotum distinguishes them, but even when comparative material is available this is a rather subjective character. I have included P. hangayi in this group but it has a more elongate muzzle and toothless mandibles and may well eventually be shown not to be a member of the group.

Biology. Nothing is known of the biology of P. angulatus and P. aquilonaris and the only things know about P. hangayi is that it is abundant in an area close to an extensive swamp in which the larvae live, and that some pollen grains were found in the gut of one of a handful of slide mounted specimens.
The larvae of *P. atkinsoni*, *P. olliffi* and *P. orientalis* are common in spring and summer among dead leaves and other debris at the edges of still water in dams, roadside ditches and ponds, and remnant pools in small seasonally-dry streams in sclerophyll forest or open woodland in Southern Australia. Quite commonly more that one species inhabits the same water body at the same time. Most adults have been collected at light. Apart from a series of *P. atkinsoni* from flowering *Leptospermum* all of my specimens have been bred from larvae or collected at light.

**Pseudomicrocara angulatus** (Blackburn). Fig. 68

*Elodes angulatus* Blackburn, 1894

*Pseudomicrocara angulatus* (Blackburn, 1894); com. nov.

**Holotype.** Male. ‘Helodes angulatus, Blackb’, round red ‘TYPE’ label, ‘J3:7’ ‘Blackburn Coll 1910–236’, red label ‘Holotypus Helodes angustatus Blackb des Klaunitzer 1975’, ‘Microcara angustata (Blackb) det Dr B. Klausnitzer’. Dissected and remounted on original card with ‘T’. Type locality given as ‘N.S. Wales; Blue Mountains’, by Blackburn. BMNH

**Description** (number examined, 1)

**Habitus.** Length 3.6 mm. Narrowly oval, widest behind middle of elytra, setae relatively soft, moderate long and dense. Colour uniformly dark testaceous.

**Head.** Dark testaceous; labrum lighter; labrum about 1.5x as wide as long, front edge weakly concave; punctures small, little larger than setae bases; eyes moderately large, edge of eye separated from lateral margin of head by width of two - three eye facets; antennae dark testaceous, basal segments lighter; segment 1 relatively small about as long as dorsal width of eye, barrel-shaped, about 1.7x as long as wide; segment 2, small, broad, barrel-shaped; segment 3 about same length as segment 2 narrow, weakly triangular; segment 4 wider and a little more than 2x length of segment 3, narrowing weakly towards base, segments 5 – 11 subequal, about same length as segment 4, becoming progressively slightly smaller towards apex. Maxillary palpi light testaceous; moderately stout, segments 2 & 3 weakly curved inwards, equal in length, segment 4 narrower, more cylindrical, slightly sinuate, a little longer than segment 3. Labial palpi relatively stout, segment 1 narrow, wider towards apex; segment 2 shorter, a little broader, outer edge longer than inner; segment 3 thumb-like, a bit longer than segment 2, arising from middle of apex of segment 2, orientated slightly inwards. Paraglossa broad, front edge quite strongly bilobed. Mandibles asymmetrical, left hand one with small tooth on inside, right hand one lacking tooth but inner edge rough, relatively broad, tip moderately long, mola area without area of short stout spines (possibly a small number are present).

**Pronotum.** Dark testaceous. Basic shape semicircular, moderately long, about 2.2x as wide as long, sides weakly flanged, anterior-lateral angles smoothly rounded, front edge weakly curved, quite strongly hooded, lateral edge curved, hind edge strongly sinuate, beaded. Punctures very shallow, most a little less than a puncture width apart, many obsolete except for setae base.

**Scutellum.** Same colour as adjacent elytra. Triangular, sides weakly convex, slightly longer than base. Punctures as on pronotum.

**Elytra.** Dark testaceous. Sides subparallel in basal half, slightly broader behind middle, narrowly and sharply flanged. Punctures well impressed, small, not much larger than setae bases, most about 1.5x puncture width apart.

**Ventral surface.** Not visible.

**Male.** Aedeagus simple (Fig. 68). Trigonium a little less than ½ length of aedeagus, narrow, tip slightly broadened, truncated, downturned; parameroids a bit shorter than trigonium, weakly crotchet-shaped; parameres moderately wide, widening in apical half, tips rounded, scattered short
spines on outer edges. There is no stylus in the preparation of the genitalia but this could have been lost.

Notes

A relatively small, uniformly dark-testaceous species with the mola region of the mandible lacking short spines, the elytra lacking any signs of ridges and with the distance between the edge of the eye and the edge of the head relative large. The male genitalia are simple, apart from the spines on the outer edges of the tegmen lobes which are absent in other members in the group.

Biology. Only known from the holotype, the locality of which suggests a sclerophyll forest environment.

**Pseudomicrocara atkinsoni** (Waterhouse1877). Figs 36, 64

*Helodes atkinsoni* Waterhouse, 1877

*Pseudomicrocara atkinsoni* (Waterhouse, 1877), Armstrong, 1953

= *Pseudomicrocara dixoni* Armstrong, 1953; syn nov.

Types

*Pseudomicrocara atkinsoni* Waterhouse

**Holotype.** Male, round red ‘TYPE’ label, ‘V D L 77.17’ ‘Helodes atkinsoni (Type JC Waterh’, BMNH. Remounted on single card with mandible, labium and genitalia visible. Type locality given as Tasmania by Waterhouse.

*Pseudomicrocara dixoni* Armstrong

**Holotype.** ‘Baxter Victoria J.E.Dixon’ ‘Pseudomicrocara dixoni Armstrong’, Red label ‘Holotype 474’, MV.

**Paratypes.** 2, 1, as for holotype except blue label ‘Paratype 475’, dissected male, MV; 1, ‘Baxter Vic 1.12.28 J.E.Dixon’ ‘Pseudomicrocara dixoni Armstrong’, blue ‘Paratype’, ANIC.

Description (number examined, 37)

**Habitus.** Length 4.7 – 6.0 mm. Elongate, sides of elytra parallel, setae stiff, relatively long and dense.

**Head.** Testaceous. Frons extending forward about width of first segment of antenna from front edge of antenna base, anterior margin curved; labrum narrower than frons, about 2.2x as wide as long, front edge weakly curved; densely covered with small granules each with a central seta; eyes moderately large, distance between eyes about 3.7x width of eye; edge of eye about two eye facets width from lateral margin of head. Antennae dark testaceous, areas near joints yellowish; segment 1 about as long as width of eye, posterior edge straight, anterior edge curved, about 1.4x as long as wide; segment 2 small, cup-like, about one third length of segment 1; segment 3 a little longer narrowing towards base, segment 4 wider than segment 3 a little more than 2x as long, slightly narrowing towards base, segments 5 – 11 subequal, about same length as segment 4. Maxillary palpi yellow; stout; segment 3 a little shorter than segment 2, segment 4, finger-like, about same length but narrower than segment 2. Segment 1 of labial palpi vase-like, segment 2 very broad inner edge shorter than outer, segment 3 about as long as segment 1, finger-like, arising from inner corner of tip of segment 2, strongly orientated inwards (Fig. 36). Paraglossa wide, anterior edge almost straight (Fig. 36). Mandibles asymmetric, right hand one relatively broad, strong tooth on inside edge towards apex, inner edge behind tooth rough, mola region with moderate area of small, stout dense spines; left hand mandible lacking tooth (Fig. 36).

**Pronotum.** Testaceous with darker markings. Basic shape moderately semicircular to rectangular; relatively short, about 2x as wide as long, sides weakly and narrowly flanged, anterior-lateral angles
rounded, front edge weakly curved, weakly hooded, lateral edge weakly curved, hind edge sinuate, weakly beaded. Punctures moderately dense, no more than shallow depression with seta in centre.

*Scutellum.* Testaceous; equilateral triangular, lateral sides a bit sinuate; punctured as on pronotum.

*Elytra.* Testaceous to dark testaceous, sutural region often a little lighter. Sides slightly pinched behind shoulders, sides subparallel, narrowly and sharply flanged. Punctures setiferous, moderately strong, a little less than one puncture width apart, stronger than depressions on pronotum. Pronotal epipleura broad, weakly concave, inner carina reaching to about half way from base of procoxa to outer margin.

*Ventral surface.* Testaceous to dark testaceous, slightly darker and lighter in places. Pronotal process very narrow between procoxae, quite narrowly pear-shaped at tip, sides strongly raised. Metacoxal plates relatively broad. Metaventrites densely covered with small, rugose, setiferous punctures.

*Male.* Aedeagus simple (Fig. 64). Trigonium about 1/3 length of aedeagus, broad, flat, narrowing somewhat to broad, rounded tip; parameroids broadly oval, flat, not reaching tip of trigonium; parameres broadly oval, flat; stylus present, relatively short.

**Notes**

*Pseudomicrocara atkinsoni* is distinguished from other members of the *P. orientalis* group by its moderate size, rather flat body, lack of any trace of raised ridges on the elytra as well as the apical segment to the labial palpi being moderately inwardly orientated and the distinctive broad, flat, male genitalia. *Pseudomicrocara atkinsoni* shares with *P. olliffi* the somewhat inwardly orientated labial palpi and the extensive area of small spines on the mola area of the mandible. The size, and the testaceous dorsal surface with a lighter sutural region are very similar to some species in the *P. cinctus* group but the presence of a stylus in the male, the extensive area of spines in the mola region of the mandibles and the more semicircular pronotum separate them.

*Biology.* From distribution records the species inhabits sclerophyll woodland. I have collected the larvae from seasonally-dry small creeks. Adults have been collected from *Leptospermum* flowers.

**Additional specimens examined**

**New South Wales.** 8, ‘Tumut Pond NSW’ ‘1.54 NSW J Armstrong’, 7 ANIC 1 SAMA. **South Australia.** 1, ‘S Aust.K.I. Flinders Chase Ravine des Casoars, ford, at light 3 Nov 1990 E. G. Matthews J. A. Forrest’, SAMA; 6, ‘SA 10K N Forreston 34.44 27S 138 57 41E 13/10/02 C. H. S. Watts’, SAMA. **Tasmania.** 1, ‘Bridport Tas 12v15w uv 9 Nov 1981 L. Hill’, ANIC; 10, ‘TAS Franklin beaches 4 K N Derwent Bridge 30/1/06 C. H. S. Watts on Leptospermum flws’, SAMA; 1, ‘Ulverstone No 254 R. Blackwood’, AM. **Victoria.** 2, ‘Baxter 25.11.22 Helodes australis id by H. J. Carter’, ANIC; 3, ‘Baxter 1.12.23’, MV; 1, ‘G. G. BURNS at light Mornington, Vic 28.10.1974’, ANIC; 3, ‘Mornington Nov 1919’, MV; 1, ‘Gippsland Victoria’, MV; 2, ‘Bendoc V. JAN1928 F. E. Wilson’, ANIC.

*Pseudomicrocara aquilonaris* sp. nov. Figs 33, 68

**Holotype.** Male, ‘Bellenden Ker Range, NQ Cable Tower 3, 1054m 17 Oct–5 Nov. 1981 EARTHWATCH/QLD.MUSEUM Malaise trap, rainforest’, ANIC.

**Paratypes.** 7; 4, ‘Bellenden Ker Range, NQ Cable Tower 3, 1054m 17 Oct–5 Nov. 1981 EARTHWATCH/QLD.MUSEUM Malaise trap, rainforest’, 3, ANIC 1, on slide SAMA; 1, ditto plus ‘A.N.I.C. COLEOPTERA Voucher No. 83–0591’, ANIC; 2, ‘17.27S 145.29E QLD Hugh Nelson Rg. GS3 1150m 1Dec 1984–3Jan. 1985 P. Zborowski F I Trap ANIC’, 1, ANIC 1 on slide, SAMA.

**Description** (number examined, 8)
Habitus. Length 3.0 – 3.4 mm. Elongate, sides of elytra subparallel, setae relatively soft, moderately short and dense. Colour pattern on elytra.

Head. Black, area in front of eyes light testaceous, with darker mottling. Frons extending forward by about width of antennal segment 1 in front of base of antennae, anterior margin straight; labrum a little narrower than frons, about 2x as wide as long, front margin slightly sinuate; relatively densely granulate, setiferous; eyes relatively small, distance between eyes about 3.2x width of eye; edge of eye separated from lateral margin of head by about width of two - three eye facets. Antennae dark testaceous; segments 1 – 3 light testaceous, segment 1 a little shorter than dorsal width of eye, narrowing slightly apically, about 2x as long as wide; segment 2 relatively large, about half as long as segment 1, barrel-shaped; segment 3 narrower, a little longer, weakly triangular; segment 4 a little wider than segment 3 and about 1.5.x as long, weakly narrowing towards base; segments 5 – 11 subequal, shorter than segment 4, becoming progressively slightly shorter towards apex. Maxillary palpi light testaceous; moderately stout, segments 2 – 4 sub-equal in length, inner edge of segment 3 bit shorter than outer; segment 4 a bit narrower, conical. Paraglossa weakly bilobed. Labial palpi moderately stout, segment 1 narrow, expanding towards apex, segment 2 a little shorter, broad, inner edge shorter than outer, segment 3 about as long as segment 1, finger-like, arising from about middle of apex of segment 2, orientated slightly inwards (Fig. 33). Mandibles asymmetrical, moderately thin, tip moderately long, inner edge of right hand mandible with a strong anterior tooth, edge behind this tooth uneven, left hand mandible without tooth, mola region with a few small spines (Fig. 33).

Pronotum. Light testaceous with diffuse darker markings. Basic shape semicircular/rectangular; moderately long, about 2x as wide as long, sides broadly but weakly flanged, anterior-lateral angles angularly rounded, front edge slightly curved, weakly hooded, lateral edge weakly curved, hind edge sinuate, weakly beaded. Punctures relatively sparse, no larger than seta base.

Scutellum. Light testaceous; triangular, sides slightly convex, about same length as base.

Elytra. Testaceous with variably distinct dark testaceous – black areas. Sides subparallel, broadest just behind middle; narrowly and sharply flanged. Punctures relatively strong, setiferous, a little less than one puncture width apart, becoming much smaller towards apex.

Ventral surface. Testaceous, darker and lighter in places. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina not reaching much further forward than about front edge of base of procoxa. Pronotal process very narrow between procoxae, narrowly diamond-shaped at tip, sides strongly raised. Metacoxal plates moderately broad, teardrop-shaped. Metafemur moderately thin. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple, elongate (Fig. 68). Trigonium about ¼ length of aedeagus, moderately wide at base, narrowing to bluntly pointed tip; parameroids a little longer than trigonium, broad, basal ½ narrower than apical ½, apex rounded; parameres broad, tips weakly pointed; stylus moderately developed.

Etymology. Latin. ‘Aquilonaris’ – northern. A reference to its geographic distribution.

Notes

The only Pseudomicrocara species with asymmetric mandibles and colour pattern on the elytra, although the colour pattern becomes indistinct in some of the few available specimens and might be absent in some. Within the P. orientalis group its small size separates it from all but P. angulatus which has a uniform dark testaceous colour, slightly wider distance between the edge of the eye and edge of the head, and different male genitalia. The species greatly resembles P. picta in the P. variabilis group from southern closed forest. The presence of a tooth on the right hand mandible and sparse mola spines will separate the two species.

Biology. All the specimens have been caught in flight interceptor traps in closed forest, otherwise nothing is known of its biology.
**Pseudomicrocara hangayi** sp. nov. Figs 18, 37, 63

Holotype. Male. ‘AUSTRALIA Narrabeen’ 3.1.1984 leg G. Hangay’, SAMA.

Paratypes. 154; 4, ‘NSW Narrabeen 17 Dec.1994 MV lt Leg G. Hangay Hangay collection’, AM; 11, ditto except ‘4 Jan 1984’, AM; 6, ditto except ‘19 Dec 1984’, AM; 4, ditto except ‘14 Nov 1984’, AM; 2, ditto except ‘10 Dec 1984’, AM; 3, ‘AUSTRALIA NSW Narrabeen 4.x11.1996 leg G. Hangay’, HUNG; 2, ‘AUSTRALIA NSW Sydney Narrabeen 20–21.1.1994 Z. Korsos & G. Hangay’, HUNG; 2, ‘AUSTRALIA NSW Narrabeen/80 Gondola Dr 7.x1.1983 leg G. Hangay’, 1 HUNG 1 SAMA; 2, ditto except ‘9 x1 1983’, HUNG; 8, ditto except ‘10.x1 1983’, HUNG; 1, ‘AUSTRALIA Narrabeen’ ‘1. x11. 1984 leg G. Hangay’, HUNG; 7, ditto except ‘3.x11 1983’, HUNG; 4, ditto except ‘4. x11 1996’ HUNG; 5, ditto except ‘8.x11 1984’, HUNG; 4, ditto except ‘3.11 1983’, HUNG; 6, ditto except ‘25.x11 1983’, HUNG; 2, ditto except ‘9.x11 1983’, ANIC; 2, ditto except ‘3.11 1984’, HUNG; 6, ditto except ‘22.11.1884’ HUNG; 41, ‘NSW Narrabeen 2 Nov.1990 black light leg. G. Hangay Hangay collection’, AM.

**Description** (number examined, 220)

**Habitus.** Length 4.2 – 5.6 mm. Elongate oval, widest behind middle of elytra, setae soft, relatively short and dense.

**Head.** Testaceous, darker towards the front. Frons extending strongly forward about length of first segment of antenna from front edge of antenna (Fig. 18), anterior margin strongly curved; labrum as wide as front of frons, about 1.5x as wide as long, front edge curved; punctures dense, moderate size, rugose, setiferous; eyes large protruding, distance between eyes about 3.2x width of eye; edge of eye nearly reaching lateral margin of head. Antennae yellow, tending darker towards apex; segment 1 about as long as dorsal width of eye, posterior edge straight, anterior edge curved, about 1.5x as long as wide; segment 2 moderate length, barrel-shaped; segment 3 1.5x as long as segment 2, narrowing towards base; segment 4 a little wide than segment 3 and about 1.2x as long, weakly narrowing towards base; segments 5 – 11 subequal, about same length as segment 4. Maxillary palpi pale, elongate; segments 2 & 4 equal in length, segment 3 a little shorter; segment 4 narrower and more cylindrical than segment 3. Segment 1 of labial palpi moderately thick, expanding towards apex; segment 2 broader, outer edge a bit longer than inner; segment 3 a little longer, thinner, finger-shaped, arising from middle of apex of segment 2, orientated forwards (Fig. 37). Paraglossa moderately wide, front edge nearly straight (Fig. 37). Mandibles symmetrical, broad, tip very short, inner edge smooth; mola region without short spines (Fig. 37).

**Pronotum.** Testaceous with darker markings. Basic shape semicircular, relatively long, about 1.8x as wide as long, sides weakly flanged, anterior-lateral angles smoothly rounded, front edge hooded, straight or weakly curved, lateral edge curved, hind edge sinuate, weakly beaded. Setae dense, arising from centre of small circular mounds.

**Scutellum.** Testaceous. Triangular, lateral sides a little longer than base, slightly sinuate; sculptured as on pronotum.

**Elytra.** Testaceous with vague darker mottling, sutural region narrowly outlined in black. Sides slightly pinched behind shoulders, slightly broader behind middle, narrow and sharply flanged. Punctures setiferous, relatively small, most more than one puncture width apart, somewhat less dense and about same size as mounds on pronotum.
**Ventral surface.** Light testaceous, slightly darker and lighter in places. Pronotal process very narrow between procoxae, narrowly teardrop-shaped at tip. Pronotal epipleura moderately broad, weakly concave, outer bifurcation of inner carina not reaching much beyond base of procoxa, inner bifurcation moderately strong, nearly reaching outer edge of pronotum. Metacoxal plates relatively short, teardrop-shaped, hind edge sinuate. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

**Male.** Aedeagus moderately complex (Fig. 63). Trigonium about 1/3 length of aedeagus (base poorly distinguishable from rest of aedeagus), broad, dorsally concave, a sharp downward pointing projection on each side in middle, tip bifid, downwardly curved; parameroids a little shorter than trigonium, apexes consisting of two strong, upwardly curved spines; tegmen weakly chitinized, parameres moderately wide, same width along length, tips rounded, outer edges rugose; stylus well developed.

**Etymology.** Named after George Hangay who collected many of the specimens.

**Notes**
A taxonomically isolated species. *Pseudomicrocara hangayi* is readily recognized from similar sized species by its elongated muzzle with the frons extending about the length of the first antennal segment forward from the base of the antenna. The long, narrow mandibles, which lack teeth or spines in the mola region and the aedeagus are distinctive.

**Biology.** Adult specimens have been collected in closed forest, heathland, sclerophyll forest and alpine forest. I have collected larvae in a shallow swamp at Narrabeen from amongst dead leaves and detritus in very shallow pools. Superficially they resemble the larvae of *P. orientalis.*

**Additional specimens examined**

**New South Wales.** 1, ‘Bonville, N.S.W. 30.23S 153 64E 15.x11.1968 light trap. P. B. Carne’, ANIC; 1, ‘Calsll Dune Kurnall Penins. NSW 10 1x 83’ ‘S.G Watkins Collection donated 2001’, ANIC; 1, ‘AUSTRALIA NSW Great Dividing Range Mt Coricudgy, 941 m’ ‘S32. 50 E150. 17 28–29 X1 2000 Leg A. Podlussany’, HUNG; 2, ‘NSW 3km NE Harrington 28.Oct.1990 ex litter rainfor G. Williams’ ‘on Scolopia blossoms’, AM; 1, ditto except ‘28 Feb.1992’ ‘on Alphitonia excelsa blossom’, AM; 1, ‘littoral rainforest at Harrington, E Taree NSW 29.xi 1994 m.v.light S. Watkins’, ANIC; 1, ‘Harrington. NSW 13 Oct. 1979 G&T Williams in heath land’, AM; 2, ‘3–5 km NE Harrington 3.Feb.1998 G. A. Williams ex rainforest’ ‘on Alphitonia excelsa blossom’, AM; 2, ‘NSW 3km NE Harrington; littoral rainfor, G. Williams 12. Feb 1992’, AM; 1, ‘Mt. Kaputar Bullawa Cr. 23 Nov 1984 leg. G. Hangay Hangay collection’, AM; 1, ‘AUSTRALIA SE NSW Kosciusko N.P. Smidgins Hole, 1800 mm’ ‘at light 15.1.1981 leg Hangay & Vojnite’, HUNG; 1, ‘AUSTRALIA, NSW Manly Dam Reserve/Sydney / 9.1x.1983 leg G. Hangay’, HUNG; 1, ‘6mi, ESE of Nelson Bay N.S.W. at light. 29.x1.67 Britton & Misko’, ANIC; 3, ‘AUSTRALIA. NSW Taree1999.1.24 leg A. Podlussany’, HUNG; 3, ‘Yuragir NP NSW Station Creek 20Nov./E.Doyen’, ANIC. **Queensland.** 2, ‘Barron Falls Kuranda QLD 14.x1.64 at light J. C. Brooks’, ANIC; 1, ‘Cow Bay, N of Daintree R., N. Qld. 18–25.1/1984 Storey & Cunningham’, DPIM; 1, ‘Boar PKT N.Q. 10/70 G.B’, ANIC; 3, ‘Boar pocket RD N.Q. J. G. Brooks at light’, ANIC; 3, ‘Boar Pkt RD 5m N GILLIES H’WAY.N.Q. 13. 02.69 J E Brooks AT LIGHT’ ‘Q 732’, ANIC; 2, ‘Australia; n. Qld Danbulla S.F., 13 km NE of Yungaburra 21.x11.1986 Storey & De Favari’, DPIM; 1, ‘Eubenangee N.Q. 12/49’, ANIC; 6, ‘Jubilee Rd. 41/2 mi NE of Innisfail, N.Q. rainforest, 4.x1.66 E. Britton’, ANIC; 1, ‘Mt Coolum, Q. 26.33S 152.05E 15.x11.68 at light Britton & Misko’, ANIC; 3, ‘Russell R at Bellenden Ker Landing N.Q. 5m 24 Oct – 9 Nov. EARTHWATCH/QLD. MUSEUM’, ANIC; 2, ‘3 mi. W of Mourilyan N.Q., sandy soil at light 5.x1.66. E Britton’, ANIC; 3, ‘Mourilyan N.Q. 8.11.66 J, G.B’, ANIC; 3, ‘3 m E Mourilyan 5.11.66 J. G. B’, ANIC; 13, ‘W. slope of Seymour Ra N.Q. Dinner Ck Rd., nr Innisfail; at light 3.x1.66 E. Britton’, ANIC.
Pseudomicrocara olliffi (Blackburn). Figs 25, 26, 35, 66
Helodes olliffi Blackburn, 1892
Pseudomicrocara olliffi (Blackburn, 1892); Armstrong, 1953

Holotype. Male, left hand specimen on card with red ‘1203’ and a black ‘T’ under specimen, round red ‘TYPE’ label, ’Blackburn Coll 1910–236’ ‘Helodes olliffi Blackb’, BMNH.

Paratype. As for holotypes and mounted on same card, BMNH.

Description (number examined, 244)

Habitus. Length 4.4 – 7.4 mm. Narrowly oval, widest behind middle of elytra, setae thin, relatively soft, moderate long and dense.

Head. Testaceous. Frons extending forward about length of first segment of antenna from front edge of eye, anterior margin curved; labrum as wide as frons, about 2.2x as wide as long, front edge weakly curved; punctures small, setiferous, eyes moderate size, distance between eyes about 3.8x width of eye; edge of eye 1.5 – 2.0x width of eye facets from lateral margin of head. Antennae dark testaceous; segment 1 about as long as width of eye, posterior edge straight, anterior edge curved, about 1.6x as long as wide; segment 2 small, vase-shaped; segment 3 about 1.5x as long, elongate/triangular; segment 4 a little wider than segment 3 and a little shorter, narrowing towards base, segments 5 – 11 subequal, about same length as segment 4, becoming progressively slightly longer and narrower towards apex (Figs 25, 26). Maxillary palpi yellow; segments 2 – 4 subequal in length, segment 4 narrower and more cylindrical than segment 3. Labial palpi moderately elongate, segment 1 relatively thin, expanded towards apex, segment 2 broad, outer edge longer than inner, segment 3 much narrower than segment 2, finger-shaped, arising slightly inwards of centre on apex of segment 2, orientated weakly inwards (Fig. 35). Paraglossa very wide, anterior edge moderately bilobed (Fig. 35). Mandibles asymmetric; right hand one broad, tip short, small tooth on inner edge near to inner edge behind tooth smooth, mola region with small area of small, stout spines; left hand mandible similar but without tooth (Fig. 35).

Pronotum. Testaceous-yellow with vague darker markings. Basic shape semicircular or weakly rectangular, relatively short, about 2x as wide as long, sides not or only weakly flanged, anterior-lateral angles smoothly rounded, front edge slightly sinuate, slightly hooded, lateral edge weakly rounded, hind edge sinuate, weakly beaded, central ¼ straight. Punctures as on head.

Scutellum. Testaceous; sub triangular, densely rugose-punctate.

Elytra. Testaceous-yellow with vague darker mottling, sutural region a little lighter. Sides slightly pinched behind shoulders, broader behind middle, narrow and sharply flanged, two - three very weak, longitudinal broad ridges. Punctures setiferous, moderately strong, a little more than those on pronotum.

Ventral surface. Testaceous, slightly darker and lighter in places. Pronotal process very narrow between procoxae, narrowly oval at tip, tip expanded dorsal/ventrally; pronotal epipleura broad, weakly convex, outer bifurcation of inner carina not reaching much beyond base of procoxa. Metacoxal plates relatively narrow, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus simple (Fig. 66). Trigonium a bit less than 1/3 length of aedeagus, relatively broad at base, very narrow in apical 1/2, tip rounded; parameroids large, broad, narrowing near apex to rounded tip; tegmen rather short, parameres broadly triangular, tips pointed; stylus well developed.

Female. A shallow arc of dense setae at apex of ventrite 4. Segment 4 of antenna often expanded to varying degrees on outer apical angle, this enlargement sometimes present on other antennal segments.
Notes
A moderately large, relatively flat, uniformly testaceous species with slightly ridged elytra. *Pseudomicrocara olliffi* resembles *P. orientalis* except for the long third antennal segment (Figs 25, 26), presence of an arc of denser setae on ventrite 4 in the female (Fig. 19), the large area of small, stout spines in the mola region of the mandible (Fig. 35) and in the male genitalia. The sexual difference in the antennae and the abdomen are unusual for *Pseudomicrocara*.

Biology. I have reared this species from larvae found in dead leaves at the side of spring/summer pools in small creeks in South Australia and Victoria and from a shallow roadside pool in SW Western Australia. Many specimens have been collected at light or sweeping littoral vegetation. None has been taken on flowers. The larvae occur typically with those of *P. orientalis* as well as those of *P. atkinsoni* and *Scirtes helmis*.

Additional specimens examined

**New South Wales.** 5, ‘NSW Deniliquin Gulpa Is SF Col 18–19 Nov 1991 C. A. P. Urquhart P. Hewat’, ANIC; 2, ‘Hay, NSW (34.30S 144.51E) 8 km W 14.xii.70 river bank at light Britton, Misko, Pullen’, ANIC. **South Australia.** 1, ‘Adel S. Australia R. J. Burton’, SAMA; 1, ‘S. Aust. Bordertown 5 Dec 1975 P. B. McQuillan at light’, SAMA; 2, ‘S.AUST Box Flat at light Ngarkat CP 18th Nov 1991 J. A. Forest’, SAMA; 1, ‘S.AUST 5 km NE Coonalpyn at light 18 Nov 91 J. A. Forrest’, SAMA; 1, ‘S.AUST Currency Ck Stuarts Bridge 35.26S 138.43E Water Quality Survey 3924’, SAMA; 1, ‘S. AUST KI Cygnet r. crossing 17 km w Kingscote under Euc. camaldulensis. 3 Nov 1987 G. F. Gross’, SAMA; 1, ‘S.AUST KI Flinders Chs 4 km W Rocky River at light 6 Nov 1990 E. G. Matthews J. A. Forrest’, SAMA; 1, ‘5 miles E Mt Burr, S.A. 9 Nov 1966 I. F. B. Common & M. S. Upton’, ANIC; 2, ‘Myponga S. Australia A. H. Elston’, AM; 30, ‘Naracoorte Cave Reserve 28–29 Oct 1958 G. F. Gross’, SAMA; 3, ‘30 mls inland from Robe SA 28 Oct 1958 G. F. Gross’, SAMA; 1, ‘S. Aust, 8 km W Pt Lincoln ’Duck Ponds’ sweeping around swamp area 27 Nov 1986 J. A. Forest’, SAMA; 7, ‘3–5 miles NW of Port Lincoln, SA 3 Jan 1967 M. S. Upton’, ANIC; 8, ‘S. Aust Scorpion Springs C.P.0. 5 km S.W. Nanam’s Well At light. 17 Dec 1983 Museum Party’, SAMA; 2, ‘Tararatap Stn At MV light trap 23 Jan 1965 P. Aitkin N. B. Tindale’, SAMA; 1, ‘S.AUST. Tatiara Ck Bordertown racecourse 36.18S 140 46E 25 Oct 1995 Water Quality Surv. 3065’, SAMA. **Tasmania.** 2, ‘2 k W Fingal 23.1.00 C. H. S. Watts’ (bred), SAMA. **Victoria.** 11, ‘Dimboola, Vic Caravan Park, light trap 18 xi. 73 S. Misko’, ANIC; 10, ‘6 km NW of Hamilton, Vic Grampians State Forrest 18.xi.73 S. Misko’, ANIC; 5, ‘AUSTRALIA VIC Mnt Widdern Stn. Skipton 15.xi.1964 K. G. Simpson Light’, ANIC; 3, ‘35.04S 143.11E 11km W Piangit VIC. 27 Oct 1983 D. Rentz, M. Harvey’, ANIC; 3, ‘34.35S 132.46E VIC Robinvale 25 Oct–3 Nov 1988 T. Weir, J. Lawrence & M. Hansen’, ANIC; 2, ‘36.37S 141.39E 31 km S Nhill VIC 26 Oct 1983 D. Rentz, M. Harvey Stop 41’, ANIC; 4, ‘at light Traralgon Vic. 24–25 Oct 1966 E. Hamilton-Smith’, SAMA; 2, ‘34.50S 142.34E VIC. 7.3 km SW of Wemen 25 Oct–3 Nov 1988 T. Weir, J. Lawrence, M. Hansen’, ANIC; 1, ‘35.35S 142.05E Wyperfeld National Park Vic., Lowan Track, light trap 16.xi.73, S. Misko’, ANIC; 1, ‘35.37S 142.01E Wyperfeld National Park Vic. Frew’s Plain, at light 15–17.xi.73 S. Misko’, ANIC. **Western Australia.** 2, ‘6 k NW Kendenup 6/9/00 C. H. S. Watts’, (bred) SAMA.

*Pseudomicrocara orientalis* Armstrong. Figs 17, 29, 34, 62, 92

*Lectotype.* Male, left hand specimen of 2 mounted on same card, ‘Gloucester NS Wales 1934 H. J. Davidson’, blue label ‘Holotype’ ‘Pseudomicrocara orientalis Armst id J. Armstrong’,’ ANIC. Herein designated. (There is no indication that Armstrong considered this specimen, rather than the
right hand one, as the holotype other than his identification label and that the specimens are the only ones among the syntypes to come from Gloucester which he gives as the type locality.)

*Paralectotypes.* 14; 1, male, same data as lectotype, mounted on same card, ANIC; 3, dissected and mounted on same pin. 'S.W.A. HJC 12–13' ‘H. J. Carter Coll P. 20.4.22’ ‘Pseudomicrocara orientalis Armst id by J. Armstrong’, blue label ‘Paratype 453–455’ (*P. occidentalis* Armstrong), MV; 2, same card, ‘Gosford NSWales’ ‘H. J. Carter Coll P. 20.4.22’, blue label ‘Pseudomicrocara orientalis Armstrong id by J. Armstrong’, blue label ‘Paratype 463–464’ ‘Pseudomicrocara spec 3 right specimen, spec 4 left specimen det P. Zwick 1972’, (right hand specimen *P. orientalis* Armstrong; left hand specimen *P. hangayi* sp. nov.), MV; 2, on same card ‘14’, blue label ‘Paratype’ ‘Pseudomicrocara orientalis Armst id by J. Armstrong’, blue label ‘Paratype’ ‘Pseudomicrocara spec 4 det P. Zwick 1972’ (both *P. orientalis* Armstrong), MV; 1, ‘Gosford 10.03 HJC’ H. J. Carter Coll P. 20.4.22’ ‘Pseudomicrocara orientalis Armst. Id by J. Armstrong’, blue label ‘Paratype 462’ ‘Pseudomicrocara spec 3 det P. Zwick 1972’ (*P. hangayi* sp. nov.), MV; 1, ‘Bendigo 6.10.23’, blue label ‘Paratype’ ‘18’, blue label ‘Paratype 465’ (*P. orientalis* Armstrong), MV; 1, ‘Woy Woy 4 Oct’ 25 Nicholson’, blue label ‘Paratype’ ‘Pseudomicrocara orientalis Armst. Id by J. Armstrong’ (P. hangayi sp. nov.), ANIC; 1, ‘Clarence R. NSW Lea’, blue label ‘Paratype’ ‘Pseudomicrocara orientalis Armst. Id by J. Armstrong’ (P. orientalis Armstrong), ANIC; 1, ‘Comboyne NSW J. Armstrong’, blue label ‘Paratype’ ‘Pseudomicrocara orientalis Armst. Id by J. Armstrong’ (female, lacking antennae, probably *P. orientalis*), ANIC; 1, ‘T’ FIELD 12/43’, blue label ‘Paratype’ ‘orientalis Armst 39’ (female, lacking antennae, probably *P. orientalis* Armstrong), ANIC.

**Description** (number examined, 105)

**Habitus.** Length 5.0 – 7.1 mm. Elongate oval, setae moderately stiff, relatively long and dense.

**Head.** Testaceous. Frons extending weakly forward about width of first antennal segment from front edge of antennal base (Fig. 17), anterior margin slightly curved; labrum narrower than front of frons, about 1.6x as wide as long, front edge weakly curved; moderately covered in small granules; eyes relatively large, distance between eyes about 3x width of eye; edge of eye about width of two eye facets from lateral margin of head. Antennae dark testaceous, areas near joints of segments lighter; segment 1 about 2/3 as long as width of eye, posterior edge straight, anterior edge curved, about 1.6x as long as width; segment 2 small, barrel-shaped; segment 3 about as wide and a little longer, weakly triangular; segment 4 wider than segment 3 and 1.8 to 2.2x as long, narrowing slightly towards base, segments 5 – 10 subequal, about same length as segment 4, cylindrical, segment 11 about same length or a little longer than segment 10 (Fig. 29). Maxillary palpi thin, yellow; segments 2 – 4 subequal in length, apical segment conical, usually a little shorter than penultimate. Segment 1 of labial palpi narrowly vase-shaped; segment 2 broad, widening towards apex, outer edge longer than inner; segment 3 narrower, finger-shaped, arising from middle of apex of segment 2, orientated inwards (Fig. 34). Paraglossa very broad, front edge sinuate (Fig. 34). Mandibles asymmetric, right hand one relatively broad, tip moderately long, moderate sized tooth on inner edge towards tip, inner edge behind tooth rough, mola region without or with very few small spines; left hand mandible lacking tooth (Fig. 34).

**Pronotum.** Dark testaceous. Basic shape rectangular to moderately semicircular; relatively long, about 2.1x as wide as long, sides weakly but quite widely flanged, anterior-lateral angles rounded, front edge hooded, straight, sides weakly curved, hind edge sinuate, sharply beaded. Punctures varying from setae-sized to small granules with many specimens having both, sculpture a little stronger towards sides.

**Scutellum.** Dark testaceous. Equilateral triangle, sides slightly sinuate, sculptured as on prothorax.

**Elytra.** Dark testaceous to testaceous-yellow, sutural region a little lighter. Sides slightly pinched behind shoulders, slightly broader behind middle, narrow and sharply flanged, two - three very weak, longitudinal broad ridges on each elytron with a weakly marked sutural groove. Punctures
even, varying between specimens from a little larger than seta bases to about 2.5x setae bases, about size of granules on pronotum or a little larger.

**Ventral surface.** Dark testaceous, slightly darker and lighter in places. Pronotal process very narrow between procoxae, oval/diamond shaped at tip, anterior edges strongly margined. Pronotal epipleura broad, concave, outer bifurcation on inner carina not reaching much beyond base of procoxa. Metacoxal plates moderately short, broad, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

**Male.** Aedeagus relatively simple (Fig. 62). Trigonium short, about 1/5 length of aedeagus, broad, sides upturned particularly towards tip, tip weakly but distinctly bilobed, spinose on inside; parameroids broad, reaching to about tip of trigonium, weakly bilobed at tips; tegmen shorter than aedeagus, parameres broad, tips somewhat truncated; stylus well developed.

**Notes**

The type species of the genus, *P. orientalis* is a moderate to relatively large, elongate, uniformly testaceous species with feint ridging on the elytra, relatively large eyes and without or only a very few small spines on the mola region of the mandible. It closely resembles *P. olliffi* with which it is broadly sympatric. Separated from this species by the shorter third antennal segment, lack of mola spines and broader, scoop-like apex to the trigonium. *Pseudomicrocara orientalis* also lacks the sexual polymorphisms in the antenna and ventrite 4 present in female *P. olliffi*, although there is a suggestion that the antennae in the females are thinner and longer than in the males.

**Biology.** Widespread in sclerophyll forests in Eastern Australia including Tasmania. The larvae are found, often together with those of *P. olliffi* and *Scirtes helmis* or *S. exoletus* Waterhouse, in dead leaves at the sides of forest pools, farm dams and spring/summer pools in small creeks. Adults have most often been collected at light or in flight interceptor traps. None has been taken on flowers.

**Additional specimens examined**

**Australian Capital Territory.** 1, ‘36.16 S 149.06E ACT Black Mtn 600m J. F. Lawrence ex light trap’, ANIC; New South Wales. 1, ‘Albury NSW 26 Jan 1967 E. F. Riek’, ANIC; 2, ‘28.43S 153.37E Broken Head Nature Reserve 8 km S Byron Bay NSW 23 Nov. 1976 I. F. B. Common & E. D. Edwards’, ANIC; 2, ‘Lots 72,73 148 Caparra NSW 24.xi.1995 mv light S. Watkins’, ANIC; 1, ditto ‘10.iv.90’, ANIC; 1, ‘Comboyne N.S.W. J. Armstrong’, ANIC; 6, ‘35.58S 150.09E Congo, 8 km SE by E of Moruya NSW 8 Feb 1981 M. S. Upton’, ANIC; 1, ‘4 miles SW of Gosford, NSW 30 Mar. 1965 I. F. B. Common & M. S. Upton’, ANIC; 2, ‘36.13S 148.06E NSW Khancoban, below Khancoban dam, 300m 831 13 Feb 1987 A. Newton & M Thayer’, ANIC; 2, ‘LORIEN W. R. 3 km N Lansdowne/Taree NSW 10–17 Jan 1988 G. Williams, ex r/f margin, malaise trap’, ANIC; 1, ‘AUSTRALIA Narrabeen/80 Gondola RD’ ‘6.xi.1983 leg G. Hangay’, AM ; 2, ‘Narrabeen 2 Nov 1990 Black Light leg, G. Hangay Hangay collection’, AM; 1, ditto except ‘10 Dec 1984’, AM; 1, ‘AUSTRALIA Narrabeen 25.xii.1983 leg. G. Hangay AM; 3, ‘5 miles W. of Port Macquarie NSW. 28 3.165 15.537E M. S. Upton’, ANIC; 1, ‘3 mls.S.S.E. Pt Macquarie N.S.W. 15.v.66 M. S. Upton’, ANIC; 1, ‘Waldron’s swamp nr Moruya NSW 18 Oct 1979 M.S.Upton’, ANIC; 1, ‘Wootton, NSW 25 km N of Bulahdelah 6 Nov 1986 R. B. Halliday, COLL. AT LIGHT’, ANIC; 1, ‘28.52S 153.24E 2 km NEbyE of Rous Mill NSW 18 Nov.1976. F. B. Common & E. D. Edwards’, ANIC; 3, ‘Sydney’, ANIC; 1, ‘Tomakin Beach, NSW, 26 Oct 1982 sand dunes at night J. F. Lawrence’, ANIC; Queensland. 1, ‘7 km S Atherton Wongabel forest 27.xii.1986 H & A Howden’, ANIC; 1, ‘Baldwin Swamp Fauna Reserve Bundaberg Qld. 1–6.vii.1971 H. Frauca’, ANIC; 1, ‘Boar Pkt N.Q. 10/71 GB’, ANIC; 4, ‘Broken River, Q 59 mi of Mackay 29.xi.1968 rainforest, at light Britton & Misko’, ANIC; 1, ‘Qld Beaury Creek 6 km W Woodenbong 28 24 09S 152 32 18E CHS Watts 25.8.04’, SAMA; 2, ‘Qld. Coomera Rv 20 km SE Canungra 28 8 55S 153 9 47E CHS Watts 24/8/04’, SAMA; 5, ‘Australia n. Qld. Danbulla S.F.via Yungaburra 13.11.1992 Story DeFavert, Huwer’, QPIM; 1, ‘Evelyn, NQ., 7 mi N of Ravenshoe 10. xi., 68 oil bath trap R. J. Elder’, ANIC; 1, ‘8km W Kuranda NQ 23 Dec 1986 H & A Howden
malaise trap’, ANIC; 1, ‘AUSTRALIA n Qld Mitchell R via Mt Carbine 20.1 1984 R. I. Storey at light’, QPIM; 1, ‘Nardellos Lagoon nr Mareeba Qld 29.3.96 C. Watts’, SAMA; 1, ‘AUSTRALIA n Qld. 15 km NW of South Johnston Light trap 9.8.1980 Fay & Halfpapp’, QPIM; 1, ‘AUSTRALIA n. Qld 13 Sept 1978 R. I. Storey on Avocado flowers’, QPIM; 1, ‘Walkamin N Qld 16.iv.1984 J. D. Brown Light trap’ QPIM; 2, ditto except ‘27.1.1984’, QPIM; 3, ditto except ’7.ix.1983’, QPIM; 1, ditto except ‘20. 3 1984’, QPIM; 1, ditto except ‘3. 2. 1984’, QPIM; 1, ditto except ‘22 xii 1983’, QPIM; 1, ‘AUSTRALIA N.Qld Wongabel S F via Atherton 19.3 1993 Storey, Huwer & Waite’, QPIM; 1, ‘AUSTRALIA N Qld.Tinaroo Ck via Mareeba 21.x.1991 Deaveri, Huwer Storey’, QPIM; 3, ‘9 km SE of Yeppoon Q 20–30 x 1975 I.F.B.Common’, ANIC. South Australia. 1, ‘S Aust K I Cygnet Park Cygnet River under bark 3 Nov 1987, D. Hirst’, SAMA; 1, ‘SA 10 k E Mt Compass 10/9/97 C. Watts’, SAMA; 2, ‘Mt Gambier July 1959 C Watts’, SAMA; 1, ‘S Australia Wilpenna 1–5–80 R. M. Bohart Col’, ANIC; 2, ‘Wilpena pound SA June 59 C.W’. SAMA. Tasmania. 1, ‘Hobart Tas 8.61 C.W’, SAMA; 1, ‘Launceston TAS C. Watts’, SAMA; 2, ‘41.36S 145.41E TAS Murchison Hwy, State Res. Murchison Hwy/Que R. Mine Rd 680m 907 11–27 Jan 1993 A. Newton & M Thayer’, ANIC; 1, ‘Strahan Tasmania J. Armstrong’, ANIC. Victoria. 3, ‘Melbourne Aug 1959 C.W.’, SAMA; 1, ‘nr Porepunkah VIC 18 Jan 1980 uv light A. Newton’, ANIC.

Pseudomicrocara sepiasimulatus sp. nov. Fig. 65

Holotype. Male, ‘36.13S 148.05E NSW Khancoban, below Khancoban dam 300m 831 13 Feb. 1987 A.Newton & M.Thayer’, ‘dry scler along river FMHD #87–255 UV light’, ANIC.

Paratypes. 2; 1, ‘36.42s 146.55E VIC Porapunkah Ovens R.300m, ‘837, 12 Feb.1987 A.Newton & M Thayer UV light nr river’, ANIC; 1, ‘AUSTRALIA, Tas. Bruny Island 25.1.1984 leg G.W.Bornemissza’, ANIC.

Description (number examined, 3)

Habitus. Length 5.6 – 6.2 mm. Elongate/oval, sides of elytra subparallel, setae relatively soft, moderate long and dense.

Head. Light testaceous with darker mottling. Frons extending forward by about the thickness of segment 1 of antenna from front edge of base of antenna, anterior margin slightly curved; labrum nearly as wide as frons, about 3x as wide as long, weakly depressed towards front in middle giving front margin a slightly sinuate look; relatively densely covered with small setiferous granules; eyes relatively small, distance between eyes about 3.7x width of eye; edge of eye separated from lateral margin of head by width of about three eye facets. Antennae light testaceous; segment 1 a little shorter than dorsal width of eye, posterior edge straight, anterior edge weakly curved, about 2x as long as wide; segment 2 small, about one third as long as segment 1, barrel-shaped; segment 3 about 1.7x as long as segment 2, weakly triangular; segment 4 wider than segment 3 and 2.0 – 2.5x as long, weakly narrowing towards base; segments 5 – 11 subequal, about as long as segment 4, becoming progressively slightly longer and narrower towards apex. Maxillary palpi yellow; segments 2 – 4 sub-equal in length, segment 4 narrower and slightly conical. Paraglossa broad, front edge sinuate; segment 1 of labial palpi relatively stout, expanded towards apex, segment 2 a little shorter, broadly triangular, inner edge shorter than outer, segment 3 a little longer than segment 2, narrowly cylindrical, arising from middle of apex of segment 2, strongly orientated inwards. Mandibles symmetrical, moderately broad, inner edge with relatively small anterior tooth, edge behind this tooth a little uneven, mola region with moderately large area of small, stout spines.

Pronotum. Light testaceous with vague darker markings. Basic shape rectangular to semicircular; relatively short, about 2x as wide as long, sides broadly but weakly flanged, anterior-lateral angles smoothly rounded, front edge straight slightly hooded, lateral edge moderately curved, hind edge strongly sinuate, weakly beaded. Punctures setiferous, moderately large, shallow, almost confluent.
Scutellum. Light testaceous; sub triangular; punctures as on disc of pronotum.

Elytra. Testaceous, sutural region sometimes lighter. Sides subparallel, broadest just behind middle, narrowly and sharply flanged, very weak in posterior half, two - three very weak, longitudinal, broad ridges. Punctures setiferous, size moderate, almost confluent, a little stronger than those on pronotum.

Ventral surface. Testaceous, slightly darker and lighter in places. Pronotal epipleura broad, weakly concave, inner carina not reaching much further forward than about front edge of base of procoxa. Pronotal process very narrow between procoxae, weakly diamond-shaped at tip, sides raised, tip turned downwards. Metaxocnal plates relatively long, teardrop-shaped. Metafemur moderately thick. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus relatively simple (Fig. 65). Basal piece narrow; trigonium about ½ length of aedeagus, broad at base, evenly narrowing to sharp upward pointing tip; parameroids much shorter than trigonium, broadening considerably to truncated apex; parameres broad, tips rounded; stylus moderately developed.

Etymology. Latin. ‘Simulatus’- to imitate. A reference to the similarity of the aedeagus to a cuttlefish (Sepia) ‘bone’

Notes

Close to P. atkinsoni in general facies, in the form of the male genitalia, relatively rectangular pronotum, and in the relatively large area of spines on the mola region of the mandible. Pseudomicrocara sepiasimulatus can be separated most readily from other P. orientalis group species by the sharply pointed trigonium and the left hand mandible which often has a moderate sized tooth. In general it is rather larger than P. atkinsoni and differs in having faintly raised ridges on the elytra; from P. olliffi it can be separated by its relatively short third antennal segment; from P. orientalis by its relatively large area of small spines on the mola region of the mandible and generally less elongate form. The sharp beak-like shape of the trigonium is typical of the P. cinctus species group, although in P. sepiasimulatus the tip is curved upwards rather than downwards. This appears to represent a character convergence.

Biology. A little know, widespread species from dry sclerophyll forest in South East Australia and Tasmania. The larvae are unknown.

Pseudomicrocara cinctus species group

A group of moderate sized species grouped together by quite strongly toothed mandibles, clearly rectangular pronotums and distinctive, relatively complex male genitalia without styli. The trigonium is strongly beaked-shaped, or in P. hylaios and P. bawbawensis, blade-shaped, with rather simple parameroids but usually quite complex multilobed parameres. Within the group the species fall into four groupings, the species within which are only reliably identifiable by the form of the male genitalia. A group of two species, P. conniculatus and P. dasys, have a large distance between the edge of the eye and the edge of the head, labial palpi with the apical segment strongly orientated inwards and relatively simple tegmens. In these characters they resemble the P. davidsoni group but the male genitalia are more typical of the P. cinctus group and I have placed them here. A group of five species, P. bawbawensis, P. beccus, P. buspinosus, P. cinctus and P. wongabelensis are uniformly testaceous except for the paler sutural region of the elytra and have relatively simple tegmens; a group of four species, P. hylaios, P. lamingtonensis, P. serratus and, P. thunguittiensis with creamy, enamel-like areas on the elytra and complex multilobed (parameres) tegmens; and P. costellifera with costate elytra.

Biology. None of the species in the group are common in collections and several species are known from only one - four specimens. All, apart from one specimen from Burnie, Tasmania, are from forested areas of the East Coast. All of those whose collecting details are given were caught at light
or in flight intercept traps. None has been recorded from flowers or even beating vegetation. The larvae are unknown. There is nothing in the collecting notes to suggest that they were collected near water and it is possible that the larvae are not strictly aquatic. The rather large number of species known from very few individuals suggests that further species remain to be discovered.

**Pseudomicrocara bawbawensis** sp. nov. Fig. 80

*Holotype.* Male. ‘nr Old Hut Creek NSW 58.97747N 557.47156E J & R Miller 12.10.97’, SAMA.

*Paratypes.* 6; 1, ‘37.51S 146.15E VIC Baw Baw Alpine Res 1.2km NE Naulynes Mill 1145m 816 29 Jan–10 Feb. 1987 A. Newton & M. Thayer’ ‘Wet scler. Notth cunn. FMNH # 87238 flight intercept trap’, genitalia on slide, ANIC; 1, ‘37.43S 145. 42E Cement Ck. 5km N of Warburton V. 17 Jan 1978 Lawrence & Weir’, head and genitalia on slide, SAMA; 1, ‘Menga State Forest nr Braidwood NSW 27 Sept. 1987 J. F. Lawrence’, ANIC; 1, ‘AUSTRALIA VIC. Mt Donna Buang summit 1250m 14–17 Jan 1980 Euc. Woodland A. Newton & M Thayer’, ‘dusk at light’, ANIC.

*Description* (number examined, 7)

As for *P. cinctus* except as follows. Length 5.5 – 7.0 mm.

*Pronotum.* Moderately densely covered with small granules, larger towards sides.

*Scutellum.* Granules as on disc of pronotum.

*Elytra.* Occasionally with two - three very weak, longitudinal broad ridges.

*Male.* Aedeagus relatively complex (Fig. 80). Trigonium about ½ length of aedeagus, very narrow, parameroids longer than aedeagus, dorso/ventrally broad, relatively even width along length, tips rounded; tegmen well chitinized, basal dorsal portion extensive, apical portion bilobed (parameres), lobes partially wrapped around aedeagus, narrowing to round tips; without stylus.

*Etymology.* A reference to the locality in which it was caught.

*Notes*

*Pseudomicrocara bawbawensis* can only be reliably separated from *P. cinctus, P. buspinosus* and *P. sepiasimulatus* by the simple, elongate parameroids and simple, sharply pointed parameres. The eyes appear to be slightly smaller in *P. bawbawensis* with a little greater distance between their edges and the edge of the head. Generally a little larger than *P. cinctus* and *P. buspinosus* and more southerly in distribution. Tergites 8 and 9 are elongate and strongly sclerotonised, sternite 9 appears to be trilobed. Since, due to the age and small numbers of most *P. cinctus* species group, I am unable to say if these are specific to *P. bawbawensis* or are a feature of the *P. cinctus* species group.

*Biology.* All specimens have been collected from wet sclerophyll forest in Southern New South Wales and Eastern Victoria.

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**Pseudomicrocara beccus** sp. nov. Fig. 79

*Holotype.* Male. ‘Wongabel State Forest, N.Qld. 7 May 1967 D.H.Colless’, ANIC.

*Paratype.* 1, ‘Australia n Qld Davies Ck., 22 km WSW of Mareeba Malaise T 6.xi-2.xii 1984 Storey & Halfpapp’, QPIM.

*Description* (number examined, 2)
As for *P. cinctus* except as follows. Length 4.6 – 5.6 mm. Oval; setae moderately soft, moderate short and dense.

**Male.** Aedeagus relatively simple for group (Fig. 79). Trigonium relatively narrow, slightly wider in middle, tip sharply pointed, beak-like, curved downwards, in lateral view relatively even width and curvature until close to tip which is sharply pointed; parameroids robust, longer than trigonium, thin in dorsal view, in lateral view broad with rounded apex; tegmen broad in basal 1/3, parameres longer than parameroids, with sharp dorsal ridge, broad in lateral view, relatively flimsy.

*Etymology.* Latin. ‘Beccus’ – beak. A reference to the beak-like trigonium.

*Notes*  
Separated from *P. cinctus, P. bawbawensis, P. wongabelensis* and *P. buspinosus* only by the sharply pointed, beak-like trigonium and long, broad, parameres. On the limited evidence of the known specimens a somewhat smaller species than *P. cinctus* and *P. bawbawensis* and a little smaller than most *P. buspinosus*. Apart from male genitalia almost identical to *P. wongabelensis* which is found at the same locality. All specimens from wet sclerophyll forest in North Queensland.

*Pseudomicrocara buspinosus* sp. nov. Fig. 77  

**Holotype.** Male. ‘Wauchope, NSW, (31.27S 152.44E) 72km W on Oxley Highway, 4.1.70 wet sclerophyll, at light. Britton & Misko’, ANIC.

**Paratypes.** 2, ‘Wauchope, NSW, (31.27S 152.44E) 72km W on Oxley Highway, 4.1.70 wet sclerophyll, at light. Britton & Misko’, 1 ANIC 1 head and genitalia on slide SAMA.

**Description** (number examined, 3)  
As for *P. cinctus* except as follows. Length 4.5 – 5.0 mm. Setae golden, relatively soft, relatively long, relatively sparse.

**Head.** Dark-testaceous; punctures small moderately dense.

**Pronotum.** Testaceous with lighter areas particularly toward front. Punctures on disc small, same diameter as setae bases, sparse, larger and denser towards sides.

**Scutellum.** Testaceous; punctures as on disc of pronotum.

**Elytra.** Dark-testaceous, sutural region lighter; traces of two - three very weak, longitudinal broad ridges in some places. Punctures setiferous, relatively small, most greater than a puncture width apart, much larger than on pronotum.

**Ventral surface.** Dark-testaceous, slightly lighter in places.

**Male.** Aedeagus relatively complex (Fig. 77). Trigonium about 1/3 length of aedeagus, bulbous at base, rapidly narrowing to beak-like, downward curved tip; parameroids about as long as trigonium, broad, apexes bluntly pointed, each parameroid with a strongly sclerotinized, robust, moderately long, spine projecting laterally from about the middle, tips upturned; tegmen with large basal piece, apical 1/3 of tegmen bilobed (parameres), lobes broad, encircling aedeagus, tips bluntly pointed; without stylus.

*Etymology.* Latin. ‘Bu’ – large, ‘spinosus’ = thorny. A reference to the spiny parameroids.

*Notes*  
A little smaller and more oval species than *P. cinctus* and *P. bawbawensis*. Heavily abraded specimens can be confused with *Macrohelodes lucidus* Blackburn. Only separated from *P. cinctus*, *P. bawbawensis, P. wongabelensis* and *P. beccus* by the unusually long lateral spine on each parameroid and the simple, wide parameres. The type locality is in wet sclerophyll forest. A female specimen from Mt Kaira NSW (‘9 Feb 1991 J. Powell’, ANIC) probably belongs to this species.
Pseudomicrocara cinctus (Blackburn). Figs 1, 10, 45, 81
Helodes cinctus Blackburn 1892
Pseudomicrocara cincta (Blackburn, 1892); Armstrong, 1953

Holotype. Male, red type label, ‘Blackburn Coll 1910–236’ ‘J.3.8’ ‘Helodes cinctus Blackb’, red label ‘Holotypus Helodes cinctus Blackburn des Klausnitzer 1976’, ‘Microcara cinctus (Blackb) det B. Klausnitzer’. On card with head dissected, genitalia mounted separately on same pin. BMNH. Locality given as ‘Victoria Alpine district’ by Blackburn.

Description (number examined, 10)

Habitus. Length 4.9 – 6.3 mm. Oval, sides of elytra subparallel, setae moderately stiff, moderate long and dense.

Head. Testaceous, sometimes with darker mottling. Frons extending forward only a short distance in front of antennal socket, anterior margin slightly curved; labrum as wide as frons, about 2x as wide as long, weakly depressed towards front in middle giving front margin a slightly sinuate look; punctures shallow, relatively dense, setiferous; eyes moderately large, distance between eyes about 3.7x dorsal width of eye; edge of eye separated from lateral margin of head by about width of two eye facets. Antennae light testaceous; segment 1 about as long as dorsal width of eye, posterior edge straight, anterior edge weakly curved, about 1.6x as long as wide; segment 2 small, about half as long as segment 1, barrel-shaped; segment 3 about as long and wide as segment 2, weakly triangular; segment 4 a little wider than segment 3 and about 3.5x as long, weakly narrowing towards base; segments 5 – 11 subequal, shorter than segment 4, becoming progressively slightly shorter towards apex. Maxillary palpi yellow; segments 2 – 4 sub-equal in length, segment 4 narrower and more cylindrical than penultimate. Labial palpi moderately stout, segment 1 narrow, expanding towards apex, segment 2 a little shorter, broadly club-shaped, segment 3 longer than segment 2, narrower, cylindrical, arising from middle of apex of segment 2 (Fig. 45). Paraglossa deeply bilobed (Fig. 45). Mandibles symmetrical, relatively narrow, tip moderately long, inner edge with strong anterior tooth, edge behind this tooth uneven, mola region with small area of small, stout spines (Fig. 45).

Pronotum. Light testaceous with vague darker markings. Basic shape rectangular; relatively short, about 2x as wide as long (Fig. 1), sides broadly but weakly flanged, anterior-lateral angles smoothly rounded, front edge straight, slightly hooded, lateral edge weakly curved, hind edge quite strongly sinuate, weakly beaded. Punctures small, same diameter as setae bases.

Scutellum. Light testaceous; sub triangular; punctures as on disc of pronotum.

Elytra. Testaceous, sutural region lighter. Sides subparallel, broadest in middle, narrowly and sharply flanged, three - four very weak, longitudinal broad ridges. Punctures setiferous, moderately strong, a little more than one puncture width apart, much larger than those on pronotum.

Ventral surface. Testaceous, slightly darker and lighter in places. Pronotal epipleura broad, weakly concave, inner carina not reaching further forward than about front edge of base of procoxa (Fig. 10). Pronotal process very narrow between procoxae, narrowly diamond-shaped at tip, margins strongly raised, tip rounded, turned downwards.

Male. Aedeagus complex (Fig. 81). Trigonium about ½ length of aedeagus, moderately broad near base, narrowing in apical 2/3, curved downwards; parameroids about as long as trigonium, relatively narrow, curved downwards, tips rounded, dorsal edge rugose; tegmen with long, relatively narrow, dorsal portion, apical ½ bifid (parameres), parameres sinuate, tips thin, sharply curved outwards and a bit downwards; without stylus.
Notes

Separated from *P. beccus*, *P. buspinosus*, *P. wongabelensis* and *P. bawbawensis* only by the spines on the trigonium and the parameroids and the distinctive, hooked parameres.

Additional specimens examined

New South Wales. 2, ‘Acacia Pltu NSW J. Armstrong’ ‘Pseudomicrocara cinctus Blkb Id J. Armstrong’, ANIC; 1, ‘Australia, NSW Jenolan 15–20 Jan. 1985 leg Hangay, G. Hangay Collection’, AM; 1, ‘Mt Irvine NS Wales J. Armstrong’ ‘Pseudomicrocara cinctus Blackb Id by J. Armstrong’, ANIC; 1, ‘Mt Irvine HJC 10.36’ (head and genitalia on slide), SAMA; 1, ‘Mt Tomah N.S.W. 3000ft, 18 DEC 1967 M. S. Upton’, ANIC; 1, ‘Australia, NSW Mt Kaputar, Ballawa Creek 29 x1 1984– G. Hangay’, ANIC; 1, ‘35 30S 150 18E Kiola SF 15km NE Batemans Bay NSW Nov 86 M. G. Robinson flight interc. Trap’, ANIC. Queensland. 1, ‘Toowoomba Q 10 NOV J. Macqueen’, ANIC.

*Pseudomicrocara costellifera* (Carter). Fig. 86

*Elodes costellifera* Carter, 1935

*Pseudomicrocara costellifera* (Carter, 1935); Armstrong, 1953

Holotype. Female, ‘Warburton, V FE Wilson 6.x11 1931’ ‘Elodes costellifera Cart id by H J Carter’ ‘FE Wilson Collection’ red ‘Holotype 2370’, MV.

Paratype. Male, ‘Mt Buffalo V Blackburn’ blue ‘Paratype’, ‘Elodes costellifera Cart id by HJCarter’. Head, pronotum and genitalia on one card, elytra and abdomen on another on same pin. Head and genitalia partially dissected, SAMA.

There is some doubt as to the identification of the holotype. Three specimens are known; a male from Mt Buffalo in SAMA and mentioned by Carter (paratype), a specimen from Ferntree Gully in MV mentioned by Carter as a possible variety or new species, and a female specimen from Warburton collected in 1931 by F E Wilson. Carter gives the sex of the holotype as male, the locality as Ferntree gully and its location as in the collection of F.E. Wilson. The sex and locality appear to be mistakes. Since it is the only possible candidate for holotype I have accepted the Warburton specimen as the holotype. It is badly damaged by *Anthrenus*. On the pin there is also a note from Peter Zwick drawing attention to the disagreement with the original description.

Description (number examined, 3)

Habitus. Length 7.1 mm. Oval, sides of elytra subparallel, setae moderately stiff, relatively short and dense.

Head. Dark testaceous. Frons extending forward by about width of segment 1 of antenna in front of antenna base; labrum much narrower than frons, about 2x as wide as long, front margin slightly sinuate; covered with relatively dense, setiferous, doughnut–shaped granules; eyes small, distance between eyes about 5x dorsal width of eye; edge of eye separated from lateral margin of head by about width of three eye facets. Antennae dark testaceous; segment 1 about as long as dorsal width of eye, posterior edge straight, anterior edge weakly curved, about 1.6x as long as wide; segment 2 small, about half as long as segment 1, almost round; segment 3 about as long and wide as segment 2, weakly triangular; segment 4 wider than segment 3 and about 3x as long, weakly narrowing towards base; segments 5 – 9 subequal, shorter than segment 4, becoming progressively slightly shorter towards apex (segments 10 & 11 missing). Maxillary palpi testaceous, moderately stout, segments 2 – 4 sub–equal in length, segment 4 narrower and more cylindrical than segment 3. Paraglossa moderately bilobed. Labial palpi moderately stout, segment 1 relatively narrow, expanding towards apex, segment 2 a little shorter, broader, segment 3 about as long as segment 2, thumb–shaped, arising from middle of apex of segment 2. Mandibles symmetrical, relatively narrow, tip moderately long, inner edge with strong anterior tooth, edge behind this tooth uneven, mola region with small narrow area of small, stout spines.
Pronotum. Testaceous. Basic shape rectangular; relatively short, about 2x as wide as long, sides broadly flanked, anterior-lateral angles angularly rounded, front edge straight, weakly hooded, lateral edge weakly curved, hind edge quite strongly sinuate, weakly beaded. Punctures relatively small, relatively dense, becoming granulate towards sides.

Scutellum. Light testaceous; relatively small, triangular, sides straight, a little longer than base; punctures as on disc of pronotum.

Elytra. Testaceous. Sides subparallel, broadest behind middle, narrowly and sharply flanged, each elytron with seven - eight, weak, longitudinal grooves with corresponding ridges. Punctures setiferous, relatively small and shallow, most about a puncture width or a little less apart.

Ventral surface. Testaceous, slightly darker and lighter in places. Pronotal epipleura broad, almost flat, inner carina not reaching much further forward than about front edge of base of procoxa. Pronotal process very narrow between procoxae, narrowly diamond-shaped at tip, margins strongly raised, tip rounded, turned downwards. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus complex (Fig. 86). Trigonium narrow, about ½ as long as aedeagus, expanded dorsal/ventrally, tip downturned, sharply pointed; parameroids reaching to tip of trigonium, tips sharply pointed, behind tips two long, strong, backward pointing, spines; tegmen complex, dorsal piece with two sharp, forward pointing spines, ventral/lateral lobes (parameres) broad, dorsal/ventrally orientated, complexly variable in width.

Notes

A distinctive member of the P. cinctus group, easily recognised by the relatively strong costae on the elytra not seen in any other Australian Scirtid. The eyes are relatively small and placed quite close to the edge of the head. The aedeagus is complex and distinctive by the long sharp spines on the tegmen and parameroids. The specimen noted by Carter as a possible variety agrees with P. costellifera except for the reddish colour on the elytra and pronotum. It bears a label ‘Elodes costellifera var rubicunda Cart id by H J Carter’ and a red ‘Type 2371’, but this appears to be a nom. nudum.

Additional specimen examined

Victoria. 1, ‘Ferntree Gully F E Wilson 1.7.18’, MV.

Pseudomicrocar a con iculatus sp. nov. Figs 22, 75

Holotype. Male. ‘AUSTRALIA NE Qld Conway Range N.P. E from Proserpine’, ‘at light 17–13.11.1981 leg Hangay & Herezeg &Vojnite’, SAMA.

Paratypes. 6; 3, ‘AUSTRALIA NE Qld Conway Range N.P. E from Proserpine’, ‘at light 17–13.11.1981 leg Hangay & Herezeg &Vojnite’, HUNG (‘No 216’, ‘No 239’, ‘No 125’); 2, ‘2 miles W of Paluma, 2800ft, Q 14 Apr. 1969 I. F. B. Common & M. S. Upton’, genitalias on slides, 1 ANIC 1 SAMA; 1, ‘40kmW Ingham Qld. nr Wallaman Falls 22 Jun–7 Aug 1982 S & J. Peck coll SBP45 600m’, ANIC.

Description (number examined, 7)

Habitus. Length 4.3 – 5.1 mm. Elongate, sides sub-parallel, setae relatively soft, moderate long and dense.

Head. Light testaceous. Frons relatively short, extending forward about width of first segment of antenna from front edge of antenna, anterior margin straight; labrum narrower than frons, about 2x as wide as long, front edge straight; punctures a little larger than setae bases, moderately dense; eyes moderately large, distance between eyes about 3.3x width of eye; edge of eye well separated
from lateral margin of head by width of three - four eye facets. Antennae yellow; segment 1 rather less than width of eye, barrel-shaped, about 1.6x as long as wide; segment 2 small, barrel-shaped; segment 3 about 1.5x as long as segment 2, narrowing towards base; segment 4 a little wider than segment 3 and about 2x as long, almost cylindrical, segments 5 – 10 subequal, about same length as segment 4, segment 11 slightly wider and a little longer than segment 10 (Fig. 22). Maxillary palpi light testaceous; segment 2 longest, segment 3 narrower than segment 2, narrowing towards apex. Segment 1 of labial palpi relatively stout, only weakly expanded towards apex; segment 2 flat, oval; segment 3 finger-shaped, arising about half way along inner edge of segment 2. Paraglossa broad, front edge nearly straight. Mandibles symmetrical, relatively thin, well-developed tooth on inner edge about half way to tip, inner edge below tooth rough, mola region with a few small spines.

**Pronotum.** Light-testaceous. Basic shape rectangular, about 2x as wide as long, sides widely flanged, anterior-lateral angles rounded, front edge slightly sinuate, weakly hooded, lateral edge weakly curved, hind edge sinuate, beaded. Punctures as on head.

**Scutellum.** Light testaceous; almost an equilateral triangular, sides weakly convex. Punctures as on pronotum.

**Elytra.** Light testaceous, with darker areas towards apex. Sides nearly parallel, narrowly and sharply flanged. Punctures setiferous, moderately strong, about one puncture width apart, much larger than those on pronotum.

**Ventral surface.** Light testaceous, slightly darker and lighter in places. Pronotal process very narrow between procoxae, oval/diamond-shaped at tip, Metacoxal plates broad, rear margins strongly raised, teardrop-shaped. Metafemur relatively thin. Ventrites densely covered with small, rugose, setiferous punctures. Pronotal epipleura broad, almost flat, lateral bifurcation of inner carina reaching a little beyond half way from base of procoxa to outer edge.

**Male.** Aedeagus relatively simple (Fig. 75). Trigonium about ¼ length of aedeagus, broad in basal 1/3, very narrow in apical ½, tip sharply pointed, downwardly curved; parameroids about as long as trigonium, narrow, curved outwards, tips sharply pointed; tegmen tightly associated with aedeagus, parameres thin, fleshy, multilayered, enclosing aedeagus, outer edges weakly spinose; without stylus.

**Etymology.** Latin. ‘Conniculatus’ – horn-shaped. A reference to the horn-shaped parameroids.

**Notes**

*Pseudomicrocara conniculatus* is very similar in overall size, shape and colour to *P. dasys* and also *P. davidsoni* in the *P. davidsoni* group. All three species have long shaggy setae, a large distance between the edge of the eye and the edge of the head, inwardly orientated, apical segment of the labial palpi, a straight front edge to their paraglossae and a slight depression at the base of their elytra. The three species can only be reliably separated by the different male genitalia. The apexes of the genitalia are very different and can often be seen protruding from the abdomen, in which case identification is relatively easy: *P. conniculatus* has strongly splayed, robust parameroids which resemble goats horns; *P. dasys* has bilobed parameroids with the tips of the longer upper lobes thin, fleshy and rounded; *P. davidsoni* has a broad trigonium and simple parameroids with slightly hooked tips. I have placed *P. conniculatus* and *P. dasys* in the *P. cinctus* group solely on the complex male genitalia which resemble those of other members of the group and are quite unlike those of *P. davidsoni* group members. Apart from *P. dasys* no other member of the *P. cinctus* group has the small eyes and inwardly orientated third segment of the labial palpi and it is possible that *P. conniculatus* and *P. dasys* are misplaced in this group.
Holotype. Male. ‘LORIEN’ W.R.3 km N Lansdowne/Taree NSW 1–8 Nov 1987 G. Williams, ex r/f margin, malaise trap’, ANIC.

Paratypes. 3; 1, ‘AUSTRALIA Queensland’ ‘ix. 1980 leg G.Hangay’, ‘HUNG; 1, ‘Bald Rock N.P. NSW 6–8 x1 1984 D.K.Yeats m.v.light’, UQIC; 1, ‘Burnie TAS JAN. C.Watts’, SAMA.

Description (number examined, 4)

Habitus. Length 5.9 – 6.2 mm. Oval, sides of elytra subparallel, setae moderately stiff, golden, moderate long and dense.

Head. Testaceous, sometimes with darker mottling. Frons extending forward only a short distance in front of antennal socket, anterior margin slightly curved; labrum a little narrower than frons, about 3x as wide as long, weakly depressed towards front in middle giving front margin a slightly sinuate look; densely granulate/punctate, setiferous; eyes moderately large, distance between eyes about 3.5x width of eye; edge of eye separated from lateral margin of head by about width of seven - eight eye facets (Fig. 14). Antenna light testaceous; segment 1 about as long as dorsal width of eye, posterior edge straight, anterior edge weakly curved, about 1.6x as long as wide; segment 2 small, about half as long as segment 1, barrel-shaped; segment 3 about 1.5x as long and wide as segment 2, narrower, weakly triangular; segment 4 a little wider than segment 3 and about 2x as long, weakly narrowing towards base; segments 5 – 11 subequal, a little shorter than segment 4, becoming progressively slightly shorter towards apex (Fig. 23). Maxillary palpi yellow; moderately stout, segments 2 – 4 sub-equal in length, segment 4 narrower and more cylindrical than penultimate. Segment 1 of labial palpi narrow, dumbbell-shaped, segment 2 a little shorter, broadly triangular, segment 3 about as long as segment 2, oval, slightly sinuate, seemingly arising from about ½ way along inner edge of segment 2 (actually from the inner corner of the apical edge) (Fig. 44). Paraglossa deeply bilobed (Fig. 44). Mandibles symmetrical, moderately broad, inner edge with strong anterior tooth, edge behind this tooth uneven, mola region with small area of small, stout spines (Fig. 44).

Pronotum. Light testaceous. Basic shape rectangular; relatively short, about 2x as wide as long, sides broadly but weakly flanged, anterior-lateral angles smoothly rounded, front edge slightly curved, slightly hooded, lateral edge weakly curved, hind edge quite strongly sinuate, weakly beaded. Punctures small, on disc most a puncture-width or a bit more apart, becoming larger towards sides, can appear granulate in some lights.

Scutellum. Light testaceous; sub triangular; punctures as on disc of pronotum.

Elytra. Testaceous, sutural region a little lighter. Sides subparallel, broadest in middle, narrowly and sharply flanged, two - four very weak, longitudinal broad ridges. Punctures setiferous, moderately strong, about a puncture-width apart, much larger than those on pronotum.

Ventral surface. Testaceous, with darker stripes in places. Pronotal epipleura broad, weakly concave, inner carina reaching to about half way to outer edge from front edge of base of procoxa. Pronotal process very narrow between procoxae, narrowly diamond-shaped at tip, tip rounded turned downwards. Metacoxal plates moderately broad, teardrop-shaped. Metafemur moderately thin. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Aedeagus moderately complex (Fig. 76). Trigonium about ¼ length of aedeagus, relatively thin, tapering to sharp downward pointing tip; parameroids bilobed, ventral lobes a little shorter than trigonium, dorsally thin, broad dorsal/ventrally, tip hooked, dorsal lobe projecting a little beyond trigonium, thin, rounded at tip; tegmen tightly associated with aedeagus, parameres fleshy, narrowing slowly to apex, outer edges more chitinized than inner, inner edge with a few small spines; without stylus.

Etymology. Greek. ‘Dasys’ – shaggy. A reference to the shaggy appearance of its setae.
Notes

Very similar to *P. conniculatus* and *P. davidsoni* and can only be separated from these species by the form of the male genitalia (see also under *P. conniculatus*).

**Pseudomicrocara hylaios** sp. nov. Figs 82, 91

*Holotype.* Male. ‘30.30S 152.23E NSW Thungutti Camp New England N.P. 16–18 Nov 1990 A. Calder, at light’, ANIC.

*Paratypes.* 7; 1, ‘N. E. Nat. Pk NSW near Wright’s Lookout 14 Oct, 1961 C W.Frazier’ ‘ANIC Uni of New England Coll Donated 1983’, ANIC; 1, ‘30.30S 152. 23E NSW Tea Tree Falls Track New England N.P. 16–18 Nov 1990 A. Calder, on grass’, genitalia on slide, SAMA; 1, ‘30.30S 152.23E NSW Wright’s Lookout Tr New England N.P. 16–18 Nov.1990 A. Calder’, ANIC; 1, ditto except ‘T. A. Weir’ ‘Berlesate ANIC 1131 rainf litter under Nothofagus moorei & Dicksonia antartica’, ANIC; 1, ‘Dorrigo Nat Pk. NSW Nov. 1982 Mt. Lowman rainforest’ ‘No: 38’, ANIC; 1, ‘30.30S 152.23E NSW Thungutti Camp New England N.P. 16–18 Nov 1990 A. Calder, at light’, ANIC; 1, ‘New England NP 1500m NSW Thungutti Camp 14–15 Nov 1982 J. Boyen coll.’, ANIC; 2, ‘New England National Park Banksia Point 22/11/06 CHS Watts” SAMA.

*Description* (number examined, 8)

**Habitus.** Length 7.8 – 8.4 mm. Oval, sides of elytra subparallel, setae relatively soft, relatively short and dense.

**Head.** Light testaceous, with darker mottling. Frons extending forward only a short distance in front of antennal socket, anterior margin curved; labrum a little narrower than frons, about 3x as wide as long, front margin slightly sinuate; relatively densely granulate, setiferous; eyes relatively small, distance between eyes about 3.4x width of eye; edge of eye separated from lateral margin of head by about width of four - five eye facets which are relatively small. Antennae light testaceous; segment 1 a little shorter than dorsal width of eye, subrectangular, about 2x as long as wide; segment 2 small, about half as long as segment 1, barrel-shaped; segment 3 about as long and wide as segment 2, weakly triangular; segment 4 a little wider than segment 3 and about 3.x as long, weakly narrowing towards base; segments 5 – 11 subequal, shorter than segment 4, becoming progressively slightly shorter towards apex. Maxillary palpi light testaceous; moderately stout segments 2 – 4 sub-equal in length, segment 4 much narrower and more cylindrical than penultimate. Paraglossa deeply bilobed. Labial palpi relatively stout, segment 1 narrow, expanding towards apex, segment 2 shorter, broad, triangular, segment 3 about as long as segment 2, cylindrical, arising from middle of apex of segment 2, orientated slightly inwards. Mandibles symmetrical, relatively thin, tip relatively long, inner edge with strong anterior tooth, edge behind this tooth uneven, mola region with small area of small, stout granules.

**Pronotum.** Light testaceous with darker markings. Basic shape rectangular; relatively short, about 2.4x as wide as long, sides broadly flanged, anterior-lateral angles smoothly rounded, front edge straight or slightly sinuate, slightly hooded, lateral edge weakly curved, hind edge strongly sinuate, weakly beaded. Quite densely covered with small, setiferous granules.

**Scutellum.** Light testaceous; sub triangular; granulate as on disc of pronotum.

**Elytra.** Testaceous with distinct, relatively small, irregular oval and linear areas much lighter, sutural region narrowly lighter. Sides subparallel, broadest in middle; narrowly and sharply flanged; two - three weak, longitudinal ridges, a few scattered pale patches along them. Punctures setiferous, relatively small and shallow, a little less than one puncture width apart, larger than granules on pronotum.

**Ventral surface.** Testaceous, darker and lighter in places. Pronotal epipleura broad, weakly concave, outer bifurcation of inner carina reaching to about half way to outer edge from front edge of base of
procoxa. Pronotal process very narrow between procoxae, diamond-shaped at tip, sides strongly raised. Metacoxal plates moderately broad, teardrop-shaped. Metafemur relatively thin. Ventrites densely covered with small, rugose, setiferous punctures.

**Male.** Aedeagus complex (Fig. 82). Trigonium about 1/3 length of aedeagus, dorsally thin, dorso/ventrally relatively broad, apex quite strongly bifid, lobes pointed slightly outwards at tips; parameroids about as long as trigonium, broad, somewhat triangular, tips sharp, pointed upwards; tegmen tightly associated with aedeagus, parameres fleshy, tips rounded, reaching a little beyond apex of aedeagus, partially enclosing aedeagus, reaching upwards between parameroids and trigonium; without stylus.

**Etymology.** Greek. ‘Hylaios’ – of the forest.

**Notes**
Superficially similar to *P. variegata* but, apart from the different labial palpi and male genitalia, *P. hylaios* has fewer pale markings which tend to be lineally arranged and many have an enamel-like look to them. Only separated from *P. thungutiensis*, *P. serratus* and *P. lamingtonensis* by the very long parameroids and more blade-like (viewed laterally) than beak-like trigonium.

**Biology.** Known only from wet forest in the New England region of New South Wales.

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**Pseudomicrocara lamingtonensis** sp. nov. Fig. 83

**Holotype.** Male. ‘Lamington N.P. QLD 2 Nov 1982 Mt. Lowman rainforest’ ‘No 51’, ANIC.

**Description** (number examined, 1)
As for *P. hylaios* except as follows. Length 6.7 mm.

**Male.** Aedeagus complex (Fig. 83). Trigonium about 1/2 length of aedeagus, moderately broad, apical ¼ narrow, curved downwards to sharp point; parameroids distinctly longer than trigonium, broad in basal ½, narrow in apical ½, tips rounded; tegmen with dorsal and lateral/ventral portions (parameres), dorsal lobes broad in basal ½, narrow in apical ½, tips weakly pointed inwards, lateral/ventral lobes shorter, broad, tips rounded; without stylus.

**Etymology.** Named after the type locality.

**Notes**
Very similar to *P. hylaios*, *P. thungutiensis* and *P. serratus* and can only be separated by the short, blade-like trigonium, thin, elongate parameroids and relatively simple tegmen. Know only from closed forest on Mt Lamington Queensland.

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**Pseudomicrocara serratus** sp. nov. Fig. 85

**Holotype.** Male. ‘28.16S 153.10E Mt Bithongabel 1400m Lamington Nat. Pk.Q 23 Oct. 1978 Lawrence & Weir’ ‘ANIC Berlesate 654 moss & litter Nothofagus moorei’. Head and genitalia on microscope slide. ANIC.

**Description** (number examined, 1)
As for *P. hylaios* except as follows. Length 7.7 mm.

**Male.** Aedeagus complex (Fig. 85). Trigonium about 1/3 length of aedeagus, moderately broad in basal 1/3, narrow in rest, tip narrow, downward pointing with short robust spines; parameroids broad, blade-like, dorsal edge strongly serrate, a little longer than trigonium; tegmen with eight distinct dorsal, lateral and ventral lobes which enclose the aedeagus. One lobe of the strongly
chitinized dorsal portion of the tegmen has the apex covered with short robust spines as on the tip of the trigonium. Without stylus.

**Etymology.** Latin. ‘Serratus’ - toothed like a saw. A reference to the saw-like parameroids.

**Notes**

The single specimen has the creamy elytral markings restricted to the sutural and humeral areas. Can be separated from *P. hylaios*, *P. thunguttiensis* and *P. lamingtonensis* by the distinctive saw-like parameroids and complex multilobed tegmen with prominent spines on two lobes. From rainforest on Lamington National Park, southern Queensland.

**Pseudomicrocara thunguttiensis** sp. nov. Fig. 84

*Holotype*. Male. ‘30. 30S 152. 23E NSW Thungutti Camp, New England N.P. 16–18 Nov.1990 T.A. Weir at light’, ANIC.

*Paratypes*. 6; 2, ‘30. 30S 152. 23E NSW Thungutti Camp, New England N.P. 16–18 Nov.1990 T. A. Weir at light’, heads and genitalia on slides, 1 ANIC 1 SAMA; 3, ditto except ‘A. Calder’, 2 ANIC 1 head and genitalia on slide SAMA ; 1, ‘AUSTRALIA, N.S.W. Carai State Forest, Kookaburra, 943m’ ’31.01S 152.20E 27–28.x.2000 leg. A. Podlussany’, HUNG.

*Description* (number examined, 7)

As for *P. hylaios* except as follows. Length 5.5 – 6.0 mm.

*Head*. Edge of eye separated from lateral margin of head by about width of three - four eye facets. Segment 2 of labial palpi with outer margin a bit longer than inner.

*Ventral surface*. Outer bifurcation of inner carina reaching to about a third way from front edge of postcoxae to margin of epipleura.

*Male*. Aedeagus complex (Fig. 84). Trigonium about ½ length of aedeagus, relatively narrow, narrowing to sharp, downward pointing, beak-like tip; parameroids about 2x as long as trigonium, relatively narrow, fused in basal ½, narrowing to sharp outwardly curved tips in apical ½; tegmen bilobed (parameres) with each lobe divided into dorsal and lateral/ventral portions, dorsal portions moderately broad, sinuate, bilobed at apex, apexes rounded, lateral/ventral portions a little broader, narrowing towards apex, apexes wider, edge of tips straight.

*Etymology*. A reference to the locality were the specimens were caught.

*Notes*

Very similar to *P. hylaios* and separated only by the much shorter parameroids and beak-like trigonium and small differences in the tegmen. Occurs sympatrically with *P. hylaios* in the wet forests of New England National Park.

**Pseudomicrocara wongabelensis** sp. nov. Fig. 78

*Holotype*. Male. ‘N Qld Wongabel State For 5 km S of Atherton 28 Sept 1985 L. Gibson’, AM.

*Paratype*. Male. ‘17.27S 145.29E QLD Hugh Nelson Rg. GS3 1150m 1 Dec. 1994 – 3 Jan 1995 P. Zborowski F I Trap ANIC’, ANIC.

*Description* (number examined, 2)

As for *P. cinctus* except as follows. Length 4.9 mm.
Male. Aedeagus relatively simple (Fig. 78). Trigonium about 1/3 length of aedeagus, broad at base narrowing to beak-like, downwardly curved, tip, in lateral view broad in basal ½ narrowing abruptly to thin, curved, beak; parameroids large, robust, about as long as the trigonium, rounded and turned inwards at tips, dorsal edges robust and sharp; tegmen broad in basal 1/3, bilobed in apical 2/3 (parameres), parameres robust, tips curved inwards, pointed; without stylus.

Etymology. Named after the type locality.

Notes
Closely resembles *P. beccus* from the same locality but separated by the relatively longer parameroids and parameres as well as the thin, sharp beak, in both dorsal and lateral views, to the trigonium. The same characters separate it from *P. cinctus, P. buspinosus* and *P. bawbawensis*.

Unassociated species

*Pseudomicrocara spilotus* (Blackburn 1891). Figs 4, 11, 47, 88, 97

*Elodes spilotus* Blackburn, 1891

*Pseudomicrocara spilotus* (Blackburn, 1891); com. nov.

Holotype. On card with red ‘1276’ and black ‘T’, round red ‘TYPE’ label, ‘Blackburn Coll 1910 236’ ’Helodes spilotus Blackb.’, BMNH. The type locality is given as ‘near Port Lincoln’ (SA) by Blackburn.

Description (number examined, 929)

Habitus. Length 2.4 – 3.8 mm. Narrowly oval, subparallel, setae relatively soft, relatively long and dense, tending to be arranged in swirls; often with zigzag dark pattern on elytra.

Head. Dark testaceous; lighter towards front. Frons extending forward about width of first segment of antenna from front edge of base of antennae, anterior margin straight or slightly curved; labrum a little narrower than frons, about 1.5x as wide as long, front edge depressed in middle weakly concave; punctures small, a little larger than setae bases, relatively dense; eyes moderately large, distance between eyes about 2.5x width of eye; edge of eye width of four - five eye facets from lateral margin of head; antennae dark testaceous; relatively stout, segment 1 relatively small about as long as dorsal width of eye, barrel-shaped, about 1.7x as long as wide; segment 2 small, barrel-shaped; segment 3 about same length as segment 2, narrower, weakly triangular; segment 4 wider and a little more than 1.5x length of segment 3, narrowing weakly towards base, segments 5 – 10 subequal, broadly cylindrical, most a little shorter than segment 4, segment 11, oval a little longer than segment 10. Maxillary palpi dark testaceous; moderately elongate, segments 2 & 3 weakly curved inwards, equal in length, segment 4 narrower, slightly cylindrical, slightly sinuate, a little longer than segment 3. Labial palpi relative stout, segments subequal in length; segment 1 weakly wider towards apex; segment 2 curved inwards, outer edge longer than inner; segment 3 thumb-like, arising from middle of apex of segment 2, orientated inwards (Fig. 47). Paraglossa broad; front edge quite strongly bilobed (Fig. 47). Mandibles symmetrical, relatively slim, tip relatively short, mola region with large area of short stout spines (Fig. 47).

Pronotum. Testaceous with diffuse markings. Basic shape rectangular, moderately long, about 1.8x as wide as long (Fig. 4), sides weakly flanged, anterior-lateral angles angularly rounded, front edge weakly curved, quite strongly hooded, lateral edge curved, hind edge moderately sinuate, beaded. Punctures quite strongly impressed, setiferous, most a little less than a puncture width apart.

Scutellum. Same colour as adjacent elytra. Triangular, sides quite strongly convex, slightly longer than base. Punctures as on pronotum.
Elytra. Light testaceous, usually with darker areas in zigzag pattern. Sides very slightly pinched behind shoulders, slightly broader behind middle, narrowly and sharply flanged, dorsal surface behind shoulders weakly depressed. Punctures setiferous, relatively small, strongly impressed, about the size of those on pronotum, most less than a puncture width apart.

Ventral surface. Testaceous, lighter and darker areas Pronotal process very narrow between procoxae, narrowly oval at tip, sides strongly raised, tip expanded dorsal/ventrally; groove on mesosternum for reception of pronotal process well marked, strongly bordered, ‘U’-shaped. Pronotal epipleura broad, relatively flat, strongly margined on inside by raised carina that reaches front edge of pronotum (Fig. 11). Metacoxal plates quite strongly transverse, teardrop-shaped. Metafemur moderately broad. Ventrites densely covered with small, rugose, setiferous punctures.

Male. Colour pattern on elytra generally less distinct than in the female and is totally absent in some. Aedeagus simple (Fig. 88). Trigonium about 1/3 length of aedeagus, narrowing progressively towards tip, tip rounded; parameroids relatively thin, about as long as trigonium, tips moderately crotchet-shaped, inside of hook variably infilled with membrane; parameres broad, even width along length, somewhat truncated at tips; stylus well developed.

Notes
The single, widespread, morphologically variable species shares with the *P. variabilis* group the toothless mandibles, large area of small spines on the mola, and simple male genitalia with a well-developed stylus, characters which would suggest that it is monophyletic with this group. The very different pronotum and dense velvet-like setae clearly distinguish it.

Readily recognized by its velvet-like short setae, narrow pronotum, strongly bordered pronotal epipleura and the slightly depressed area at the base of elytra. *Pseudomicrocara spilotus* is undoubtedly the commonest and most widespread *Pseudomicrocara*, if not Scirtid, in Australia, with a geographical range from North Queensland around the coast to the South West of Western Australia including Tasmania where it is particularly common. It is also structurally quite variable and future studies might show it to be a species complex. In colour it varies in general lightness and darkness, and in the strength of the elytral zigzag pattern. In general the males are paler than the females and the females are more strongly patterned. This is particularly noticeable in some populations, e.g. Mt Kosciusko, where many males lack any colour pattern and the females are all strongly patterned, at first sight suggesting two different species. The body shape varies from relatively small, elongate, rather flat specimens (particularly from Tasmania) to broad, robust, strongly hooded specimens (particularly from Queensland). The male genitalia also vary a bit: the apical hook on the parameroids varies from strong to weak, and the trigonium in thickness and also from moderately triangular to almost parallel sided. Specimens from Western Australia have the parameroids longer and thinner and reach well beyond the tip of the trigonium. This population is perhaps the clearest candidate to be considered a different taxa.

Biology. All my specimens, and many collected by others, have been taken on flowers near water in sclerophyll forest. Only a few specimens have come from areas of closed forest. I have reared larvae collected at the side of still water in springs and dams.

Additional specimens examined

**Australian Capital Territory.** 6, ‘35.16S 149.06E Black Mtn ACT 600m Dec 1987 M. E. Irwin ex Malaise trap’, ANIC; 2, ‘53.16S 149.06E ACT Black Mtn. 10 Nov. 1988 C. Reid ex Eucalyptus sp.’, ANIC; 1, ‘35.16S 149.06E Black Mtn ACT 600m Dec 1987 M. E. Irwin ex malaise trap’, ANIC; 1, ‘35.16S 149.06E Black mtn. ACT 600m Oct 1987 Weir, Lawrence, Dressler’, ANIC; 2, ‘CSIRO, Black Mtn 6 Sept 1985 ACT. Reid on Acacia blossom’, ANIC; 1, ‘35.35S 149.00E Honeysuckle Creek 21–31 March 1985 I. Naumann J. Cardale ACT Malaise trap’, ANIC; 1, ‘Gungahlin ACT Horse Park Farm Oct 1992 C. Reid swept marshland’, ANIC.

**New South Wales.** 2, ‘Acacia Plat NSW J. Armstrong’, ANIC; 1, ‘Acacia Plateau NS Wales H. Davidson’, ANIC; 2, ‘1 km W Barrengarry 27 Sept 1986 C, Reid. on Ac. melanoxylon flwr’, ANIC; 1, ‘Barrengarry Mtn
C.H.S. WATTS

NSW (Kangaroo Valley) 30 March 1990 C. Reid Ficus coronatus', ANIC; 2, '31.53S 151.32E Barrington Tops Dilgry R NSW 26 Nov 1985 C. Reid on tree ferns & Nothofagus', ANIC; 3, 'Blue Mts', ANIC; 2, 'N.S.W. EPA survey-MRHI MURR22 Bogong Ck 24/11/95 148 12 54 36 21 29 Edge Natacha Wadell', AM; 1, 'S.E.Border N.S.W.-Qld. H. Davidson', ANIC; 1, 'Comboyne N.S.W. J. Armstrong', ANIC; 1, 'Coocumac Is Nature Reserve, Taree, N.S.W. 10 Nov 1994 G. & T. Williams, ex floodplain rainforest', AM; 1, 'AUSTRLIA, NSW Coolongolook River 23 September 1991', 'Vince Lorimer In leaf litter at edge of creek 32.16S 152.19E', AM; 1, 'Clyde Mt NSW West Slope 1.2.1973 D. H. Colless', ANIC; 1, 'Dorrigo, NSW W. Herron', AM; 2,' 30.22S 152.44E NSW Dorrigo Camp, Dorrigo N.P. 13–15 Nov. 1990 T. A. Weir at light', ANIC; 1, '30.22S 152.44E NSW Dorrigo N.P. 13–15 Nov. 1990 T. A. Weir at light', ANIC; 1, 'Eungai N.S.Wales J. Armstrong', ANIC; 1, '3–5 km NE NE Harrington N.S.W. 19 Nov 1990 G. and T. Williams 'on Cuiea semiglauca blossom', AM; 10, 'NSW 2K W Island Bend 1/06 C. H. S. Watts on Leptosperm am sad', SAMA; 1, 'Ingalla S.F. 13 km S Macksville NSW 40m 12 June–26 Aug 1982 S. & J. Peck', ANIC; 1, '36.13SS 148.06E NSW Khancoban, below Khancoban dam, 300m 831 13 Feb 1987 A. Newton & M Thayer', ANIC; 1, '2 Km N Lansdowne N.S.W. 23 Dec 1992 G. Williams ex subtropical rainforest ‘on Cuttsia viburnea blossom’, AM; 1, ‘Lorien’ approx. 1 km N.N.W Lansdowne via Taree N.S.W. 20 Nov 1982. G. & T. Williams in wet sclerophyll forest clearing’, AM; 1, ‘Lorien Wildlife refuge 3 km N Lansdowne NSW 18 Dec 1991 G. Williams’, ‘on Cuttsia viburnea blossom’, AM; 1, ‘Lorien’ W. R. 3 km N Lansdowne/Taree NSW 3–10 Jan 1988 G. Williams ex r/f margin, malaise trap’, ANIC; 1, ditto except ‘11–18 Oct 1987’, ANIC; 1, ‘Macleay Riv N.S.W. Nov. 1928 J. Carter’, ANIC; 1, ‘28.37S 153.23E Minyon Falls 6 km N of Rosebank NSW 19 Nov 1976 I. F. B. Common & E. D. Edwards’, ANIC; 3, ‘(35.26S 149.56E) Mongarlowe, NSW 20 1 71 S. Misko & K. Pullen’, ANIC; 2, ‘31.32S 152.46E 10 km S by E of Wauchope NSW 24 Nov 1976 I.F.B. Common & E.D.Edwards’, ANIC; 1, ‘Nelligan NSW 35.39S 150.08E 16 1 70 I. Cardale’, ANIC; 7, ‘Mt Kelra NSW Wollongong 9 Feb 1981 (MV) J. Powell’, ANIC; 1, ‘30.24S 153.01E Pine Ck State Forest 6 km NNE Raleigh NSW 16 Nov 1976 I. F. B. Common & E. D. Edwards’, ANIC; 3, ‘Mullaleay Dec 56 NSW F. E. Wilson’, MV; 2, ‘National Park Taylor’ ‘K. K. Spence Collection.’, AM; 8, ‘16 km SE of Nimbin, NSW (28.36S 153.14E) on firs., 7.x.71, S. Misko’, ANIC; 3, ‘Orange N.S.W. J. Armstrong’, ANIC; 1, ‘Rutherford Ck., Brown Mt NSW 15 Jan 1969 J. C. Cardale & S. R Curtis’, ANIC; 1, ‘Scotts Head, near Warrell Ck NSW 13 Feb 1968, D. H. Colless’, ANIC; 31, ‘Silvanner NS Wales x 31 Dr K. K. Spence ‘K. K. Spence Collection’, AM; 1, ‘NSW 7 k E Thredbo 10/2/02 C. H. S. Watts’, SAMA; 5, ‘NSW 5K NW Smiggin Holes 6/1/06 C. H. S. Watts’, SAMA; 1, ‘Tallaganda State Forest Harolds Cross Rd., NSW. 28 xi.75 W & S Allen’, ANIC; 1, ‘Turose N.S.W. 19–22 Jan 1936 K.C. McKeown’, AM; 1, ‘Wentworth falls Blue Mountains N.S.W.12 Nov 1960 D. K. McAlpine’, AM. Queensland, 2, ‘Broken River Q 50 mi W of Mackay 20.xi.1968 rainforest at light Britton & Misko’, ANIC; 1, ‘Conardoo, Fletcher, SQ mi S of Stanthorpe 28. 46S 151. 51E 20 xi 1968 Britton & Misko’, ANIC; 6, ‘AUSTRLIA N. QLD Danbulla S.F. via Yungaburra 13.2.1992 at light Storey, DeFaveri, Huwer’, QPIM; 1, ‘(34. 44S 150. 32E) Kangaroo Valley, NSW N slope, 22.1.71 S.Misko & K. Pullen’, ANIC; 1, ‘Curanda Range State Forest N. Qld 20 Apr.1967 D. H. Colless’, ANIC; 1, ‘AUSTRLIA n. Qld 7.5 km NNW Kuranda 15.1–20.2 1985 Story & Halfpapp Malaise trap’, QPIM; 4, ‘Rex Lookout Julatten Qld. JAN–MAR 1982 fruit fly trap’, QPIM; 1, ‘Millaa Millaa, N.Q., Oil bath trap 1.8.67 R.J. Elder’, ANIC; 1, ‘Mt Lewis, 20 km NW Mt Molloy, Qld 20 Dec 1986 H. & A. Howden, flight intercept trap’, ANIC; 3, ‘11 km up Mt Lewis Rd., Julatten Qld. Nov–Dec 1982 ex fruit fly trap’, QPIM; 1, ‘AUSTRLIA n Qld. Clacharty Rd, Julatten 8.1–2.2 1987 Storey ND Howden’, QPIM; 1, ‘26 km up Tinaroo rd Mareeba 10–30 xi. 82 Storey & Brown’, QPIM; 1, ‘AUSTRLIA n. Qld 7 km WNW of Paluma 13.1–14. 2.1989 Storey & Brown Malaise trap’, QPIM; 1, ditto except ‘30.xi–16.xii 1988’, QPIM; 1, ditto, ‘14.xii.1988–13. 1.1989’, QPIM; 3, ‘AUSTRLIA n Qld Tolga 10.1.1986 J. D. Brown light trap’, QPIM; 3, ditto ‘20.xii.1985’, QPIM; 1, ditto ‘16/xii 1985’, QPIM; 1, ‘Tolga N Qld 13–20 xi 1985 J. D. Brown light trap’, QPIM; 1, ditto ‘7–xii 1986’ QPIM; 1, ditto ‘28.11.1986’, QPIM; 1, ‘AUSTRLIA n. Qld 7 km NE of Tolga JAN 1988 Storey & De Faveri light trap’, QPIM; 1, ditto except ‘27.1.1987’, QPIM; 3, ditto except ‘v.ix.1988’, QPIM; 1,
ditto except ‘v.ix.1988’, QPIM; 3, ditto except ‘4–5.xii 1986’, QPIM; 1, ditto except ‘MAR 1988’, QPIM; 1, ditto except ‘APR 1987’, QPIM; 1, ditto except ‘10. xii 1986’, QPIM; 1, ‘Walkamin, N. Qld. 18.x.1983 J. D. Brown Light trap’, QPIM; 1, ‘AUSTRALIA N.QLD 40 km up Windsor Tland Rd 12.xi.1990 R. Storey, S. DeFaveri and K. Halfpapp’, QPIM; 2, ‘AUSTRALIA N. QLD Wongabel S. F. via Atherton 19.3.1993 Storey, Huwer & Waite’, QPIM; 1, ‘26. 56S 131. 54 E 14 km SW Yarraman QLD 20 June 1982 L. Hill’, ANIC. 

South Australia. 2, ‘SA 4 k N Stirling 17/11/02 C. H. S. Watts’, SAMA; 3, ‘Waterfall Gully SA 11/1/58 C. Watts’, SAMA; 27, ‘SA Watts Gully Mt Crawford St For 29/11/06 CHS Watts on Tea Tree Flowers’, SAMA. Tasmania. 1, ‘Arne Riv Picnic Area TAS 13 k W Geeveston 3/12/00 C. H. S. Watts’, SAMA; 2, ‘0437800E 526200N TAS Airstrip Road 5 MAR 2002 sweep M. Driessen site 4B’, UTAS; 1, ditto except ‘7 MAR 2001 site 6B’, UTAS; 1, ‘Barrow Creek, Tas Mt Barrow Road, 2. 2.73 E. & S. Britton’, ANIC; 1, ‘43.25S 146. 10E TAS Melaleuca near Bathurst Harbour 3–7Dec 1990 T. Weir sweeping low vegetation’, ANIC; 1, ditto except ‘25–29 Nov 1991 S. S. Nielson, G. Clarke at light’, ANIC; 2, ditto except ‘Feb 1990, I. Naumann maleise #1, closed forest’, ANIC; 2, ditto except ‘18–21 Feb 1991 A. Calder, W. Dressier at light’, ANIC; 2, ditto except ‘25–29 Nov 1991 I. D. Naumann heathy sedge land yellow pams’, ANIC; 1, ditto except ‘18–21 Feb 1991 A. Calder, W. Dressier sweeping flowers’, ANIC; 1, ditto except ‘beating Leptospermum & Baeckea flowers’, ANIC; 3, ditto except ‘15 Jan –10 Feb A. Calder, W. Dressier F.I.T. #1’, ANIC; 4, ‘Black River TAS 5 km NW Mawbanna 27/11/00 C. H. S. Watts’, SAMA; 1, ‘42. 07S 146.41E TAS Queenstown 10 Dec 1981 I. D. Naumann ex ethanol’, ANIC; 1, ‘Devonport Tas; Lea’, SAMA; 1, Hobart Tas; Lea’, SAMA; 1, ‘AUSTRALIA Tas. 2 km NW Derwent Br 730m 24–28 Jan 1980 A. Newton, M. Thayer’, ANIC; 58, ‘Derwent riv marshes TAS 22 k N Hobart 2/12/00 C. H. S. Watts’, SAMA; 2, ‘TAS: Fortescue Bay Tasman Pen. Wet scler: 7–9.11.1989 D. Bicket; Malaise’, ANIC; 5, ‘Franklin, Huon River Tasm., J.J.W.’ ‘Paratype’, ‘Cyphon huonensis Armst Id by J. Armstrong’, ANIC; 1, ‘42. 49S 146.19E TAS 8 km WhyS of Fredericks Pass 24 January 1983 I. Naumann, J. Cardale’, ANIC; 2, ‘Gordon R Tasmania J. Armstrong’, ANIC; 1, ‘43. 07S 146. 47E Edwards Road Hartz Mtns TAS 4 Feb 1983 I.D. Naumann J. C. Cardale at light’, ANIC; 1, ‘Hobart 91–88’, ANIC; 2, ‘Frankford Tas Lea’, ‘Paratype Cyphon huonensis Armst Id by J. Armstrong’, ANIC; 5, ‘430884E 5227600N TAS King William Creek moor land 21 FEB 2003 sweep M Driessen site 5D’, UTAS; 2, ditto except ‘site 6c’ UTAS; 1, ditto except ‘pitfall site 2a’, UTAS; 3, ditto except ‘14 FEB site 1a’, UTAS; 2, ditto except ‘site 5B’, UTAS; 2, ditto except ‘25 FEB site 1D’ UTAS; 1, ditto except ‘site 2c’, UTAS; 1, ditto except ‘FEB 1999 site 2D’, UTAS; 5, ‘424882 5335692 TAS Lake St Clair 23 OCT M. Driessen sweep SCRE2’, UTAS; 2, ‘434680 5335680 TAS Lake St Clair 21 DEC M. Driessen sweep SCRW old 2’, UTAS; 3, ditto except ‘18 NOV’, UTAS; 1, ‘424682 5335692 TAS Lake St Clair 18 NOV M. Driessen sweep SCRE yng1’, UTAS; 4, ‘428400 5331260 TAS Lake St Clair 16 FEB M. Driessen sweep RCW 2’, UTAS; 5, ‘428470 5331230 TAS Lake St Clair 21 DEC M. Driessen sweep RCE yng1–2’, UTAS; 1, ‘428400 5331260 TAS Lake St Clair 21 DEC 1999 M. Driessen sweep RCW old 2’, UTAS; 1, ‘428682 5335692 TAS Lake St Clair 21 DEC 1999 M. Driessen sweep SCRE yng 2 RCW old 2’, UTAS; 1, ‘TAS Lake St Clair 28 OCT 1999 M. Driessen Pitfall RCE1’, UTAS; 31, ‘TAS Lake St Clair 4 km N Derwent Bridge 25/1/00 C. H. S. Watts’, SAMA; 4, ‘TAS 17 km W Maydena 26/1/00 C. H. S. Watts’, SAMA; 1, ‘AUSTRALIA, TAS Mount Wedge Forest Reserve 42.49S, 146.16E 13 February 1992’ ‘D. S. Horning Jr Beating shrubs’, ANIC; 1, ‘AUSTRALIA Tas track off Mt Barrow Rd 780m 15–17. 11.1980 Nothofagus etc A. Newton & M. Thayer’, ANIC; 2, ‘Mt Barrow, Tas. 2.2.73 on tea tree flowers E. & S. Britton’, ANIC; 2, ‘Mt Barrow, Tas. 1,100m 2.11.73, on tea tree flowers E. & S. Britton’, ANIC; 1, ‘AUSTRALIA Tas Mt Field NP SE end Lake Fenton 1000m 30 Jan –5 Feb 80 A. Newton, M. Thayer’, ANIC; 2, ‘42.41S 146.43E TAS National Park, low bushes, entrance to np. 150m Feb.1992 C. Reid’, ANIC; 1, ‘Patric Riv Tas. 

...
Pseudomicrocara anthophilia sp. nov.

Figs 8, 12, 44, 87, 94

Holotype. Male. Vic. Acheron River 4k S Narbelong 2/1/06 CHS Watts on Prostanthera’, SAMA.

Paratypes. 140; 1, ‘NSW 9 k W Bullocks Flat 10/2/02 C. H. S. Watts’, SAMA; 28, ‘NSW 4k N Perisher Pipers Creek 5/1/06 CHS Watts’, SAMA; 3, ‘NSW 2k W Island Bend 1/1/06 CHS Watts’, SAMA; 2, ‘NSW 5k N Smiggins Holes 9/2/02 C. H. S. Watts’, SAMA; 20, ‘NSW 5K NW Smiggins Holes 6/1/06 C. H. S. Watts’ SAMA 2, ‘NSW 7k E Thredbo 10/2/02 C. H. S. Watts’, SAMA; 1, ‘NSW Thredbo River 6K N Jindabyne 6/1/06 C. H. S. Watts’, SAMA; 2, ‘Vic Acheron River 4 K S Narbelong 2/1/06 CHS Watts on Prostanthera’, SAMA; 1, ‘Vic Cement Creek 3/1/06 C. H. S. Watts on Prostanthera’, SAMA; 13, ‘13.43S 145.42 E Cement Ck. 5km N of Warburton V. 17 Jan. 1978 Lawrence & Weir’, ANIC; 2, ‘37.43S 145.42E VIC Cement Creek, 670m N of Warburton 812 26 Jan–11 Feb.1987 A. Newton & M. Thayer’, ANIC; 23, ‘Vic 4K SE Falls Ck 8/106 C. H. S. Watts on Prostanthera flws’, SAMA; 2, ‘AUSTRALIA. Vict Warburton, Cement Ck. 670m 10–17, 1.1980 Nothofagus cunningham etc A. Newton & M. Thayer’, ANIC; 5, ‘37.34S 145.53E Cumberland Ck. 13 km ESE of Marysville 18 Jan.1978 V. Lawrence & Weir’, ANIC; 2, ‘AUSTRALIA Vict. Mt Donna Buang 1200m 11–17.1.80 Eucalyptus-Notofagus forest A. Newton, M. Thayer’, ANIC; 1, ‘Vic. 25 K. S. Nariel 8/2/02 C. H. S. Watts’, SAMA; 2, ‘Vic Yarra River Warburton 3/1/06 CHSW on Leptospermum’, SAMA.

Description (number examined, 141)

Habitus. Length 3.2 – 4.5 mm. Elongate, setae stiff, relatively short and dense.

Head. Black, labrum testaceous. Frons extending forward about width of first segment of antenna from front edge of eye, anterior margin weakly curved; labrum as wide as frons, prominent, about 2x as wide as long, front edge weakly concave; punctures small, setiferous, sharply impressed, well separated; eyes moderate size, distance between eyes about 3.6x width of eye; edge of eye separated from lateral margin of head by about width of two eye facets (Fig. 12). Antennae black, sometimes basal segments testaceous; segment 1 about as long as dorsal width of eye, posterior edge straight, anterior edge curved, about 1.6x as long as wide; segment 2 small, barrel-shaped, about ½ length of segment 1; segment 3 about as long as segment 2, triangular; segment 4 a little wider than segment
3 and about 2x as long, narrowing a bit towards base, segments 5 – 11 subequal, a little shorter than segment 4. Maxillary palpi yellow; segments 2 – 4 subequal in length, segment 4 narrower in apical half. Labial palpi moderately elongate, segment 1 narrow, expanded towards apex, segment 2 a little shorter, broader, widening towards apex, outer edge slightly curved, longer than inner edge, segment 3 thumb-shaped, about as long as segment 2, arising from about middle of apex of segment 2, orientated inwards (Fig. 46). Paraglossa moderately bilobed (Fig. 46). Mandibles symmetrical, relatively thin, without teeth, mola region with quite extensive area of short stout spines (Fig. 46).

**Pronotum.** Orange. A little narrower than elytral base. Basic shape rectangular, relatively short, about 2x as wide as long (Fig. 8), sides quite strongly and widely flanged, anterior-lateral angles smoothly rounded, front edge slightly sinuate, strongly hooded, lateral edge weakly curved, hind edge weakly sinuate, weakly beaded, with slight indentations about 1/3 way inwards from each side. Punctures a little shallower than on head.

**Scutellum.** Orange. Subtriangular, with shallow indistinct punctures.

**Elytra.** Black or dark reddish-black. Sides slightly pinched behind shoulders, broader behind middle, narrow and sharply flanged. Punctures setiferous, moderately strong, a little more than one puncture width apart, a little larger than those on disc of pronotum.

**Ventral surface.** Black to dark reddish-black, pronotum, base of legs and front of head orange. Pronotal process very narrow between procoxae, narrowly triangular to oval at tip; pronotal epipleura broad, weakly convex, outer bifurcation of inner carina strong, reaching approximately ¾ way to outer edge (Fig. 11). Metacoxal plates relatively narrow, teardrop-shaped. Metafemur narrow. Ventrites densely covered with small, rugose, setiferous punctures.

**Male.** Aedeagus complex (Fig. 87). Trigonium about 1/3 length of aedeagus. Thin dorsally, relatively wide dorsal/ventrally, tip with downturned pointed hook, basal piece of aedeagus deeply bilobed; parameroids longer than trigonium, thin dorsally, broadly triangular dorsal/ventrally, ventral edge strongly serrated; on each side of the aedeagus is a relatively large, broad, flat, three-pointed structure loosely attached to aedeagus in middle; parameres narrow, each paramere deeply bifid in apical ½, tips of these lobes sharply pointed; stylus well developed.

**Etymology.** Greek. ‘Anthos’ – flower, ‘phillia’- loving. A reference to the ‘fondness’ of the adults to flowers.

**Notes**

The toothless mandibles with a large area of small spines on the mola region and well-developed stylus suggest a close relationship with the *P. variabilis* group. The very different pronotum and complex tegmen show it to be an isolated species of uncertain affinities.

Among the *Pseudomicrocara* with light testaceous/orange pronotums and contrasting dark elytra, *P. anthophilia* is easily recognized by the narrow pronotum with strong epipleural carina reaching almost to the outer margin. The orange pronotum and scutellum and black head and elytra are much stronger coloured and more uniformly present than in any other ‘red and black’ species. A taxonomically isolated species, with, apart from the pronotal characters, a uniquely complex male genitalia.

**Biology.** Adults are common in summer of flowering *Leptospermum* and *Prostanthera* bushes close to or over small running streams in wet sclerophyll forest/closed forest/alpine forest regions of the Great Dividing Range in Victoria and southern New South Wales. The larvae are not known.
**Pseudomicrocara maculiventris** Armstrong. Figs 30, 48, 89

_Pseudomicrocara maculiventris_ Armstrong 1953

**Holotype.** Female, ‘Moe Victoria C. Gooding’ red ‘Holotype’ ‘Pseudomicrocara maculiventris Armst. Id by J. Armstrong’, ANIC.

**Paratype.** Female, ‘Victoria’ light blue ‘PARATYPE’ darker blue ‘PARATYPE’ ‘Pseudomicrocara maculiventris Armst. Id by J. Armstrong’ ‘On permanent loan from the Macleay Museum University of Sydney’. Dissected, partial, genitalia lacking, on card, ANIC.

**Description** (number examined, 3)

**Habitus.** Length 8.7 mm. Elongate-oval, widest behind middle, setae stiff, relatively short and dense.

_Note:_ Habitat details are provided for **Pseudomicrocara maculiventris**. The description includes the following details:

- **Head:** Testaceous, with dark markings. Frons extending forward by about length of antennal segment 1 from front edge of base of antennal segment 1, anterior margin straight; labrum a little narrower than frons, about 2.5x as wide as long, front margin slightly sinuate; densely covered with small, setiferous, rugose, punctures; eyes large, distance between eyes about 2.3x width of eye; edge of eye separated from lateral margin of head by about width of three eye facets which are relatively small. Lateral margin strongly bordered; two moderately well marked, small depressions in centre on dorsal surface. Antenna light testaceous, elongate; segment 1 a little shorter than dorsal width of eye, hind margin straight, front margin curved, about 1.5 as long as wide; segment 2 small, about half as long as segment 1, club-shaped; segment 3 about as long and wide as segment 2, weakly triangular; segment 4 a little wider than segment 3 and about 3.x as long, weakly narrowing towards base; segments 5 – 7 thin, subequal, shorter than segment 4 (segments 8 – 11 missing) (Fig. 30). Maxillary palpi light testaceous; elongate, segments 2 – 4 progressively shorter, segment 4 narrower and more cylindrical than penultimate. Labial palpi stout, segment 1 narrow at base, strongly expanding towards apex, segment 2 shorter, broad, triangular, inner edge a little shorter than outer, segment 3 about as long as segment 2, finger- shaped, arising from middle of apex of segment 2, orientated slightly inwards (Fig. 48). Paraglossa moderately broad, front edge almost straight (Fig. 48). Mandibles symmetrical, moderately broad, tip relatively long, twisted somewhat, inner edge smooth, mola region without area of small spines (Fig. 48).

- **Pronotum:** Light testaceous with darker markings. Basic shape semicircular, surface uneven; relatively short, about 2x as wide as long, sides and about 1/3 of front edge broadly flanged, anterior-lateral angles smoothly rounded, front edge straight, weakly hooded, lateral edge curved, hind edge strongly sinuate, weakly beaded. Covered with relatively small, rugose, nearly confluent setiferous punctures.

- **Scutellum:** Light testaceous; triangular, sides convex, longer than base; punctured as on pronotum.

- **Elytra:** Testaceous with distinct dark, predominately linear areas. Sides weakly curved, broadest behind middle; narrowly and sharply flanged; quite strongly pinched behind shoulders; 4 weak, longitudinal ridges, predominately pale, sutural region similarly weakly raised. Punctures setiferous, relatively small and shallow, a little less than one puncture width apart, becoming smaller towards apex.

- **Ventral surface:** Testaceous, darker and lighter in places. Pronotal epipleura broad, moderately concave, outer bifurcation of inner carina not reaching further forward than about front edge of base of procoxa. Pronotal process very narrow between procoxae, narrowly teardrop-shaped at tip, sides strongly raised, Metacoxal plates moderately long, teardrop-shaped. Metafemur relatively thin. Ventrites densely covered with small, rugose, setiferous punctures, each with a small depression at sides, more marked towards front.

- **Male.** Aedeagus simple (Fig. 89). Trigonium about ½ length of aedeagus, moderately broad, narrowing to blunt tip in apical ¼, tip weakly downturned; parameroids relatively broad, reaching...
well beyond tip of trigonium, strongly hooked towards outside near tip; parameres rather narrow, even width along length, rounded at tips; stylus moderately developed.

Notes

*Pseudomicrocara maculiventris* is a large, flat species easily recognized by the dark testaceous/light testaceous colour pattern on the dorsal surface, the small head with protruding eyes, and the semicircular pronotum with broadly upturned sides. It would appear to be an isolated species. The twisted mandibles are unique within *Pseudomicrocara* and seem designed as scrapers rather than bitters.

Biology: Nothing known. At one locality, Moe Victoria, the remaining natural vegetation is dry sclerophyll forest with swampy areas of *Leptospermum* and *Melaleuca* bushes.

Additional specimen examined

**Victoria.** ‘Emerald, Vic. C. Oke’ ‘Pseudomicrocara maculiventris Armst. Comp type. Id by J Armstrong’, MV.

**Checklist of species included in Pseudomicrocara Armstrong.**

| Species                        | Species                        | Species                        |
|--------------------------------|--------------------------------|--------------------------------|
| *P. aquilonaris* sp. nov.     | *P. decipiens* sp. nov.        | *P. olliffi* (Blackburn)       |
| *P. buspinosus* sp. nov.      | *P. falsiparvus* sp. nov.      | *P. orientalis* Armstrong     |
| *P. angulatus* (Blackburn)    | *P. hamoni* sp. nov.           | *P. parvus* sp. nov.          |
| *P. anobioides* Armstrong     | *P. hangayi* sp. nov.          | *P. picta* Armstrong         |
| *P. anthophilia* sp. nov.     | *P. hylaios* sp. nov.          | *P. rufusensis* sp. nov.      |
| *P. atkinsoni* (Waterhouse)   | *P. infuscati* Armstrong       | *P. sepiasimulatus* sp. nov.  |
| = *P. dixoni* Armstrong       | *P. inusitata* sp. nov.        | *P. serratus* sp. nov.        |
| *P. bawbawensis* sp. nov.     | *P. lamingtonensis* sp. nov.   | *P. spilotus* (Blackburn)     |
| *P. beccus* sp. nov.          | *P. loftyensis* sp. nov.       | *P. thunguuttiensis* sp. nov. |
| *P. desraeae* sp. nov.        | *P. maculiventris* Armstrong  | *P. triidos* sp. nov.         |
| *P. cinctus* (Blackburn)      | *P. megarhynchos* sp. nov.     | *P. uncatus* sp.nov.          |
| *P. conniculatus* sp. nov.    | *P. minor* Armstrong           | *P. variabilis* Armstrong     |
| *P. costellifera* (Carter)    | = *P. elstoni* Armstrong       | *P. variegata* (Carter)       |
| *P. dasys* sp. nov.           | *P. montivagans* (Blackburn)   | = *P. tigrina* (Carter)       |
| *P. davidsoni* Armstrong      | *P. occidentalis* Armstrong    |                                |
Figs 1 – 8. Dorsal outline of pronotum. Scale bar = 1 mm. 1, *Pseudomicrocara cinctus* (Blackburn); 2, *P. decipiens* sp. nov.; 3, *P. anobioides* Armstrong; 4, *P. spilotus* (Blackburn); 5, *P. davidsoni* (Carter); 6, *P. loftyensis* sp. nov.; 7, *P. triidos* sp. nov.; 8, *P. anthophilia* sp. nov.

Figs 9 – 11. Ventral side of pronotum showing varying extent of inner differentiation of pronotal epipleura. Scale bar = 1 mm. 9, *Pseudomicrocara anobioides* Armstrong; 10, *P. cinctus* (Blackburn); 11, *P. spilotus* (Blackburn).

Figs 12 – 16. Lateral views of head showing distance between edge of eye and ventral edge of head. Mandibles and appendages not drawn. Scale bar = 1 mm. 12, *Pseudomicrocara anthophilia* sp. nov.; 13, *P. davidsoni* Armstrong; 14, *P. dasys* sp. nov.; 15, *P. anobioides* Armstrong; 16, *P. inusitata* sp. nov.
Figs 17 – 18. Dorsal outline of front of head showing extent of frons in front of eye sockets. 17, *Pseudomicrocara orientalis* Armstrong; 18, *P. hangayi* sp. nov.

Fig. 19 Ventral view of ventrite 4 of female *Pseudomicrocara olliffi* (Blackburn).

Figs 20 – 21. Sternite 9 showing variation in shape of apical edge. 20, *Pseudomicrocara minor* Armstrong; 21, *P. inusitata* sp. nov.

Figs 22 – 30. Dorsal views of right hand antennae. 22, *Pseudomicrocara conniculatus* sp. nov; 23, *P. dasys* sp. nov.; 24, *P. infuscatus* Armstrong; 25, male *P. olliffi* (Blackburn); 26, female *P. olliffi*; 27, male *P. minor* Armstrong; 28, female *P. minor*; 29, *P. orientalis* Armstrong; 30, *P. maculiventris* Armstrong.
Figs 31 – 48. Mandible(s), paraglossa and labial palpi. Scaled to approximately similar size. 31, *Pseudomicrocara uncatus* sp. nov.; 32, *P. picta* Armstrong; 33, *P. aquilonaris* sp. nov.; 34, *P. orientalis* Armstrong; 35, *P. olliffi* (Blackburn); 36, *P. atkinsoni* Armstrong; 37, *P. hangayi* sp. nov.; 38, *P. davidsoni* Armstrong; 39, *P. variegata* Armstrong; 40, *P. montivagans* (Blackburn); 41, *P. hamoni* sp. nov.; 42, *P. inusitata* sp. nov.; 43, *P. megarhynchos* sp. nov.; 44, *P. dasys* sp. nov.; 45, *P. cinctus* (Blackburn); 46, *P. anthophila* sp nov.; 47, *P. spilotus* (Blackburn); 48, *P. maculiventris* Armstrong.
Figs 49 – 56. Male genitalia of species in the *Pseudomicrocara variables* species group, aedeagus on left, tegmen and stylus on right. Scaled to matching size. 49, *Pseudomicrocara variables* Armstrong; 50, *P. uncatus* sp nov.; 51, *P. loftyensis* sp. nov.; 52, *P. decipiens* sp. nov.; 53, *P. picta* Armstrong; 54, *P. occidentalis* Armstrong; 55, *P. minor* Armstrong; 56, *P. infuscatus* Armstrong.
Figs 57 – 61. Male genitalia of species in the *Pseudomicrocara davidsoni* species group, aedeagus on left, tegmen and stylus on right. Scaled to matching size. 57, *P. falsiparvus* sp. nov.; 58, *P. rufusensis* sp. nov.; 59, *P. parvus* sp nov.; 60, *P. variegata* (Carter); 61, *P. davidsoni* (Carter).

Figs 62 – 68. Male genitalia of species in the *Pseudomicrocara orientalis* species group, aedeagus on left, tegmen and stylus on right. Scaled to matching size. 62, *P. orientalis* Armstrong; 63, *P. hangayi* sp. nov.; 64, *P. atkinsoni* Armstrong; 65, *P. sepiasimulatus* sp. nov.; 66, *P. olliffi* (Blackburn); 67, *P. angulatus* (Blackburn); 68, *P. aquilonaris* sp. nov.
Figs 69 – 74. Male genitalia of species in the *Pseudomicrocara anobioides* species group, aedeagus on left, tegmen and stylus on right. Scaled to matching size. 69, *P. montivagans* (Blackburn); 70, *P. hamoni* sp. nov.; 71, *P. megarhynchos* sp nov.; 72, *P. anobioides* Armstrong; 73, *P. triidos* sp. nov.; 74a, *P. in usitata* sp nov., from left, aedeagus, dorsal portion of tegmen, ventral portion of tegmen; 74b, *P. desrucae* sp. nov. from left, aedeagus, dorsal portion of tegmen, ventral portion of tegmen, 9th tergite of male.
Figs 75–86. Male genitalia of species in the *Pseudomicrocara cinctus* species group, aedeagus on left, tegmen and stylus on right. Scaled to matching size. 75; *P. conniculatus* sp. nov.; 76, *P. dasys* sp nov.; 77, *P. buspinosus* sp. nov.; 78, *P. wongabelensis* sp. nov., plus lateral view of trigonium; 79, *P. beccus* sp. nov., plus lateral view of trigonium; 80, *P. bawbawensis* sp. nov.; 81, *P. cinctus* (Blackburn); 82, *P. hylaios* sp nov.; 83, *P. lamingtonensis* sp nov.; 84, *P. thunguttiensis* sp. nov.; 85, *P. serratus* sp nov.; 86, *P. costellifera* (Carter).
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Figs 90-98. Habitus illustrations of selected Pseudomicrocara. Fig. 90, *P. variegata* (Carter); 91, *P. hylaios* sp. nov.; 92, *P. orientalis* Armstrong; 93, *P. rufusensis* sp. nov.; 94, *P. anthophila* sp. nov.; 95, *P. variabilis* Armstrong; 96, *P. picta* Armstrong; 97, *P. spilotus* (Blackburn); 98, *P. inusitata* sp. nov. Scale bar = 1 mm.