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Australian Marsh Beetles. 3. A restricted concept of genus *Cyphon*, Australian species of *Cyphon* s. str., and the new Australasian genus *Nanocyphon* (Coleoptera: Scirtidae)

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ABSTRACT. A restricted new concept for the genus *Cyphon* PAYKULL, 1799 is proposed. It is based on a combination of well known characters with some that have so far been insufficiently studied, plus a newly discovered adult character. Three new Australian species of *Cyphon* s. str. are described. However, most of the many undescribed *Cyphon*-like Australian species whose descriptions are in preparation belong to genera other than *Cyphon*. A new Australasian genus, *Nanocyphon* with five new and two insufficiently known species is described, two Australian, five in Irian Jaya.

Key words: entomology, taxonomy, Australia, Irian Jaya, revised generic concept, new species, new genus.

INTRODUCTION

The Australian Scirtid fauna is largely endemic at the species and genus levels, with only a few genera shared with other faunal regions. The relations of the endemic Australian genera with other taxa were not seriously discussed and are uncertain.

My study concerns only those small beetles which stand under *Cyphon* PAYKULL in collections. There are many different Australian species of this kind, most unknown. Specific identification by the male genitalia is usually easy (ZWICK 2012, 2013, and in preparation) but assignment to genera is problematic. For example, most *Cyphon*-like Australian males possess a sclerotized sternite 8. However, the main apomorphic character expression of adult *Cyphon* is the reduction of male sternite 8 (KLAUSNITZER 2009b). Other traits commonly used to distinguish between marsh beetle genera include details of mouth parts, prosternal process and receiving groove of mesoventrite, proc-

ess of mesoventrite, discripen on the metaventrite, and others. They were examined but helped rarely.

The type species of *Cyphon* PAYKULL, *C. coarctatus* PAYKULL, 1799 (KLAUSNITZER 2009b), is European and so are the type species of other genera that need to be compared. Evidently, the dilemma cannot be resolved from only the Australian perspective. The description of the new taxa in the present paper and many descriptions in preparation required an immediate solution and provided a strong stimulus to look for additional characters distinctive of *Cyphon* s. str. against which to compare the Australian taxa.

Below I describe characters that are new or have so far not been sufficiently studied. I also discuss and re-consider aspects of the male copulatory organ. Based on both, I propose a restricted concept of genus *Cyphon* which helps with respect to the *Cyphon*-like Australian species. However, it does not provide an overall solution and is preliminary because the new characters are unknown in taxa not available to me. The new concept is nevertheless presented to provoke additional interest in the matter.

The species described in the present study are among the few Australian ones which indeed belong to *Cyphon*, or are a new genus closely related to it. All of them occur in Eastern Australia, and both genera are also present in New Guinea. Only adults are described, larvae and habitats are unknown.

The paper is divided into two major interrelated sections: Notes on morphology leading to a new generic concept for *Cyphon*, and a taxonomic part describing the few members of *Cyphon* s.str. in Australia, plus a related new Australasian genus.

METHODS AND DEPOSITORIES

Methods employed were described by ZWICK (2012). Specimens were received dry, on cards. Beetles were relaxed, the abdomen removed and cleared in concentrated cold KOH over night. Afterwards, abdomina were thoroughly rinsed in water with some drops of acetic acid. Most were dehydrated in ethanol, dissected, and eventually mounted in Euparal on small transparent plastic slides and covered with a piece of cover slip. Preparations were placed on the same pin as the fore body. A few cleared abdomens were stored in glycerin in polyethylene microvials with silicone stoppers through which they were pinned with the specimen.

Specimens were dissected and mounted under a WILD M5A dissecting microscope at magnifications up to 50x. Preparations were studied with a LEICA-DMLS compound microscope at up to 630x.

Illustrations were prepared with a drawing mirror, some also from photographs taken with a digital Canon Eos 350A mounted on the microscope. In the figures, the caudal end is towards the top of the page, in lateral views dorsal is on the left hand side. Measurements are in metric units.

Specimens were borrowed from and returned to collections listed below. Depositories are given in parentheses in lists of material, using the following abbreviations:

ANIC	Australian National Insect Collection, Canberra
AMS	Australian Museum, Sydney
BQCC	Biosecurity Queensland Collection, Cairns

QPIM	Queensland Primary Industries Insect Collection, Mareeba
MV	Museum of Victoria, Melbourne
SAMA	South Australian Museum, Adelaide
SMNS	Staatliches Museum für Naturkunde, Stuttgart

For the study of head morphology I used cleared specimens of numerous species from all European genera in my collection, plus some Australian taxa, many of the latter still undescribed.

Label information is given in full, slashes separate texts if there are several labels on a pin. Established abbreviations are used for the Australian Federal States. Geographic coordinates on labels are presented in the original format. Supplementary information obtained from a variety of sources is occasionally added in square brackets, with coordinates converted to decimal degrees.

Abbreviations relating to morphology repeatedly used in descriptions and/or illustrations are:

BL	„body length“. At rest, the head of most Scirtidae is not visible from above. The combined length of <i>pronotum plus elytra</i> (in dorsal view, from front margin of pronotum to apex of elytra) was used instead.
BW	Maximum width of body across elytra.
HCW	Head capsule width across the eyes.
PW	Maximum width of pronotum.
T8, S8	tergite 8, sternite 8; also in combination with other segment numbers. Counts are of morphological segments. For example, the first freely visible sternite is S3.

MORPHOLOGICAL NOTES

HEAD MORPHOLOGY

At rest, most adult Scirtinae (in the sense of LAWRENCE & YOSHITOMI 2007) bend their head strongly against the prothorax which is possible because the lower face of head is flat or even concave, except for a slight swelling at the base of the gula, just in front of the occipital foramen. In ventral view of the head capsule the subgenal ridge and sutures delimiting the raised gula are easily observed.

In frontal view, the subgenal ridge forms the lateral edges of the head. It starts dorsally at or near the occipital ridge, descends and then runs forward beneath the eye. The subgenal ridge marks the limit between the impunctate underside and the variously sculptured upper head surface. The distance of the subgenal ridge from the lower edge of eye is used as a taxonomic character in Australian marsh beetles (for example, WATTS 2011). The relation to other head structures varies between taxa.

Parallel sutures extending forward from the ventral edge of the occipital foramen delimit the gula. To their front end attach the posterior tentorial invaginations. The tentorium appears as dark sclerite bands inside cleared heads of some large-bodied marsh beetles, for example genera *Elodes* and *Microcara*. In these beetles the gular suture ends at the tentorial attachment points although a shallow longitudinal groove in

front of this point is often seen in dry specimens. In other taxa the tentorial attachment may be more fan-like and extend anteriorad over a longer distance. Then there is some forward extension of the gular suture.

In *Cyphon coarctatus*, the type species (KLAUSNITZER 2009b), the gular sutures are short, ending at the tentorial invagination. The subgenal ridge ends abruptly on a sharp raised cone. Opposite this cone, at the level of the maxillar insertion but independent from it, the head capsule forms another opposed cone. From this second cone a shallow ridge runs to the inner margin of eye and then continues mediad arching over the antennal insertion (Figs. 1-3). In anterolateral view, a gap in the head contour (narrow arrows in Figs. 1-3) is seen. As a convenience, I call this the “buttonhole configuration”.

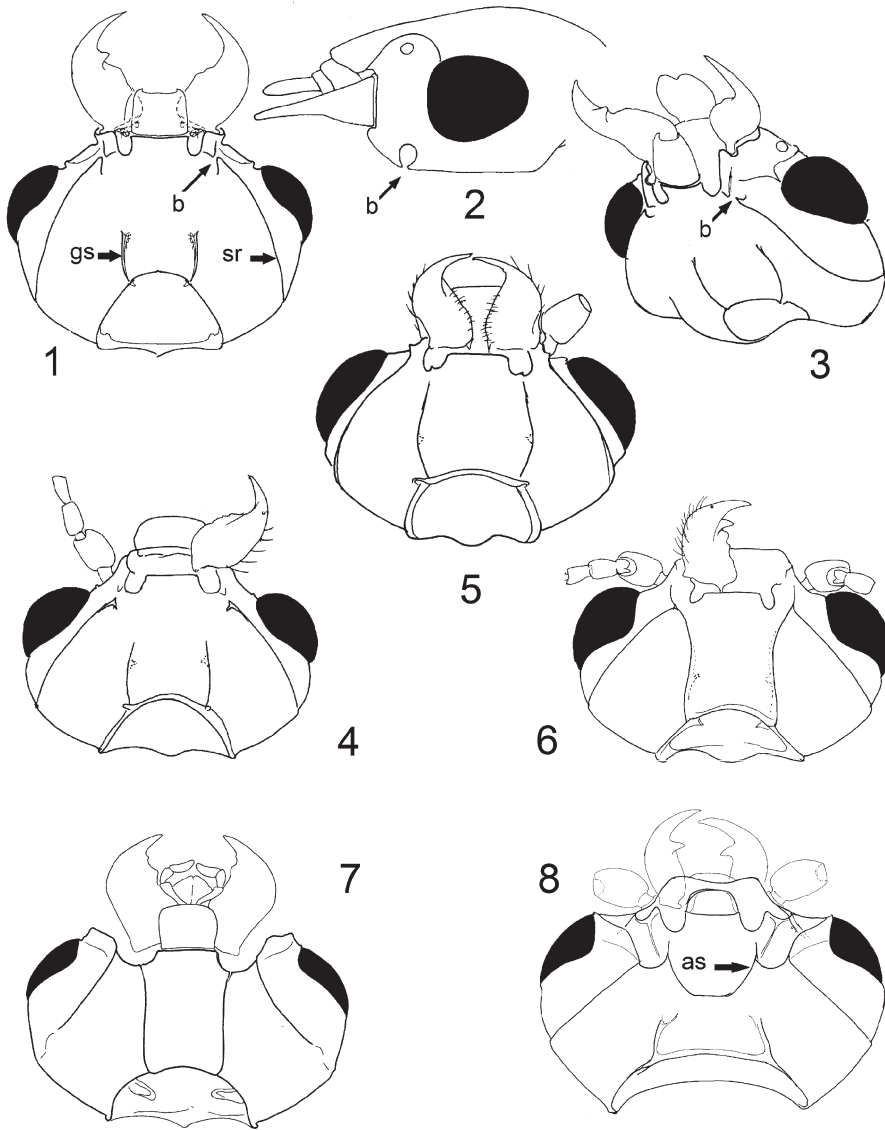
The buttonhole configuration is the standard configuration in European *Cyphon* s. str. (checked in members of five different species-groups or -subgroups: *C. coarctatus*, *C. kongsbergensis*, *C. laevipennis*, *C. ochraceus*, *C. padi*, *C. palustris*, *C. pubescens*, *C. ruficeps*, *C. variabilis*). It was also observed in the Philippine *Cyphon hiekei* KLAUSNITZER, 1973b (from the type), in several species of the Australasian *C. erythrinus*-group (Fig. 4; see below), and in New Zealand species of the *Cyphon trivialis*-group (NYHOLM 2000; *Cyphon aethiops* and three closely related species in my collection were examined). The European *Microcara testacea* and *Prionocyphon serricornis* also have it. The same is true of *Prionocyphon caementum* WATTS and several as yet undescribed Australian *Prionocyphon* species (my own unpublished observations) although in the latter it is not immediately seen because of the transverse head shape of these small species.

Among the Australian *Cyphon*-like species the buttonhole configuration is presently known only in the species mentioned, and in *Petrocyphon* WATTS. A figure (WATTS 2011, his fig. 23) shows the gap in the head contour. I was unaware of this character when I worked on the genus (ZWICK 2012) but confirmed the condition in *P. julianae* ZWICK now. The buttonhole configuration delimits the few Australian taxa in question sharply from the majority of the *Cyphon*-like beetles in Australia which display several different patterns of subgenal ridge and gular sutures.

The Australian species of *Ypsilocyphon* KLAUSNITZER belong to the *micans*-group (Artengruppe 3 of KLAUSNITZER 2009a), descriptions are in preparation. Their gular suture is long but ends freely behind the deep maxillar bays of the head capsule, there is no connection to other structures. The anterior end of the subgenal ridge turns mediad and connects to ridges near the mandibular articulation (Fig. 5).

In the most common character expression among *Cyphon*-like Australian species (Fig. 6) the long gular suture seems to fork anteriorly. A strong branch curves outward and merges with the front end of the subgenal ridge. The weaker more sinew-like branch connects to the deep bay in which the maxilla is inserted. This condition is observed in many species of, for example, the groups of *Cyphon lindensis* (BLACKBURN), *Cyphon doctus* (LEA), and *Cyphon frater* (BLACKBURN). The head of *Eurycyphon* WATTS is similar but the gular sutures first converge a little to the point where the tentorium attaches and are then bent a bit outward.

In some genera, the subgenal ridge is strongly bent upward beneath the eye and turns into a ridge in front of the eye and eventually curves dorsally over the antennal



1-8. Selected *Cyphon*-like species, diagrammatic views of the heads, most mouthparts removed. 1-3 – *Cyphon coarctatus* PAYKULL; 4 – *Cyphon mobiloides* sp.n.; 5 – *Ypsilocyphon* sp. n. from North Queensland; 6 – *Cyphon* (s. l.) *lindensis* (BLACKBURN); 7 – *Pachycyphon serratus* ZWICK; 8 – *Calvarium* sp. n. from North Queensland. Slender arrows in 1-3 point at the so-called buttonhole (b). Not to scale. Figures are ventral views except 2 (partial lateral view) and 3 (oblique ventrolateral view). Camera lucida-drawings of cleared mounted heads, or after photographs of same. Formal descriptions of presently unnamed taxa are in preparation. As, arched suture; gs, gular suture; sr, subgenal ridge

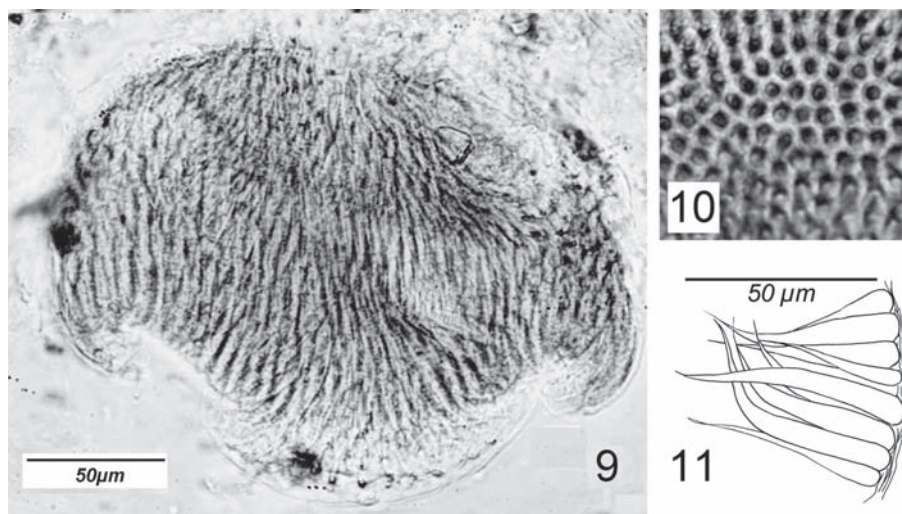
foramen. Near the bend below the eye, contact of the subgenal ridge with the ventral mandibular articulation is established by a short transverse ridge but the wide space beneath the antenna, eye, and mandible lacks ridges. This is observed in the New Zealand genus *Atopida* and, for example, the Australian *Chameloscyphon* WATTS and *Dasyscyphon* WATTS. The formation of a deep subantennal furrow, for example in *Chameloscyphon* WATTS and *Pachycyphon* ZWICK (Fig. 7) may be a further development of this condition. In *Calvarium* PIC (Fig. 8, description of several Australian species in preparation) the antennal base at rest fits tightly into the narrow furrow. The genus has an extra arched transverse suture connecting the median endpoints of the subantennal furrow. Gular sutures short, without any connection.

A different pattern is seen in the genera *Accolabass* WATTS, *Pseudomicrocara* ARMSTRONG, and *Heterocyphon* ARMSTRONG. These are often rather large, slender and not at all *Cyphon*-like beetles. However, there are exceptions, for example the small *Pseudomicrocara spilotus* (BLACKBURN) which was long regarded as a species of *Cyphon*. The subgenal ridge continues straight to the mandibular insertion, with a slight irregularity in contour at the level of the maxillar insertion but without contact to other structures (my unpublished observations).

A comparative study of all Australian genera or even across the entire family Scirtidae was not possible. Table 1 provides an overview of taxa checked and character expressions observed.

THE FEMALE BRUSH ORGAN

The anatomy of mesodermal genital organs has so far only been described in several species of *Cyphon* (s.str.) and *Scirtes* (NYHOLM 1969, 2002). The anteriormost section of the inner female genitalia is a large bag-shaped membranous structure, an accessory



9-11. The female brush organ. 9 – *Cyphon mobuloides* sp. n., overview; 10 – the same, vertical view of trichome bases; 11 – *Cyphon coarctatus* PAYKULL, lateral view of some trichomes; diagrammatic, after a photograph

gland according to NYHOLM (1969, 2002). Dealing with Australian material cleared in KOH I called the same structure a seminal receptacle. In some taxa, for example *Petrocyphon* spp., it carries extremely complex cuticular ornaments (ZWICK 2012).

The term brush organ is here applied to a minute sclerotized structure located in the short duct leading into the accessory gland in the place occupied by often large bursellar sclerites in other Scirtidae, for example *Scirtes* (NYHOLM 2002). The sclerotized brush organ remains when female genitalia are carefully cleared in KOH. Its overall shape vaguely resembles a heart, with two curved lobes (Fig. 9). It is composed of very numerous structures which in the undisturbed organ stand in regular order. Vertical views of the cylindrical or transversely oval bases on the supporting membrane resemble a pore plate (Fig. 10). In side view (preparation of *Cyphon coarctatus*, German specimen, in my collection) the structures are hollow cylindrical elements quickly tapering to a delicate thread-like end (Fig. 11). I call them trichomes. Their irregular arrangement in Fig. 9 is probably an artifact caused by manipulation. The function of the organ is unknown.

The brush organ was diagrammatically illustrated in European *Cyphon* species from several species groups (NYHOLM 1969) and was shown in *Cyphon magicus* KLAUSNITZER, 1973a (YOSHITOMI 2005, his fig. 114E). It is present in the *Cyphon trivialis*-group from New Zealand, in the Australian *Cyphon* species named below. However, it is not present in the known females of the *Cyphon doctus*-, *lindensis*-, and *frater*-groups.

PENIS STRUCTURE

NYHOLM (1972) drew a hypothetical transformation series of male genitalia in Scirtidae. It starts with some undifferentiated tubular penis from which the alternative *Elodes*- and *Microcara*-lines are typologically derived. However, the earliest Scirtidae descended from ancestors which were themselves already differentiated and specialized.

Nevertheless, I agree with NYHOLM (1972) that the penis structure of most extant Scirtidae probably developed from a condition similar to *Microcara*. The penis base (or pala, from Latin, the spade) caudally supports a median trigonium. Flexor muscles can bend it ventrad. It is flanked by stiff lateral parameroids. Illustrations in the literature (e.g., YOSHITOMI 1997) make me believe that the structures of some *Sacodes* species may agree with this and that the monophylum *Sacodes* + (*Elodes* + *Odeles*) represents no fundamental alternative to the *Microcara*-line.

NYHOLM's study (1972) illustrates the heterogeneity of *Cyphon* in a wide sense. *Cyphon* s. str. (and *Hydrocyphon*) form the end of the transformation series. They replace the median unpaired trigonium by paired structures which NYHOLM (l. c.) called prostheses. *Cyphon* s. str. also abandons the parameroids (see below). Like the trigonium, the prostheses can be bent ventrad by flexor muscles, the sinews are well visible in NYHOLM's outstanding illustrations (1955; several reprinted 1972, at a smaller scale) of *C. coarctatus* and closely related species. The internal classification of *Cyphon* needs discussion but this is not attempted here, except for notes under the *Cyphon erythrinus*-group and under *Nanocyphon*, below.

A RESTRICTED GENERIC CONCEPT FOR *CYPHON* PAYKULL

The present study was undertaken to clarify what *Cyphon* really is, especially how the various *Cyphon*-like Australian groups relate to it. *Cyphon* as presently understood is poly- or paraphyletic; see, for example, KLAUSNITZER (2009b) or YOSHITOMI (2005). An overview of the numerous supraspecific taxa (subgenera and species groups) proposed within genus *Cyphon* in the literature cannot be presented.

Table 1 summarizes present observations and unambiguous data from the literature. Most *Cyphon*-like Australian taxa, especially the species-rich complexes including *Cyphon doctus*, *C. lindensis*, *C. frater* and their close relatives do not belong in the genus *Cyphon* but in undescribed genera; several descriptions are in preparation.

I suggest that the name *Cyphon* should only be applied to species with the following characters:

- Buttonhole configuration of subgenal ridge in combination with short gular sutures
- Groove on mesoventrite short, rhomboid
- Male sternite 8 membranous, no sclerite
- Pala with paired appendages instead of median trigonium
- Female with brush organ

Much additional research is required to obtain presently missing information (empty cells in Table 1). Presumably, a process will continue which started by the removal of various so-called *Cyphon* to the new genera *Herthania* KLAUSNITZER, 2006 and *Ypsilocyphon* KLAUSNITZER, 2009d, ultimately leaving a monophyletic core of *Cyphon*.

It is not intended to analyze scirtid phylogeny in general. This would require inclusion of many more taxa and more new characters. I assume that the above character expressions are apomorphies. Accordingly, other genera with buttonhole configuration (Table 1) would be relatively close relatives of *Cyphon*, in agreement with a clade proposed by KLAUSNITZER (2009b) but which was not strongly supported. Careful checking and additional research are needed concerning the other genera with buttonhole configuration because this is presently a one-character-classification, for lack of information.

Assumed close relations between *Cyphon*, *Microcara*, and *Prionocyphon* are in conflict with cladograms of Scirtidae based on 56 previously known characters of habitus and appendage structure (LAWRENCE & YOSHITOMI 2007). They show *Cyphon* as a monophylum (no Australian representatives studied) not closely related to *Prionocyphon* and *Microcara*¹ which are not sister taxa. On the other hand, *Microcara* and *Pseudomicrocara* would be fairly closely related which I doubt.

¹Errors in the data matrix to be corrected: 1, *Microcara* has no contiguous mesocoxae; in fact, they are separated by a distinct narrow process of the mesoventrite. 2, the scutellar front edge of *Cyphon* does not differ from *Microcara*, *Prionocyphon*, and most other genera.

Table 1. Distribution of selected character expressions in genera or species groups of Scirtidae. *Italian script* = present in Australia; **bold italic** = endemic to the Australasian region; roman script = not known from Australia. YES = character present; no = not present; empty cell = unknown; n. a. = not applicable. Statement in bracket: not uniform, exceptions occur. Taxa resembling *Cyphon* in habitus below the first empty line, taxa of different habitus below the second empty line. Based on personal observations

	Buttonhole configuration	Brush organ	Male sternite 8 entirely membranous	Trigonium split into a pair of prostheses
<i>Cyphon coarctatus</i> -group s.str.	YES	YES	YES	YES
<i>Cyphon variabilis</i> -group	YES	YES	YES	YES
<i>Cyphon erythrinus</i> -group	YES	YES	YES	YES
<i>Cyphon trivialis</i>-group	YES	YES	YES	> discussion
<i>Microcara</i>	YES	no	(yes)	no
<i>Prionocyphon</i>	YES	no	no	no
<i>Nanocyphon</i>	YES	no	no	no
<i>Petrocyphon</i>	YES	no	no	no
<i>Calvarium</i>	no		no	variable
<i>Cyphon lindensis</i>-group	no	no	no	no
<i>Cyphon doctus</i>-group	no	no	no	no
<i>Cyphon frater</i>-group	no	no	no	no
<i>Pachycyphon</i>	no	no	no	no
<i>Ypsilocyphon</i>	no		(no)	no
<i>Herthania</i>	no		no	no
<i>Eurycyphon</i>	no		no	no
<i>Dasyscyphon</i>	no		no	no
<i>Chameloscyphon</i>	no		no	no
<i>Pseudomicrocara</i>	no		no	no
<i>Heterocyphon</i>	no		no	no
<i>Accolabass</i>	no		no	no
<i>Atopida</i>	no		no	no
<i>Scirtes</i>	no	no	no	no
<i>Ora</i>	no	no	no	no
<i>Exochomoscirtes</i>	no	no	no	no
<i>Hydrocyphon</i>	no		no	no
<i>Elodes</i>	no	no	no	n.a.
<i>Odeles</i>	no	no	no	n.a.
<i>Sacodes</i>	no	no	no	n.a.

TAXONOMY

AUSTRALIAN SPECIES OF *CYPHON* S. STR.

Within *Cyphon* s. str., the *variabilis*- and *coarctatus*-species groups have been recognized since NYHOLM (1948) (for example, YOSHITOMI 2005, KLAUSNITZER 2009b). The former group is a monophylum distinguished by the reduction of tergites 8 and 9, and especially by the co-aptation of the derivatives in a new functional unit. In contrast, entire tergites 8 and 9 which are plesiomorphic are diagnostic of the large diverse *coarctatus*-group. However, its monophyly needs to be established.

The three species which are described below are presently the only known true *Cyphon* species in Australia but there may be surprises. According to the literature they belong to the *erythrinus*-subgroup of the *coarctatus*-group which has received recent attention (YOSHITOMI 2009, KLAUSNITZER 2009c, 2012). The structure of sternite 9 (basally wide, caudally with projecting lobes and a pair of large horn-like processes) is the main diagnostic character. It varies only gradually between species but a medial rib on S9 may or may not be present. In the way that it was described, penis structure is similar to other groups. As an additional distinctive character I suggest the large size of S9 in which the other genital parts lie, like in a big tray (Fig. 23).

However, based on the morphology of the penis the species in the *erythrinus*-subgroup form two distinct groups. In the first, the pala has caudally no transverse sclerite of its own that closes it. Instead, the open caudal end is closed by a pair of appendages which are visibly articulated, with a distinct sinew attaching to their common base. Apparently, these are prostheses that can be bent ventrad. This condition occurs in the name-giving species, *C. erythrinus*, and in several others. Delimitation of the group against other horned Oriental *Cyphon* species with similar penis build is uncertain.

In the second group within the *erythrinus*-subgroup the pala is caudally closed by a sclerite of its own, and there is a pair of simple rigid caudolateral appendages without articulation and sinew. If these are modified secondarily immobile prostheses, or if the trigonium has entirely disappeared while parameroids remain, or if the appendages are new outgrowths from the pala itself I do not know. In any case, this condition is more derived from the ancestral pattern of mobile trigonium or prostheses, which supports the monophyly of the group including *Cyphon unipunctatus* KLAUSNITZER, 1980c, *C. scabridus* KLAUSNITZER, 1980b, *C. pavens* KLAUSNITZER, 1980b (here assigned to the group for the first time, from the description), the new Australian species, plus five new ones from Irian Jaya (descriptions in preparation).

I propose no new informal group-name but describe the new species, mainly by their genitalia. Generic characters discussed above are not repeated. Known females lack distinctive group characters, apodemes of S8 connected in front (Fig. 19), ovipositor not distinctive, prehensors (Figs. 20-22) complex.

***Cyphon mobula*, sp. n.**

(Figures 12, 13, 20)

MATERIAL STUDIED

♂ Holotypus, 3 mi W. of Mourilyan, N.Q., sandy soil at light, 5.xi.66, E.Britton; 7 ♂ paratypes, same data. Additional paratypes: 1 ♂, Black Mt. Rd. 2 mi. N. of Kuranda, N.Q., at light, 4.xi.67, J.G.Brooks; 1 ♂, Black Mt. Rd. 2 mi. N. of Kuranda, N.Q., at light, 4.xi.67, J.G.Brooks; 1 ♂, Cardstone, N.Q. 29.xii.1965 K. Hyde. 1 ♂, Russell R. at Bellenden Ker Landing, N.Q., 5 m, 24.Oct. 9.Nov.1981 EARTHWATCH / QLD. MUSEUM, Pyrethrum knockdown / QMSB (all ANIC). 1 ♂, Australia: N.Qld. Tolga N.Qld. 13.xii.1985 J.D.Brown light trap (QPIM). Australia: N.Qld, 15 km WNW of South Johnstone light trap, Fay & Halfpapp: 1 ♂, 17.x.1982; 3 ♂, 1 ♀, 22.x.1985; 1 ♂, 1.xi.1985; 1 ♂, 15.xi.1985; 1 ♀, 10.xii.1985; 1 ♀, 1.i.1986; 1 ♂, 1 ♀, 3.i.1986; 1 ♀, 14.i.1986; 1 ♂, 19.vi.1986; 2 ♂, 13.xi.1986 (all QPIM); 1 ♂, same locality, 13.xi.1986 (BQCC). 1 ♂, Innisfail Queensland; 2 ♂, 1 ♀, N. Queensland, Blackb's coll. 9 ♂ paratypes: QLD Abbatoir Swamp [16°36'47"S, 145°19'51"E] CHS WATTS 13/12/12(all SAMA)

DESCRIPTION

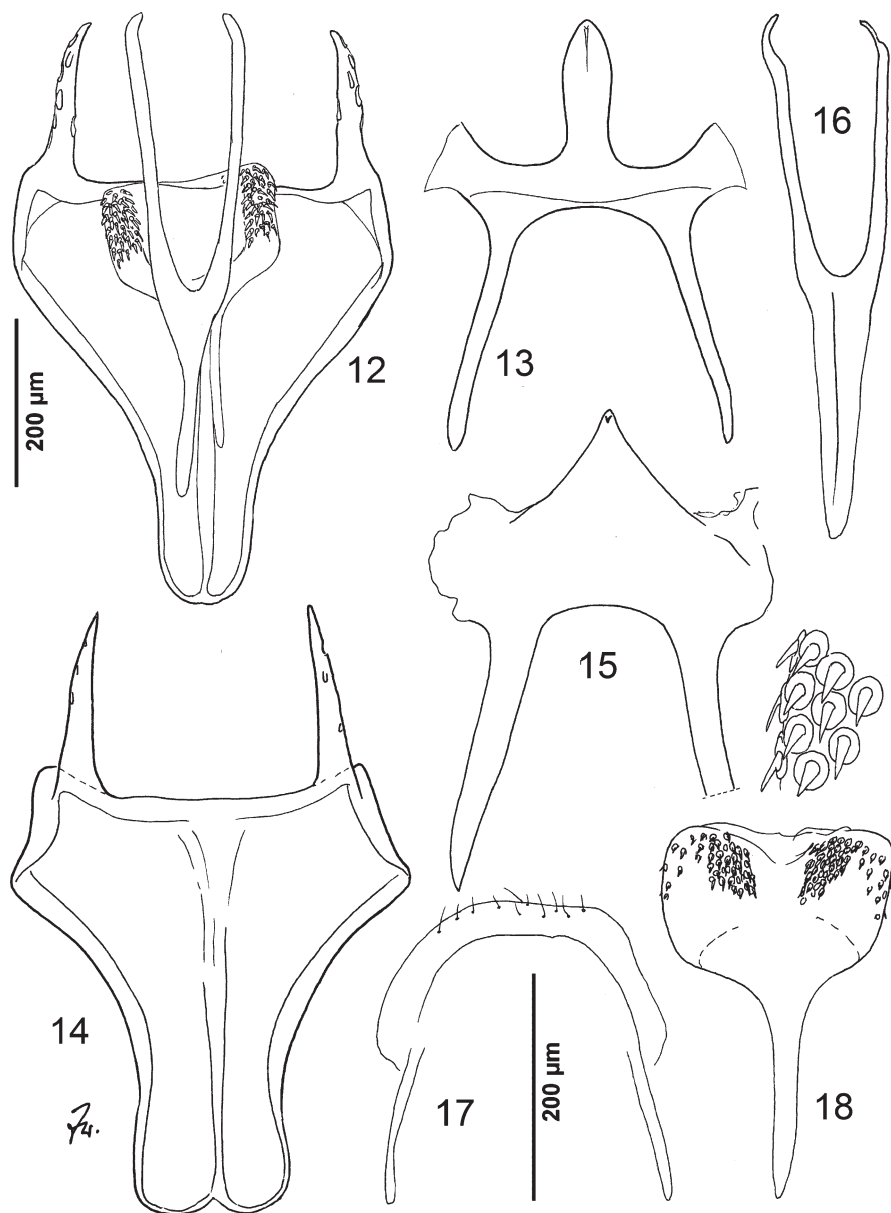
Habitus. Broadly oval in dorsal view, moderately convex. BL 1.9–2.2 mm, BL/BW ~1.6. Head large, 75% of PW, half as wide as body, with distinct genae. Eyes relatively coarsely faceted, small, but in side view extending to subgenal ridge. Antennae slender, distal flagellar segments about 2.5 times longer than apically wide, 4-8 subequal, last segment little longer, apically narrowed.

Pronotum wide and transverse, midline twice as long as side margins. Front margin medially slightly projecting over head, gently sinuous near slightly projecting blunt front angles. Hind margin a little extended towards triangular scutellum, sinuous near obtuse hind angles.

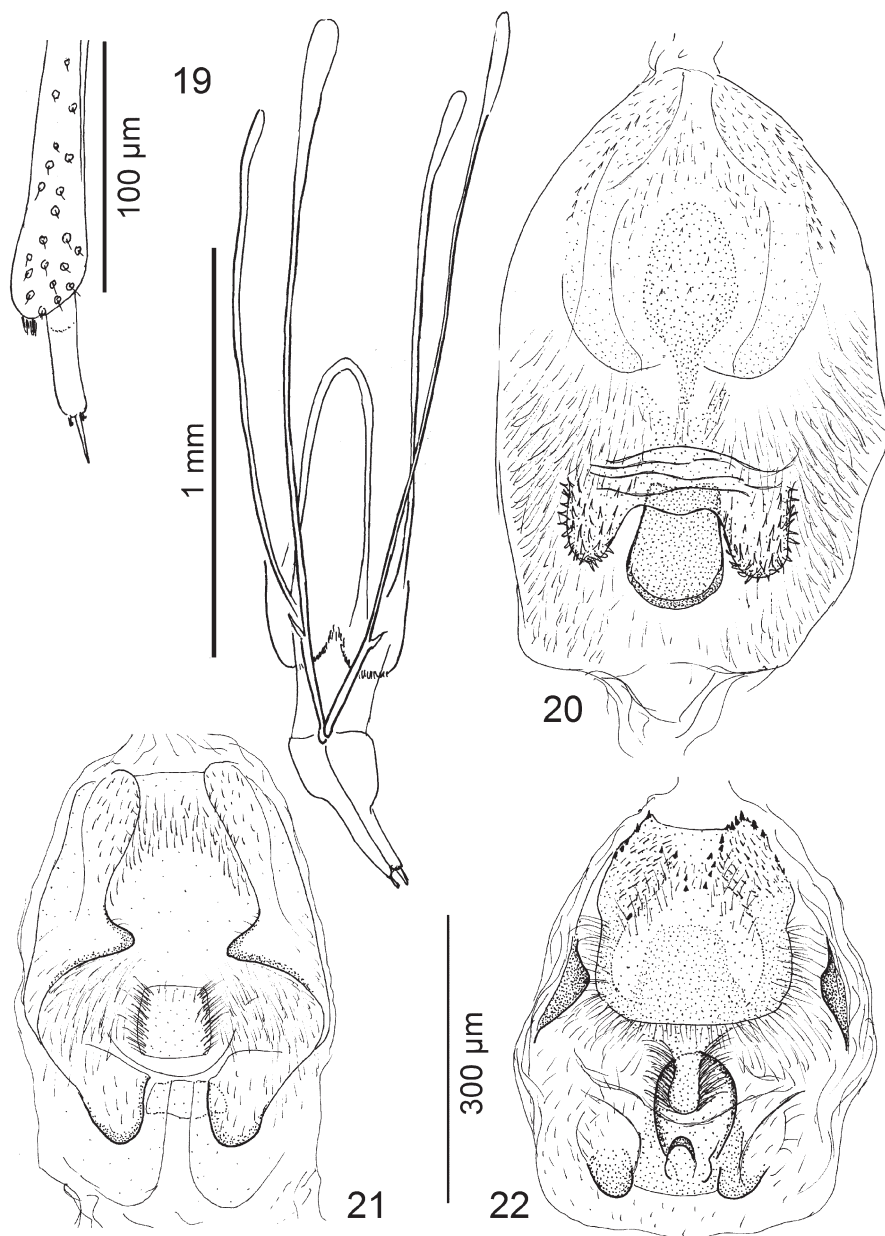
Sides of elytra convex to subparallel. Dorsal surface with rather apparent semi-erect yellowish pilosity. Punctures on head and pronotum granulous, fine, coarser and denser towards sides, on pronotum generally a bit larger than on head, sides of pronotum densely and roughly punctate. Elytral punctures fine, shallow, uniform across entire surface. Uniformly brown, in various tones, legs and antennae lighter.

Male. Of T8 only the short apodemes are distinct. The unpigmented unsclerotized plate is horseshoe-shaped, a few thin hairs along middle of caudal edge. S8 not observed.

T9 with long and strong apodemes supporting a transverse bar from which originates a finger-like basally slightly constricted sclerite ending in a sharp downcurved tip (Fig. 13). Lateral lobes membranous, poorly defined. S9 very large, calyx-shaped, caudally with two large horns with gently inward curved tips (Fig. 12). Caudolateral contour of S9 continues smoothly into horn contour, caudal edge between horns straight. The slender narrow base of S9 sclerotized only along edges and rib-like midline.



12-18. Male genitalia of *Cyphon mobula* sp. n. (12, 13) and *Cyphon mobuloides* sp. n. (14-18). 12 – S9 with penis and tegmen; 13 – T9; 14 – S9; 15 – T9; 16 – penis; 17 – T8; 18 – tegmen with detail of armature. The two species are shown at different scales but for a given species figures are at the same scale, except detail of tegminal armature (not to scale)



19-22, females of *Cyphon* spp. 19 – *C. sp. A*, a close relative of the Australian species, from Irian Jaya, S8 with ovipositor and enlarged apex of same, diagrammatic. 20-22, prehensors. 20 – *C. mobula* sp. n.; 21 – *C. mobuloides* sp. n.; 22 – *Cyphon* sp. near *mobuloides*

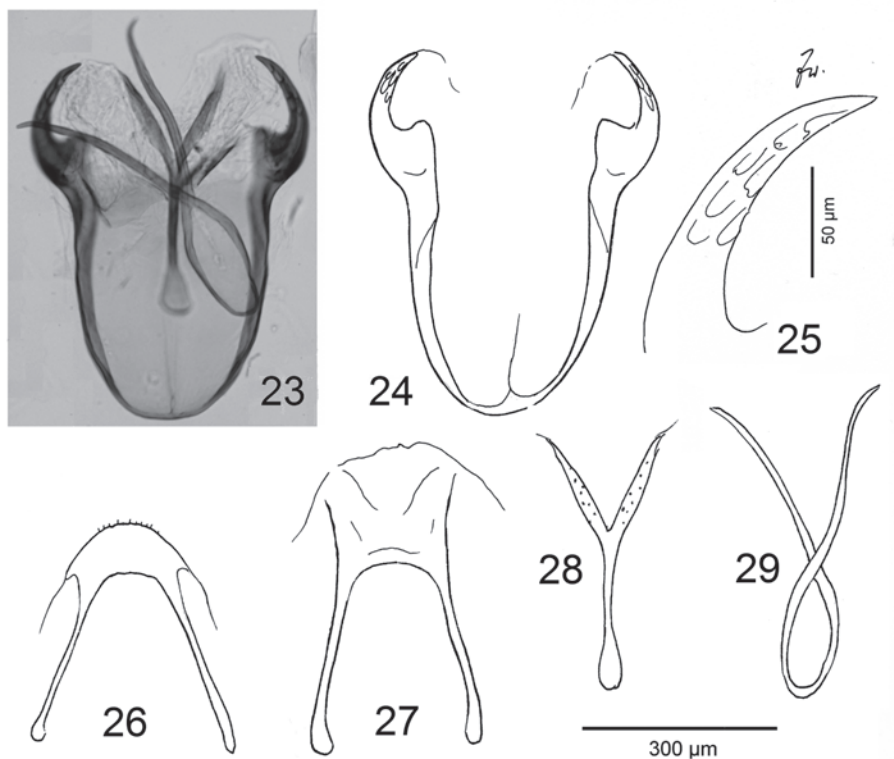
Penis slender, Y-shaped with unpaired closed slender pala forking abruptly into narrow appendages a third longer than the pala, tips pointing slightly mediad (Fig. 12).

Tegmen shaped like a tennis racket, the long spur-like base bare, the transverse caudally truncate part on each side with a patch of densely packed large setal rings with sharply pointed short setae, tips directed forward (Fig. 12).

Female (Fig. 20). Prehensor bag-shaped. A bare shining dark plate with upcurved caudal margin in the caudal third is flanked by two protuberances densely covered with sharp hooked spinules. In front of these structures are some undulating transverse folds in the prehensor wall. Anteriorly a large faintly pigmented plate is overlain by a drop-shaped slightly darker sclerite over which there are some small spinules. More and larger spinules form two convergent anterolateral bands. Most of the inner surface densely covered with slender trichomes, those in caudolateral areas particularly long, undulating, and dense.

ETYMOLOGY

Male sternite 9 with its paired processes reminded me of the silhouette of rays of genus *Mobula*.



23-29. *Cyphon reductus* sp. n., male genitalia. 23 – S9, penis and tegmen resting in it; 24 – S9; 25 – horn of same; 26 – T8; 27 – T9; 28 – penis; 29 – tegmen. 24 and 26-29 to the same scale

NOTES

Homology of male parts was interpreted from their relative position and by comparison with several larger species from Irian Jaya whose penis has a wide open pala (descriptions in preparation). The three Australian species are exceptional in this respect. *Cyphon mobula* is known only from a restricted area in the wettest part of the tropics near the coast of Queensland. The other two Australian species are allopatric.

***Cyphon mobuloides*, sp. n.**

(Figures 4, 14–18, 21)

MATERIAL STUDIED

Holotype ♂, 8♂, 4♀ paratypes: Jardine R. Xing 29 km S Bamaga [10° 53.708' S 142° 22.958' E] N.Q.28.Aug.-5.Sep.1985 E.N.Marks coll. ex light trap. 5 ♂ paratypes. Papua New Guinea: Laloki [6°40'27.62"S, 146°59'46.06"E], CSIRO Screw Worm Lab, Jan.–Mar.1987 S.Bakker ex flight intercept. trap (all ANIC).

DESCRIPTION

Habitus. BL 1.6–2.0 mm, BL/BW ca 1.6. Closely similar to *C. mobula* except slightly smaller. Genitalia similar but distinct.

Male. Similar to *C. mobula*, differences in S9 (Fig. 14) are most obvious. Sides of S9 angular in caudal fourth, distinct angular shoulders outside from base of straight barely scarred horns. Front end of S9 relatively wider, horns relatively longer than in *C. mobula*. T9 (Fig. 15) a broad-based triangular plate ending in a long sharp curved tip. Parameroids and pala of equal length. Penis similar to *C. mobula*, except rod-like pala not shorter than the caudal appendages (Fig. 16). Tegmen (Fig. 18) resembles that of *C. mobula*.

Female (Fig. 21). A pair of pointed angular sclerites projects far mediad into the prehensor. From the front edge of these sclerites two elongate sparsely pilose lobes extend forward between which occurs an arched field of stronger microtrichia. Caudally the contour line of the angular processes connects to a pair of short broad sclerotized lobes. Between them is a small rectangular plate, beneath them a pair of larger faintly sclerotized lobes. Centrally in the prehensor lies a rectangular plate with dense lateral fringes of straight microtrichia.

ETYMOLOGY

The name emphasizes the great similarity with *C. mobula*.

NOTES

The two similar species differ little in body length, but nevertheless the genitalia of *C. mobuloides* are about 1/4 smaller than those of *C. mobula*, mind the different scales in Figs. 12 & 13 and Figs. 14–16, respectively. However, genitalia of both are similarly complex, the smaller one is not structurally simpler as one might expect in view of *C. reductus* sp. n.

Known from tropical Australia (Arnhem Land and top of Cape York Peninsula, both far from where *C. mobula* occurs) and from Eastern New Guinea.

Cyphon* sp., near *mobuloides

(Figure 22)

MATERIAL STUDIED

1 ♀, 12.48S 132.42E Noorlangie Creek, N.T., 8 km N of Mt. Cahill, 26.x.1972, at light, E.B.Britton.

DESCRIPTION

Habitus. Resembles *C. mobuloides* in size and habitus and was initially mistaken for it. However, the prehensor is different. In the absence of males, the species is not named.

Female. (Fig. 22). Prehensor bag-shaped. Two inwardly projecting sclerotized angles on the sides, near midlength. Median caudal plate only weakly sclerotized, an oval field with a small centro-caudal pocket lies over it. The caudolateral protuberances are well defined, bare. Further in front is a structure resembling a key-hole from which dense packs of folds (or trichomes ?) extend sideways. The central sclerite is weakly sclerotized and pigmented, the plate over it is approximately rectangular, anteriorly narrowed, front edge concave, with distinct convergent anterolateral spinule bands and scattered central spinules. Slender radiating trichomes around plate.

NOTE

By the angular projections inside the prehensor this species resembles *C. mobuloides*.

***Cyphon reductus*, sp. n.**

(Figures 23–29)

MATERIAL STUDIED

Holotype ♂, NSW: 3 km NE Harrington; littoral rainfor.; G.Williams 21 Feb. 1992 / ex *Alphitonia excelsa* blossoms / genus nr “*Cyphon*” Scirtidae (AMS). Paratype ♂, same data, fore body missing (ANIC).

DESCRIPTION

Habitus. BL 1.85 mm, BL/ BW ~1.5. Shape similar to the preceding two species. Head and pronotum rufous, elytra chestnut brown, shoulders a little lighter.

Male. T8 small, caudal margin parabolic, a few microtrichia along it. Apodemes convergent. Apodemes of T9 longer, disc parallel-sided, unsclerotized, caudal margin membranous, not clearly defined, bare (Figs. 26, 27).

S9 large, a well sclerotized U-shaped frame, centre membranous except a weak incomplete median rib near front end (Figs. 23, 24). Caudolaterally with large claw-shaped horns, each with a knee-shaped baso-medial projection, surface distinctly scarred (Fig. 25).

Penis a slender Y-shaped structure, the divergent pointed caudal processes with some pores (Fig. 28.) Tegmen and parameres are thin round sclerites resembling a shoe lace anteriorly connected in a loop (Fig. 29).

Female. Unknown.

ETYMOLOGY

The specific name 'reduced' refers both to the small body size and the simplified structure of the male genitalia representing an extreme stage of reduction within *Cyphon*.

NOTE

This small-sized species occurs near the eastern coast of New South Wales, far from its relatives.

Nanocyphon, gen. n.

DIAGNOSIS

- Subgenal ridge with buttonhole configuration, gular suture short.
- Mandibles without teeth.
- Terminal segments of maxillary and labial palpus are short cones.
- Tegmen and penis firmly connected in a copulatory organ. Parameroids transformed into an unpaired flat plate above the spine-shaped ventral trigonium.

DESCRIPTION

Small (BL 1.2-2.0 mm) beetles with large heads (HCW ~ half maximum body width), small pronotum and basally subparallel elytra. Widest point of elytra just behind midlength, apex acute to triangularly extended. Details of body shape vary between species. Surface with greyish semi-erect pubescence, some longer more apparent hairs are interspersed, mainly on sides of elytra. Head and pronotum with raised setiferous rather large granules, those in middle of pronotal disc finest, the lateral ones coarsest. Scutellum subtly punctate and pilose. Elytra with normal punctures.

Eyes in lateral view separated from subgenal ridge by about $\frac{1}{4}$ of their diameter. Short temporal and genal areas visible in dorsal view. Ventral head sutures as described above. Antennae short, third segment narrower but not shorter than second, distal flagellomeres short, little longer than wide (Fig. 34).

Labrum small, with a single pair of sensory pores on sclerotized base, another more widely separate pair near midlength (Fig. 30). A bare strip behind the semicircular medially indented front margin. Mandibles symmetrical, with curved slender sharp tip, no teeth, a short raised cutting edge near middle (Fig. 31). Third (= penultimate) maxillary palpus segment distally enlarged, last segment short, conical, terminally inserted (Fig. 32). Mentum trapezoidal. Linguae resembling a Gingko-leaf. 2nd segment of labial palpus inflated, curved, the small conical terminal segment is sinuous and inserted on the anteriorly directed end of the 2nd segment (Fig. 33).

Sides of pronotum gently curved, anteriorly converging. All corners blunt but marked, middle of front margin shallowly excised, straight, front corners therefore a little projecting. Rear edge indistinctly sinuous near corners. Scutellum an equilateral triangle. Elytra widest just behind midlength, front half subparallel, only faintly converging towards pronotum. Rear half more distinctly curved, elytral tips together form a parabolic contour. In caudal view the very tip is pointed, forming a minute triangular extension, most distinctly in *N. australicus*.

Legs short, not saltatorial, not distinctive.

Lower face. Similar to *Cyphon*. Prosternal process ends in an oval plate. Receiving groove of mesoventrite shallow and short, flanked on either side by a raised tubercle. Two vertical plicae on vertical front of mesoventrite. Process of mesoventrite separating coxae short, sides parallel, caudally narrowly excised. An irregular band of groove-like punctures behind front edge of metaventrite. Discrimen on metaventrite distinct in caudal half. Abdominal sternites not connate. Sides of S3 and S4 shiny, hairless or almost so. Other sternites with normal pilosity. Visible sternites 2 and 3 with basal row of piliferous granules. Apex of last visible sternite shallowly notched.

Male (Fig. 41). S8 a small angular sclerite strip. T9 with slender straight apodemes, the small membranous plate bare, no defined shape. Base of S9 with pair of divergent sclerite straps, distally bilobed, with sparse straight setae.

Tegmen and penis firmly connected, together forming the copulatory organ. Tegmen dorsally a wide parabolic shield, its front bordered by a sclerite ring. Caudolaterally the tegmen narrows and divides into long straight parameres whose caudal ends resemble a bird's head. Shorter ventrobasal lobes of the tegmen extend far ventrad and are firmly connected to the edge of the pala (Fig. 40). The elongate pala has the form of a ventrally open tube anteriorly bordered by a sclerotized rim. Trigonium very narrow, needle-like, its tip gently downcurved. Dorsally from the trigonium is an elongate median plate about twice as long as the pala and much longer than the parameres. The plate bears some sensory pores at its tip, it is homologous to merged parameroids.

In naturally everted condition (Fig. 37) the trigonium is bent ventrad, the elongate median plate points backward, the parameres are directed obliquely upward.

Female. Generally similar to male. No hair patches or the like on abdominal sternites. S8 minute, barely larger than the slender gonocoxites & -stylites of the ovipositor, unsclerotized, supporting sclerite strips (bacula) visible only with difficulty, anteriorly separate, ovipositor normal, not distinctive (Figs. 35, 36). No vulvar sclerite, no prehensor, no brush organ. The approximately spherical accessory gland is attached to a relatively short and wide duct, both with extremely delicate cuticular folds or microtrichia, most apparent on a peripheral belt of the gland. Specific differences were not observed. Females are therefore regarded as additional material that is assigned no type status.

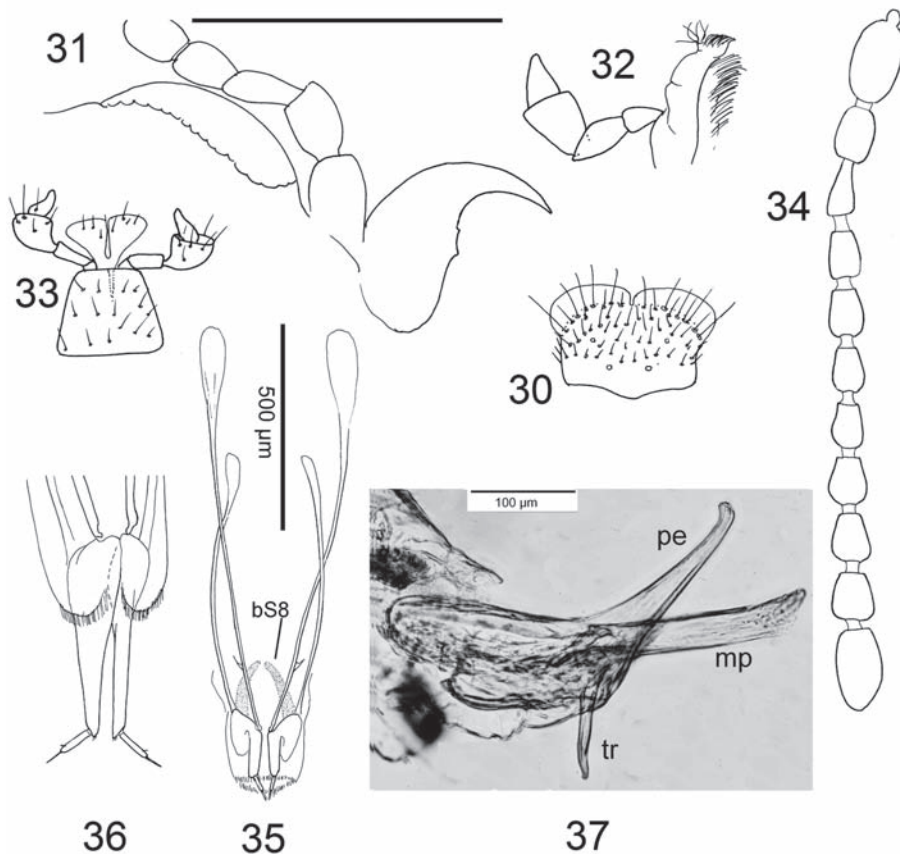
ETYMOLOGY

The name alludes to the small size of the included species, based on Latin *nanus*, very small.

NOTES

The replacement of paired parameroids by a penis-like plate dorsally from the trigonium and fusion of penis and tegmen in *Nanocyphon* are remarkable and simplify the structure of the copulatory organ. In *Nanocyphon tardus* it was called "ursprünglich" (KLAUSNITZER 1980b). However, in no Scirtidae unpaired dorsal structures above the trigonium exist, except among some small *Cyphon*-like taxa. Accordingly, such conditions are presumably not plesiomorphic. They also differ in structural detail, occur in otherwise very different beetles and seem to have arisen several times independently.

For example, in the group including *Cyphon* (s. l.) *doctus*, the parameroids form a thin screen above the trigonium, with a central transparent area behind it and often with upcurved flange-like margins. This group will soon be excluded from *Cyphon*, because of characters listed in Table 1 plus additional evidence (in preparation).



30-37, *Nanocyphon australicus* sp. n. (30-34) and *N. riedeli* sp. n. (35-37). 30 – labrum; 31 – part of head capsule with eye, mandible and base of antenna, ventral view; 32 – right maxilla, ventral view; 33 – mentum with linguae and labial palpi, ventral view; 34 – antenna. 30–33 to the same scale, scale bar is 500 µm; 34 not to scale. 35 – ovipositor, contracted; 36 – tip of ovipositor, extended; not to scale; 37 – naturally everted male genitalia, lateral view. bS8, bacula of sternite 8; mp, median plate; pe, paramere; tr, trigonium

The *Cyphon-trivialis*-group from New Zealand includes true *Cyphon* species displaying the characters in Table 1, except for the penis structure. NYHOLM (2000) mentioned of a dorsal plate that in some species was not yet completely divided into parameroids but did not comment on the conflict with his earlier ideas (1969) where he had derived *Cyphon* from the *Microcara*-morphocline in which unpaired structures dorsally from the trigonium do not occur. Additional examination is needed because the structure is very complex (best noticed in lateral views; specimens in my collection but also figures 4H, 6I, for example, in NYHOLM 2000), and the presumed homologies require confirmation.

Nanocyphon species are unusual among the *Cyphon*-like Scirtidae in that the genitalia are very uniformly built and specific differences are subtle, even between taxa that can easily be distinguished by habitus. Judging from the illustration of the genitalia *Cyphon lucidus* KLAUSNITZER, 1980 (from New Caledonia; KLAUSNITZER 1980b) seemed to belong here but a SEM-photograph of the ventral body face (courtesy of R. RUTA) shows it does not.

Type species: *Nanocyphon australicus*, sp. n.; gender: masculine.

***Nanocyphon australicus*, sp. n.**

(Figures 30–34, 41)

TYPE MATERIAL STUDIED

Holotype ♂, 8 ♂ paratypes, Black Mtn. Reserve, A.C.T., E. slope 3.x.70, on flowers, S.Misko. Additional paratypes: 8 ♂, Black Mtn. Reserve, ACT, E slope, 17.xi.1970, on shrubs, S.Misko; 1 ♂, Youngs Creek VIC 12 km N of Orbost 9.Nov.1976 D.Colless, Z.Liepa; 1 ♂, 34.24S 150.51E Mt.Keira NSW 31.May 1991 C.Reid Coll. (all ANIC). 1 ♂, Galston N.S.W. Lea & Dumbrell / 8797 N. S. Wales (SAMA). 2 ♂, 1 ♀, NSW: Jamieson Park, Narrabeen, 33°43S; 151°18'E, 6-20 Nov:1995, M.R.Gray & H.M.Smith, site 5 Casuarina glauca open forest, altitude 0m large pit-traps (AMS, K304898-K304890).

ADDITIONAL MATERIAL STUDIED

5 ♀, Black Mtn. Reserve, A.C.T., E. slope 3.x.70, on flowers, S.Misko; 2 ♀, 5 undissected and unsexed specimens, Black Mtn. Reserve, ACT, E slope, 17.xi.1970, on shrubs, S.Misko (all ANIC). 1 ♀, NSW Munmorah State Rec -33.13.09 151.34.15 18/11/96 L.Wilkie ex Chrysanthemoides mon MUNI192/07F / SCRT 002 Scirtidae sp.2 det CAN Reid (AMS, K137821). Included with doubts: 3 ♂, 1 ♀, 2 mi. N of Cooroy, NE of Nambour, Qld. 15 May 1970, Z.Liepa [26.684 E, 153.008 N](AMS, K304898-K304900).

DESCRIPTION

Habitus. BL 1.6–1.9 mm. Slender, BL/BW ~ 1.7. HCW almost 60% of maximum body width. Yellowish to brown. Punctures on head and especially pronotum fine, those on elytra several times larger.

Male (Fig. 41). Median plate of copulatory organ with simple parabolic apex. The spine-shaped trigonium is a little longer than half the plate. Parameres caudally narrow, long, reaching much further back than trigonium. Paramere apex medially angular, tooth directed obliquely outward and forward. Widest point of copulatory organ much closer to front edge of tegmen than to apices of parameres.

Female. As for genus.

NOTES

Easily distinguished from its congeners by slender habitus and fine punctation of fore body. Occurs in South-East Australia: in New South Wales from North of Sydney southward into the Australian Capital Territory and East Gippsland in Victoria.

The males from Queensland differ from the others by two short longitudinal lines of needle-fine spinules near the caudal end of the median sclerite, similar to spinules in *N. riedeli* sp. n. The status of these beetles is uncertain, other differences were not observed.

Nanocyphon sp.

MATERIAL STUDIED

3 ♀: West Tamar [Australia, Tasmania, NW of Launceston] (SAMA).

DESCRIPTION

Habitus. The beetles are 1.7 mm long and resemble *N. australicus* except punctures on head much finer, almost as fine as on pronotum.

Nanocyphon riedeli, sp. n.

(Figures 35–40, 42)

MATERIAL STUDIED

Holotype ♂, 12 paratype ♂, 3 presumed ♀: Irian Jaya: Jayawijaya Eipomek-Langda Oranje-Mts. 23–24.8.1992 leg. A.Riedel 3500 m; over 1000 additional specimens from the same series were not dissected and have no type status. 1 paratype ♂: Irian Jaya: Jayawijaya Langda 27.–28.8.1992 leg. A.Riedel 2100–2300 m; 1 paratype ♂: Irian Jaya: Jayawijaya Wamena, Jiwika 29.9.1992 leg. A.Riedel 2300m (all SMNS).

DESCRIPTION

Habitus. BL 1.8–2.0 mm. Stout, BL/BW ~ 1.6. HCW 60% of maximum body width. Head and pronotum blackish, elytra dark brown. Legs and antennae yellowish, distally infusate. Surface punctation generally coarser and rougher than in *N. australicus*, punctures on head and especially pronotum coarse, punctures on elytra larger, but not as different from fore body as in *N. australicus*.

Colour of upper face varies, ranging from reddish to dark brown, apparently with degree of maturity. Darkening of elytra begins in front but a narrow sutural stripe may have a reddish hue even in well pigmented individuals.

Male. Very similar to previous species but the trigonium is longer, about $2/3$ the length of the median plate which has on its dorsal side a patch of very delicate spinules or microtrichia best seen in profile. The parameres are stouter than in *N. australicus* and still longer, their apices are medially rounded and curve gently outwards, the tooth on the outside is directed sideward. Widest point of copulatory organ much closer to front edge of tegmen than to apices of parameres.

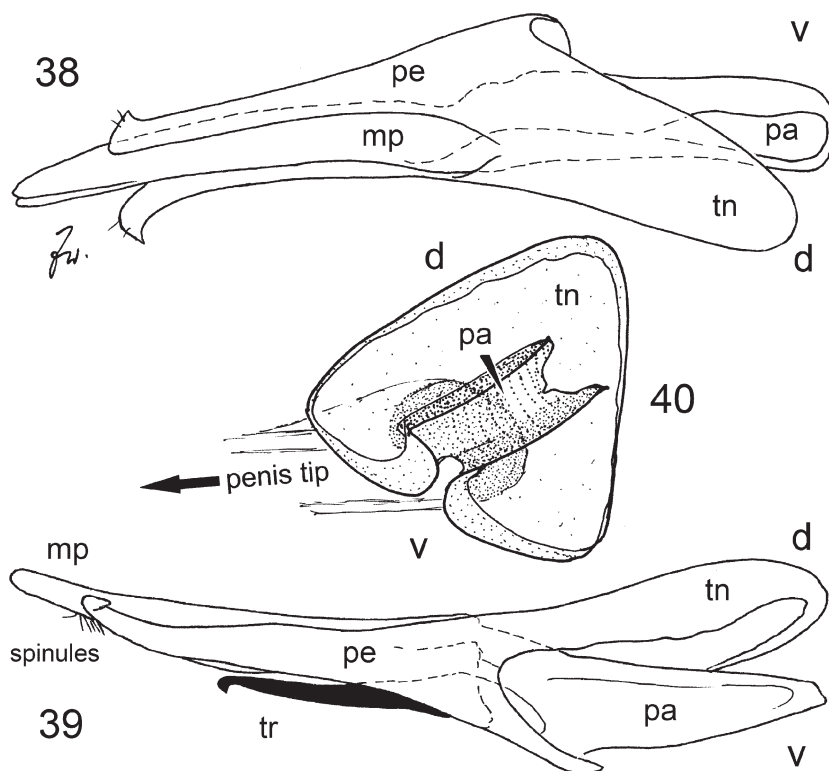
Female. As for genus.

ETYMOLOGY

Dedicated to the collector of the abundant material, ALEXANDER RIEDEL, Karlsruhe.

DISTRIBUTION

Known only from the type locality in sub-alpine grassland with small pools in Irian Jaya. All material from Irian Jaya studied here was collected before GPS-units were



38-40, *Nanocyphon riedeli* sp. n., penis. 38, 39 – lateral views, in different dorso-ventral orientations; 40 – diagrammatic view into the penis base, from in front, after a specimen in Euparal standing on the penis tip.

Not to scale. d, dorsal; mp, median plate; pa, palus; pe, paramere; tn, tegmen; tr, trigonium; v, ventral

available. A. RIEDEL communicated some approximate geographic coordinates read from maps which, however, are often far from accurate (RIEDEL, pers. comm.).

***Nanocyphon papuanus*, sp. n.**

(Figure 43)

MATERIAL STUDIED

Holotype ♂, 27 paratype ♂, 17♀: Irian Jaya: Jayawijaya Gn. Elit 3500m 25.-26.9.1992 leg. A.Riedel; 5 paratype ♂: Irian Jaya: Jayawijaya w. Gn. Elit 3300m 26.-27.9.1992 leg. A.Riedel.

DESCRIPTION

Habitus. Similar to *N. riedeli* but stouter, BL / BW ~1.6, BL 1.6–1.9 mm. Colour varies from reddish with caudal third of sutural stripe lighter than rest to uniformly dark brown with dark rufous end of sutural stripe.

Male. Median sclerite long, projecting much further caudad beyond apices of parameres than in the other species. Trigonium short, not attaining level of paramere tips, ending far from fairly abruptly narrowing apex of median sclerite. Parameres little narrowed towards apex which is almost truncate, with short outwardly pointing tip. Widest point of copulatory organ about equidistant from front edge of tegmen and from apices of parameres. Wide penis section long, its sides rounded.

Female. As for genus.

ETYMOLOGY

The name is derived from the range of the new species.

DISTRIBUTION

Known only from Gunung Elit and its immediate vicinity in Irian Jaya, from sub-alpine grasslands including some puddles. Mt Elit is South of Prongkoli which is situated at 4.182°S, 139.317°E (A. RIEDEL, pers. communication).

***Nanocyphon intricatus*, sp. n.**

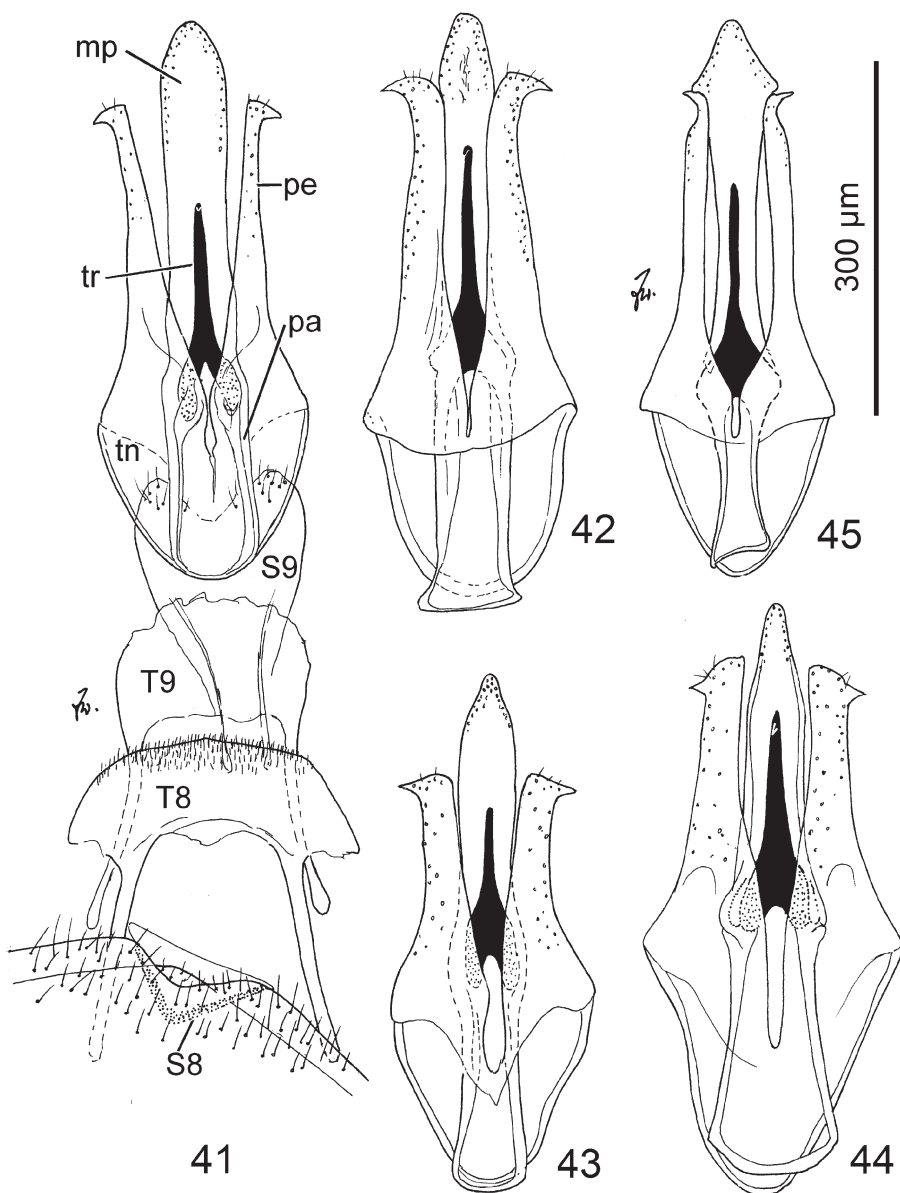
(Figure 44)

MATERIAL STUDIED

Holotype ♂, 7 ♂ paratypes: Irian Jaya: Jayawijaya Larye (pr.Langda) 26.8.1992 2200-2600 m leg. A.Riedel; 1 ♂ paratype, Irian Jaya: Jayawijaya Wamena, Jiwika [3.8°S, 138.85°E; Gazetteer] 29.9.1992 leg. A.Riedel 2300m.

DESCRIPTION

Habitus. BL 1.6–1.9 mm, BL / BW ~ 1.6, same stout shape as *N. papuanus*. The specimens are reddish to reddish brown. Their light colour probably indicates that the specimens were recently emerged.



41–45, male genitalia of *Nanocyphon* spp. 41 – *N. australicus* sp. n., tip of 7th sternite and protracted genitalia, dorsoventral view (holotypus). 42–45, penes in ventral view. 42 – *N. riedeli* sp. n.; 43 – *N. papuanus* sp. n.; 44 – *N. intricatus* sp. n.; 45 – *N. pumilus* sp. n. All to same scale. mp, median plate; pa, pala; pe, paramere; tn, tegmen; tr, trigonium

Male. Trigonium stouter than in the congeners. Distance of trigonium tip from apex of parameres about the same as distance of the latter from narrow tip of median sclerite. A subterminal ventral tooth on straight apex of trigonium. Contour of copulatory organ laterally angular, widest point a little closer to front edge of tegmen than to apices of parameres. Parameres stout, straight, with a small cap-like extension at tip, the external tooth distinctly subterminal.

Female. Not known.

ETYMOLOGY

The Latin specific name (= embarrassed) alludes to my initial embarrassment regarding the separation of the related species. *N. intricatus* seems to occur over some distance along the Baliem-Valley in Irian Jaya, from near Jiwika [approximately 3.933°S, 138.962°N] to near Langda [approximately 4.633°E, 13.633°N].

Nanocyphon pumilus, sp. n.

(Figure 45)

MATERIAL STUDIED

Male holotype, Irian Jaya: Prov. Monokwari, Ransiki>Anggi 16.8.1991, 1850-2050 m, leg. A. Riedel [Ranasiki: 1.5°S, 134.1667°E; Gazetteer] (SMNS).

DESCRIPTION

Habitus. BL 1.2 mm. Stout, BL/BW ~ 1.6. HCW 55% of maximum body width. Entirely light reddish brown, elytra a little darker than fore body. Punctures on head and elytra very large, those in middle of pronotum a little finer.

Male. Apex of median sclerite plate shaped like an arrowhead. The trigonium is short, about 3/5 the length of the plate. Parameres slender, subterminally additionally narrowed, the slender curved apex pointing sideways.

Female. Unknown.

ETYMOLOGY

Latin *pumilus* designates a dwarf.

DISTRIBUTION

Known only from the type locality on the Jazirah Doberai Peninsula (Vogelkop) of Irian Jaya.

Nanocyphon tardus (KLAUSNITZER, 1980), new combination

Only the holotype from New Guinea, Lake Habbema [~ 4.134°S, 138.557°E], is known (KLAUSNITZER 1980a). Incompletely known, detailed comparison presently not possible. Identity with any of the other species can nevertheless be excluded on the following grounds:

- BL 1.4 mm, probably measured including the head: too small to be *C. australicus* or *C. papuanus*
- Size similar to *C. pumilus* but penis simply pointed (KLAUSNITZER 1980a, his fig.15), not shaped like an arrow-head.

The holotype (in RMNH, Leiden) can presently not be located (J. A. J. M. HUIGBREGTS, in a letter).

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