

PEST SPECIES OF THE GENUS *ORIBIUS* MARSHALL (COLEOPTERA: CURCULIONIDAE) IN PAPUA NEW GUINEA

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ABSTRACT

The genus *Oribius* Marshall (Coleoptera: Curculionidae) contains a number of important agricultural pest species within PNG. Unfortunately, the taxonomy of the group is poorly known and current and future agricultural research is limited by the inability to identify these insects. As an aid to applied research, and future taxonomic studies, a preliminary assessment of the genus *Oribius* was undertaken. *Oribius* contains 25 formally described species and a further 30 species, provisionally placed in the genus. The status of these provisionally placed species remains uncertain. Seven pest species are identified from Papua New Guinea, five which were confirmed to species level (*O. cinereus* Marshall, *O. cruciatus* (Faust), *O. destructor* Marshall, *O. improvidus* Marshall, *O. inimicus* Marshall) and two which may be new (*Oribius* sp. near *leucopleurus* (Faust) and *Oribius* sp. 1). A diagnosis for each of these seven species is provided, as is a key for their identification.

Key words: grey weevils, PNG agriculture, pest management, Otiorrhynchinae, Celeuthetini

INTRODUCTION

Weevils (Coleoptera: Curculionidae) of the genus *Oribius* Marshall, commonly known as either oribius weevils or grey weevils, are abundant throughout Papua New Guinea (PNG) and West Papua. *Oribius* species are restricted to the island of New Guinea (Thomas & Verloop 1962) and the northern tip of Cape York, Australia (Zimmerman 1991). Adults of *Oribius* spp are flightless and walk onto their host plants where they feed on leaves, soft shoots, green stems, flower buds and developing fruits (Thistleton 1984). Pest species of *Oribius* attack a wide range of agricultural crops, from leafy greens through to introduced orchard trees and field crops such as coffee (Marshall 1957, 1959; Szent-Ivany 1959; Szent-Ivany & Stevens 1966; Greve & Ismay 1983; Thistleton 1984; Waterhouse 1997). *Oribius* spp are also recorded as forestry pests (Gray & Wylie 1974) and they are an abundant component of the PNG rainforest insect fauna (Novotny *et al.* 2002). Feeding by *Oribius* causes significant loss of growth, yield decline, downgrade of crop marketability and, in severe cases, tree and seedling mortality.

Taxonomically, *Oribius* is poorly worked and identification of even the common pest species is difficult. This limits the ability to carry out sound

scientific research on the pests, as effective pest management should be built upon a basis of knowing the species status of the animals being studied (Walter 2003). As an aid to applied research, this paper presents a taxonomic history and synopsis of the genus, distribution of species where known, diagnostic descriptions of seven PNG pest species and a key to those species. The seven pest species have been identified through literature records and from original research (see Acknowledgements).

MATERIALS AND METHODS

Materials examined

Materials examined came from museum held specimens as well as fresh field collected specimens. Museum specimens examined were held at the sub-regional insect collections of the National Agricultural Research Institute of Papua New Guinea (located at Kila Kila- Port Moresby, Buba- Lae and Kerevat- Rabaul); Forest Research Institute of Papua New Guinea Insect Collection, Lae; New Guinea Binatang Research Centre Collection, Madang and Queensland Museum, Brisbane, Australia. Type specimens of *O. destructor* and *O. inimicus* were loaned from the British Museum of Natural History (BMNH). Fresh

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specimens were collected from Central, Morobe, Madang, Eastern Highlands, Chimbu, Western Highlands and Southern Highlands Provinces. Most specimens were examined at the National Agricultural Insect Collection in Kila Kila, Port Moresby. Illustrations were done at the Queensland University of Technology, Brisbane, Australia. All of the field collected specimens are housed at the National Agricultural Insect Collection.

Terminology

Most of the morphological terminology used follows that of Marshall (1956).

Taxonomic history of the genus *Oribius*

Taxonomic work on species formally or provisionally placed within *Oribius* dates from the mid-1800s to the mid-1900's (Gerin 1841; Blanchard 1850, 1853; Pascoe 1871, 1885; Faust 1897, 1899; Lea 1910, 1927a,b; Heller, 1935; Marshall 1915, 1956, 1957, 1959). The only comprehensive work on the genus was pursued by Marshall, but ceased with his death in 1959. Excluding photographs of the Australian *Oribius* species (Zimmerman, 1991), there has been no further published work on *Oribius* since Marshall's last paper.

The genus *Oribius* Marshall (Family Curculionidae: Sub-family Otiorrhynchinae: Tribe Celeuthetini) was erected to accommodate species that were earlier placed within the genus *Coptorhynchus* Guérin-Méneville 1841 (Marshall, 1956). Marshall (1959) separated *Oribius* from *Coptorhynchus* based on the following morphological characters: *head separated from the rostrum by a curved or angulate sulcus; antennal scape slender, cylindrical and setose; 10 striae on the elytra with the 10th stria complete and parallel with the ninth; femora of leg clavate with minute teeth and the sternum with the mesosternal process about as long as its least width or somewhat longer.* This contrasts with *Coptorhynchus*, where: *head is separated from the rostrum by a transverse sulcus; antennal scape thick and squamose with stiff curved setae; 10 striae on elytra with the 10th stria entirely obliterated behind the metasternum; femora of leg moderately clavate with two or three minute teeth on the lower surface, and the sternum with the mesosternal process much longer than its least width.*

As given by Marshall (1957), the formal diagnosis of the genus *Oribius* is as follows: *Head separated from the rostrum by a curved or angulate sulcus, not constricted behind the eyes, which are*

moderately and evenly convex. Rostrum parallel-sided, with (type) or without a low elevation above the abrupt apical declivity, which is devoid of scales; mentum resting on a short peduncle. Antennae with the scape slender, cylindrical, setose only; funnicle with all the joints longer than broad. Prothorax truncate at the base and there wider than the apex, which is obliquely truncate laterally, granulate or granulate-punctate. Elytra ovate, with 10 striae, the tenth complete and parallel with the ninth. Legs slender, the femora clavate, the hind pair varying in length, not reaching the apex of the elytra in some and exceeding it in others; tibiae not denticulate, the front pair straight dorsally. Sternum with the front coxae subcontiguous or very narrowly separated, nearer to the front margin of the prosternum; mesosternal process about as long as its least width (type) or somewhat longer. Venter with ventrite 2 longer than 3 and 4. The type species of the genus is *Oribius generosus* (Faust, 1897) and the type locality is 'New Guinea' (specific locality not given).

Twenty-two *Coptorhynchus* species were transferred into *Oribius* by Marshall (1956), while a few more were transferred from other related genera. Marshall provisionally assigned a further 30 species to *Oribius*, but he was unable to confirm the genus change due to unavailability of type specimens (a problem which remains in the study of this group) (Table 1). After the erection of the genus, a further three species were described from Papua New Guinea: *O. destructor* Marshall, 1957, *O. inimicus* Marshall, 1957 and *O. cinereus* Marshall, 1959. In his revision of the tribe, Marshall (1956) presents a key to the tribe Celeuthetini (Otiorrhynchinae), which is extremely useful in helping to set limits to the genus.

Distribution of *Oribius* species

Oribius is restricted to the Island of New Guinea (Irian Jaya, Indonesia and Papua New Guinea), including some of its outer islands, and the northern tip of Queensland, Australia, including the Torres Strait Islands. Six species (*O. albivarius* (Lea), *O. equinus* (Lea), *O. gestroi* (Pascoe), *O. jansoni* (Pascoe), *O. tessellatus* (Blanchard), *O. trivittatus* (Lea)) have been described from Australia (Zimmerman 1991), while the remaining 18 species and all provisional species are known from the island of New Guinea. Distribution records of most New Guinean species remain unknown as records were simply given as 'New Guinea', without specific collection localities. The known provincial distributions of Papua New Guinea species are given in Table 2.

Table 1. Species formally or provisionally placed within the genus *Oribius* by Marshall (1956) and those species described subsequent to the erection of the genus.

Species formally placed into <i>Oribius</i>	<i>O. albivarius</i> (Lea), <i>O. ambiguus</i> (Faust), <i>O. bombylius</i> (Guer), <i>O. crassirostris</i> (Pascoe), <i>O. cruciatus</i> (Faust), <i>O. demeijerei</i> (Heller), <i>O. elegans</i> (Guérin-Méneville), <i>O. equinus</i> (Lea), <i>O. generosus</i> (Faust), <i>O. gestroi</i> (Pascoe), <i>O. guttatus</i> (Pascoe), <i>O. guttiger</i> (Blanchard), <i>O. immitis</i> (Pascoe), <i>O. improvidus</i> (Marshall), <i>O. inornatus</i> (Pascoe), <i>O. jansonii</i> (Pascoe), <i>O. leucopleurus</i> (Faust), <i>O. leucostictus</i> (Pascoe), <i>O. servilis</i> (Pascoe), <i>O. subligatus</i> (Marshall), <i>O. tessellatus</i> (Faust), <i>O. trivittatus</i> (Lea)
<i>Oribius</i> species described after the erection of the genus	<i>O. cinereus</i> Marshall 1959; <i>O. destructor</i> Marshall 1957; <i>O. inimicus</i> Marshall 1957
Species provisionally placed into <i>Oribius</i>	<i>Coptorhynchus blanchardi</i> Faust; <i>C. bombycollius</i> Macleay.; <i>C. discretus</i> Faust; <i>C. distans</i> Faust; <i>C. ellipticus</i> Faust; <i>C. fraterculus</i> Faust; <i>C. fuscipes</i> Faust; <i>C. gratus</i> Faust; <i>C. guineensis</i> nom. nov. <i>improvidus</i> Heller.; <i>O. hellerianus</i> nom. nov. <i>leucostictus</i> Heller; <i>C. hospes</i> Faust; <i>C. hostis</i> Heller; <i>C. humilis</i> Faust; <i>C. hypocritus</i> Faust; <i>C. indiscretus</i> Faust; <i>Psomeles lateralis</i> Boisduval; <i>P. lepidus</i> Boisduval; <i>C. melancholicus</i> Boisduval; <i>C. nudus</i> Macleay; <i>C. pallax</i> Faust; <i>C. peronartus</i> Heller; <i>C. puncticollis</i> Faust; <i>C. quadriplex</i> Heller; <i>C. 14-maculatus</i> Chevrolat; <i>C. speculatus</i> Macleay.; <i>C. suavis</i> Faust; <i>C. subcylindricus</i> Faust; <i>C. unifasciatus</i> Faust; <i>C. valens</i> Heller; <i>C. vittaticollis</i> Heller

Table 2. Provincial distribution records of *Oribius* Marshall species within Papua New Guinea. [Abbreviations: NCD-SL: National Capital District-Specimen Label; NAIC-SL: National Agricultural Insect Collection-Specimen Label; QM-SL: Queensland Museum-Specimen Label]

<i>Oribius</i> spp.	Provincial Distribution	Reference/Source
<i>O. bombylius</i> (Guérin-Méneville)	Western	Lona 1937; Pascoe 1885
<i>O. cinereus</i> Marshall	Morobe, Madang	NAIC-SL; QM-SL; Szent-Ivany & Stevens 1966; Marshall 1959
<i>O. cruciatus</i> Faust	Morobe, Central, NCD, Sandaun, Gulf, Oro	NAIC-SL; Gray & Wylie 1974; Faust 1897, 1899; Lona 1937; Szent-Ivany 1959
<i>O. destructor</i> Marshall	Southern Highlands, Eastern Highlands, Western Highlands, Enga, Chimbu, Morobe, Madang, Central, Gulf	NAIC-SL; Gray & Wylie 1974; Marshall 1957; Szent-Ivany, 1959;
<i>O. elegans</i> (Guérin-Méneville)	Central	Pascoe 1885; Faust 1899; Lona 1937
<i>O. generosus</i> Faust	Milne Bay	Faust 1897, 1899; Lona 1937
<i>O. guttatus</i> (Pascoe)	Central	Lona 1937; Pascoe 1885
<i>O. inimicus</i> Marshall	Western Highlands, Eastern Highlands; Southern Highlands; Enga; Chimbu; Madang	NAIC-SL; Marshall 1957; Gray & Wylie 1974;
<i>O. improvidus</i> Marshall	Western	NAIC-SL; Pascoe 1885
<i>O. servilis</i> (Pascoe)	Central, Western	Faust 1899; Pascoe 1885

Key to, and descriptions of, PNG pest *Oribius* species

Key to the known pest species of *Oribius* from Papua New Guinea

1. Head and body completely covered with pale grey circular squamate scales, prothorax with suberect setae, elytra bristling with elongate setae; dorsum of rostrum with a sulcus and a deep emargination prior to abrupt apical declivity; body length 4-5 mm (Fig. 1)..... *O. cinereus* Marshall
Head and body not completely covered with squamate scales, scales scattered sometimes forming distinct patterns..... 2
- 2(1). Dorsum of rostrum
carinate..... 3
Dorsum of rostrum with
sulcus 4
- 3(2). Rostrum emarginated prior to abrupt apical declivity, dorsum with a distinct patch of white squamate scales; average body length 6.4 mm (Fig. 6) *O. sp. nr leucopleurus* (Faust).
Rostrum not emarginated prior to abrupt apical declivity 5
- 4(2). Rostrum not raised prior to abrupt apical declivity; elytra with two distinct lateral stripes; body length 5-6 mm (Fig. 5)..... *O. inimicus* Marshall
Rostrum conspicuously raised prior to abrupt apical declivity..... 6
- 5(3). Both mesepimeron and metepimeron with low lying scattered, easily abradable squamate scales; elytra with a mid band and stripes forming distinct pattern, average body length 8.8 mm (Fig. 2)..... *O. cruciatus* (Faust)
- Mesepimeron without squamate scales but setae present; metepimeron with procumbent elongate scales and fine elongate setae; elytra with three stripes (one mid and two lateral), the lateral stripes spread outwards at the abrupt apical declivity; body length 5.0-6.5 mm (Fig. 3)..... *O. destructor* Marshall
- 6(4). Both femoral and tarsal segments almost completely covered with white circular squamate scales (sometimes inconspicuous); fore-tibiae serrated ventrally; body length 6.5-7.0 mm (Fig. 4)..... *O. improvidus* Marshall
Low lying and easily abradable white squamate scales present only on femoral segments, tarsal segments without scales; fore-tibiae serrated ventrally; average body length 7.6 mm (Fig. 7)..... *O. sp 1*

***Oribius cinereus* Marshall, 1959 (Fig. 1)**

Type: Holotype male, Windiluk Village, Saidor, Madang Province (3000 feet), Papua New Guinea. Type specimens deposited at the British Museum of Natural History (BMNH), London.

Diagnosis: Male and female. Derm shiny black with dense uniform pale grey scaling. **Head:** sparsely shallowly punctate and densely squamose; the frons flat, with a small elongate median fovea; the eyes nearly flat, not or very slightly exceeding the curvature of the head. **Rostrum:** about as long as broad, widening from the base to the genae, with the sides straight; the dorsal area narrowing from the base to the antennae, flat with dense scales and recumbent ribbon-like setae, the margins and the dorsum not carinate; the genae with long pale recumbent setae, but no scales, emarginate prior to abrupt apical declivity. **Antennae:** red-brown, the scape with pale recumbent setae, the funicle with the two basal joints equal. **Prothorax:** as long as broad, rounded laterally, widest behind the middle, the truncate apex distinctly narrower than the base; the dorsum moderately convex longitudinally, the punctures concealed by the dense scales and only the very small shiny granules showing through each giving rise to a short recumbent spatulate white seta, these later being more conspicuous at the base and sides; mesepimeron with scattered circular non-contiguous scales; metepimeron with contiguous circular squamate scales; prothoracic process with a patch of erect setae; mesothoracic process with a patch of decumbent elongate scales. **Elytra:** broadly ovate, widest before the middle, rather abruptly acuminate at the apex in the female, rather more gradually narrowed in the male; but otherwise extremely similar to the female; the dorsal outline more convex, highest at the middle, becoming rather abruptly perpendicular at the apex, the shallow stria with small separated punctures that show clearly through the dense scales; the intervals broader than the striae, flat with a row of short curved suberect setae, and some grey, more conspicuous on the declivity. **Legs:** black with dense grey scales and white recumbent setae; hind tibiae of the male with a very small angulation on the lower edge at one-fourth from the apex. **Genitalia:** Male with the apex of aedeagus not elongate and strongly rounded. Female with spermathecal gland not enlarged, spermatheca not Y-shaped and spermathecal duct not elongate.

Body length: 4 -5 mm.

Sexual dimorphism: Generally females are larger in size than the males. The meso- and meta-

sterna in males distinctively depressed than in females.

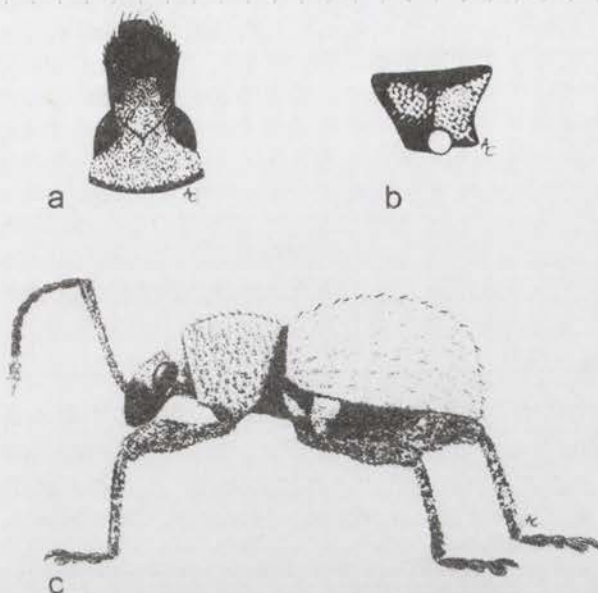


Figure 1. *Oribius cinereus* Marshall: (a) Habitus lateral view; (b) Head, dorsal view; (c) detail of mesepimeron and metepimeron, lateral view.

Oribius cruciatus (Faust 1897) (Fig. 2)
Coptorhynchus cruciatus Faust 1897

Type: Not available. Type series probably destroyed during World War II in the Dresden Museum, Germany.

Diagnosis: Derm black, sometimes light brown with stripes formed of whitish scales that are sometimes easily abraded; prothorax with dense patch of whitish scales forming lateral stripes from the base to the apex, wider at the base and narrowing at the apex, no scales on the pleurae; elytra with dense median stripe on stria 1 extending from the base to the apex, a dense perpendicular median band from stria 2 to the marginal stripe meeting below the hind coxae, gradually spreading at the marginal stripe, a dense stripe on stria 5 from apex to almost meeting the perpendicular band, the marginal stripe dense sometimes widening at the apex rarely meeting with the strip on stria 1; mesepimeron and metepimeron with scattered procumbent setae and without scales; prothoracic process devoid of scales; mesothoracic process without scales but with suberect elongate setae.

Head: separated from the rostrum by an angulate sulcus, not constricted behind the eyes, eyes moderately convex. **Rostrum:** parallel-sided, slightly longer than broad with a narrow carinate

from the base to the apex before the declivity at dorsum, with slight elevation above the abrupt apical declivity, dorsum with scattered white setae. **Antennae:** scape slender, cylindrical and elongate, funnicle with all segments longer than broad, segment 2 longer than segment 1, all segments bearing sub-erect white setae. **Prothorax:** as long as broad, moderately rounded laterally, truncate at the base and as wide as the apex, widest at the middle, lightly punctuated, medium granules with white sub-erect setae, dorsum very much flattened. **Elytra** ovate, sub-compressed behind, dorsum more flattened, striae wide with wide deep punctures separated by raised granules, the intervals wider than the striae with rows of raised granules each bearing white sub-erect seta. **Legs:** dark brown with sub-erect white setae all over; small patch of white scales on the terminal enlarged ends of femur of all legs. **Genitalia:** Male with apex of aedeagus slightly elongate and narrowly rounded. Female with spermathecal gland enlarged so that spermatheca is more or less Y-shaped, spermathecal duct short and straight.

Body length: 8-9 mm

Sexual dimorphism: The only obvious differences between the males and females are in the meso- and meta-sternal structures and the body size. The meso- and meta-sterna of males are strongly depressed, while it is less pronounced in the females. The males are usually smaller in size than the females.

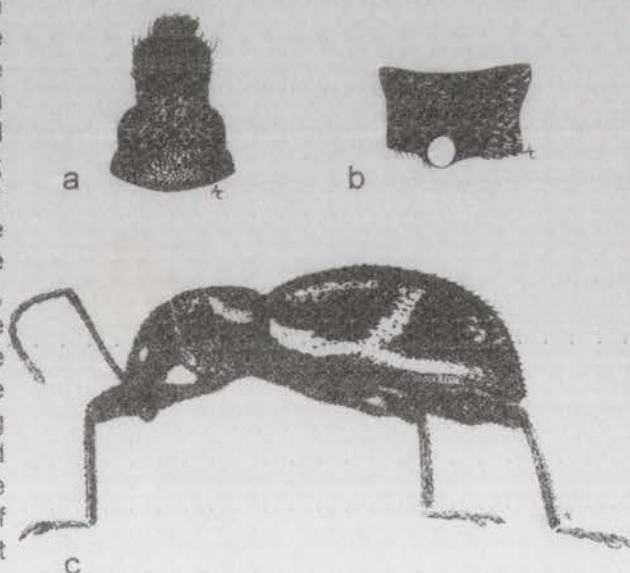


Figure 2. *Oribius cruciatus* (Faust): (a) Habitus lateral view; (b) Head, dorsal view; (c) detail of mesepimeron and metepimeron, lateral view.

***Oribius destructor* Marshall, 1959 (Fig. 3)**

Type: Holotype male, C. Pentland's Coffee Plantation, Goroka, Eastern Highlands, New Guinea, 5200ft, J.J.H Szent-Ivany. Type specimens deposited at the British Museum of Natural History (BMNH), London.

Diagnosis: Derm shiny black with markings formed of small round whitish scales which can easily be abraded; prothorax with very sparse small scales (always present on the propleurae) and fairly dense strip from the base to the middle; elytra with a stripe on interval (I) from the scutellum to the top of the declivity, a dense complete stripe covering the lateral margin inwards to stria 9, and a less dense complete stripe on intervals 5 and 6, which on the declivity spreads broadly outwards to unite with the lateral stripe; the sternum with a loose patch of recumbent white setae and narrow scales at the side of the metepimeron only; mesepimeron without scales; the venter of the male with rather dense long soft erect pale setae, which are shorter, sparser and stiffer in the female; prothoracic and mesothoracic processes without scales but with soft erect pale setae as well as a few elongate white setae. **Head:** vertex smooth and almost impunctate, frons with a few coarse punctures and a short deep median sulcus, eyes moderately convex. **Rostrum:** longer than broad (7:5), very gradually widening from the base to the genae; the median dorsal area nearly parallel sided, coarsely punctate, with low smooth median carina and with a slight elevation between the antennae. **Antennae:** black or piceous, with the funicular joints elongate, joint 2 a little longer than 1. **Prothorax:** B& globose, very strongly rounded laterally, widest at the middle, a little broader than long, the arcuate apical margin narrower than the base, which is widely but shallowly sinuate with a broad carinate margin; the dorsum very strongly convex in both directions, highest at the middle, with close (but not quite continuous), small oval low granules, which become much flattened towards the sides and base and are replaced on the pleurae by very small sparse convex granules, each dorsal granule with a short recumbent pale seta; @& similar but narrower, the dorsal granules not (or but slightly) flattened laterally, and the pleural grains larger. **Elytra:** narrowly ovate in the B&, broader and rather more acuminate apically in the @&, but the apex not produced downwards, the shallow striae with rather large close punctures separated by low flattened granules (sometimes almost obliterated) which often tend to link up laterally with the granules in the adjoining striae; the intervals not,

or but little wider than the striae with a sparse row of small low granules, each bearing a short sub-erect white seta. **Legs:** black with sparse erect white setae, the tibiae of the B& (especially the front pair) with a fringe of long soft erect setae, the front tibiae feebly denticulate beneath in both sexes, and those of the B& incurved at the apex; the hind femora of the B& reaching or slightly exceeding the apex of the elytra. **Genitalia:** Male with apex of aedeagus pointed. Female with spermathecal gland enlarged so that spermatheca is more or less Y-shaped, spermathecal duct very long and coiled.

Body length: 5.0 - 6.5 mm.

Sexual dimorphism: Male with hind body narrow and all legs with dense long fringes of pale soft hairs. Females in contrast with the hind body broad and round and legs with short, sparse hairs.

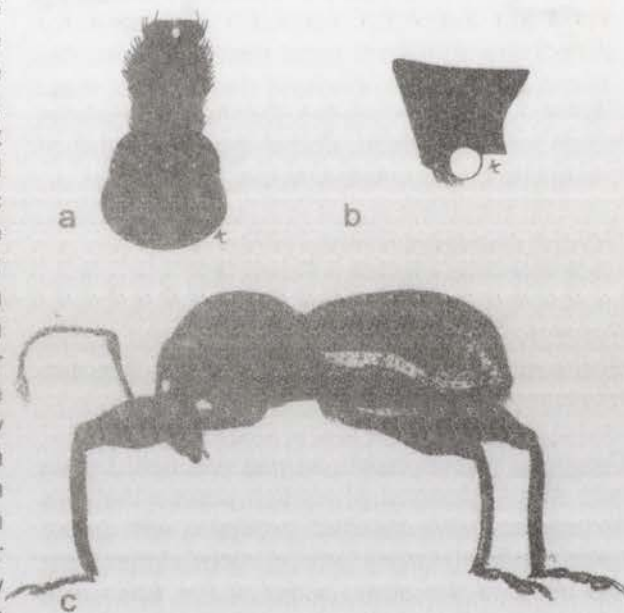


Figure 3. *Oribius destructor* Marshall: (a) Habitus lateral view; (b) Head, dorsal view; (c) detail of mesepimeron and metepimeron, lateral view.

***Oribius improvidus* (Marshall 1915) (Fig. 4)**
Coptorhynchus improvidus Marshall 1915

Type: Cotype (male and female), Mimika River, Irian Jaya, Indonesia. Location of the type series not known (possibly at the British Museum of Natural History, London).

Diagnosis: Colour shining black and piceous, with rather sparse, almost circular, grey and white scales; elytra with an opaque postmedian denuded band, extending from the margin (where it is broadened) to the first stria, and a small denuded preapical patch; the sides of the sternum with

dense white or greyish scaling; prothoracic process bare of scales and setae; mesothoracic process with white suberect erect setae and without scales.

Head: finely rugose, the forehead with a short central stria. **Rostrum:** with the central almost plane, dorsum with sulcus, raised above abrupt apical declivity, the space between the scrobes broader than the club of the scape. **Antennae:** with the second joint of the funnicle much longer than the first. **Prothorax:** as long as broad, the sides strongly rounded, broadest in the middle, the apex distinctly narrower than the base, the upper surface rugose and fairly closely set with shining granules, each bearing a curved white seta, the sides more or less reticulately punctate and the granules small or absent. **Elytra:** ovate, acuminate and subcompressed behind, the suture elevated on the declivity, more especially in female, the apex in the male slightly produced downwards, the dorsal outline of the male gently convex to the declivity, which is very steep and slightly sinuate, the outline of the female flatter being steeper and not sinuate; shallowly punctato-striate, the intervals almost plane, a little broader than the striae and each with a single row of small, widely spaced granules, each bearing a short curved white seta. **Legs:** with fairly dense grey white scaling, femora without a tooth. **Genitalia:** Male with aedeagus strongly pointed at the apex. Female with spermathecal gland enlarged so that the spermatheca is more or less Y-shaped, spermathecal duct is long and coiled.

Body length: 6.5 - 7.0 mm.

Sexual dimorphism: None obvious

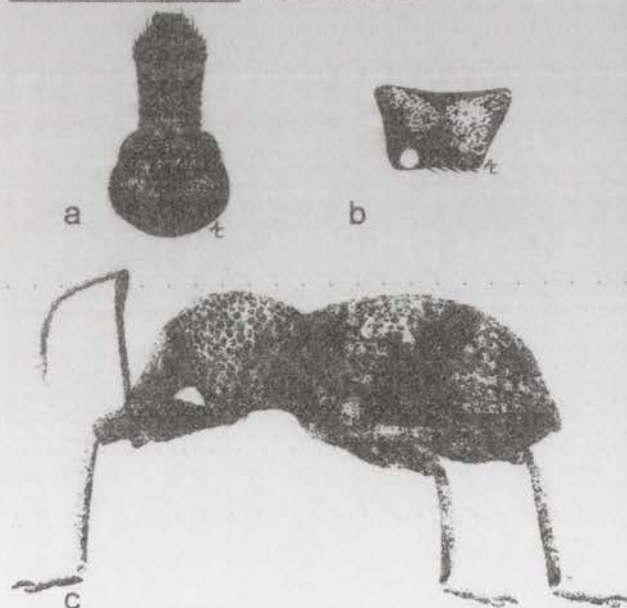


Figure 4. *Oribius improvidus* Marshall: (a) Habitus lateral view; (b) Head, dorsal view; (c) detail of mesepimeron and metepimeron, lateral view.

***Oribius inimicus* Marshall, 1957 (Fig. 5)**

Oribius hostis Marshall 1957

Type: Cotype (male and female in copula on *Coffea arabica* - male above and female below), Minji, 24/ 11/ 1954, R. S Carne, ex Coll. Dept. Agri., Pt. Moresby, NH. 119. Deposited at the British Museum of Natural History (BMNH), London.

Diagnosis: Male & Female. Derm rather dull black, prothorax without markings, but sometimes with sparse minute pale scales towards the base and on the pleurae; elytra with an ill defined stripe of small round non-contiguous pale scales on interval 5 from the base to near apex, without any sutural stripe but sometimes with an indefinite spot on the suture at the top of declivity which occasionally expands laterally to join the distal stripe on each side; the lateral margin with an abbreviated indefinite pale stripe at about the middle or behind it; the underside with a patch of dense white scales at the sides of the mesepimeron and metepimeron; prothoracic and mesothoracic processes without white squamate scales but both with long soft pale erect setae. **Head:** with the vertex opaque, finely rugulose, the frons coarsely punctate, with a short median sulcus; the eyes gently convex. **Rostrum:** as long as broad, gradually widening from the base of the genae; the median dorsal area coarsely punctate with a shallow abbreviated median sulcus, and no elevation at the top of the declivity. **Antennae:** long and slender, red-brown, joint 2 of the funnicle slightly longer than 1. **Prothorax:** in male strongly rounded laterally, widest at or rather beyond the middle, slightly broader than long, the feebly arcuate apical margin narrower than the base, which is truncate carinate margin; dorsum moderately convex longitudinally, with dense small rounded granules that are not all flattened towards the sides and base, but become much sparser and smaller on the plueriae, the dorsal granules each with a very short recumbent white seta; prothorax of the female somewhat narrower and less rounded. **Elytra:** similar to *O. destructor* but less acuminate apically in both sexes, with the granules on the intervals smaller and less conspicuous, and without any white sutural stripe; the apex produced downwards like a beak in the female. **Legs:** red-brown, with sparse subrecumbent white setae; the tibiae of the male without fringes; the front tibiae distinctively denticulate in both sexes, and those of the male not incurved at the apex; the hind femora very slightly exceeding the apex of the elytra. **Genitalia:** Male with apex of aedeagus broadly rounded. Female with spermathecal gland enlarged so that spermatheca is more or less Y-shaped, spermathecal duct short and straight.

Body length: 5.0 - 6.0 mm.

Sexual dimorphism: Male body stout and short; hind femur reaching apex; hairy on meso- and meta-thorax ventrally; meso- and meta-sterna depressed. Female body narrow and elongate; hind femur not reaching apex; not hairy on the meso- and meta-thorax ventrally; meso- and meta-sterna not depressed.

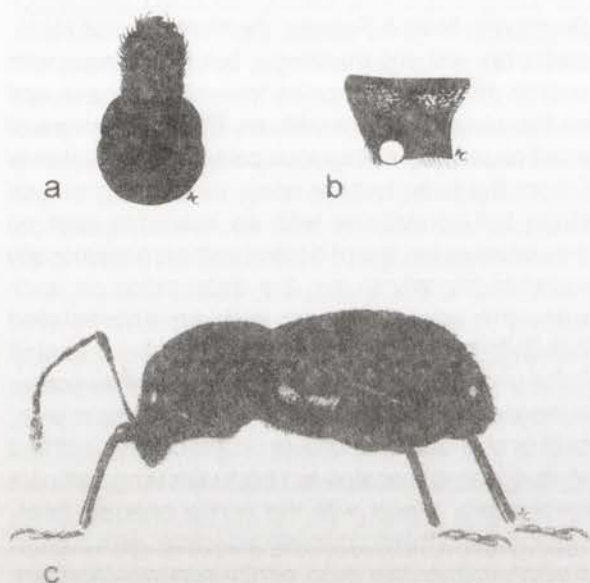


Figure 5. *Oribius inimicus* Marshall: (a) Habitus lateral view; (b) Head, dorsal view; (c) detail of mesepimeron and metepimeron, lateral view.

Oribius* sp. nr. *leucopleurus (Faust, 1897) (Fig. 6)

Type: No type material

Diagnosis: Male and female, derm black to light brown with scattered stripes of white squamate scales that are sometimes easily abraded. Patch of white elongate squamate scales extending full length of rostrum (between eyes to behind abrupt declivity). Prothorax shiny black and without scales. Elytra with stripe of white squamate scales on intervals 5 and 6 extending half way from base and spreading outwards at base; band of white squamate scales at top of declivity extending from interval 3 to interval 7 and broadening outwards at declivity; stripe on interval 10 extending from below hind legs to apex spreading inwards thereby; mesepimeron without or rarely with scales; contiguous patch of white elongate decumbent squamate scales on metepimeron; prothoracic and mesothoracic processes with white decumbent setae. **Head:** separated from rostrum by deep angulate sulcus between eyes; with less pronounced incomplete carinae behind eyes on frons; dorsum moderately convex; eyes

almost elongate. **Rostrum:** parallel sided slightly longer than broad; very pronounced patches of subcumbent scale on parallel sides; dorsum carinate; emerginate prior to abrupt apical declivity. **Antennae:** scape slender, cylindrical and elongate widening at apex; funnicle with segment 2 longer than segment 3 but about same as segment 1. **Prothorax:** about as long as broad at widest width; widest above forelegs; moderately round laterally; truncate at base and as wide as apex; with fine erect setae; dorsum moderately convex. **Elytra:** ovate, sub-compressed behind; dorsum moderately convex at mid-region; striae not granulate but with short erect setae on each puncture; intervals about as wide as striae. **Legs:** brownish with shiny femora, subcumbent dense setae on all pairs of legs- less pronounced on femora; dense patch of whitish setae on the inside of coxae of fore and mid legs. **Genitalia:** Male with apex of aedeagus broadly rounded. Female with spermathecal gland not enlarged and spermathecal duct short and straight.

Body length: 6-7 mm.

Sexual dimorphism: Male hind body generally narrow; meso- and meta-sterna depressed; two basal sterna narrow and depressed. Female hind body broad; meso- and meta-sterna not depressed; two basal sterna broad and slightly convex.

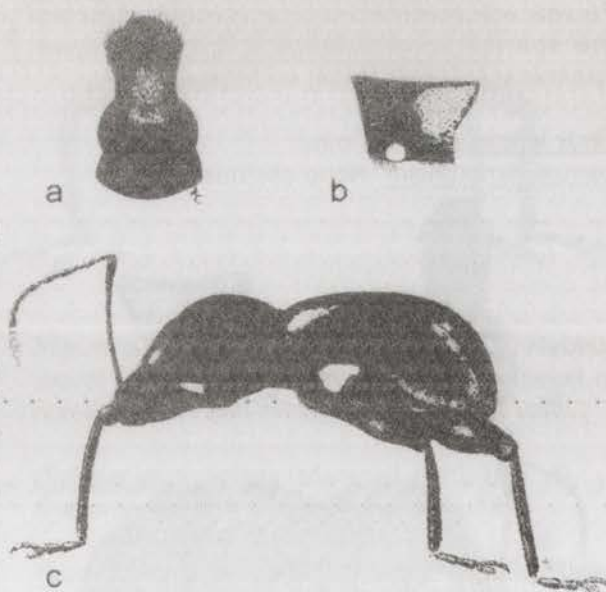


Figure 6. *Oribius* sp. nr *leucopleurus* (Faust): (a) Habitus lateral view; (b) Head, dorsal view; (c) detail of mesepimeron and metepimeron, lateral view.

***Oribius* sp.1.** (fig. 7)

Type: No type material.

Diagnosis: Male and female, derm black all over with low circular white squamate scales scattered all over the body without forming distinct patterns, more patchy on prothorax; scales inconspicuous to naked eyes; mesepimeron and metepimeron with non-contiguous white circular squamate scales; prothoracic process devoid of scales and setae; mesothoracic process with elongate almost needle like white suberect setae. **Head:** separated from rostrum by deep angulate sulcus between each eye; dorsum moderate to rarely convex; eyes globular and strongly convex; with short squamate scales. **Rostrum:** parallel sided and longer than broad; dorsum with deep sulcus extending entire length; with scattered circular white squamate scales and decumbent setae; with elevation prior to abrupt apical declivity. **Antennae:** scape slightly thicker, cylindrical and gradually widening at apex; funnicle with segment 2 longer than other segments but slightly longer or almost about same as segment 1; elongate, suberect setae on all segments. **Prothorax:** about as long as wide at broadest width; dorsum strongly convex; truncate at base and there wider than apex; granules less pronounced with intermediate punctures having short decumbent setae. **Elytra:** ovate, subcompressed behind; dorsum strongly convex at mid region; striae granulate with suberect setae on each granule; intervals narrow. **Legs:** scattered circular white squamate scales on all femoral and tibial segments; dense elongate setae on tibial and tarsal segments. **Genitalia:** Male with apex of aedeagus not pointed (slightly rounded). Female spermathecal gland not enlarged, spermathecal duct very long and coiled.

Body length: 7-8 mm.

Sexual dimorphism: None obvious

DISCUSSION

For the seven species keyed here, only the holotype specimens of *O. destructor* and *O. inimicus* have been viewed. The other four species (*O. cinereus*, *O. cruciatus*, *O. improvidus* and *Oribius* sp. nr *leucopleurus*) are identified from literature descriptions and confirmed reference material held at the National Agricultural Insect Collection (NAIC) in Kila Kila, Port Moresby. Attempts to confirm *Oribius* sp. nr *leucopleurus* as *O. leucopleurus* (Faust) were unsuccessful due to the unavailability of type material. Thus the species is retained as *species near leucopleurus* in this paper. The species regarded as a new species could be a named species; however, due to the unavailability of type material and inadequate original descriptions, a full generic

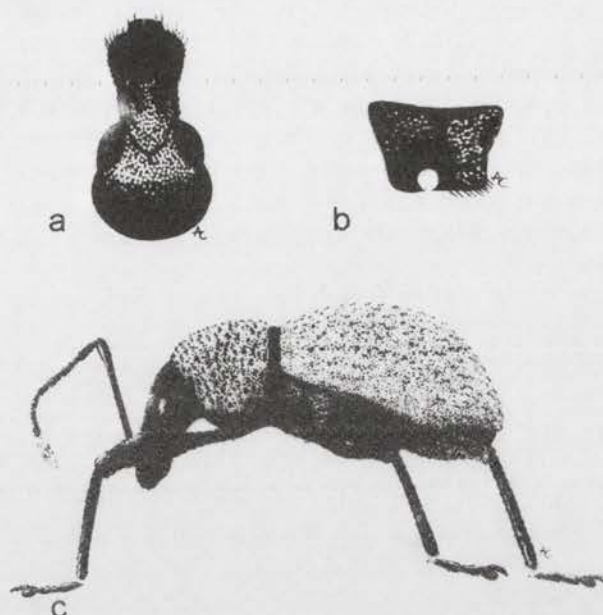


Figure 7. *Oribius* sp.1: (a) Habitus lateral view; (b) Head, dorsal view; (c) detail of mesepimeron and metepimeron, lateral view.

revision would be needed to confirm its correct status.

In general appearance, *O. destructor* is similar to *O. inimicus* and the species co-occur. However, the latter species is much smaller in size, with white contiguous squamate scales present on the mesepimeron and the metepimeron. The former species is larger and has only few scattered white scales on the metepimeron, which is absent on the mesepimeron. Both species are widely distributed at higher altitudes (though the altitudinal ranges are not fully known) and are the common pest species on wide range of crops. *Oribius* sp. nr *leucopleurus* and *Oribius* sp.1 are also restricted at higher altitudes, but are not as common as *O. destructor* and *O. inimicus*. *Oribius* sp.1 is more common on citrus, attacking both the leaves and the fruits (authors' unpublished data). *Oribius cinereus*, *O. cruciatus* and *O. improvidus* are restricted to the lowland areas of the mainland and are also serious pests of wide range of crops.

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