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THE TRIBE DIAPODINI
(COLEOPTERA: PLATYPODIDAE)
OF PAPUA NEW GUINEA

HYWEL ROBERTS



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THE TRIBE DIAPODINI (COLEOPTERA: PLATYPODIDAE) OF PAPUA NEW GUINEA

Hywel Roberts

19625, 48A Avenue, Langley B.C., V3A 3N8, Canada.

ABSTRACT. This article reviews the Diapodini of Papua New Guinea. Two genera are recognised, *Diapus* with 20 species, and *Genyocerus* with 2 species. Except for two *Diapus* species, which have an Old World distribution, the remainder are endemic. 10 species of *Diapus* are described as new, and also 1 species of *Genyocerus*. Lectotypes are designated for 1 new subspecies of *Genyocerus*. *Diapus puer* Schedl is transferred to *Genyocerus*. Males of one species, and females of three species, of *Diapus*, are described for the first time; the female of 1 species of *Genyocerus* is described as new. *Genyocerus trispinatus* Schedl is declared a subspecies of *G. p. puer*. *D. apertus* Schedl is transferred to *Platypus*. Keys are provided for Papua New Guinea species of both *Diapus* and *Genyocerus*.

INTRODUCTION

The monobasic tribe Diapodariae was established by Strohmeier (1914) to contain *Diapus*, a unique platypodid genus, in which the procoxae are widely separated. *Genyocerus* (Motschulsky 1858), already designated, was included in the tribe. *Diacavus* Schedl (1959) now is recognised as a synonym *Genyocerus* (Wood 1969). The original tribal name subsequently was up-dated to Diapodini, in accordance with the current Code on Zoological Nomenclature. Schedl (1939) raised the Diapodini to subfamily rank, giving it the name Diaporinae, but later workers have not accepted this change.

Worldwide Schedl (1972) lists 25 species of *Diapus*, of which one at least, *D. puer* Schedl 1970, belongs in *Genyocerus* and 21 species of *Diacavus*. In addition Schedl (op. cit.) included twelve further species, six *Diapus* and six *Diacavus*, attributed to Beeson (1941), of which no published descriptions then occurred. Subsequently, on finding the Beeson material, Browne (1977) described a new species of both *Diapus* and *Genyocerus*, and transferred five more species to *Genyocerus*. Two further species of *Diapus* were described by Schedl (1975, 1979). Today there are 27 *Diapus* spp. and 26 *Genyocerus* spp. The correct generic placement of some of the latter species needs to be further studied.

Diapodini are distributed from West Africa (Sierra Leone), through Central and East Africa, India, Indonesia, Malaysia, the Philippines, Papua New Guinea, the Solomon Is, to the Pacific Is of Fiji and Samoa, and Japan (Browne 1961).

Within Papua New Guinea 13 species of Diapodini have been recorded: 12 *Diapus* spp. and 1 *Genyocerus* (Schedl 1968, 1970, 1972, 1975, 1979; Browne 1985). *Diapus* is recorded both on the mainland, and on many of the adjacent islands; *Genyocerus* only on the mainland (Bigger and Schofield 1983). In this article 22 species and 2 subspecies are reported. All but two of these, which extend throughout the Old World tropics, are probably endemic to the main island of New Guinea, and perhaps some of its associated

islands. Other elements of the platypodid fauna of Papua New Guinea are known from the Solomon Is, Suluwesi, the Philippines, and Cape York, Australia. Other than the two widely distributed *Diapus*, none of the New Guinea Diapodini have as yet been recorded in these places.

MATERIAL and METHODS

The great majority of species considered herein were collected by the author. These collections were made from trap trees, fallen and felled trees. Much of the collecting was done with sticky traps, which were plastic sheets 0.5 x 0.3m, covered with grease and attached to fallen trees and branches. These traps caught large numbers of newly emerged young adult beetles, which had full ornamentation of hairs. Platypodidae removed from within host logs always show signs of wear, and hair ornamentation, which often is distinctive, has gone.

Besides collected material the author has had access to the National Forest Insect Collection in the Papua New Guinea Forest Research Institute, Lae (this previously was the Forest Research Station Insect Collection, Bulolo). Additional specimens, particularly types, were also borrowed from other collections. Holotypes of all new taxa are deposited in the Bishop Museum, Honolulu, Hawaii, except one in the British Museum (Nat. Hist.), London; paratypes are in Lae. Depositories are identified as follows: ANIC = Australian National Insect Collection, Canberra; BMNH = British Museum (Natural History) Museum, London; BPBM = Bishop Museum, Honolulu; NFIL = National Forest Insect Collection, Lae; NHMW = Naturhistorisches Museum, Wien(Vienna).

Provincial names throughout are abbreviated as follows: CEN - Central; CH - Chimbu; EH - Eastern Highlands; EN - Enga; ENB - East New Britain; ES - East Sepik; MA - Madang; MAN -Manus; MB - Milne Bay; MO - Morobe; NI - New Ireland; NS - North Solomons; SH -Southern Highlands; WH - Western Highlands; WNB - West New Britain; WP - Western. Provinces are always listed from west to east within Papua New Guinea. Where appropriate Papua New Guinea is abbreviated as PNG. Other abbreviations are LA - Logging Area, for local subdivisions of the forest estate, and DN - Dialect Name, where only the local host tree name is known.

BIOLOGY

General. *Diapus*, like all Platypodinae, are monogamous, xylomycetophagous, ambrosia beetles (Beaver 1988). A pair of young adults establish a gallery system, or nest, within a fallen or felled tree, in which a brood is reared. The young adults of the new generation emerge from the same entrance hole made by the parents. *Diapus* has polyphagous tastes, whereas *Genyocerus* (*Diacavus*) shows a strong affinity with the Dipterothripidae. In montane forest heavy attack by many *Diapus* species is common on the bare wood around the circumference of freshly cut tree stumps, within days of felling. Many Diapodini have a reputation for attacking trees soon after they are felled, and many show preferences for bark free areas of the host for attack. *D. latespinatus* Schedl 1979, and the probably related *D. angustidontus* n. sp., *D. bispinus* Schedl 1974, and *D. oomsis* n. sp., may be exceptions to this in that all found by the author attacked through the bark. Because of the abundance of attack, depth of penetration of the gallery systems, and a preference by many for large diameter stems some species are considered important pests of hardwood logs in the tropics. Attack on living trees under stress, unlike other platypodids that attack logs early, does not seem to be a common practice of Diapodini. Browne (1961) reports a few *Genyocerus* species attacking living trees after drought in Malaysia.

Some aspects of Courtship. Smith (1935) reported in *Diapus pusillimus* Chapuis 1865 that the function of the ♀ mandibular appendages were, with the forelimbs and other head appendages, to seduce by force and caresses the ♂ out of its short tunnel, which initiates attack on a host tree. Observations by the author with *D. robustus* Schedl 1970 in montane forest revealed the ♀, first persistently, or intermittently, drummed with the conspicuous scape hairs and hirsute antennal club on the protruding ♂ abdomen. The very prominent mandibular appendages were then inserted by force and subtlety into the ♂ tunnel, and with the inner teeth obtaining a grip on the body the ♂ was forcibly pulled out. Leverage for this was obtained by purchase with the long legs. Collection of the occasional ♀ with one missing, or broken, mandibular appendage, even in a few instances finding a broken appendage on the log surface, suggests the duel can be violent. The great variation in length, size, and form of the ♀ mandibular appendages, and of the form of the scape and hair abundance on both scape and antennal club, implies much variety in the technique of the ♀ in different *Diapus* spp. In *D. papuanus* Schedl 1970 and *D. unispineus* n. sp., both of which have extremely specialised scape hair development and very small mandibular appendages, brushing by the hairs probably plays the major role. The apparent complete absence of mandibular appendages in *D. elongatus* Schedl 1970 and *D. nebulosus* sp. n., together with no suggestion of excessive hairiness on the head, may mean quite a different mating behaviour pattern in these two species.

Altitude Zonation. It is clear that in Papua New Guinea, *Diapus* is essentially a montane genus (vegetation zones as Johns 1982), whereas *Genyocerus* is confined to the lowland rain forest, as far as collections now go. *Diapus* has 16 spp., all endemic, confined to the montane forest, most restricted to upper montane forest. In contrast in lowland rain forest there are only 2 endemic *Diapus* spp. Of the two non-endemics, *D. quinquespinatus* Chapuis 1865 is virtually limited to the lowland rain forest, but *D. pusillimus* has a much wider altitudinal range, reaching perhaps up to 2000m.

Flight. Of interest is the trapping of *Diapus* spp. by canopy fogging of Fagaceae (*Castanopsis*, *Lithocarpus*) in Papua New Guinea in 1988 by Dr. A. Allison, BPBM. At low altitudes only *D. pusillimus* (4♂ 2♀ - 450m) and *D. quinquespinatus* (1♂-1200m) were taken, while at higher altitudes (2000m) all were endemics, *D. papuanus* (13♂ 8♀), *D. robustus* (1♂), and *D. unispineus* (7♂). These adults could be the product of breeding inside dead wood, part of the crown-canopy, or they could represent adults that broke their dispersal flight, which has been recorded for *Doliopygus* in West Africa (Roberts 1961). All *Diapus* spp. adults known to the author are diurnal fliers suggesting the trapped *Diapus* are the progeny of crown-canopy breeding. The well developed hair ornamentation on all specimens showed they were teneral.

SYSTEMATICS

Morphological terms. Some comment is required on terminology peculiar to Diapodini that is of diagnostic benefit.

Conspicuous on most teneral ♀ *Diapus* are the *mandibular appendages* (Fig. 5, A-Q). These are attached to the outer, basal portion of the mandibles, and vary in shape and size among different species.

The first segment of the *antenna*, the *scape* (Fig. 6A, & B), and the succeeding *1st funicle segment*, to different degrees in the ♀ are modified in form, and the abundance of long, forward pointing, golden hairs they bear. Also along the anterior margin of the antennal club there is a fine strip of shining sclerotised cuticle, the *testaceous strip* (Fig. 6I, & J), which finishes on the centre of the outer surface of the antennal club. The extent

and dimension of the strip, and the form of its apex have specific value.

Across the width of the *pronotum*, near the posterior margin, are a pair of separate bar structures, the *pronotal pore-groups* (Fig. 3, A-G), in the ♂ together shorter than the ♀. Length for these refers to the transverse measurement, and cavity width, whether thick, or thin, to the anterior-posterior dimension. Each bar pore-group may be bordered around the complete margin, or more so posteriorly; they may extend forwards, either centrally, or laterally, or at both extremes, when they are termed procurved; or they may be aligned forwards centrally, when termed inclined.

Before the apex of the ♂ *elytra* there always is a *subterminal rim* (Fig. 1, A-R), which centrally is broken by a strong sulcus, and which extends to finish on each side, posterolaterally, at the marginal limits of the *elytra*. This rim is more, or less, prominent in different species, dependent on the degree to which it projects posteriorly. The rim may, or not bear spines, or teeth.

Beyond the rim, and before the apical termination of the *elytra*, is the *declivity* (Fig. 3, H-J). In *Diapus* this is variably narrow, and transversely semi-circular. Of specific value is the degree to which it is vertical, or inclined, and the extent that it is exposed when viewed from above. The prominence of the subterminal rim helps determine the amount of declivity exposed.

Absolute measurements, in millimetres (mm), are used for body lengths in the keys, and descriptions. ♀ measurements extend from the forward limit of the mandibular appendages, or head hair ornamentation, whichever protrudes anteriorly the most, to the posterior apical limit of the *elytra*. For comparative purposes mandibular appendages are related to the length of the pronotum, and *elytra* proportions to those of the pronotum. Body proportions are given for each description.

KEY TO THE DIAPODINE GENERA OF PAPUA NEW GUINEA

- Frons not conspicuously pubescent; antennal scape small in ♂, often enlarged in ♀ and ornamented with prominent golden hairs; antennal club with radial, centrally pointed, or short and rounded, testaceous strip on outer surface; ♀ nearly always with mandibular appendages; scutellum impressed below *elytral* surface, not obvious; pronotum with pore groups arranged as transverse bars near posterior margin, these often procurved centrally and marginally (rarely, also with small pores immediately in front of bars - only *Diapus quinquespinatus*; see fig. 70, Schedl 1972); *elytra* in ♂ ending in narrow, to deep declivity, concave to vertical, with usually a transverse raised rim above, and sometimes teeth; abdomen of ♂ with last segment vertical, concave, smooth *Diapus*
- Frons abundantly hirsute in ♀, often developed into bundles of long hairs; antennal scape of similar size in both sexes; testaceous strip very narrow, restricted to margin only; scutellum clearly visible, flush with surface; pronotum with, or without pores, these never arranged as transverse bars, if present pores between 2 to more than 100; *elytra* in ♂ horizontal, no declivity, odd interstriae extended apically as blunt teeth; ♂ abdomen apically inclined, not vertical, concavity scaled, or clearly hirsute. *Genyocerus*

Genus *DIAPUS* Chapuis

Diapus Chapuis, 1865, Monogr. des Platypides: 329 (type species: *Diapus quadrispinatus* Chapuis; India).

KEY TO THE DIAPUS SPECIES OF PAPUA NEW GUINEA

Though this key runs mainly on ♂ characters, wherever possible ♀ characters are included also. For nearly every species ♀'s can be separated with confidence. A key including both sexes is considered of most value. Wherever both sexes are known ♂ characters precede ♀.

1. Both sexes with pore-groups as very thin bars, traversing nearly entire width of pronotum, uninterrupted; immediately in front of these a transverse strip of even sized, small pores; ♂ with 5 spines on each elytron; ♂ and ♀ with all striae and interstriae running full length of elytra; body length of ♂ 2.25-2.35mm *quinespinatus*
- Pore-groups never include separate pores in either sex, only bars, and these nearly always as 2 separate, thick, bars, together never extending entire width of pronotum; ♂ never with more than 3 spines on each elytron, usually less; neither ♂ nor ♀ with all striae and interstriae running full length of elytra 2
- 2(1). ♂ with 3 distinct prominent spines on each elytron, 2 of these sited adjacent to the elytral sulcus margin, 2nd almost on top of the 1st; pore-groups in both sexes short, transverse, not procurved centrally or laterally; ♀ with well formed, somewhat delicate, mandibular appendages; body length ♂ 1.75-1.85 mm *amblylaminatus* n. sp.
- ♂ with not more than 2 distinct spines on each elytron, these always well separated; ♀, usually ♂ also, with pore-groups procurved centrally, and sometimes laterally as well 3
- 3(2). ♂ with at least 2 distinct spines on each elytron, though other incipient spines may be evident; elytral sulcus about 1/2 length of elytra, deep and steep sided; declivity near vertical; ♀, with strong, well developed mandibular appendages; pore-groups usually inclined forward centrally, or sometimes procurved 4
- ♂ with only 1 spine for each elytron, or spines absent; elytral sulcus < 1/3 length of elytra; declivity convex or inclined; ♀, with, or without mandibular appendages; pore-groups in ♂ and ♀ procurved centrally or laterally, or not 10
- 4(3). ♂ with 1, small, short subsidiary tooth near lower postero-lateral apical tooth; larger spines, broad, and pointed 5
- ♂ without obvious subsidiary tooth near postero-lateral tooth; spines slim, and pointed, or, short and stubby 7
- 5(4). ♂ with narrow, elongate elytral sulcus; largest elytral tooth dorsal, outer margin of which from above clearly concave; matt area conspicuous on posterior elytral disc; ♀ has mandibular appendages semi-circular viewed from above; body color bright yellow within femoral grooves and surrounding the eyes; body length ♂ 2.35-2.45mm *latespinis*
- ♂ with broad elytral sulcus; largest elytral tooth near straight sided; no part of elytral disc matt; ♀ mandibular appendages elongate, near straight if viewed from above 6

- 6(5). ♂ body length < 2.25mm long; lateral margins sinuate for all posterior 1/2; pore-groups procurved only centrally; striae and interstriae nowhere conspicuous on disc; ♀ sulcus distally widened; body length ♂ 2.00-2.15mm *angustidontus* n. sp.
- ♂ body length >2.25mm; lateral margins sinuate only for final 1/4; pore-groups gently procurved both centrally and laterally; striae and interstriae obvious all over distal 1/2; ♀ sulcus narrowing posteriorly; body length ♂ 2.40-2.50mm *bispinus*
- 7(4). ♂ > 2.7mm; elytral sulcus 1/2 elytral length, wide, margins diverging slightly; at elytral apex upper pair of spines strong, inward pointing; pore-groups straight; body length ♂ 2.75- 2.80mm; (♀ unknown) *kuperi* n. sp.
- ♂ < 2.7mm; elytral sulcus narrow throughout, sides rarely widening; dorsal spines not inward pointing 8
- 8(7). ♂ elongate, slim; apical elytral spines prominent, all spines near straight-sided; pore-groups transverse, feebly bilunate; ♀ mandibular appendages elongate, in length almost equal to pronotum; pore-groups more than 1/2 pronotal width, procurved centrally; body length ♂ 2.45-2.55mm *spinifer*
- ♂ stocky species; elytral spines less conspicuous; pore-groups hardly 1/2 pronotal width 9
- 9(8). ♂ body length > 2.00mm; elytral spines short, easily seen from above, dorsal spine largest, straight sided; pore-groups feebly procurved; elytral sulcus > 1/2 elytral length, widening apically; ♀ mandibular appendages nearly 2/3 pronotal length, distally inwardly curved; pore-groups centrally inclined; body colour black; body length ♂ 2.15-2.25mm *oomsis* n. sp.
- ♂ body length < 1.75mm; elytral spines very small, simple, not easily evident from above, postero-lateral spines largest; pore-groups centrally procurved; elytral sulcus < 1/2 length of elytra, feebly widening; ♀ mandibular appendages semicircular, less than 1/2 pronotal length; body colour light brown; body length ♂ 1.65-1.75mm *nanodontus* n. sp.
- 10(3). ♂ with single spine terminating postero-lateral angle; species either small, or large (♂ body lengths 1.50-2.25mm, or 2.50-3.00mm) 11
- ♂ without proper spines, though postero-lateral apices may be angled 16
- 11(10). ♂ body length < 2.25mm; spine terminating postero-lateral angle of elytron small, not readily visible from above; elytral sulcus at least 1/4 length of elytra 12
- ♂ body length > 2.50mm; large spine terminating postero-lateral angles visible from above; sulcus very narrow, < 1/4 length of elytra 15
- 12(11). ♂ sulcus deep, narrowing before exiting on rim of declivity; declivity near vertical; ♀ with well developed mandibular appendages; hairs on scape and funicle not prominent 13
- ♂ elytral sulcus not narrowing before exiting; declivity convex, protruding and visible from above; / with weak, short mandibular appendages; hairs on scape and funicle numerous 14
- 13(12). ♂ elytra sinuate for final 1/3; declivity inclined, apex of elytra easily visible from above; striae and interstriae obvious on disc; ♀ pore-groups inclined forward centrally; body length ♂ 1.45-1.55mm *perpygmaeus* n. sp.
- ♂ elytra sinuate only for final 1/7; declivity near vertical, apex of elytra only just visible from above; few striae or interstriae on disc; ♀ pore-groups feebly procurved centrally but not inclined; body length ♂ 1.85-1.95mm *oreogenus* n. sp.

- 14(12). ♂ subterminal, elytral rim not prominent; posterolateral spines very small, not conspicuously protruding; ♀ scape clavate, not greatly modified, yet with some 20 long hairs; ♂ and ♀ pronotum near square; body length ♂ 1.65-1.75mm **nanus**
- ♂ subterminal, elytral rim prominent; postero-lateral spines easily visible from above; ♀ scape greatly enlarged, with in young ♀ many rows of long, curved golden hairs, pointing forwards; both ♂ and ♀ pronotum clearly longer than wide; ♂ body length 2.15-2.25mm **unispineus** n. sp.
- 15(11). ♂ postero-lateral elytral spines blunt, from above just visible; declivity near vertical; ♀ mandibular appendages large, forcipate, with anterior 1/2's converging; frons with conspicuous carina, shallow impressions on either side; ♂ and ♀ pronotal pore-groups both procurved, more strongly centrally than laterally; body length ♂ 2.55-2.65mm **robustus**
- ♂ postero-lateral spines pointed, protruding; margin of declivity clearly inclined, not vertical; ♀ mandibular appendages very large, anterior 1/2's parallel, not converging; frons with punctures on either side of carina, not impressions; ♂ and ♀ pore-groups equally procurved, centrally and laterally; body length ♂ 2.85-2.95mm **bilunatus**
- 16(10). ♂ declivity with a distinctive, large papilla, opposite termination of interstriae 3 of each elytron; ♀ mandibular appendages slim, incurving apically, in length 1/2 pronotum; pore-groups in both sexes transverse, longer in ♀ than ♂, cavities narrow; body length ♂ 1.85-1.95mm **pusillimus**
- No prominent papillae on ♂ declivity; pore-groups more, or less procurved, cavities wide, not much longer in ♀ than ♂ 17
- 17(16). Slim, elongate species; declivity of ♂ near vertical; frons in both sexes clearly longer than wide; in both sexes antennal club near round; teneral, young ♀ never found with mandibular appendages 17
- more stocky species; ♂ declivity obviously inclined; antennal club round, or elongate; young ♀ always with mandibular appendages 19
- 18(17). Linear in outline; ♂ pronotal pore-groups transversely short, yet strongly procurved, both centrally and laterally; from above apex of elytra not easy to see below rim; ♀ antennal club round, with numerous, conspicuous, elongate, hooked hairs; colour head and pronotum black, elytra pale yellow; body length ♂ 1.95-2.05mm **elongatus**
- ♂ pronotal pore-groups more strongly procurved centrally than laterally; declivity with elytral apex seen easily from above; ♀ antennal club more elongate than round, hairs not hooked; colour both sexes light brown and yellow; body length ♂ 1.85- 1.95mm **nebulosus** n. sp.
- 19(17). ♂ lateral margins of elytra sinuate before apex; declivity rim strong; sulcus length 1/6 that of elytra; young ♀ scape very enlarged, bearing large numbers of golden, forward pointing hairs; both sexes with pore-groups strongly procurved centrally; body length ♂ 2.35-2.45mm **papuanus**
- ♂ elytral margins hardly sinuate before apex; declivity rim weak; sulcus length 1/4 that of elytra, width at rim 1/2 sulcus length; ♀ scape clavate, hardly enlarged, with only some 10-15 hairs on the upper margin; pore-groups nowhere strongly procurved in either sex; body length ♂ 1.85-1.95mm **turgidus**, n. sp.

***D. amblylaminatus* Roberts, new species**

Figs. 2K-M, 5F.

MALE (holotype). Length 1.80mm, nearly 4 x as long as wide. Colour, brown throughout above, paler on pronotum, beneath yellow-white. Form slim. *Head* the frons vertical, strongly angled to rounded vertex; surface flat, finely reticulate with few hairs; not impressed above clypeus. *Antenna*, scape clavate; both scape and funicle with few elongate hairs; club grey, elongate-ovate, testaceous strip narrow. *Pronotum* longer than wide (22:16); broad femoral grooves confined to anterior 1/2; median carina fine; pore-groups transverse, short, cavities wide, bordered throughout, margins irregular; together bars hardly occupying 1/2 pronotal width; surface shining, smooth. *Elytra* 2 x as long as wide; sides parallel for basal 1/2, then narrowing slightly, sinuate in final 1/5, terminating above declivity in transverse, subterminal toothed rim; elytral sulcus very narrow, deep in posterior 1/4; disc shining, smooth, only 1st striae distinct throughout; subterminal rim of each elytron with 3 prominent pointed teeth, the first 2, terminating interstriae 1 and 3 respectively, almost overlapping, the 3rd terminating interstriae 9; between these prominent spines only very short, raised, projections terminate other odd interstriae; *declivity* vertical, narrow, impressed beneath subterminal rim, except for break at central sulcus; surface smooth, ornamented with few, well spaced hairs. *Abdominal* ventrites all raised, the last vertical, near circular, concave and carrying many clearly separated, marginal long hairs.

FEMALE (allotype). Length 2.10mm (including mandibular appendages), almost 5 x as long as wide. Colour, above brown throughout, elytra darker than head and pronotum. *Head* with central carina obvious; surface on either side above clypeus impressed; mandibular appendages elongate, clavate, noticeably thin and flat, apically rounded, with no apparent serrations on inner or lower margins, each appendage less than 1/2 length of pronotum (7:20). *Antenna* with scape elongate, apex swollen, bearing few, elongate, widely spaced, forward pointing hairs; funicle attached at outer corner of scape; club not symmetrical; testaceous strip very narrow; club surface covered with very short hairs (?scales) in rows, with few, longer hairs. *Pronotum* with pore-groups transversely wider than ♂. *Elytra* 2.5 x as long as wide, near parallel sided, apex rounded; sulcus evident as impression throughout posterior 1/2, wider in distal 1/4; neither striae, or interstriae clearly defined on disc. All *abdominal* ventrites posteriorly gradually ascending, the last inclined, round, concave, lightly punctate, with some hairs.

Type data. Holotype ♂ (BPBM) and allotype ♀ (BPBM). PAPUA NEW GUINEA: MO: Oomsis LA, 31. i. 1991, 900m, *Litsea* sp. sticky trap, (H. Roberts). Paratypes 3, same data as Holotype, 1 ♀ (BPBM), 1 ♂ 1 ♀ (NFIL).

Material examined. PAPUA NEW GUINEA: SH: ♂ Mt. Ialibu, 26. x. 1989, 1800m, attacking unknown felled tree (H. Roberts). MO: 4 ♂ 4 ♀, Oomsis LA, 24. i.-, 13. xii. 1990, 900m, *Canarium* sp., *Litsea* sp., *Myristica* sp., all on sticky traps on felled trees (Roberts).

Distribution. Papua New Guinea: SH: Mt Ialibu; MO: Oomsis LA.

Remarks. The two, upper, overlapping spines, together with the crenate margin between these and the remaining spine of *D. amblylaminatus*, separate males of this species from *bispinus*, which also has three prominent spines on each elytron. In addition the elytral sulcus is very narrow. The elongate mandibular appendages, that appear unusually thin and weak, distinguish females. Probably a lower montane forest species.

***Diapus angustidontus* Roberts, new species**

Figs. 1G-I, 4C, 5H.

MALE (holotype). Length 2.15mm, nearly 4 x as long as wide. Colour, head and pronotum up to pore-groups light brown, distal to that yellow, elytra with basal 1/2 yellow, remainder red. *Head* frons anteriorly with narrow, but strong, transverse impression above mandibles, above gently angled to vertex; median stria reduced to a dot; surface finely reticulate, few hairs on frons, more on vertex. *Antenna* colour yellow; scape clavate, both scape and 1st funicle joint with few, forward pointing long hairs; club obovate; testaceous strip at base as wide as 1st funicle segment, then narrowing to a point at centre; club surface with large numbers of small hairs, a few much longer. *Pronotum* a little longer than wide (20:18), surface shining, smooth; femoral grooves deep; median stria distinct; pore-groups transverse, cavities wide, bordered, posterior margins most, bars centrally

slightly procurved, together only a little over 1/2 width of pronotum. *Elytra* not quite 2 x as long as wide, margins widest near midway, then narrowing in posterior 1/2, finally sinuate, to end in near truncate apex; transverse, shining, prominent, subterminal rim, broken centrally by strong elytral sulcus; sulcus occupies nearly all posterior 1/2, initially shallow, then wide and deep, finally narrowing at subterminal rim; disc shining throughout, only 1st striae distinct along suture, basally impressed; subterminal rim of elytra, above declivity, with 3 pairs of teeth; the upper, largest pair, straight sided, pointed, adjacent to sulcus, and in length 1/2 sulcus width; below, the much less conspicuous lateral pair, little more than spined projections; lastly, the lower pair, clearly visible from above between two pairs of upper teeth, each a distinct short horizontal spine, at postero-lateral angles of the declivity; *declivity* near vertical, narrow, with ornamentation restricted to well spaced, prominent hairs. *Abdomen* with ventrites ascending posteriorly, last near vertical, round, with numerous, short, papillate hairs all over disc, the margins with fewer, larger, well spaced hairs.

FEMALE (allotype). Length 2.70mm (including mandibular appendages), nearly 5 x as long as wide. Colour, head, pronotum and apices of elytra brown, remainder of elytra yellow. *Head* similar to ♂ except for mandibular appendages, these prominent, almost 2/3 length of pronotum (12:20), elongate, apically rounded, serrate on inner, lower margins; *antenna* very like ♂. *Pronotum* more elongate than ♂; pore-groups inclined toward centre, transversely wider than ♂, and more procurved centrally. *Elytra* much simpler than ♂; nearly 2 x as long as pronotum, almost parallel sided; disc impressed as sulcus along suture for posterior 1/4, widening apically; *declivity* transversely rounded, narrow vertically, with distinct posterior rim. *Abdomen* with ventrites rising posteriorly, the last near vertical, oval, disc bare, margins with many prominent hairs.

Type data. Holotype ♂ (BPBM) and allotype ♀ (BPBM). PAPUA NEW GUINEA: Gumi LA, Bulolo, 29. viii. 1981, 2000m, ex *Garcinia* spp., (H. Roberts), (BPBM). Paratypes, same data as Holotype, 1 ♂ (BPBM), 1 ♂ 1 ♀ (NFIL).

Material examined. PAPUA NEW GUINEA: MO: 2 ♂ 1 ♀ Gumi, Watut, 18. iv. 1976, 2000m, 1 ♂ 5 ♀, 29. viii. 1981, all reared *Garcinia* spp. billets (H. Roberts).

Distribution. Papua New Guinea: known only from type locality.

Remarks. *D. angustidontus* is smaller than the related *D. bispinus*, but has the elytral sulcus proportionately longer, and wider in both sexes, and in the male this is more sinuately margined. Females are difficult to separate, except by size.

Diapus apertus Schedl

Diapus apertus Schedl, 1979, Faun. Abh. Mus. Tiern. Dresden 7(12): 119 (♂, holotype, Manki LA, PNG. NHMW).

Material examined. Holotype only.

Remarks. This species belongs to *Platypus*, not *Diapus*, and is here transferred. It is close to *P. lesiniformis* Roberts, 1979.

Diapus bilunatus Schedl

Figs. 2A-C, 5Q.

Diapus bilunatus Schedl, 1975, Ann. Naturhistor. Mus. Wien, 79: 399. (♀, holotype Mt. Missim, PNG. NHMW).

MALE nov. Length 2.90mm, a little more than 3 x as long as wide. Colours bright, head and anterior half of pronotum black, posterior of pronotum yellow, elytra base dull yellow, apical 1/3 near red. *Head* the frons flat, with centrally, from clypeus, conspicuous, ascending blunt carina, with numerous clear pits on either side; vertex angled to frons; surface of frons finely reticulate, ornamented with scattered, upward pointing, short hairs, particularly on lateral and dorsal borders. *Antenna* with few elongate hairs on scape; club pale grey, smaller than ♀. *Pronotum* only a little longer than wide (22:20); deep femoral grooves; central median stria obvious in posterior 1/2; pore-groups with wide cavities, bordered, each procurved, particularly centrally, less so laterally, bars together occupying slightly less than 1/2 width of pronotum; surface smooth, shining, with hairs only along anterior border. *Elytra* not 2 x as long as wide, margins slightly diverging for basal 2/3,

where widest, then narrowing in final 1/3 to end in near truncate declivity; prior to elytral apex a shining, transverse, subterminal rim prominent, broken at central sulcus, then giving way posterolaterally, at each corner, to backward pointing, flat tooth; sulcus short, narrow, deep portion confined to < final 1/4; disc shining, striae and interstriae indistinct for most of elytral length; declivity inclined, elytral apex visible from above; surface shining, ornamentation confined to 2 transverse rows of prominent golden hairs, upper row papillate. *Abdomen* with ventrites progressively raised toward posterior, the last near vertical, subcircular, margined by prominent hairs, particularly 2 posterior pairs (♂ (BPBM), taken with ♀, PAPUA NEW GUINEA: MO: Kuper Range, s of Wau, 22.ii.1989, 2200-2300m, *Nothofagus* sp. sticky trap (H. Roberts). Others, same data, 1 ♂ (BPBM), 2 ♂ (NFIL).

Material examined. PAPUA NEW GUINEA: MO: holotype 1 ♀ Mt. Missim 22-30. iv. 1968, 2400-2800m (J.C. Gressitt & J. Sedlacek) (NHMW); 12 ♂ 12 ♀, Kuper Range, 18. i. 1989, *Castanopsis* sp., 21-28. xii. 1988, and Jan. 4, 1989, *Phyllocladus* sp., 4. i. 1989, *Sericolea* sp., 16. vi. 1988 and Jan. 4, 1989, *Acmena* sp., 13.iv. 1989, *Tenstromia* sp., 23. vi. 1988, *Macaranga* sp., 14. vii. 1988, Jan. 4, 1989, and 13. xi. 1989, *Elaeocarpus*, 21. xii. 1988, *Litsea* sp. all sticky traps on logs (Roberts) (all NFIL).

Distribution. Papua New Guinea: MO: Mt. Missim, Kuper Range.

Remarks. This is the largest *Diapus* spp. known from Papua New Guinea. Ornamentation of the frons and pointed postero-lateral elytral spines, separate males from the smaller, related *D. robustus*. Females are distinguished by the very large, for apical 1/2 near parallel, mandibular appendages, the frons ornamentation, and the gently procurved pronotal pore-groups. An upper montane forest species.

Diapus bispinus Schedl

Figs. 1J-L, 3E, 4D, 5I.

Diapus bispinus Schedl, 1974, Ann. Naturhistor. Mus. Wien, 78:471. (♂, holotype, Manki LA, Bulolo, PNG. NFIL).

FEMALE. nov. Length 2.85mm long (including mandibular appendages), 5 x as long as wide. Colour, head black, remainder brown, except on pronotum behind pore-groups where yellow. *Head* with the frons impression above the mandibles much larger and deeper than ♂, and from above, almost divided; mandibular appendages prominent, elongate, length clearly more than 1/2 that of pronotum (16:24), with very fine serrations on lower, inner surface. *Antenna*, the scape clavate, with funicle attached at outer corner, both segments with only few, scattered, long hairs; club grey, elongate, with many small hairs (?scales), and some longer hairs; testaceous strip long. *Pronotum* more elongate than ♂, pore-groups transversely more extended and centrally clearly inclined forwards. *Elytra* simple, almost parallel sided, no apical teeth; disc impressed along suture as elongate sulcus in distal 1/2 only; striae and interstriae distinct on disc, former seriate-punctate; surface finely lineate all over, giving a silky appearance; declivity narrow, convex, incised at suture. *Abdomen* with last ventrite vertically inclined, oval, disc bare, margined with many hairs, some prominent (♀ (BPBM), taken with ♂, PAPUA NEW GUINEA: MO: Kuper Range, Wau-Lake Trist, Block IV LA, 14. xii. 1988, 2300m, *Elaeocarpus*, sticky trap (H. Roberts). Others same data, 1 ♀ (BPBM), 2 ♀ (NFIL)).

Type material examined. PAPUA NEW GUINEA: MO: Holotype ♂, Panganda Logging Area, Watut, 7. viii. 1972, 2126m, in log *Castanopsis* sp. (P. Shanahan & H. Ivagai).

Material examined. PAPUA NEW GUINEA: MO: 2 ♂, Manki LA, Bulolo, 23. iii. 1987, 1500m, *Calophyllum* sp. sticky trap (Roberts); 28. xii. 1988, 1545m, *Xanthophyllum* sp. sticky trap (Roberts); 1 ♂, 2 ♀, Panganda LA, Watut, 7. viii. 1972, 1200m, in *Castanopsis* sp. log (Shanahan & Ivagai): 11 ♂ 3 ♀, Gumi LA, Watut, 18.v.1977, 2000m, on unknown log, 15. vii. 1986, 2200m, *Garcinia* sp. log (Roberts); 11 ♂ 10 ♀, Kuper Range, Wau, 25. i. 1988, sticky traps (Roberts).

Distribution. Papua New Guinea: MO: Gumi LA, Kuper Range, Manki LA,

Panganda LA.

Remarks. The ♂ holotype, with Schedl's red holotype label, is in the NFIL (previously Bulolo) collection, though it has no head. Schedl (1974) reported the holotype in the ANIC collection, Canberra, but Dr. A. A. Calder, CSIRO, by letter, stated it was not there; likewise Dr. M. Jach, Naturhistorische Museum, Vienna, wrote there was no holotype there. The single paratype, said by Schedl (1974) to be in his own collection, has been borrowed by the author from NHMW, who succeeded to the Schedl collection. Comparison of holotype and paratype reveal the pronotum and abdomen as near identical in the two specimens. Schedl (1974) records the ♂ of *D. bispinus* as 4.7mm long, which is an error. The ♂ paratype from Vienna is 2.3-2.4mm long, and this must be considered the correct size.

D. bispinus resembles both the slightly larger *D. spinifer* Schedl, and the more similar, but smaller *D. angustidontus*. From the latter the male of *bispinus* is separated by a narrower, and deeper elytral sulcus, while the similarity in length of both large upper and lower spines, together with absence of any suggestion of a median marginal tooth, separates *D. spinifer* males. Females, besides by size, are not so easy to separate.

This is a mid-montane forest species, of apparent local distribution.

Diapus elongatus Schedl

Figs. 5M-P.

Diapus elongatus Schedl, 1970, Proc. Linn. Soc. NSW, 94 (3): 225. (♂, ♀, paratype series, Marafunga, etc., PNG. NHMW and NFIL).

Redescription **MALE.** Length 2.05mm, somewhat more than 4 x as long as wide. Colour, head and pronotum dark brown, elytra yellow, except for reddish apices. *Head* with frons flat, clearly longer than wide; median striae reduced almost to an impressed dot midway between antennae; frons angled with round vertex; few short hairs on upper frons and vertex, surface finely reticulate. *Antennae* set near lateral margins of frons; scape clavate; few hairs on scape, even less on first funicle joint; club less than diameter of eye; testaceous strip unusually wide, termination oval; club covered with rows of fine hairs, with only few long hairs. *Pronotum* clearly longer than wide (20:15); deep femoral grooves restricted to anterior 1/2; stria fine, clear, in posterior 1/2; pore-groups each strongly, tightly lunate, procurved medially, less so laterally, bordered, cavity wide, together bars occupying < than 1/2 pronotal width; surface largely smooth, shining, few hairs restricted to margins. *Elytra* elongate, 2 x as long as wide, parallel sided except for apical 1/6 where narrow to terminate in near truncate apex; prominent, transverse, subterminal rim, broken centrally by narrow elytral sulcus, sinuate either side of sulcus; no teeth on rim though postero-lateral corners angled; elytral sulcus deep only in apical 1/6, before that present as shallow, progressively widening sutural strip; subimpunctate striae and interstriae at base of elytra only, striae hardly impressed; elytral surface shining, particularly smooth on final 1/6; *declivity* steep, apical elytral margin hardly visible from above, surface smooth, ornamented by 2 consecutive rows of well spaced hairs. *Abdomen* ventrites feebly raised, except last which is near vertical, subcircular, and with conspicuous, marginal hairs, most numerous ventrally, but longest dorsally.

Redescription **FEMALE.** Length 2.20mm, and 4.5 times as long as wide. Colour similar to ♂. *Head* with transverse strip of long hairs immediately above clypeus, originating in elongate punctures in a pair of shallow depressions separated by central carina. *Antenna* with scape barrel shaped, and 1st funicle joint a little enlarged; club almost diameter of the eye, near round, flattened externally; testaceous strip smaller than ♂; antennal hairs numerous on scape and 1st funicle segment; on club majority of hairs very small, but around margin inwardly hooked, long hairs, very apparent. *Pronotum* clearly longer than wide; femoral grooves deep and long; pore-groups together near to 1/2 pronotal width, and most prominently procurved centrally. *Elytra* near parallel sided, a little more than 2 x as long as wide, apex simple, transversely rounded; elytral sulcus evident throughout, shallow; no sign of rim, replaced by tumid swelling; *declivity* rounded. *Abdominal* ventrites posteriorly raised, the last particularly so, and bordered with prominent hairs.

Material examined. PAPUA NEW GUINEA: SH: 2♂ 1♀, Mt. Giluwe, 23. v. 1976,

2400m, *Nothofagus pullei*, attacking felled tree (H. Roberts). EH: 1 ♂, Lufa, 20. xi. 1976, *Dryodaphne* sp., attacking felled tree; 5 ♀, Marafunga, 2. vi. 1968, 2800m, *Podocarpus* sp., in freshly fallen log (B. Gray). Redescribed ♂ and ♀ based on 2 ♂ and 2 ♀ taken together, MO: Gumi LA, Bulolo, 2200m, 13. ii. 1986, *Dryodaphne* sp., sticky traps on freshly felled trees (Roberts) (♂ and ♀ BPBM, ♂ and ♀ NFIL); Kuper Range, Wau, 6. vi. 1988-29. iv. 1989, 2300m, *Cryptocarya* sp., *Elaeocarpus* sp., *Galbulilima* sp., *Planchonella* sp., *Phyllocladus* sp., *Spherostenon* sp., *Ternstroemia* sp., all sticky traps on freshly felled trees (Roberts).

Distribution. Papua New Guinea: WH: Mt. Hagen; EH: Marafunga; MO: Gumi LA, Kuper Range.

Remarks. Schedl's (1970) description of *D. elongatus*, based on both sexes, was in the form of a Key only. Though types were thought to be in the ANIC, Canberra, enquiry revealed none, neither were there types in the NHMW collection, Vienna (see also *D. bispinus*). Dr. N. Jach, NHMW, considers all Schedl's Australian types have been lost (pers. comm.). The only known types today are paratype series, at NHMW and at NFIL, which correspond to the 'Type-localities' of Schedl (1970). It would appear both holotype and allotype have been lost or mislaid, or Schedl forgot to label them. For the redescription additional specimens were obtained in the Bulolo area.

D. elongatus, which superficially resembles *D. nebulosus*, is an unusual species. Among Papua New Guinea *Diapus* it is distinguished by its slim, elongate proportions. Males can be separated by the very procurved pore-groups, the very narrow elytral sulcus and near vertical declivity. The female is distinguished by the anterior frons ornamentation, and the concentric rings of long, hooked hairs on the antennal club. Like *D. nebulosus* no females with mandibular appendages have been seen, not even on teneral, newly emerged, individuals. *D. elongatus* is an upper montane forest species.

Diapus kuperi Roberts, new species

Figs. 1D-F.

MALE (holotype). Length 2.80mm, nearly 4 x as long as wide. Colour, head and pronotum black, clytra reddish-brown, particularly towards apex. *Head* with frons near flat; above clypeus a weak median carina; vertex not strongly angled to frons; surface throughout finely reticulate with few scattered hairs. *Antenna* with scape having some 10 forward pointing, elongate hairs; club ovate, with elongate, median testaceous strip on the outer surface, otherwise covered with rows of fine hairs (? scales), and few long hairs. *Pronotum* longer than wide (24:20); shallow femoral grooves confined to anterior 1/2; pore-groups essentially transverse, occupying 1/2 pronotal width, cavity wide, bordered, and slightly, though clearly procurved, both centrally and laterally. *Elytra* 2 x as long as pronotum, margins near straight, though diverging for initial 2/3 then slightly sinuate, ending before subtruncate apex; transverse, prominent, subterminal rim broken medially by a deep sulcus on elytral suture; sulcus occupying final 1/2 of elytra, margins diverging; on rim 2 pairs of equally prominent spines, upper pair, above sulcus, pointing inwards, lower pair, at posterolateral elytra angles, straight, both pairs a little longer than maximum sulcus width; on elytral disc striae and interstriae evident throughout, surface shining; *declivity* near vertical beneath subterminal rim, surface shining, and ornamented only by 2 well spaced rows of prominent hairs. *Abdomen* ventrites rising posteriorly, last near vertical, concave, in outline subcircular, and margined with prominent hairs.

FEMALE. Not known.

Type data. Holotype ♂ (BPBM). PAPUA NEW GUINEA: MO: 3 ♂, Kuper Range, 17. ii. 1989, 2200m, *Nothofagus grandis* sticky trap (H. Roberts). Paratypes, 2 same data as holotype, 1 ♂ (BPBM), 1 ♂ (NFIL).

Material examined. PAPUA NEW GUINEA: MO: 3 ♂, Kuper Range, Wau, 2200m, 17. ii. 1989, *Nothofagus grandis*, 21. ii. 1989, *Syzygium* sp., sticky traps on felled trees (Roberts).

Distribution. Papua New Guinea. From type locality only.

Remarks. Males of *D. kuperi* are easily distinguished by the presence of only 2 pairs of spines on each elytron, the upper one inward pointing. Possibly this species is related to *D. oomsis*. Probably an upper montane forest species.

Diapus latespinis Schedl

Figs. 1M-O, 3G, 3K, 5K, 6I-L.

Diapus latespinis Schedl, 1979, Faun. Abh. Mus. Tierk. Dresden, 7(12):120. (♂, holotype, Upper Manki LA, PNG. NHMW).

FEMALE nov. Length 2.65mm long (including mandibular appendages), somewhat more than 4 x as long as wide. Colour dark brown to black except for narrow yellow strips around eyes, within each femoral groove, and behind pore-groups. *Head* with frons near flat, impressed narrowly across anterior above clypeus; short median stria inconspicuous; vertex gently angled to frons; hairs evident on upper parts of frons, more so on vertex; mandibular appendages strong, semi-circular viewed from above, along inner margins serrations obvious, in length > 2/3 that of pronotum (12:21). *Antenna* with clavate scape, little enlarged; less than 10 elongate hairs on scape, only a few on basal funicle joint; club dark grey in colour, testaceous strip elongate on outer surface, surrounded by large numbers of small hairs in near straight rows, mixed with a few longer hairs. *Pronotum* elongate (18:13); femoral grooves deep; pore-groups transversely wide, inclined forwards at centre, not procurved, cavity wide, bordered, posterior margins stronger, bars together < 1/2 width of pronotum. *Elytra* 2 x as long as wide, widest almost 1/3 from the base, margins then narrowing gradually to transverse apex; subterminal rim reduced to tumid swellings in last 1/4, centrally broken by sulcus; sulcus shallow, but visible for all posterior 3/4 of elytra, wider in distal 1/4; interstriae recognisable for all of basal 1/2 of elytra; surface shining, finely lineate with sheen, ornamentation restricted to few, backwardly pointing hairs on even interstriae, and margined apically by fringe of short, curved hairs. *Abdominal* ventrites posteriorly hardly rising, except for the last which is obviously inclined upwards, subcircular, and margined with numerous hairs. (♀, (BPBM), taken with ♂, PAPUA NEW GUINEA: MO: Oomsis LA, 18. xi. 1990, 850m, *Castanopsis* sp. sticky trap (H. Roberts). Others same data, 1 ♀ (BPBM), 2 ♀ (NFIL)).

Material examined. PAPUA NEW GUINEA: MO: ♂ holotype, Upper Manki LA, 6th. June, 1973, 1000m, 2pm, board sticky trap (F.R. Wylie & P. Shanahan); 5♂ 1♀, Stony LA, 25. xi. 1986, 750m, 15♂ 19♀, Upper Stony LA, 27. viii.- 23. x. 1986, 850m, 15♂ 4♀, Divide LA, 21. x.-29. xi. 1986, 900m, all *Castanopsis* sp. billets (H. Roberts); 25♂ 10♀ Oomsis LA, 8.ii.1990, 900m, 18. ix.- 18. x. 1990 all *Castanopsis* sp., 8. ii. 1990, 900m, *Lithocarpus* sp., 4. x.- 25. x. 1990, 900m, *Myristica* sp., all sticky trap (Roberts).

Distribution. Papua New Guinea: MO: Stony LA, Upper Stony LA, Divide LA, Oomsis LA, Upper Manki LA.

Remarks. *D. latespinis* is related to the smaller *D. oomsis* n. sp., from which males, besides size, are separated by the presence of a median, subsidiary, 3rd pair of apical elytral spines, by the concave outer margin of the uppermost spines, and by matt areas on the apical third of the elytra. Female *latespinis* are distinguished by the yellow colour, very clear above and below the eyes, and in the femoral grooves. *D. latespinis* is characteristic of lower montane forest, where it has an apparent preference for Fagaceae.

Diapus nanodontus Roberts, new species

Figs. 2N-P, 5G.

MALE (holotype). Length 1.75mm, 3 x as long as wide. Colour brown, apices of elytra reddish. *Head* with vertical frons; between bases of antennae short, distinct, median carina; vertex rounded, not strongly angled to frons; surface finely reticulate throughout. *Pronotum* longer than wide (13:11); femoral grooves confined to anterior 1/2; median stria prominent in posterior 1/2; pore-groups transversely short, together bars near 1/2 pronotal width, cavity wide, bordered, centrally procurved. *Elytra* not quite 2 x as long as pronotum, widest 3/4 along, then sinuate for final 1/4,

ending in near truncate apex; prominent, transverse, subterminal rim, broken centrally by deep sulcus; rim with 2 pairs of teeth, not readily seen from above; upper pair very small, and immediately adjacent to sulcus, lower pair, 2 x as large, though still small, in posterolateral angle of each elytron (there may sometimes be an additional, minute, blunt projection, on each elytron between the 2 obvious teeth); sulcus occupying posterior 1/2 of elytra, initially shallow, but for last 1/4 of elytra deep, at first narrow, then wider to transverse rim; interstriae and subimpunctate striae evident for slightly more than 1/2 of elytra, only 1st striae impressed basally; surface shining throughout; *declivity* near vertical, slightly concave, smooth, shining, with one transverse row of small prominent hairs. *Abdomen* with terminal ventrite vertical, near round, concave, surface subimpunctate and ornamented with transverse, irregular rows of short hairs, on margins longer hairs.

FEMALE (allotype). Length 2.30mm (including mandibular appendages), more than 4 x as long as wide. Colour near uniform light brown above, much paler ventrally. *Head* with frons slightly convex, not strongly angled to vertex; above clypeus a pair of adjacent, narrow impressions; median carina hardly evident; mandibular appendages prominent, individually clavate, from above together near semicircular, on inner margins finely serrate ventrally, in length a little less than 1/2 pronotum (7:16). *Antenna* simple; scape slim with very few, long hairs; 1st joint of funicle also with few hairs; club elongate-ovate, with median testaceous strip very narrow, elsewhere on outer surface covered mainly with large numbers of minute hairs (? scales). *Pronotum* nearly 2 x as long as wide; deep femoral grooves occupying most of anterior 1/2; median striae conspicuous in posterior 1/2; pronotal pore-groups essentially transverse, together bars clearly more than 1/2 pronotum width, centrally procurved. *Elytra* 1.5 times as long as pronotum, for most part near parallel sided, widest just in front of midline, in last 1/4 narrowing to transverse apex; median sulcus impressed throughout last 3/4 of elytra, though shallow, wider in last 1/4; interstriae and striae evident throughout basal 1/2 of elytra, and somewhat beyond. *Abdomen* with last ventrite inclined, subcircular, bearing marginal hairs.

Type data. Holotype ♂ (BPBM) and allotype ♀ (BPBM), PAPUA NEW GUINEA: MO: Oomsis LA, 25. i. 1990, 800m, *Sterculia* sp. sticky trap (H. Roberts). Paratypes 3, same data as holotype, 1 ♀ (BPBM) and 1 ♂ 1 ♀ (NFIL).

Material examined. PAPUA NEW GUINEA: MO: 27 ♂ 20 ♀, Oomsis LA, 23. i.- 1. iii. 1990, 750-900m, *Castanopsis* sp., *Cryptocarya* sp., *Sterculia* sp., all sticky traps on felled trees in recently logged forest (H. Roberts).

Distribution. Papua New Guinea: from type locality only.

Remarks. Together with small size males of *D. nanodontus* can be recognised by the presence of two spines on the elytral apices, the upper pair proportionately very small. Females, besides size, are distinguished by the semicircular outline of the mandibular appendages from above, their length being just less than half that of the pronotum, and the pore-groups being more than half the pronotal width. This species is apparently confined to lowland rain forest.

***Diapus nanus* Schedl**

Figs. 4I, 5A.

Diapus nanus Schedl, 1970, Proc. Linn. Soc. NSW, 94(3): 226. (♂, ♀, paratype series Karamui, etc., PNG. NHMW and NFIL).

Redescription **MALE**. Length 1.65mm, more than 2.5 x as long as wide. Colour, head and pronotum brown, remainder of the latter yellow together with most of elytra, except apical 1/3 which is red. *Head* with the frons flat, angled behind to rounded vertex; median stria short, indistinct. *Antenna* with clavate scape, both scape and funicle with few elongate hairs only; club ovate, dark grey, on convex outer surface testaceous strip radial, elongate; surface otherwise covered by numerous short hairs (?scales), with few elongate hairs. *Pronotum* almost square (20:18); femoral grooves short, narrow, confined to anterior 1/2; median stria obvious in posterior 1/2; pore-groups short, transverse, < 1/2 width of pronotum, cavity wide, bordered, clearly procurved medially; surface smooth, shining. *Elytra* almost 2 x as wide as long, widest just beyond midway, afterwards narrowing, final 1/4 sinuate, ending in semi-truncate apex; transverse, subterminal rim not prominent,

broken medially by sulcus; deep sulcus limited to final 1/4, narrow, widest at rim; marginally rim terminating on each side posterolaterally in small, flattened, downwardly inclined, single tooth; on elytral disc only 1st striae evident, as line of elongate punctures; surface smooth and shining; *declivity* inclined, convex, apex of elytra clearly visible from above; smooth, shining, except for 3 transverse rows of well spaced hairs, upper row small hairs, the others larger, papillate. *Abdomen* with last ventrite vertical, subcircular in outline; surface with many short papillate hairs, margins with longer hairs.

Redescription **FEMALE**. Length 1.85mm (including mandibular appendages), some 3.5 x as long as wide. Colour, head dark brown, pronotum paler, elytra uniform dark brown. *Head* with frons, above clypeus impressed on either side of median carina, surface of impressions irregularly grooved, and margins bearing numerous elongate hairs, anteriorly and laterally; between and above antennae frons flat, giving way to convex vertex; mandibular appendages short, simple, near spatulate, with no evident serrations on lower margins, little more than 1/5 that of pronotum in length (5:19). *Antenna* the scape clubbed, part swollen with some 20 forward pointing, prominent hairs; funicle also hirsute; club dark grey, shape near symmetrical, elongate-ovate, testaceous strip narrow, remainder of outer surface covered with small hairs (?scales), and few longer hairs. *Pronotum* somewhat longer than ♂; pore-groups transverse, cavity wide, posterior margins bordered, more strongly procurved centrally, together bars a little more than 1/2 width of pronotum. *Elytra* near parallel sided, almost 2 x as long as wide, subterminal rim inconspicuous, broken medially by sulcus, apices rounded; shallow sulcus evident for all posterior 3/4, wider in final 1/8; neither striae, nor interstriae, clearly defined; surface shining, smooth. *Abdomen* ventrites raised gradually posteriorly, last near vertical, subcircular, surface smooth, margined by many hairs.

Material examined. PAPUA NEW GUINEA: CH: 1 ♂, Karamui, 12. vi. 1968, boring into fallen log (B. Gray). MO: Redescribed ♂ and ♀ based on 2 ♂ and 2 ♀ taken together, Oomsis LA, 7. iii. 1990, 800m, *Haplolobus* sp., sticky trap on felled tree (H. Roberts) (1 ♂ 1 ♀ BPBM, 1 ♂ 1 ♀ NFIL); 30 ♂ 14 ♀ Divide LA, Bulolo, 21/23. x. 1986, 100m, newly felled *Calophyllum* sp., *Castanopsis* sp., *Cryptocaria* sp., (Roberts); 1 ♂ Kuper Range, Wau, 14. xii. 1988, 1800m, newly felled *Phyllocladus* sp. (Roberts); 1 ♂ Manki LA, Bulolo, 1. iii. 1968, 1300m, fallen *Araucaria* sp. (Auno & Bereina); 3 ♂ 7 ♀ Manki LA, 4. iii. 1987, 1000m, newly felled *Castanopsis* sp., *Cryptocaria* sp., *Elaeocarpus* sp., *Mangifera* sp., *Xanthophyllum* sp., sticky traps (Roberts); 14 ♂ 11 ♀, Oomsis LA, 900m, newly fallen *Castanopsis* sp., 18. i. 1990, *Anisoptera* sp., 2. v. 1990, *Lithocarpus* sp., 22. xi. 1990 (Roberts); 23 ♂ 5 ♀, Upper Stony LA, Bulolo, 23. x. 1986, 800m, *Castanopsis* sp., sticky traps (Roberts); 12 ♂ Yakawa LA, Bulolo, 30. x. 1969, 1000m, newly fallen *Myristica* sp., *Sterculia* sp., (Gray & Anton). WH: 1 ♂ Baiyer River, 7. vi. 1968, in freshly felled hardwood, (Gray).

Distribution. Papua New Guinea: WH: Baiyer River; CH: Karamui; MO: Divide LA, Kuper Range, Manki LA, Upper Stony LA, Oomsis LA, Yakawa LA.

Remarks. Schedl's (1970) description of this species, based on ♂ and ♀, was in the form of a Key only. No holotype or allotype have been located, as with some other *Diapus* spp. described by Schedl (for details see *D. elongatus*), and only paratype series exist. For redescriptions additional specimens were collected near Lae.

The male of *D. nanus*, besides comparatively small size, is separated by having the transverse rim inconspicuous, the elytral sulcus short and deep, and the declivity clearly protruding. The ♀ is distinguished by distinctive frons ornamentation, small mandibular appendages, and the antenna having both stapes and funicle hirsute. *D. nanus* appears to be characteristic of the lower montane, *Castanopsis* forests.

***Diapus nebulosus* Roberts, new species**

MALE (holotype). Length 1.95mm, almost 4 x as long as wide. Colour, head and anterior margin of pronotum dark brown, remainder pale brown to yellow, except apices of elytra, which can be darker. *Head* with frons near flat, gradually angled to vertex above; surface finely reticulate

throughout, hairs few in number, most on vertex. *Antenna* with scape broadly clavate; club grey, testaceous strip terminally wide, not pointed; long hairs few, both on scape and 1st funicle joint. *Pronotum* clearly longer than wide (17:10); femoral grooves wide; median stria obvious; pore-groups with wide cavities, bordered posteriorly, centrally prominently procurved, less so laterally; together bars much less than 1/2 width pronotum; surface all over smooth, shining. *Elytra* more than 2 x as long as wide, widest 2/3 along length, sinuate in final 1/4; transverse subterminal rim strong, dorsally feebly sinuate, medially broken by sulcus, at posterolateral corners ending in blunt points; sulcus gradually evident through distal 2/3, though only deep in final 1/4; striae and interstriae indistinct, only in basal 1/2; surface smooth, shining; *declivity* convex, inclined, apices of elytra clearly visible from above; surface smooth, shining, ornamented by widely spaced hairs, in rows. *Abdomen* with last ventrite vertical, concave, subcircular, bordered by prominent hairs, surface shining, smooth.

FEMALE (allotype). Length 2.15mm, nearly 4.5 x as long as wide. Colour darker than ♂, mainly brown, a little yellow. *Head* with the frons lightly angled to the vertex; surface of frons clearly granular below level of antennae; hair ornamentation restricted to margins; apparently no mandibular appendages. *Antenna* with somewhat enlarged scape having few prominent hairs; basal joint of funicle also with only few hairs; club near symmetrical, colour dark grey, covered with large numbers of small hairs (?scales) in rows, mixed with many larger hairs, but these not long; testaceous strip with rounded tip. *Pronotum* clearly longer than wide; pore-groups longer than ♂, though together bars still not 1/2 pronotal width, cavities wide, bordered, obviously procurved both centrally and laterally. *Elytra* simpler than ♂; more than 2 x as long as wide, margins initially diverging slightly to just less than 1/2 way, then narrowing gradually to transverse, rounded apex; subterminal, transverse rim hardly evident; sulcus only clear for last 1/4; indistinct puncto-seriate striae visible only on anterior disc, surface smooth, shining; *declivity* inclined, convex, broken by sulcus. *Abdomen* with ventrites gradually raised posteriorly, the last near vertical, ovate, surface finely reticulate, apparently glabrous, margined with hairs.

Type data. Holotype ♂ (BPBM) and allotype ♀ (BPBM). PAPUA NEW GUINEA: MO: Gumi LA, Bulolo, 1. ii. 1986, 1900m, *Planchonella* sp., (H. Roberts). 4 paratypes, Kuper Range, Wau, 1800m, 1♂ 1♀ (BPBM), 1♂ 1♀ (NFIL).

Material examined. PAPUA NEW GUINEA: WH: 1♂, Kum, Mt. Hagen, 8. vi. 1968, host unknown, (B. Gray). MO: 44♂ 37♀, Kuper Range, Wau, 13. v.- 26. xii. 1988, 2000-2200m, *Acmena* sp., *Caldcluvia* sp., *Castanopsis* sp., *Cryptocaria* sp., *Dacrycarpus* sp., *Elaeocarpus* sp., *Garcinia* sp., *Ilex* sp., *Litsea* sp., *Nothofagus* sp., *Phyllocladus* sp., *Syzygium* sp., *Xanthomyrtus* sp., all sticky traps on freshly felled trees (H. Roberts); 22♂ 10♀, Gumi LA, Watut, 20. xi. 1985 -20. xi. 1986, 2000m, *Alphitonia* sp., *Garcinia* sp., *Macaranga* sp., *Planchonella* sp., *Syzygium* sp., all sticky traps on freshly felled trees (Roberts); 1♂ 1♀ Biaru, Wau, 13. iv.-, 28. iv. 1989, 1800m, *Planchonella* sp., sticky trap (Roberts); 1♂, Manki LA, 1000m, *Calophyllum* sp., sticky trap (Roberts).

Distribution. Papua New Guinea: WH: Mt. Hagen; MO: Kuper Range, Gumi LA, Manki LA, Biaru.

Remarks. This species is separated from *D. elongatus*, for which it has been mistaken, by its shorter, stockier form. *D. nebulosus* is also distinguished in males by the wider elytral sulcus, and the inclined declivity, clearly visible from above. The absence of hooked, elongate hairs on the antennal club separates the females. *D. nebulosus* is an upper montane forest species. Like *D. elongatus*, none of the many young females of *D. nebulosus* trapped (52), showed mandibular appendages.

Diapus oomsis Roberts, new species

Figs. 1P-R, 5L.

MALE (holotype). Length 2.20mm, almost 4 x as long as wide. Colour head and pronotum black to brown, elytra distally brown, but apically red. *Head* with the frons flat; short median black striae; vertex convex, not strongly angled to frons; throughout surface finely reticulate. *Pronotum*

slightly longer than wide (15:12); femoral grooves confined to anterior 1/2; median stria distinct; pore-groups essentially transverse, bordered, cavities wide, procurved centrally, less so laterally, together bars hardly 1/2 width of pronotum. *Elytra* 2 x as long as pronotum, sides diverging for basal 2/3, subsequently narrowing, and sinuate; transverse, subterminal rim prominent in last 1/4, divided at central sulcus, extending also to posterolateral corners; each rim with 2 evenly pointed spines, the largest, upper spine, immediately adjacent to central sulcus, other spine, slightly smaller, at postero-lateral corner of the elytron; sulcus extending for all of posterior 1/2 of elytra, initially narrow then in final elytral 1/3 wider, and deep, margins ultimately converging; striae and interstriae evident for little more than basal 1/2 of elytra, the former weakly puncto-striate, and hardly impressed; disc surface smooth and shining; *declivity* near vertical, narrow; transverse; below sub-terminal rim smooth; with 2 rows of well spaced, strong hairs. *Abdomen* with last ventrite near vertical, round, surface lightly punctate, bordered with elongate hairs, those dorsal particularly so.

FEMALE (allotype). Length 2.55mm (including mandibular appendages), more than 4 x as long as wide. Colour a uniform dark brown to black throughout, except immediately behind pore-groups, where yellow. *Head* with frons transversely convex; not angled to vertex; central carina evident above clypeus, with below on each side an impression; surface finely reticulate, few hairs; mandibular appendages strong, obovate, apically incurved, nearly 2/3 length of pronotum, finely serrate on lower, inner margin. *Antenna*, scape narrow, apically slightly swollen, with very few elongate hairs, all pointing forwards, on the outer edge of upper 1/2; funicle also with few elongate hairs on basal joint; club ovate, colour grey, with many rows of small hairs (?scales) on outer surface. *Pronotum* 2 x as long as wide; pore-groups together almost 1/2 width of pronotum, cavities wide, bordered, inclined forwards centrally, but not procurved there. *Elytra* 1.5 x length of pronotum, near parallel sided, ending in rounded transverse apex; subterminal transverse rim replaced by tumid swellings; median sulcus along all posterior 1/2 of elytra, wider in last 1/4; 1st striae alone clearly impressed, nowhere obviously punctate, interstriae nowhere clearly defined; surface shining, hooked hairs widely spaced along uneven interstriae.

Type data. Holotype ♂ (BPBM) and allotype ♀ (BPBM), PAPUA NEW GUINEA: MO: Oomsis LA, 24. i. 1991, 800m, *Elaeocarpus* sp., sticky trap (H. Roberts). Paratypes 3, same data as holotype, 1 ♀ (BPBM), 1 ♂ 1 ♀ (NFIL).

Material examined. PAPUA NEW GUINEA: MO: 21 ♂ 8 ♀, Oomsis LA, 24. i. 1990 - 7. ii. 1991, 8-900m, *Burkella* sp., *Canarium* sp., *Dysoxylum* sp., *Elaeocarpus* sp., *Garcinia* sp., *Myristica* sp., all sticky traps (H. Roberts).

Distribution. Papua New Guinea: MO: Oomsis LA.

Remarks. This species can be distinguished from the larger, closely related *D. latespinis* in males by the absence of any matt area on the posterior elytral disc, and by having only 2 pairs of apical elytral spines, the uppermost spines straight sided; the near uniform black colour, including below the eyes and along the femoral grooves, separates females. *D. oomsis*, like *D. latespinis*, appears to be a lower montane forest species, but with no particular attraction for the Fagaceae.

Diapros oreogenus Roberts, new species

Figs. 2Q, 3C, 4G, 5D.

MALE (holotype). Length 1.85mm, almost 4 x as long as wide. Colour generally brown, elytra paler, their apices red. *Head* with frons flat, gently angled to convex vertex; median stria reduced, almost to a dot, above clypeus; surface finely reticulate throughout, ornamented with fine hairs on upper frons and vertex. *Antenna* with scape clavate, funicle mounted centrally, both with only few, forward pointing, elongate hairs; club ovate, near symmetrical, light brown in colour; on outer surface testaceous strip narrow; club externally covered with many minute hairs (?scales), and a few elongate hairs. *Pronotum* only a little longer than wide (19:16); femoral grooves prominent in anterior 1/2; median stria clear in posterior 1/2; transverse pore-groups short, together bars less than 1/2 width of pronotum, pore cavity wide, bordered, feebly procurved centrally; pronotal surface shining, only few marginal hairs. *Elytra* a little more than 2 x as long as wide, margins diverging slightly to 1/2 way, then narrowing to transverse apex, final 1/8 sinuate; subterminal rim prominent, dorsally sinuate, broken medially at sulcus, and extending posterolaterally on each side to end in

single small tooth; from above each tooth seen within lateral limits of elytra; sulcus prominent in final 1/4 of elytra, deep, wide, widest before termination; disc with little evidence either of striae, or interstriae, smooth, shining; *declivity* near vertical, then inclined, allowing posterior apex of elytra to be just seen from above; smooth, ornamented with 2 rows of well spaced, papillate hairs. *Abdomen* ventrites hardly raised except last, which is vertical, subcircular, and covered with short well spaced hairs, longer hairs on margin.

FEMALE (allotype). Length 2.35mm (including mandibular appendages), and nearly 5 x as long as wide. Colour, head and pronotum brown except behind pore-groups where yellow, elytra a paler shade of brown. *Head* with short, distinct median carina above clypeus, and on each side a deep impression; mandibular appendages strong, nearly 1/2 length of pronotum, semi-circular viewed from above, clavate, and with conspicuous serrations on inner side, near lower margin. *Antenna* with scape somewhat elongate, and funicle attached to its outer corner; on both segments very few forward pointing, elongate hairs; club elongate, many rows of very fine hairs on outer surface; testaceous strip narrow. *Pronotum* more elongate than ♂; pore-groups narrower, transversely longer, and more procurved both centrally and laterally than ♂. *Elytra* 2.5 x as long as wide; widest about midway, then narrowing to transverse apex; subterminal rim of ♂ replaced by swellings; sulcus impressed throughout posterior 3/4 though nowhere deep, wider in last 1/4; disc with only 1st stria impressed, otherwise impunctate striae and interstriae indistinct over basal 1/2; *declivity* near vertical, ornamented with 2 transverse rows of well spaced hairs. *Abdomen* ventrites hardly raised posteriorly except the last which inclined, subcircular, ornamented as ♂.

Type data. Holotype ♂ (BPBM) and allotype ♀ (BPBM), PAPUA NEW GUINEA: MO: Gumi LA, 20. ii. 1986, 2000m, ex unknown host sticky trap, (H. Roberts). Paratypes 3, same data as holotype, 1 ♀ (BPBM), 1 ♂ 1 ♀ (NFIL).

Material examined. PAPUA NEW GUINEA: MO: 5 ♂ 10 ♀, Gumi LA, Watut, 18. v. 1977, unknown log, 21. xii. 1985, *Galbulilima* sp., log sticky trap, 20. ii. 1986, unknown log sticky trap (H. Roberts).

Distribution. Papua New Guinea: known only from type locality.

Remarks. The slim body form and less curved pronotal pore-groups distinguish males of *D. oreogenus* from *D. unispineus*; females are separated by the short, strong, semicircular mandibular appendages, and comparatively simple scape. This is probably a mid-montane forest species.

***Diapus papuanus* Schedl**

Fig. 5N.

Diapus papuanus Schedl, 1970, Proc. Linn. Soc. NSW, 94(3): 226. (♂, ♀, paratype series Mt. Hagen, etc., PNG, NHMW and NFIL).

Redescription **MALE**. Length 2.45mm, and almost 4 x as long as wide. Colour, head and anterior of pronotum dark brown, remainder of pronotum bright yellow, basal 2/3 of elytra pale yellow, apically elytra red. *Head* with frons near flat, not sharply angled to rounded vertex; raised, median stria midway between antennae; surface finely reticulate, hairs on frons short, and confined to upper parts, longer on vertex. *Antenna* with scape clavate, loose brush of hairs confined to apex, none long; funicle articulating at outer angle of scape, with few hairs; club dark grey, on outer surface testaceous strip narrow, hardly reaching centre, surrounded by rows of small hairs (?scales), with also few longer hairs. *Pronotum* not longer than wide (18:18); femoral grooves deep, in anterior 1/2; short, clear, median stria evident in posterior 1/2; pore-groups together not occupying 1/2 pronotal width, cavities wide, bordered, centrally strongly procurved; surface smooth, shining, few marginal hairs. *Elytra* nearly 2 x as long as wide, widest 2/3 along length, then narrowing, sinuate for final 1/3, ending in near truncate apex; transverse, subterminal rim prominent in final 1/4, broken midway by central sulcus, posterolaterally on each side ending in hidden, pointed angle; narrow sulcus occupying distal 1/2 of elytra, only last 1/3 deep; on disc puncto-seriate striae, of which only 1st impressed, and interstriae, evident in proximal 1/2; surface shining; *declivity* narrow, inclined, apical margin of elytra clearly seen from above; surface shining, smooth; ornamentation consisting of upper, transverse row of widely spaced short hairs, below which are only 2 prominent hairs, one on each elytron. *Abdomen* with ventrites hardly raised, except near-vertical last, which is concave

and ornamented by evenly spaced, papillate hairs, the margin also haired, most posterior the longest.

Redescription **FEMALE**. Length 2.65mm (including hair ornamentation), and nearly 4 x as long as wide. Colour, head and pronotum like ♂, elytra with brown apices. *Head* with surface of frons, below level of antennae, grooved antero-posteriorly; impressed median stria clear; frons not sharply angled to convex vertex; surface finely reticulate all over, with short hairs, in particular on upper frons and vertex; mandibular appendages short, slim, small, near spatulate, with no serrations on inner, lower surface, in length 1/3 that of pronotum (6-20). *Antenna* elaborate; scape enlarged internally, the pair forming a front-on facing semicircle, each flattened on inner margins; anterior surface of scape covered with dense stand of forward pointing, elongate, golden hairs, these dorsally increasing in size, and all curved, either upwards, or inwards; funicle normal, with only few hairs; club light grey in colour, asymmetrical, elongate; testaceous strip short, not reaching club centre, surrounded near flattened, outer surface by rows of very small hairs (?scales), marginally by somewhat longer hairs. *Pronotum* more elongate than ♂, otherwise similar, except pore-groups transversely longer, together bar width > 1/2 that of pronotum. *Elytra* 2 x as long as wide, widest 2/3 along length, then narrowing to transverse, rounded apex; sulcus evident throughout distal 1/2 of elytra, at 1st narrow, then wider in last 1/4; punctate striae, and interstriae evident, but indistinct, throughout much of distal 1/2 of elytra, 1st striae alone impressed; surface shining, finely linear-reticulate, hairs confined to 1 or 2 rows on outer elytral margins; *declivity* simple, convex, interrupted by median sulcus, ornamentation limited to few rows of hairs. *Abdomen* raised gradually, last ventrite near vertical, subcircular, concave, disc with well spaced, short, papillate hairs, margins with longer hairs, particularly posterior pairs.

Material examined. PAPUA NEW GUINEA: WH: 18♂ 9♀, Kum, Mt. Hagen, 8. vi. 1968, boring into 'Coonape' (DN), 'Muroo' (DN), (B. Gray & Sine); 3♂ Porotop, Lutheran Mission, 11. viii. 1967, in *Casuarina* sp., log (Gray). SH: 2♂ Tari Sawmill, 3. vi. 1968, boring into *Araucaria* sp., (Gray). EH: 2♂, Afunintegu, 7. vi. 1967, Hoop-pine log (Gray); 1♂ Lufa, 20. xi. 1976, *Eugenia* sp., reared (H. Roberts). MA: 2♂, Simbai, 18. vi. 1968, boring into freshly fallen 'Cheremade' log (DN), (Gray). MO: Redescribed ♂ and ♀, based on 2♂ and 2♀ taken together, Kuper Range, Block IV, Wau, 11. iv. 1989, 2300m, *Endospermum* sp., sticky trap on freshly felled log (H. Roberts) (1♂ 1♀ BPBM, 1♂ 1♀ NFIL); 1♀ Biaru, Wau, 28. iv. 1989, 1800m, *Planchonella* sp., sticky trap (Roberts); 2♂, Divide LA, Bulolo, 1000m, 21. x. 1986, *Calophyllum* sp., billet (Roberts); 13♂ 18♀, Gumi LA, 16/29. xi. 1985, 2200m, *Macaranga* sp., *Garcinia* sp., sticky traps (J. Dobunaba & Roberts); 1♂ Golden Pines, Bulolo, 27. xi. 1976, 1200m, *Agathis alba*, log (Roberts); 1♀, Ilaru, Wau, 28. iv. 1989, 2000m, *Glochidion* sp., fallen tree (Roberts); 1♂ 3♀, Kassam 13. iii. 1970, in fallen log (B. Peters & F. R. Wylie); 2♂ 13♀ Manki LA, Bulolo, 6. v. 1986, 1000m, *Syzygium* sp., in log (Dobunaba); 2♂ 1♀, Nauti LA, 26. iv. 1989, 1600m, *Myristica* sp., in log, (Roberts); 13♂ 8♀, Biaru Rd., Wau, 20. xii. 1988, fogging *Castanopsis*, (A. Allison); 2♂ 1♀ Panganda LA, 7. viii. 1972, 1800m, *Castanopsis* sp., log (P. Shanahan & H. Ivagai); 3♂, Upper Stony LA, 23. x. 1986, 800m, *Calophyllum* sp., in log (Roberts); 1♂, Yakawa LA, 20. x. 1969, 1500m, fallen *Sterculia* sp., (Gray & Anton). MB: 1♂ 1♀, Mt. Dayman, 23. xii. 1969, recent felled *Araucaria* sp., (Gray).

Distribution. Papua New Guinea: SH: Tari; WH: Mt. Hagen, Porotop; EH: Lufa, Afunintegu, Kassam; MA: Simbai, Mt. Dayman, MO: Panganda LA, Yakawa LA, Upper Stony LA, Kuper Range, Biaru, Ilaru, Wau, Divide LA, Manki LA, Nauti LA, Gumi LA, Golden Pines.

Remarks. Schedl's description of *D. papuanus*, based on both sexes, was in the form of a Key only. Information from ANIC, Canberra, and NHMW, Vienna, indicated that both the holotype and allotype could not be found, and that paratype series are all that now exist (see also *D. elongatus*). For redescriptions further specimens were collected near Wau.

The inclined declivity, easily visible from above, together with the absence of any pos-

terolateral spines distinguish male *D. papuanus*, and the distinctively haired stapes, and grooved anterior frons are peculiar to the female. *D. papuanus* is a mid-montane forest species.

***Diapus perpygmaeus* Roberts, new species**

Figs. 2H, 3F, 3J, 5B.

MALE (holotype). Length 1.40mm, not quite 4 x as long as wide. Colour the head dark brown, pronotum also, except behind pore-groups where yellow, elytra lighter brown, except apical 1/3 which near red. *Head* with frons flat; median stria short, indistinct; vertex rounded, feebly angled to frons; surface throughout finely reticulate. *Antenna* scape not modified; both scape and funicle with only few elongate, forward pointing hairs; club brown, testaceous strip narrow, outer club surface covered with rows of small hairs, and few longer hairs. *Pronotum* a little longer than wide (13:11); posterior median stria distinct; pore-groups with wide cavities, bordered, not procurved either centrally, or laterally, though narrower away from mid-line; together bars only a little more than 1/2 width of pronotum; pronotal surface smooth, shining. *Elytra* little more than 2 x as long as wide; lateral margins for initial 2/3 diverging, then somewhat narrower, sinuate in final 1/3, and ending in near transverse apex; strong, transverse, shining, subterminal rim in final 1/4, broken centrally by sulcus; rim on each side at 1st sinuate, before ending in posterolateral corner as small, downward pointing tooth, 1 on each side; viewed from above both teeth seen within lateral margins; sulcus occupying final 1/3 of elytra, wide, deep, narrowing at rim; no striae, or interstriae, clearly visible; disc surface smooth, shining; *declivity* below elytral rim, first convex then inclined, apex of elytra and declivity visible from above. Last *abdominal* ventrite near vertical, rounded, concave, distinct central and marginal hairs.

FEMALE (allotype). Length 1.90mm (including mandibular appendages), not quite 4 x as long as wide. Colour above brown, except behind the pronotal pore-groups where yellow, elytra darker. *Head* with paired impressions above clypeus; mandibular appendages stout, from above almost semi-circular, except final 1/3 opposing, with lower margins strongly serrate; length just over 1/2 that of pronotum (9:13). *Antenna* scape not enlarged; very few elongate hairs on both scape and funicle; club grey, large numbers of minute hairs on outer surface. *Pronotum* very similar to ♂ except pore-groups longer laterally, and centrally inclined. *Elytra* clearly more than 2 x as long as wide; margins near parallel, before in the final 1/3 narrowing to end in rounded, transverse apex; declivity short, convex; median sulcus only conspicuous in final 1/3 of elytra; striae and interstriae nowhere clearly defined. *Abdomen* with final ventrite inclined, disc concave, with centrally short hairs, and marginally longer hairs.

Type data. Holotype ♂ (BPBM) and allotype ♀ (BPBM), PAPUA NEW GUINEA: MO: Oomsis LA, 22. xi. 1990, 850m, *Cryptocarya* spp. sticky trap (H. Roberts). Paratypes 3, same data as holotype, 1 ♂ (BPBM), 1 ♂ and 1 ♀ (NFIL).

Material examined. PAPUA NEW GUINEA: ES: 4 ♂ 1 ♀ Kumbrok unlogged forest, 25. v. 1990, 50m, fallen *Pometia* sp., (H. Roberts). MO: 8 ♂ 13 ♀, Manki LA, Bulolo, 2. iii. -22. iii. 1989, 1000m, *Neonauclea* sp., *Pometia* sp., sticky traps on freshly felled trees (Roberts); 1 ♂, Stony LA, Bulolo, 2. x. 1986, 800m, *Xanthophyllum* sp., from sticky trap (Roberts); 11 ♂ 16 ♀, Oomsis LA, 28. ii.-6. xii. 1990, 800m, *Calophyllum* sp., *Castanopsis* sp., *Cryptocarya* sp., *Lithocarpus* sp., *Pometia* sp., sticky traps on trees felled some months (Roberts); 9 ♂ 6 ♀, Marambi LA, Lae, 8. v.-17. v. 1990, 50m, *Pometia* sp., sticky traps on trees felled some months (Roberts); 3 ♂ 2 ♀, Situm LA, Lae, 23. i.-20. ii. 1990, 50m, *Pometia* sp., sticky traps on trees felled some months (Roberts). MB: 6 ♂ 3 ♀, Ewa Alaia, Fergusson Isl., 15.-23. vii. 1990, 300m, *Planchonella* sp., fallen tree (Roberts).

Distribution. Papua New Guinea: ES: Kumbrok; MO: Manki LA, Stony LA, Oomsis LA, Marambi LA, Situm LA; MB: Fergusson Isl.

Remarks. This is the smallest *Diapus* spp. known in Papua New Guinea. Besides small size, the short, transverse, pronotal pore-groups, and only one pair of small elytral spines, each set well within the lateral margins, distinguishes males of *D. perpygmaeus*.

Small size will also separate females of this species, and if present form of the mandibular appendages will also be diagnostic.

Diapus pusillimus Chapuis

Figs. 2G, 5E.

Diapus pusillimus Chapuis, 1865, Monogr. Platyp., 44:334 (♂ and ♀ syntype series, Dorey, Irian Jaya, Indonesia. BMNH, Johnson Coll. 1911).

Crossotarsus grevilleae Lea, 1914. Proc. Roy. Soc. Victoria, 2:226, ♀.

Material examined. PAPUA NEW GUINEA: WE: 8♂ 17♀, Wawoi-Guavi LA, 1.xii. 1989, 100m, on debarked *Anisoptera* sp., (H. Roberts). WS: 1♂, Goldone, Vanimo, 3. vi. 1971, in *Celtis* sp., log, (F.R. Wylie). ES: 12♂ 7♀ Angoram, 12. iii. 1990, on *Canarium* sp., *Ficus* sp., *Intsia bijuga* sticky traps on fallen trees, (Roberts). SH: 1♂, Erave, 14. viii. 1967, *Castanopsis* sp., (B. Gray); 2♂, Hegiso, 21. xi. 1969, in fallen log *Albizia* sp., (Gray); 2♂, Lake Kutubu, 25. xi. 1969, 1000m, in cone pith *Araucaria* sp., (Gray); 8♂ 2♀, Mt. Giluwe, 23. v. 1976, *Nothofagus pullei* sticky traps, (Roberts). MA: 1♂, Karkar Isl., 20. i. 1970, freshly fallen *Canarium* log, (Gray); 1♀, 18. i. 1970, boring into freshly fallen *Intsia bijuga* log, Baku, (Gray). WH: 1♀, Baiyer River, 2. vi. 1968, unknown hardwood, (Gray). CH: 2♀, Karamui, 11. vi. 1968, boring into fallen 'Sape' log (DN), (Gray). EH: 1♂, Okasa, 26. v. 1967, in flight in Hoop Pine forest, (Gray). MO: 1♂ 3♀, Gumi LA, Bulolo, 12/15. v. 1976, 2000m, reared from *Garcinia* sp., billet, (Roberts); 4♂, Heads Hump LA, Bulolo, 28. xi. 1972, sticky trap in fire damaged plantation, (P. Shanahan & F.R. Wylie); Kulolo LA, Bulolo, 29. x. 1969, freshly felled *Araucaria* sp., (J. Dobunaba); 2♂, Long Island LA, Bulolo, 29. xi. 1967, in flight in Hoop Pine plantation, (Gray); 5♂ 3♀, Manki LA, Bulolo, 24. ii. 1989, 1500m, *Mangifera* sticky trap, (Roberts); 1♂ 1♀, Upper Stony LA, Bulolo, 3. x. 1986, 800m, reared *Syzygium* sp., (Roberts); 4♂ 1♀, N. Oomsis, 2. iii. 1988, 450m, fogging *Lithocarpus* sp., (A. Allison) (BPBM); 3♂ 2♀, Oomsis LA, 5. i. 1991, 800m, *Castanopsis* sp., log sticky traps, (Roberts); 12♂ 2♀, Yakawa LA, Watut, 30. x. 1969, 1800m, in fallen *Cryptocaria* sp., *Sterculia* sp., *Xanthophyllum* sp., (Gray). MAN: 21. iv. 1969, *Calophyllum* sp., freshly fallen, (Gray). CEN: 4♂, Anamoa LA, Cape Rodney, 23. vii. 1972, in log *Sloanea* sp., (F.R. Wylie); 3♂, Vanapa River LA, 14. i. 1972, on log *Pterocymbium* sp., (Wylie). NP: 1♂ Killerton, 29. vi. 1960, in *Anisoptera* sp. log, (F. Coppock). MB: 8♂ 15♀, 12. vii. 1990, 200m, *Castanopsis* sp., sticky traps, (Roberts). WNB: 2♂. Quasa LA, 1. iv. 1980, in live *Terminalia brassii*, (N. Howcroft); 1♂, Kumbanga LA, Cape Hoskins, 16. v. 1971, in log *Dracontomelum* sp., (Wylie); 1♂, Wilelo, 5. ii. 1971, in log 'kamerere', (B. Peters). ENB: 1♂ 1♀, Kerevat, 8. v. 1968, in fallen *Pometia* sp. log, (Wylie); 1♂ 3♀, Lakunai, 2. v. 1969, freshly fallen *Macaranga* sp., *Canarium* sp., (Gray); 4♂ 10♀, Inland Pomio, 5. xi. 1990, 900m, *Castanopsis* sp., sticky trap, (Roberts); 7♂ 2♀, Tokai-Matong LA, 12. vi. 1989, 150m, freshly felled unknown trees, sticky traps, (Roberts); 8♂, Warengoi, 3. v. 1969, freshly felled *Pometia* sp., (Gray). NI: 3♂ 3♀, Rasirik, 15. vii. 1990, *Terminalia* sp., sticky trap, (J. Dobunaba). NS: 2♂, Aropa, 5. v. 1969, freshly felled *Ficus* sp., (Gray).

Distribution. Papua New Guinea: WP: Wawoi-Guavi; WS: Vanimo, Angoram; SH: Erave, Hegiso, Lake Kutubu, Mt. Giluwe; MA: Karkar Isl., Baku; WH: Baiyer River; CH: Karamui; EH: Okasa; MO: Gumi LA, Heads Hump LA, Kulolo LA, Long Island LA, Manki LA, Upper Stony LA, Oomsis LA, Yakawa LA; CEN: Peaga, Anamoa LA, Vanapa River LA, MB: Killerton, Fergusson Isl.; ENB: Quasa LA, Cape Hoskins, Wilelo, Kerevat, Lakunai, Inland Pomio, Tokai-Matong LA, Warengoi; NI: Rasirik; NS: Aropa. Also, Schedl (1972) records this species from: Sierra Leone, Ghana, Nigeria, Cameroon, Zaire, Angola, India, Burma, Malaya, Indonesia, Philippines, Solomon Isl.,

Australia, Fiji, W. Samoa.

Remarks. The male of this small species is readily recognised by the pair of prominent declivity papillae, one on each elytron, terminating the 3rd interstriae. Females of *D. pusillimus* are distinguished by the hooked mandibular appendages, if present, which bend both inwards and downwards apically, and by the very transverse, narrow, pore-groups, that are not procurved. Within Papua New Guinea this species occurs on the mainland, probably up to 2000m, as well as on the large Islands. In Malaya it is rated as a timber pest (Browne 1961).

Diapus quinquespinatus Chapuis

Fig. 50.

Diapus quinquespinatus Chapuis, 1865. Monogr. Platyp., 44:332/333. Schedl, 1972. Monogr. Fam. Platypodidae: 264, fig. 70 ♂. (♂ and ♀ syntype series - Mysol, etc., Irian Jaya, Indonesia. BMNH, Johnson coll., 1911).

Material examined. PAPUA NEW GUINEA: WE: 6♂ 1♀, Wawoi-Guavi LA, 1. xii. 1989, unknown hosts sticky trap, (H. Roberts). WS: 1♂, Vanimo, 25. vi. 1968, boring into *Pometia* sp., log, (B. Gray). SH: 1♂ 1♀, Erave, 14. viii. 1967, ex log *Castanopsis* sp., (Gray); 4♂, nr. Tari, 5. vi. 1986, boring into freshly felled 'huri'(DN), (Gray). ES: 5♂, Yousourum, 12. vi. 1968, *Neonauclea* sp., attacking freshly fallen tree, (Gray); 4♂, Wewak, 22. vi. 1968, boring into freshly fallen log *Dracontomelum* sp., (Gray). CH: Karamui, 12. vii. 1968, boring into fallen log, (Gray). MA: Gogol LA, 13. i. 1970, attacking freshly fallen *Spondias* sp., (Gray). MO: 2♂, Bulolo, 11. ix. 1967, attracted to house light 7.30-9.30pm, (Gray); 4♂, Heads Hump LA, Bulolo, 2. v. 1970, attacking log *Araucaria hunsteinii* felled 2hrs, (Gray); 1♂, Heads Hump LA, Bulolo, 2. ii. 1973, log *Eucalyptus grandis*, (F.R. Wylie & P. Shanahan); 1♂, Gumi LA, Watut, 14. iv. 1976, 1800m, *Dysoxylum* sp., log, (Roberts); 1♂, Latep LA, Bulolo, 8. vi. 1976, 1200m, reared *Agathis alba* log (Roberts); 1♂ 1♀, Upper Stony LA, Bulolo, 21. x. 1986, 900m, *Castanopsis* sp., log, (Roberts); 5♂ 2♀, Divide LA, Bulolo, 3. xi. 1986, 800m, in *Castanopsis* sp., billet, (Roberts); 1♂, Wau, 17. xi. 1987, 1210m, *Castanopsis* sp., canopy fogging, (A. Allison) (BPBM); 1♂, Ilauru, Wau, 4. i. 1988, 1800m, *Acmena* sp., log sticky trap, (Roberts); 1♂, N. Oomsis, 3. iii. 1988, 450m, *Lithocarpus* sp., canopy fogging, (Allison) (BPBM); 1♂ 1♀, Manki LA, Bulolo, 12. xii. 1988, 1500m, *Mangifera* sp., *Pometia* sp., sticky traps, (Roberts); 1♂, Nauti LA, Bulolo, 17. vii. 1989, 1600m, *Lithocarpus* sp., sticky trap, (Roberts); 2♂ 1♀, Oomsis LA, 18. i. 1990, 750m, *Anisoptera* sp., sticky trap, (Roberts). EH: Okasa, 26. v. 1967, pine forest in flight, (Gray). MB: 3♂ 1♀, Ebwa Elaia, Fergusson Isl., 18. vii. 1990, 200m, *Castanopsis* sp., sticky trap, (Roberts); 5♂, Gamadoudu, 12. x. 1990, 100m, *Hopea* sp., sticky trap, (T. Siliwale). WNB: 1♂, Bubu, 4. iii. 1971, *Pometia* sp., log, (J. Peters); 2♂, Buvusi, 6. iv. 1971, *Eucalyptus deglupta*, fallen tree, (Peters); 3♂ 2♀, Wilelo, 15. iv. 1971, *Eucalyptus* sp., felled tree, (Peters); 1♂ 5♀, Buluma Beach, Cape Hoskins, 13. v. 1971, in treated *Terminalia* log, (Peters). ENB: 3♂, Lakunai, 2. v. 1969, in freshly felled *Planchonella* sp., log, (Peters); 14♂ 5♀, Tokai-Matong LA, 15. vi. 1989, *Glochidion* sp., sticky trap, (Roberts); 2♂, Nakanai Mts., 5. xi. 1990, 800m, unknown log sticky trap, (Roberts). NI: 3♂, Penipol Plantation, 25. iv. 1969, in freshly fallen log, (Gray).

Distribution. Papua New Guinea: WP: Wawoi-Guavi; WS: Vanimo; SH: Erave, Tari; EH: Okasa, Yousourum; ES: Wewak; CH: Karamui; MO: Gogol LA, Bulolo, Heads Hump LA, Gumi LA, Latep LA, Upper Stony LA, Divide LA, Wau, Ilaru, Oomsis LA, Manki LA, Nauti LA; MB: Fergusson Isl., Gamadoudu; ENB: Bubu, Buvusi, Wilelo, Cape Hoskins, Lakunai, Tokai-Matong LA, Nakanai Mts.; NI: Penipol Plantation. Also Schedl (1972) records this species from: Sierra Leone, Ghana, Nigeria, Cameroon, Zaire,

Angola, Zambia, Sri Lanka, India, Burma, Viet-Nam, Malaya, Indonesia, Taiwan, Philippines, Solomon Isl., Fiji, W. Samoa.

Remarks. Both sexes of *D. quinquespinatus* are easily recognised by the very narrow, single bar pore-group, that traverses almost the complete posterior pronotum. In front of this bar there is a strip of small, distinct, pores, unknown in other PNG *Diapus* spp. Also *quinquespinatus* is the only species where impressed striae and interstriae cover the whole length of the elytra in both sexes, and the male elytral declivity has 5 pairs of spines. Within Papua New Guinea this species is probably distributed throughout the lowland rain forest of the mainland, and most of the larger islands, ascending commonly at least up to 1500m. In Malaya the insect is reported as a pest of logs and lumber (Browne 1961).

Diapus robustus Schedl

Figs. 2D-F, 4F, 5P, 6E-H.

Diapus robustus Schedl, 1970, Proc. Linn. Soc. NSW., 94(3):225.-Browne, 1976, Ent. mon. Mag., 112:101. (♂, ♀, paratype series, Mt. Hagen, etc., PNG. NHMW and NFIL).

Redescription **MALE.** Length 2.65mm, a little less than 4 x as long as wide. Colour, the head and anterior 1/2 of the pronotum black, posterior of pronotum bright yellow, elytra with proximal 2/3 dull yellow, remainder dark red. *Head* the frons flat; short carina central, immediately above clypeus; vertex angled to frons; small numbers of yellow hairs on either side of carina, and dorsally, on frons, more so on vertex. *Antenna* with near cylindrical scape; only small numbers of elongate, forward pointing hairs on scape and funicle; club grey, ovate, on outer surface fine hairs numerous, in rows, with few long hairs; testaceous strip terminally pointed. *Pronotum* only a little longer than wide (29:26); femoral grooves deep; fine central striae conspicuous in posterior 1/2; transverse pore-groups short, together not 1/2 pronotal width, cavity wide, bordered, centrally strongly procurved, laterally much less so; throughout surface smooth, shining. *Elytra* a little more than 2 x as long as wide; margins for basal 2/3 diverging slightly, then narrowing to strong, near apical, transverse rim, which contributes to somewhat truncate elytral apex; rim broken centrally by sulcus, and ending posterolaterally on each side in blunt, near flat, conspicuous tooth; sulcus short, narrow, deep portion confined to apical 1/6 of elytra, widest at the rim; striae and interstriae nowhere distinct; surface smooth, shining; *declivity* at first vertical, then inclined, posterior elytral margin just visible from above, beyond elytral rim; surface smooth, shining, ornamented with 2 rows of well spaced, downward pointing hairs, the upper row papillate. *Abdomen* with last ventrite almost vertical, outline subcircular, concave, surface subpunctate, lightly haired, margins with longer, well spaced hairs, last 2 stronger.

FEMALE nov. Length 3.35mm (including mandibular appendages), and 4 x as long as wide. Head and anterior margins of pronotum black, remainder of pronotum and proximal 2/3 of elytra bright yellow, apices of elytra brown. *Head* distinguished from ♂ by large mandibular appendages, which are more than 1/2 length of the pronotum (16:25); from above these forcipate in outline, individually each straight beneath and rounded apically, the internal, lower margin strongly serrated; frons with prominent, median carina, set immediately above clypeus, with obvious shallow impressions on either side. *Antenna* with scape swollen somewhat in apical 1/2, and many forward pointing, elongate hairs; club brown, outer surface with many rows of very small hairs, and a few elongate hairs. *Pronotum* proportions similar to ♂; pore-groups together transversely longer than ♂, each weakly procurved, both centrally and laterally, cavities wide, bordered. *Elytra* much simpler than ♂; margins near parallel sided, and almost 2 x as long as wide, without rim, apex evenly rounded, declivity gradually inclined; sulcus evident throughout posterior 3/4 of elytra, wide only for final 1/6; striae and interstriae nowhere clearly defined. *Abdominal* ventrites horizontal, except for last, which is inclined and flat, with scattered small punctures, and small hairs.

Material examined. PAPUA NEW GUINEA: WH: 1 ♂, Kum, Mt. Hagen, 8. vi. 1968, boring into freshly fallen log, 'Yumba'(DN), (Simbai dialect name), (B. Gray & Sine). MA: 3 ♂, Simbai, 18. vi. 1968, boring into freshly fallen log, 'Cheramde' (DN),

(Gray). MO: Redescribed ♂, taken with ♀, Kuper Range, Wau, 18. xii. 1988, 230m, *Acmena* sp., sticky trap on log (H. Roberts) (BPBM ♂ ♀, NFIL ♂ ♀); ♂, Gumi LA, Watut, 2. xi. 1989, *Cryptocaria* sp.,- 4♂ 11♀, 9. i. 1986, *Dryodaphne* sp.,- 1♂ 2♀, 4. xi. 1986, *Lithocarpus* sp.,- 4♂, 30. iv. 1985, *Nothofagus* sp.,- 5♂ 6♀, 28. xi. 1986, *Syzygium* sp., all 2200m, sticky traps on logs, (Roberts); 4♂ 1♀, Kuper Range, Wau, 18. xii. 1988, 2300m, *Acmena* sp., sticky trap log, (Roberts); 1♀, Upper Manki LA, 20. viii. 1985, 1500m, *Syzygium* sp., sticky trap log, (Roberts); 1♂, Biaru Road, Wau, 20. xii. 1988, fogging *Castanopsis* sp., (A. Allison)(BPBM).

Distribution. Papua New Guinea: WH: Mt. Hagen; MA: Simbai; MO: Gumi LA, Kuper Range, Upper Manki LA, Biaru Road.

Remarks. Schedl's (1970) description of this species, based on the male alone, was in the form of a Key only. No holotype or allotype has been located, as with some other *Diapus* spp., and only paratype series are known to exist (for details see *D. elongatus*). For redescrptions additional specimens were collected near Wau.

The male of *D. robustus* can be separated from the larger, closely related, *D. bilunatus*, by the ornamentation of the lower frons, and the blunter spines on the posterolateral angles of the elytra. The forcipate mandibular appendages and more transverse, longer pronotal pore-groups distinguish females. *D. robustus* is a mid- to upper montane forest species.

***Diapus spinifer* Schedl**

Figs. 1A-C, 3A, 4A, 5J.

Diapus spinifer Schedl, 1970, Proc. Linn. Soc. NSW, 94(3):224 (♂, ♀, paratype series, Mt. Hagen etc., PNG. NHMW, NFIL).

Material examined. SH: 3♂ 2♀, Mt. Giluwe, 23/25. ix. 1976, 2000m, *Nothofagus pullei*, and 29. v. 1976, *Ficus* sp., all sticky traps, (Roberts). WH: 6♂ 7♀, boring into freshly fallen log 'Nogare' (DN), 2♂ 1♀, 'Da'me' (DN), 2♂ 5♀, 'Yumba' (DN), (all Chimbu dialect names), Kum, Mt. Hagen, 2. vi. 1968, (B. Gray & Sine); 1♂ 3♀, Porotop, 6. iii. 1968, *Syzygium* sp., *Podocarpus* sp., *Nothofagus* sp., all fallen trees (D.H. Jeffers). MA: 1♂, Simbai, 18. vi. 1968, in 'Cheramde' (DN), (Gray & Sine).

Distribution. Papua New Guinea: WH: Mt. Hagen, Porotop; SH: Mt. Giluwe; MA: Simbai.

Remarks. The holotype and allotype of *D. spinifer* have not been traced. Even though Schedl (1970) locates these at ANIC, Canberra, enquiry revealed they are not there. All that appear to exist are paratype series at NHMW and NFIL (see also *D. elongatus*).

D. spinifer is related to the smaller *D. bispinus* and *D. angustidontus*. Males of *D. spinifer* can be distinguished by the two pairs of prominent, bluntly ending, near parallel sided, elongate spines (lower spine similar size to upper), the narrow, near parallel sided sulcus, which does not contract preapically, and by the greater combined transverse length of the pronotal pore-groups. Heavier, mandibular appendages, that are almost as long as the pronotum, deeper impressions above the clypeus, and transversely even longer pore-groups distinguish females. This is an upper montane forest species.

***Diapus turgidus* Roberts, new species**

Figs. 2I, 3D&I, 4E, 5C.

MALE (holotype). Length 1.85mm, a little more than 3 x as long as wide. Colour, the head, almost all of the pronotum and the elytral apices, black to brown; all the remainder pale yellow. *Head* with frons very flat, near impressed; median stria short; frons clearly angled to rounded vertex; surface finely reticulate, with scattered hairs, mainly on vertex. *Antenna*, apical 1/2 of the scape wide, on both scape and funicle very few elongate hairs; club ovate, tip of testaceous strip round, rather than elongate, otherwise outer club surface covered with rows of fine hairs (?scales), mixed

with few longer hairs. *Pronotum* a little longer than wide (20:17); femoral grooves shallow; median stria long; pore-groups lunate, equally procurved centrally and laterally, cavity wide, bordered on posterior margin, together bars 1/2 pronotal width; surface smooth and shining, short hairs on margins only. *Elytra* a little less than 2 x as long as wide; margins diverging, widest beyond midway, giving swollen outline to elytra, narrowing in posterior 1/4 to transverse, rounded apex; subterminal rim of elytra weak, hardly protruding, broken at medial sulcus, with angled apices posterolaterally; elytral sulcus short, confined to apical 1/4, shallow, widest before elytral rim; rows of indistinct punctures on disc extending into posterior 1/2, striae not impressed; surface smooth, shining; *declivity* concave to inclined, posterior apical margin easily visible from above; surface smooth, shining, with 2 transverse rows of well spaced hairs, those of the upper row papillate. *Abdomen* not particularly raised posteriorly, except last ventrite which near vertical, subcircular, surface with numerous haired papillae, borders also haired.

FEMALE (allotype). Length 2.25mm (including mandibular appendages), 4 x as long as wide. Colour, black or dark brown, except extreme posterior of pronotum, and proximal 3/4 of elytra, which are pale yellow. *Head* with frons below insertion of antennae, on either side of short, median stria, a broad, shallow impression, with many elongate, piliferous, punctures; above antennae frons hardly impressed, angled with rounded vertex; mandibular appendages simple, short, only 1/4 length of pronotum, viewed laterally near pyriform, clearly serrate on inner, lower margins. *Antenna* with scape clavate; hairs of scape and funicle little different to ♂; club grey, larger than ♂, unequally ovate, with testaceous strip on outer club surface ending more round than pointed, haired as ♂. *Pronotum* similar to ♂ except pore-groups transversely more elongate, occupying more than 1/2 the pronotal width, and more strongly procurved, both centrally and laterally. *Elytra* almost 2 x as long as pronotum; margins slightly diverging, then narrowed in last 1/4 to rounded apex; no evidence of subterminal elytral rim; elytral sulcus shallow, obvious only in final 1/8; disc with unimpressed, puncto-seriate striae, and interstriae evident throughout much of proximal 1/2, and extending beyond midway; *declivity* transversely rounded, simple. *Abdomen* with last ventrite inclined, concave, subpunctate, bearing scattered short hairs, margins also haired.

Type data. Holotype ♂ (BPBM) and allotype ♀ (BPBM), PAPUA NEW GUINEA: MO: Gumi LA, 15. i. 1986, 2200m, *Planchonella* sp., sticky trap on freshly felled tree, (H. Roberts). Paratypes, 3, same data as holotype, 1 ♀ (BPBM), 1 ♂ and 1 ♀ (NFIL).

Material examined. PAPUA NEW GUINEA: MO: 31 ♂ 23 ♀, Gumi LA, Watut, May 1976, 2000-2200m, *Planchonella* sp., reared, 5. xii. 1985 - 27. xi. 1986, *Dryodaphne* sp., *Garcinia* sp., *Macaranga* sp., *Planchonella* sp., *Syzygium* sp., all sticky traps on freshly cut trees, (Roberts); 9 ♂ 4 ♀, Nauti LA, Watut, 26. iv. 1989, 1700m, *Antidesma* sp., *Glochidion* sp., *Microcos* sp., *Sphenostemmon* sp., *Terminalia* sp., all sticky traps on fallen trees, (Roberts); 12 ♂ 13 ♀, Upper Manki LA, Bulolo, 25. viii. 1986, 1500m, *Syzygium* sp., sticky trap on felled tree, (Roberts); 1 ♀, Stony LA, Bulolo, 25. xi. 1986, *Castanopsis* sp., billet, (Roberts).

Distribution. Papua New Guinea: MO:Gumi LA, Nauti LA, Upper Manki LA, Stony LA.

Remarks. The tumid elytra, near lunate pronotal pore-groups, a weak subterminal elytral rim, and the essentially inclined declivity, together contribute to separate males of *D. turgidus* from the somewhat similar *D. elongatus* and *D. nebulosus*. Females of this new species are separated by the ornamentation of the anterior frons, and lunate pore-groups. *D. turgidus* is a low to mid-montane forest species.

***Diapus unispineus* Roberts, new species**

Figs. 2J, 3B&H, 4B&H, 5M.

MALE (holotype). Length 2.15mm, nearly 4 x as long as wide. Colour, head and pronotum near black, elytra proximally pale yellow, with the apical 1/4 red. *Head* the frons near flat, angled to convex vertex; centrally a short, impressed stria, above clypeus; prominent, piliferous pits, transversely across above clypeus; surface finely reticulate, few scattered hairs on upper frons, more on vertex. *Antenna* with clavate scape bearing few elongate, forward pointing hairs; funicle attached to outer, distal edge of scape; club grey, on outer surface apex of testaceous strip rounded near club

centre, surface covered with rows of minute hairs mixed with very few longer hairs. *Pronotum* longer than wide (16:13); femoral grooves mainly in anterior 1/2; median stria evident in posterior 1/2; pore-groups procurved, much more so centrally than laterally, cavities wide, bordered, together transverse width of bars not quite 1/2 that of pronotum; pronotal surface smooth, shining, with few marginal hairs. *Elytra* slightly more than 2 x as wide as long; margins diverging gradually for 2/3, then narrowing, sinuate for final 1/5, to end in near truncate, rounded apex; subterminal rim of elytra prominent, broken midway by median sulcus, and on each side ending posterolaterally in an obvious narrow, horizontal spine; sulcus evident throughout posterior 1/3, nowhere deep, narrow, though most prominent for apical 1/5, widest at elytral rim; striae and interstriae nowhere conspicuous on disc; surface smooth, shining; *declivity* convex, posterior elytral apex readily visible from above; smooth, shining, ornamented by 3 transverse rows of well spaced hairs. *Abdomen* not posteriorly obviously raised, except near vertical, subcircular, last ventrite; this ventrite covered with well spaced papillate hairs.

FEMALE (allotype). Length 2.75mm, (including scape ornamentation); not quite 4.5 x as long as wide. Colour, head and pronotum mainly black to dark brown, except pale brown behind pore-groups of pronotum; elytra with disc all over pale yellow, margins brown, apically darker; hair brushes of antennae very large, conspicuously golden. *Head* with frons broadly, but superficially, impressed beneath insertions of each antenna, and anterior margin bordered by semicircular strip of hairs above the clypeus; central striae impressed midway between antennae insertions; frons above angled to convex vertex; mandibular appendages only 1/4 length of pronotum, short, simple, elongate, and inner, lower margin non-serrate. *Antenna* with scape greatly enlarged on inner side forming semicircular, narrow plate, the plate with marginal bands of curving, long, golden hair brushes; hair brushes on lower margin pointing upwards, as well as forwards, those on upper margin downwards, and forwards; when scape of both antennae are juxtapositioned a funnel like, circular, ring of hairs is formed, opening forwards; remainder of antennae very like ♂. *Pronotum* more elongate than ♂; pore-groups broadly and almost evenly procurved, both centrally and laterally; together bars more than 1/2 width of pronotum; otherwise as ♂. *Elytra* more than 2 x as long as wide; margins near parallel sided until final 1/4 when narrowing to form rounded, transverse elytral apex; sulcus occupying most of posterior 1/2 of elytra, narrow until widening in last 1/4; *declivity* simple, vertically convex. *Abdomen* not raised until last ventrite, which is inclined, subcircular, and has surface covered with well spaced, short hairs, margin with longer hairs.

Type data. Holotype ♂ (BPBM) and allotype ♀ (BPBM), PAPUA NEW GUINEA: MO: Kuper Range, Wau, 21. i. 1989, 2300m, *Nothofagus* sp., sticky trap on recently felled tree, (H. Roberts). Paratypes 3, same data as holotype, 1 ♀ (BPBM), 1 ♂ 1 ♀ (NFIL).

Material examined. PAPUA NEW GUINEA: EH: 2 ♂ 1 ♀, Lufa, Sept. 1976, *Eugenia* sp., reared from billet, (H. Roberts). MO: 9 ♂ 8 ♀, Kuper Range, Wau, 18. iii. 1988 - 21. i. 1989, 2200-2300m, *Caldcluvia* sp., *Castanopsis* sp., *Elaeocarpus* sp., *Litsea* sp., *Nothofagus* sp., all sticky traps on felled trees, (Roberts); Biaru Road, Wau, 20. xii. 1988, fogging *Castanopsis* sp., (A. Allison) (BPBM).

Distribution. Papua New Guinea: EH: Lufa; MO: Kuper Range.

Remarks. *D. unispineus* may only be confused with the stouter *D. papuanus*. Males of the former can be separated by the single pair of narrow spines which terminate the elytra, absent in *D. papuanus*, and the narrower elytral sulcus. Though females of both species have prominently haired antennal scapes in *D. unispineus* both upper and lower hair brushes are equally developed, while in *D. papuanus* only the upper hair brushes are prominent. If both antennal hair brushes and mandibular appendages are missing, as is likely in females collected from within log galleries, the impressions on the anterior frons will distinguish the two. *D. unispineus* is an upper montane forest species.

Genus **GENYOCERUS** Motschulsky.

Genyocerus Motschulsky 1858, Etudes Entom. VII, & IX: 68 (type species: *G. albipennis* Motschulsky; Ceylon).

KEY TO GENYOCERUS SPECIES OF PAPUA NEW GUINEA

1. ♂ body length 2.95-3.25mm. ♂ with about 40 separate large pronotal pores; not more than 4 teeth terminating each elytron apically; last abdominal ventrite not bordered in lower 1/2, disc covered with fine hairs. ♀ with antennae inserted in front of eyes; club diameter smaller than eye; prominent hairs of frons limited to marginal borders, particularly above insertion of mandibles; not more than 10 large pronotal pores 2
- ♂ body length 4.75-4.85mm; ♂ with no more than 10 large pronotal pores; each elytron terminating in 5 notched teeth; last abdominal ventrite conspicuously bordered in lower 1/2, numerous short, upward pointing hairs all over disc. ♀ with antennae inserted opposite upper margin of eyes; club diameter larger than that of eyes; very prominent golden hairs on frons in 2 bundles immediately below each antennae, as well as above upper borders of mandibles; about 100 large pronotal pores *papuanus* n. sp.
- 2 (1) ♂ body length 2.85-2.95mm, ♀ 3.20-3.30mm; ♂ with only 3 teeth terminating each elytron, none showing clear identity; ♀ with at least 8 to 10 large pronotal pores *p. puer*
- ♂ body length 3.10-3.20mm, ♀ 3.45-3.55mm; ♂ with 3 distinct, narrow teeth terminating apex of each elytron centrally, and an additional tooth in each posterolateral corner; ♀ without large pronotal pores *p. trispinatus* (Schedl) n. stat.

***Genyocerus papuanus* Roberts, new species**

Figs. 6A-D, 7A-C.

MALE (holotype). Length 4.80, nearly 4 x as long as wide. Colour, head and pronotum very dark brown, elytra usually paler, sometimes mottled. *Head*, the frons below antennae centrally flattened, surface rugose in 2 vertical strips; between antennae distinct pigmented striae; above antennae frons centrally impressed, then angled to convex vertex above; ornamentation beneath antennae 4 vertical strips of long hairs, outer rows a line of single hairs, inner rows both with numerous hairs; vertex with well spaced, long hairs. *Antenna* with obovate scape; funicle with large 1st segment; some elongate hairs on upper scape and 1st segment of funicle; club asymmetric, flattened, grey in colour, covered on outside with large numbers of small scales, together with few longer hairs; testaceous strip very narrow, extending along posterior edge. *Pronotum* about 1.5 x as long as wide; femoral grooves short; posterior stria distinct, with 4 or 5 large, circular pores, on each side; surface shining, all over finely reticulate, hairs sparse, confined to margins. *Elytra* a little over 2 x as long as wide; margins near straight, diverging slightly, apically widest, ending in each elytron in 5 variably notched teeth terminating odd interstriae; disc horizontal except at extreme apex, puncto-seriate striae, and interstriae, clear, except before teeth 3 to 5, where absent; surface shining; ornamentation confined to prominent hairs in notch of each apical tooth, and scattered small, marginal hairs. *Abdomen* with only last ventrite raised, near vertical, deeply concave; border of this ventrite with lower 1/2 protruding, semi-transparent, surface dull; disc ornamented with large numbers of short scales, pointing upwards, also few large scattered hairs throughout disc, and 2 largest pairs on posterior margin.

FEMALE (allotype). Length 5.30mm long, and more than 4 x as long as wide. Colour, head and pronotum dark brown, elytra pale. *Head* in young ♀ with bundles of long golden hairs borne on frons; above each mandible, 1 bundle on either side, hairs curving upwards, and a further pair, each consisting of two adjacent bundles, set in upper frons below antennae, outer bundle of each with particularly long hairs curving across frons, inner bundle of shorter hairs pointing directly forwards; centre of frons near bare of hairs, flat, with prominent median carina; vertex angled to frons, con-

vex, with strong central carina, ornamented as ♂. Each *antenna* set in upper, lateral frons, inside eye; scape narrow, elongate, hairs few, feeble; funicle with small 1st segment; club, near symmetrical, somewhat elongate; marginal testaceous strip much longer than ♂, extending along lower edge. *Pronotum* more elongate than ♂; femoral grooves conspicuous; large pores on either side of median stria reaching more than 50. *Elytra* more than 2 x as long as wide, margins diverging slightly, until widest near apex, then narrowing rapidly to transverse apex; shallow sulcus along suture for posterior 2/3 of elytra, getting progressively deeper; disc with evidence of feebly punctate striae and interstriae centrally; surface dull, with sheen. *Abdomen* the ventrites gradually raised posteriorly; last ventrite near vertical, with a broad central groove, its margins raised, defined by fine carinae; hairs numerous, particularly on borders of last ventrite, many inward pointing.

Type data holotype ♂ (BPBM) and allotype ♀ (BPBM), PAPUA NEW GUINEA: WP: Wawoi-Guavi, 1. xii. 1989, 150m, felled *Anisoptera* sp., sticky trap, (H. Roberts). Paratypes 3, same data as holotype, 1 ♀ (BPBM), 1 ♂ 1 ♀ (NFIL).

Material examined. Papua New Guinea: WP: 18 ♂ 19 ♀, Wawoi Guavi, same as type data (NFIL); 1 ♂, Fly R., Kiunga, Aug. 1969, 35m, (J.M. Sedlacek) (BPBM).

Distribution. Papua New Guinea: WP: Kiunga, Wawoi-Guavi.

Remarks. This new species resembles *G. (Diacavus) biporus* (Schedl 1942). Besides greater size, males of *G. papuanus* are separated by the hair ornamentation of the lower frons, and the presence of only very small scales on the last abdominal sternite. The very much greater number of large pronotal pores distinguishes the female. *G. papuanus* is not known north of the main Dividing Range of Papua New Guinea, even though extensive collecting has been made in Morobe Province, where its apparent preferred host *Anisoptera* is common.

***Genyocerus puer puer* (Schedl), new combination**

Fig. 7D-F.

Diapus puer Schedl, 1970 Proc. Linn. Soc. N.S.W., 94 (3):223. (♂ paratype series NHMW and NFIL. PAPUA NEW GUINEA: MO: Oomsis, *Anisoptera*).

Diacavus trispinatus Schedl, 1974, Ann., Naturhistor. Mus. Wien, 78:471. (holotype, ♂, 3 Paratypes, ♂, NFIL. PAPUA NEW GUINEA: MO: *Gabensis, Anisoptera*). *New Synonymy.* *Genyocerus trispinatus*: Browne, 1985 Kontyu, Tokyo, 53 (1): 197(♀, F.G. Browne coll. (now BMNH), *Hopea*).

FEMALE nov. Length 3.30mm (including frons hair ornamentation), a little under 4 x as long as wide. Colour, uniform dark brown. *Head* the frons near flat, with distinct median stria below antennae; young ♀ ornamented on lower lateral frons margins with narrow, dense row of near vertical, yellow hairs; frons elsewhere haired only above, otherwise near smooth; vertex angled to frons, convex, with prominent, short, median ridge, protruding over frons, ornamented with dark, well spaced hairs. *Antenna* with scape short, flat, well covered with obvious hairs; club grey in colour, near symmetrical in shape, outer surface with large numbers of very small hairs mixed with few, scattered, long hairs; testaceous strip very narrow, covering posterior 3/4 of club margin. *Pronotum* elongate, posterior corners rounded; femoral grooves narrow; large pronotal pores number between 8 and 10, many less than ♂; surface smooth, shining, few small hairs on margins. *Elytra* simple, almost 2 x as long as pronotum, near parallel sided, transversely rounded apically; along suture narrow, median sulcus, for posterior 2/3, progressively wider; puncto-seriate striae, and interstriae, indistinct on disc. *Abdomen* with ventrites raised gradually towards posterior; last ventrite vertically inclined, near circular, convex, with short, transverse carina at apex of swelling, and numerous, well spaced, inward pointing hairs all over (♀ (BPBM), PAPUA NEW GUINEA: MO: Oomsis LA, 22. v. 1990, 800m, *Anisoptera* sp., sticky trap on felled tree (with ♂ in large numbers) (H. Roberts). Paratypes, same data, 1 ♀ (BPBM), 2 ♀ (NFIL)).

Material examined. PAPUA NEW GUINEA: MO: 13 ♀ Oomsis LA, same as ♀ data, 1 ♀ Marambi LA, 24. vi. 1990, 24m, 6 ♀ Situm LA, 12. xi. 1989, 10m, all *Anisoptera* sp., sticky trap on felled trees, with ♂'s, (Roberts); 4 ♀, Kui (Morobe Coast),

18. x. 1970, 150m, *Anisoptera* sp., (J. Dobunaba).

Distribution. Papua New Guinea: MO: Oomsis LA, Marambi LA, Situm LA, Kui (Morobe Coast).

Remarks. Schedl (1970,1974) reported ♂ holotypes for both *D. puer* and *D. trispinatus* as placed in ANIC, Canberra, and respectively cotypes and paratypes in collection Schedl (afterwards NHMW), with additional paratypes of the latter at Bulolo. Enquiries have revealed no holotypes either in Canberra or Vienna, and what remain are paratype series at Vienna, and Lae (before Bulolo) (see also *Diapus elongatus*).

Besides smaller size, males of *G. puer* are distinguished by the fewer points on the elytral apices, and the simpler last abdominal ventrite, which is not bordered, and is without any distinctive hairs on the concave disc. The young females can be separated by the different hair ornamentation of the frons, and all females show differences in the form of the last ventrite.

The female of *trispinatus* described by Browne (1985) is that of a different subspecies to *puer*. Schedl (1970) says *G. p. puer* has resemblances to *Diapus aculeatus* Blandford, from Indonesia.

G. p. puer is a lowland rain forest insect, associated apparently with Dipterocarpaceae, and is known only from the *Anisoptera* forests of Morobe Province, where it is common.

***Genyocerus puer trispinatus* (Browne), new status**

Genyocerus trispinatus Browne, 1985, Kontyu, Tokyo, 53(1): 197. (♀ syntype in BMNH, designated as lectotype, taken with ♂'s; Milne Bay (Papua New Guinea)->Nagoya, 29. vii. 1983, ex *Hopea* sp., log (Y. Hatanaka)).

LECTOTYPE ♀. As characterised in original description by Browne (1985). Length 3.50mm (including frons hair ornamentation).

ALLOLECTOTYPE ♂ (description). Length 3.10mm; a little over 3 x as long as wide. Colour brown, the head and pronotum darker than the elytra, much paler beneath. *Head* very like ssp. *puer*. *Pronotum* longer than wide, posterior angles rounded; femoral grooves deep, and narrow; large pronotal pores numerous, in total nearly 80 pores, arranged as two near equal groups on either side of short median stria close to posterior border of pronotum. *Elytra* horizontal, and 1.5 x as long as pronotum, sides parallel for basal 3/4, then slightly narrowing to end in dentate apex; apex with centrally 3 clearly separated small teeth on each elytron, and an additional smaller tooth lateral to these; on disc striae feebly impressed, particularly the 1st, with widely spaced, indistinct punctures, interstriae in part distinct; surface smooth, shining; ornamentation restricted to few marginal hairs, and small groups of short hairs at the apex of each apical tooth. *Abdomen* with ventrites rising little posteriorly, except last, which is vertical, near circular, gently concave, and with no obvious border.

Type material examined (syntype series). Lectotype ♀, here designated, (BMNH). PAPUA NEW GUINEA: Milne Bay ->Nagoya, 29. vii. 1983, ex *Hopea*. log H. Nakazawa (Browne 1985); 1 allolectotype ♂ same data (BMNH).

Other material examined. PAPUA NEW GUINEA: MB: 2♀ 2♂, Gamadoudou, 26. x. 1990, 50m, *Hopea* sp., sticky trap on newly felled tree, (T. Siliwale)(BPBM); 4♀ 6♂, same data (NFIL); 2♀ 2♂, Sebutaia, Fergusson Isl., 23/15. vii. 1990, 200m, *Hopea* sp., sticky trap on felled tree, (H. Roberts). WP: 9♀ 18♂, Wawoi-Guavi, 1. xii. 1989, *Anisoptera* sp., sticky trap, (Roberts).

Distribution. Papua New Guinea: WP: Wawoi-Guavi; MB: Fergusson Isl., Gamadoudou.

Remarks. Browne (1985) described this diapodine as the female of *G. trispinatus* (Schedl), here recognised as a synonym of *G. puer puer* (Schedl). Examination of the single individual on which the description was based, borrowed from BMNH, showed it to be different to the female of *G. p. puer*, which is described elsewhere in this paper. Many other specimens, of both sexes, have been taken, or seen, and none were of the nominative subspecies, *puer*.

Besides larger size, males of ssp. *trispinatus* are distinguished by the greater numbers of large pronotal pores, greater prominence of the apical elytral teeth, and the presence of one additional, small tooth. Females are separated by the complete absence of any large pronotal pores.

Subspecies *trispinatus* appears to be limited to the lowland rainforest of the eastern parts of Papua New Guinea, and that of such forest south of the main east/west Dividing Range. In contrast ssp. *puer* is known only from Morobe Province on the north coast, and in neither of the areas of distribution of the two subspecies have both been taken together.

Phylogenetic relationships among Papua New Guinea *Diapus*

Among the 20 *Diapus* spp. it is possible from males to suggest some recognisable groups.

Of the endemic species those males with 2 or 3 pairs of elytral spines, together with a prominent elytral sulcus, form a distinctive group, which also shows diversification. The presence among these of species with a pair of incipient medial spines may represent the primitive condition. Included in the latter group are *angustidontus*, *bispinus*, *latespinis*, *nanodontus* and *oomsis*, all of which have the medial spine greatly reduced. Perhaps originating from these in one direction is *amblylaminatus*, which has 3 pairs of well developed spines, and in other directions *kuperi* and *spinifer*, both of which show only 2 pairs of spines. The latter retains the narrow elongate elytral sulcus, with near parallel straight elytral spines, while the former has evolved to a much broader sulcus, and inward pointing spines.

The two, large, montane species, *robustus* and *bilunatus*, make up a second group. These besides size, show close similarities in pore-groups of both sexes, elytral apices of males, and mandibular appendages of females; frons ornamentation is also similar.

The remaining eight endemic species are not so easily grouped. Though males of *nanus*, *oreogenus*, *perpygmaeus*, and *unispineus* all have only 1 pair of elytral spines, while the remainder, *elongatus*, *nebulosus*, *papuanus*, and *turgidus*, are completely without spines, within both groups there is obvious diversity. Only *elongatus*, in particular, and perhaps *nebulosus*, which is sometimes confused for it, are very different. *elongatus*, besides strikingly slim proportions, alone, in both sexes, has a differently shaped, very elongate, frons, with eyes set well apart. The female also has the antennal club distinctively haired, and females of both *elongatus* and *nebulosus* are unique in apparently never having mandibular appendages.

The two alien species, *pusillimus* and *quinquespinatus*, clearly have little in common with the endemic PNG *Diapus* spp., and there is no suggestion of diversification from these.

Evolution in some aspects of sexual behaviour appears to have followed two directions among the endemic PNG *Diapus*, as shown by morphological differences of the female head, and some of its appendages. Large mandibular appendages, associated with restricted pilosity of head and scape, *bilunatus* and *spinifer* being extreme examples, are most widespread. However, movement towards an enlarged, hirsute scape, and well haired frons, with reduction, or complete absence of mandibular appendages, is also sug-

gested. This is seen only in the generally small species, of which the males have only 1 pair of elytral spines, or are without spines altogether. Extreme examples of this are *papuanus* and *unispineus*. Perhaps *nanus* represents an intermediate stage along this line.

The diversification that has occurred has been largely a feature of the montane forests of PNG.

Checklist of Papua New Guinea Diapodini

This list is thought to include all the diapodines recorded from Papua New Guinea. Species are listed in order of appearance in the text.

Genus *Diapus* Chapuis

amblylaminatus, n. sp.
angustidontus, n. sp.
bilunatus Schedl
bispinus Schedl
elongatus Schedl
kuperi, n. sp.
latespinis Schedl
nanodontus, n. sp.
nanus Schedl
nebulosus, n. sp.
oomsis, n. sp.
papuanus Schedl
oreogenus, n. sp.

perpygmaeus, n. sp.
pusillimus Chapuis
Crossotarsus grevilleae Lea syn.
quinquespinatus Chapuis
robustus Schedl
spinifer Schedl
turgidus n. sp.
unispineus, n. sp.

Genus *Genyocerus* Motschulsky

papuanus, n. sp.
puer Schedl, n. comb.
puer puer Schedl n. stat.
trispinatus Schedl, n. syn.
puer trispinatus (Browne), n. stat.

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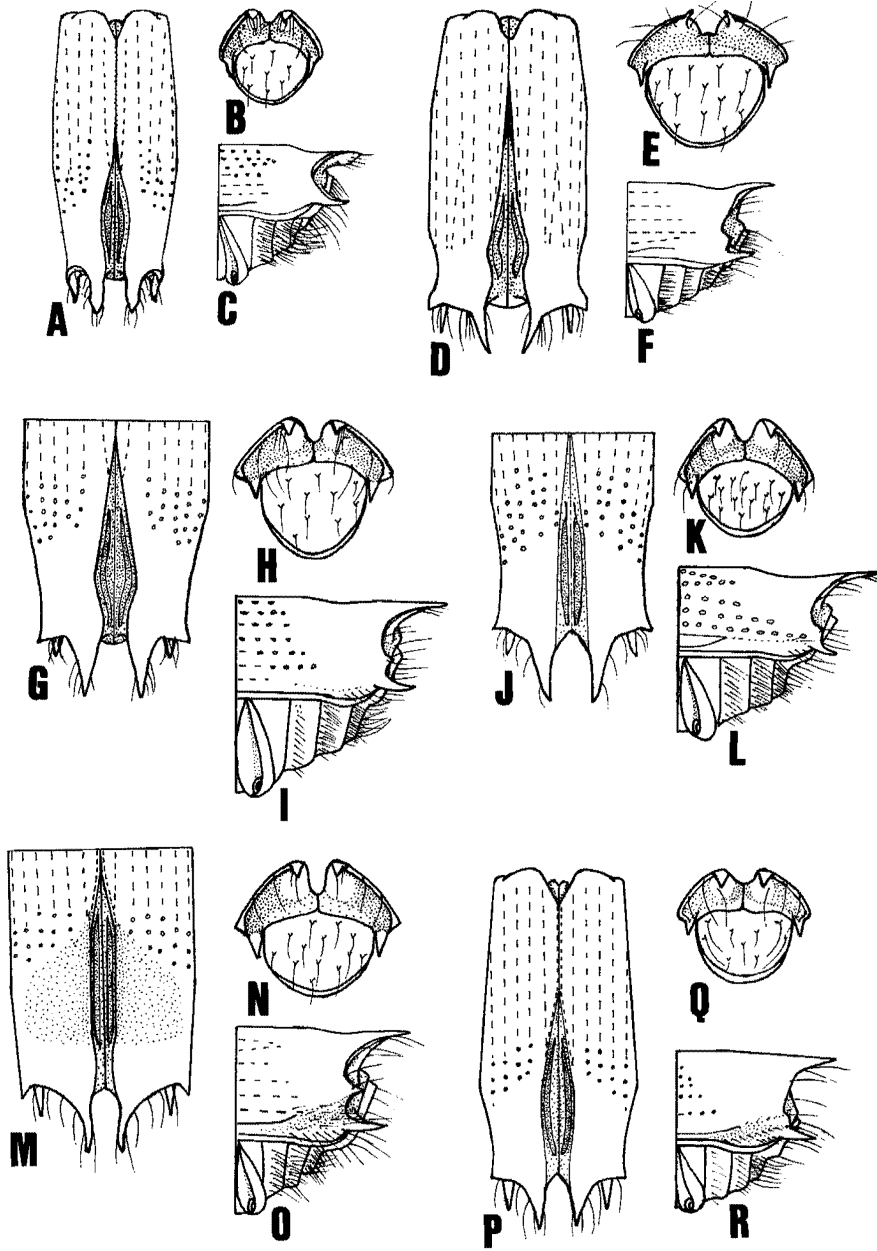


Fig. 1. *Diapus* spp., dorsal, posterior, and apico-lateral views of ♂ elytra and abdomen: A, B, C - *D. spinifer*; D, E, F - *D. kuperi*; G, H, I - *D. angustidontus*; J, K, L - *D. bispinus*; M, N, O - *D. latespinis*; P, Q, R - *D. oomsis*. Figures not to same scale.

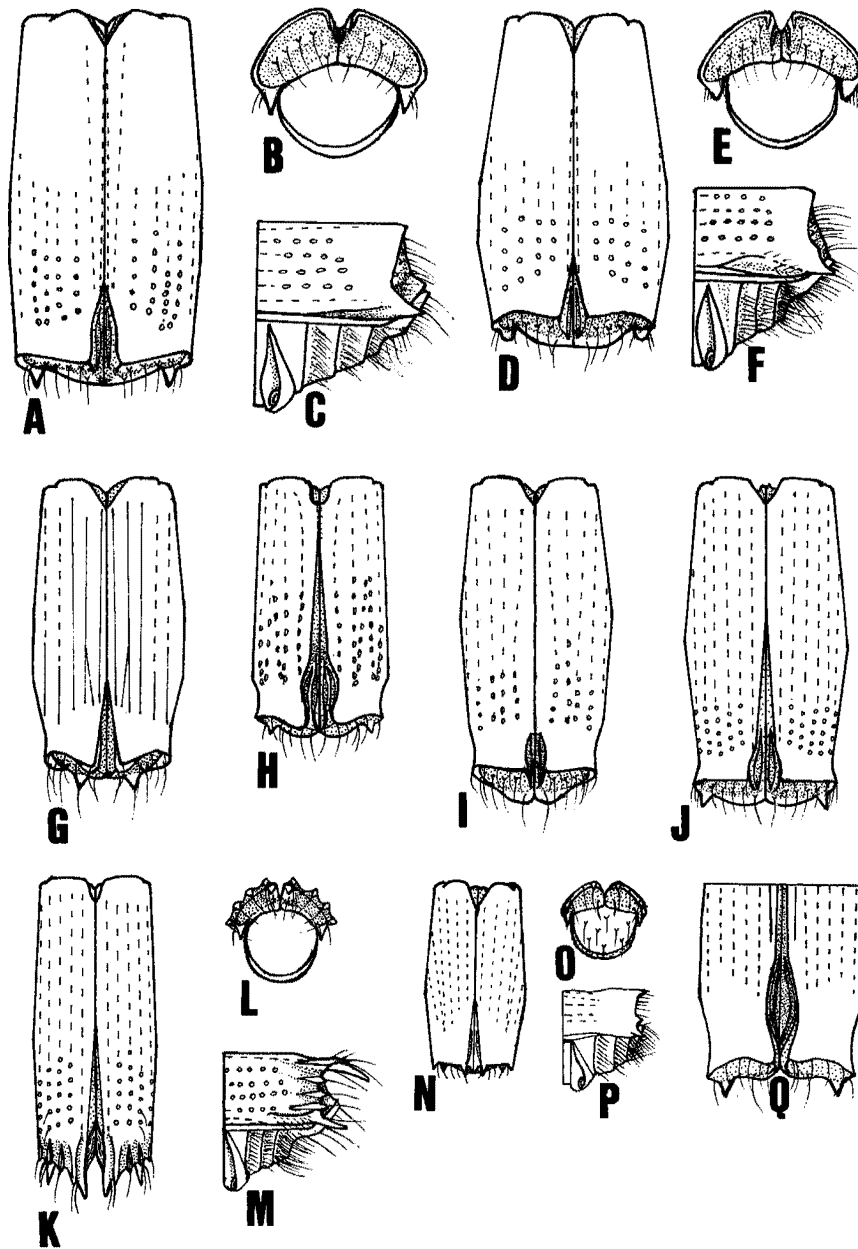


Fig. 2. *Diapus* spp., dorsal, posterior, and apico-lateral views of ♂ elytra and abdomen: A, B, C - *D. bilunatus*; D, E, F - *D. robustus*; G - *D. pusillimus*; H - *D. perpygmaeus*; I - *D. turgidus*; J - *D. unispineus*; K, L, M - *D. amblylaminatus*; N, O, P - *D. nanodontus*; Q - *D. oreogenus*. Figures not to same scale.

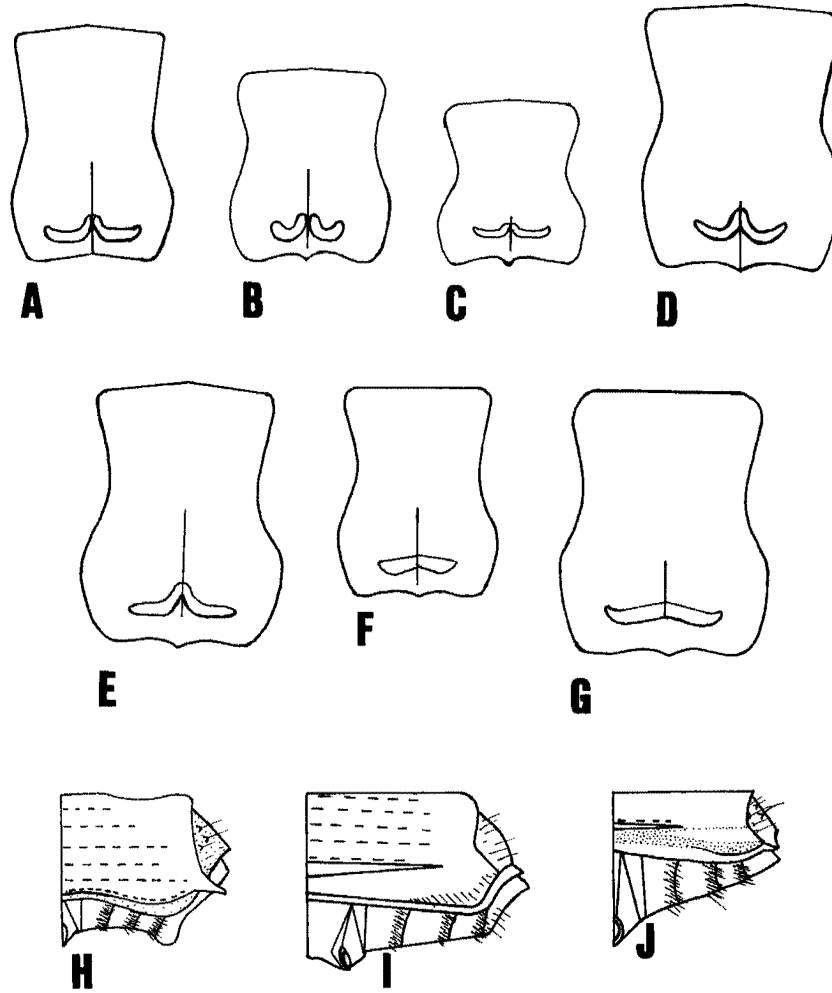


Fig. 3. *Diapus* spp. Dorsal views ♂ pronotum; A - *D. spinifer*; B - *D. unispineus*; C - *D. oreogenus*; D - *D. turgidus*; E - *D. bispinus*; F - *D. perpygmaeus*; G - *D. latespinis*. Apico-lateral views elytra and abdomen: H - *D. unispineus*; I - *D. turgidus*; J - *D. perpygmaeus*. Figures not to same scale.

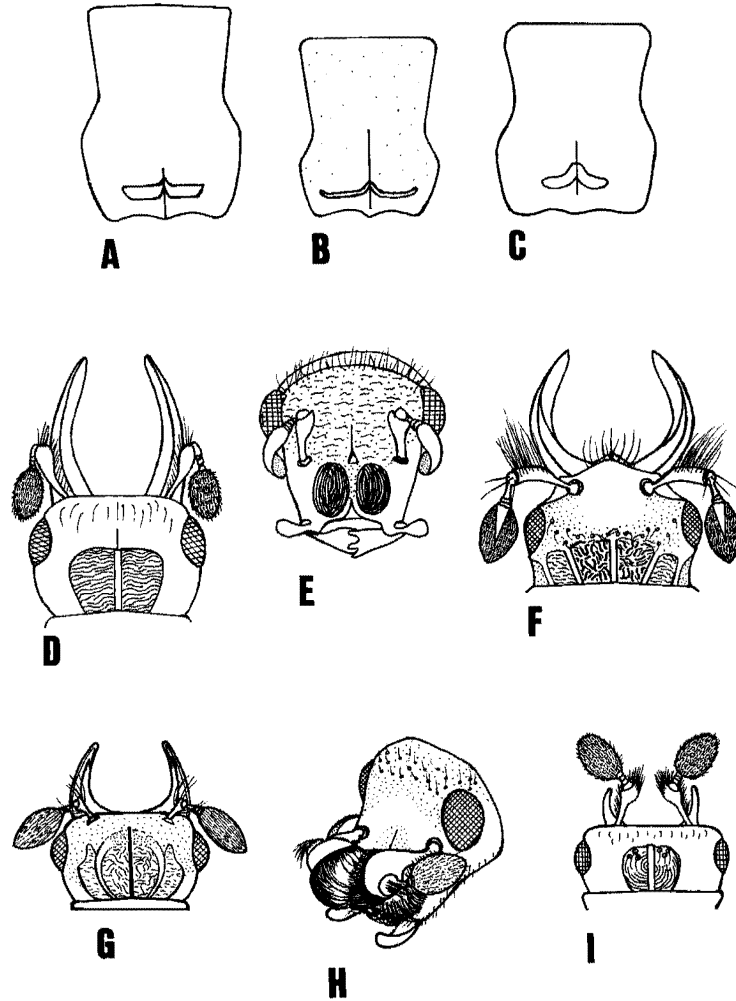


Fig. 4. *Diapus* spp. Dorsal views ♀ pronotum: A - *D. spinifer*; B - *D. unispineus*; C - *D. angustidontus*. Dorsal views ♀ head and appendages: D - *D. bispinus*; F - *D. robustus*; G - *D. oreogenus*; I - *D. nanus*. Head and appendages ♀: E - *D. turgidus*; H - *D. unispineus*. Figures not same scale.

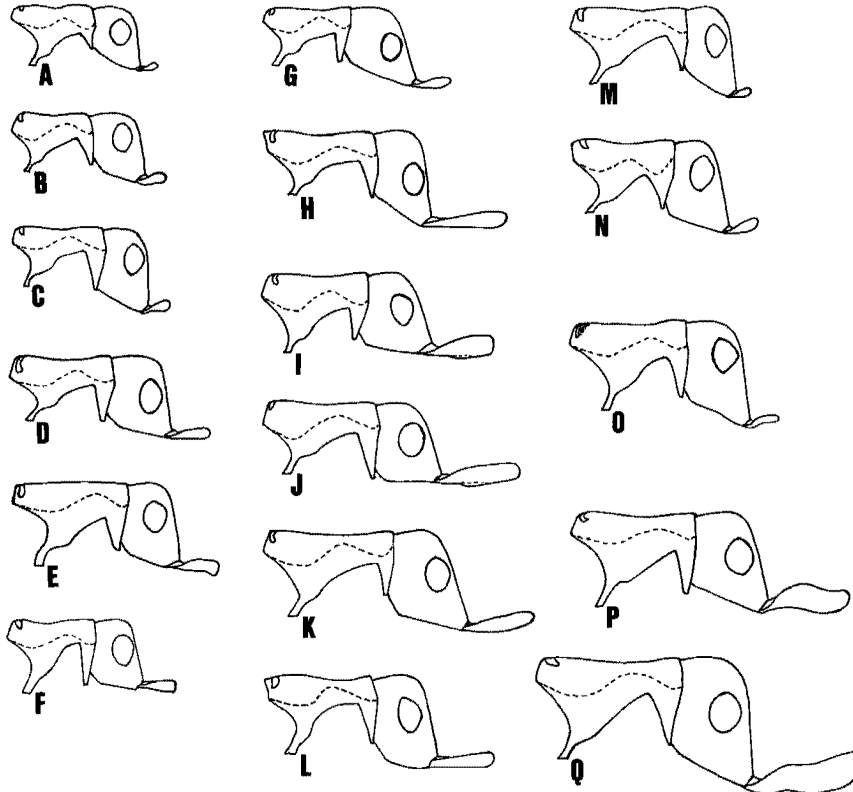


Fig. 5. *Diapus* spp. Lateral views ♀ head and pronotum showing relative sizes of mandibular appendages: A - *D. nanus*; B - *D. perpygmaeus*; C - *D. turgidus*; D - *D. oreogenus*; E - *D. pusillimus*; F *D. amblylaminatus*; G - *D. nanodontus*; I - *D. bispinus*; J - *D. spinifer*; K - *D. latespinis*; L - *D. oomsis*; M - *D. unispineus*; N - *D. papuanus*; O - *D. quinquespinatus*; P - *D. robustus*; Q - *D. bilunatus*. Figures all to same scale.

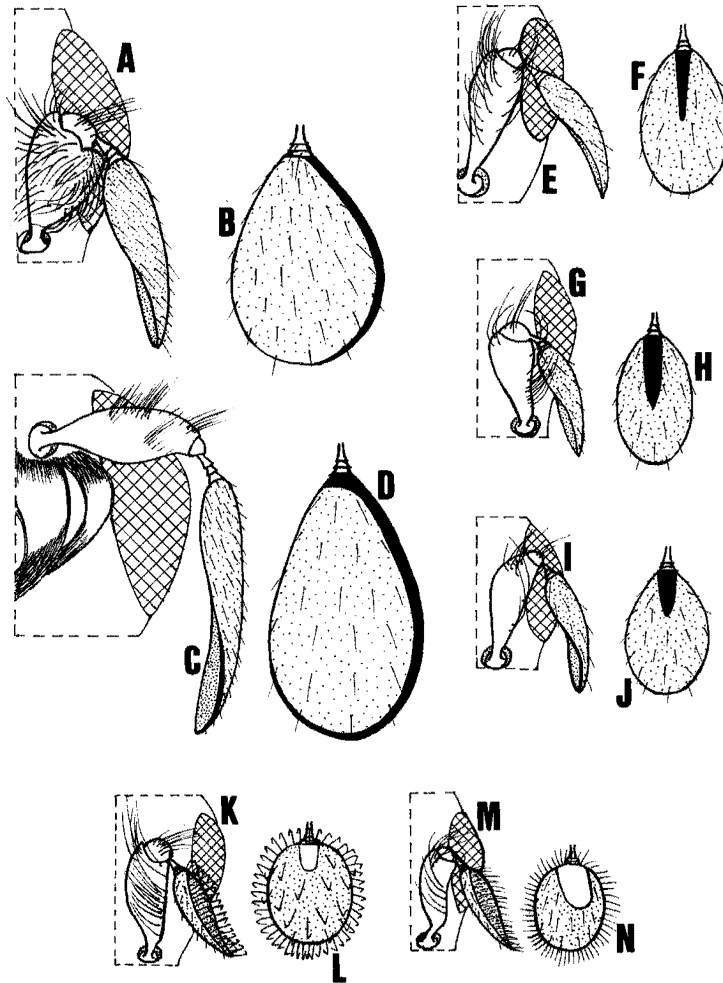


Fig. 6. Antennae of Diapodini: complete right antenna, front view, together with view outer surface right club: *Genyocerus papuanus* ♂ - A, B, ♀ - C, D; *Diapus robustus* ♂ - E, F, ♀ - G, H; *D. late-spinis* ♂ - I, J, ♀ - K, L; *D. elongatus* ♂ - M, N, ♀ - O, P. Figures all to same scale.

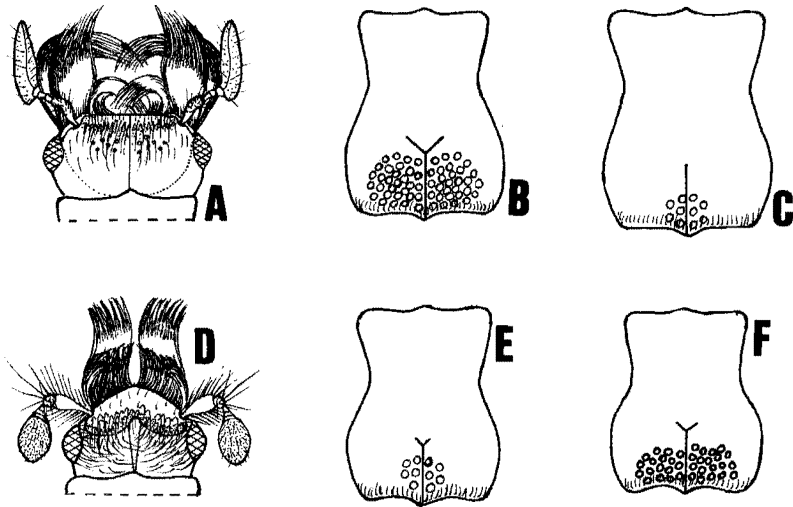


Fig. 7. *Genyocerus* (dorsal aspects): *G. papuanus* - A, ♀ head; B, ♀ pronotum; C, ♂ pronotum; *G. puer puer* - D, ♀ head; E, ♀ pronotum; F, ♂ pronotum. Figures all to same scale.

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