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HYDROPHILIDAE: Sphaeridiinae

(Coleoptera)

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Abstract

The Sphaeridiinae (Coleoptera: Hydrophilidae) of New Caledonia are reviewed. Nineteen species are recognized. They belong to the following tribes: Coelostomatini, Omicrini and Megasternini. Seven new species are described: *Aculomicrus alesi* sp.n., *A. reticulatus* sp.n., *Dactylosternum circumcinctum* sp.n., *D. kanakorum* sp.n., *Psalitrus altipaniensis* sp.n., *P. kuscheli* sp.n., and *P. lapita* sp.n. The tribe Omicrini and *Cercyon nigriceps* (MARSHAM, 1802) are recorded from New Caledonia for the first time. A lectotype is designated for *Dactylosternum auripes* FAUVEL, 1883. Keys to the species of all New Caledonian genera, except *Kanala* BALFOUR-BROWNE, 1939, are provided, important characters are illustrated. The composition of the sphaeridiine fauna and its conservation priorities are discussed with emphasis to the geographic origin of the indigenous New Caledonian taxa.

Key words: Coleoptera, Hydrophilidae, Sphaeridiinae, *Aculomicrus*, *Cercyon*, *Coelostoma*, *Dactylosternum*, *Kanala*, *Psalitrus*, taxonomy, phylogeny, endemism, New Caledonia, Pacific.

Introduction

The subfamily Sphaeridiinae of the family Hydrophilidae currently contains nearly 1,000 described species (HANSEN 1999, SHORT & HEBAUER 2006). The vast majority of the representatives of this subfamily are terrestrial, living in various kinds of decaying organic matter (e.g. leaf litter, mammal and bird excrements, carrion, etc.). Some species also occur in hygropetric habitats or phytotelmata. Comparatively few species are regarded as truly aquatic. Interest in the taxonomy of the sphaeridiines was reinvigorated in the last decade, particularly by a number of works by Franz Hebauer and the late Michael Hansen; for example, more than 150 new taxa have been described between 2000–2005 (SHORT & HEBAUER 2006). In spite of this, Sphaeridiinae remain very poorly known for many parts of the world and detailed comprehensive studies on morphology, phylogeny, biology, biodiversity, and phylogeny of this group, using modern methods (e.g. SEM and μCT) are desirable.

Sphaeridiinae were recorded from New Caledonia for the first time by MONTROUZIER (1860), who described *Ochthebius fabricii* MONTROUZIER, 1860 (= *Coelostoma fabricii*). The same author described also *Sphaeridium sulcatum*[1] from Lifou Island, but this species was later transferred to the genus *Liparochrus* ERICHSON, 1848 (Hybosoridae) by HAROLD (1874) (see also PAULIAN 1991). Three species of the subfamily Sphaeridiinae were later mentioned by FAUVEL (1883, 1903), who also discussed some biogeographic implications about the hydrophilid fauna of New Caledonia. A few additional taxa, including the endemic genus *Kanala*

[1] Remarkably, *Sphaeridium sulcatum* was not mentioned by HANSEN (1999: 324–327), who provided an otherwise complete list of "Species excluded from Hydrophilidae".

BALFOUR-BROWNE, 1939, were described by ORCHYMONT (1925) and BALFOUR-BROWNE (1939). These four authors had examined comparatively few specimens and no paper concerning New Caledonian Sphaeridiinae has been published since that time.

A general taxonomic review of all New Caledonian sphaeridiine taxa (except *Kanala*, which will be treated thoroughly in a second paper: FIKÁČEK 2010b) is presented here. Conclusions on biogeography and conservation concerning all Sphaeridiinae are also published below.

Material and methods

Male genitalia of all holotypes and some paratypes were embedded in water-soluble dimethyl hydantoin formaldehyde resin (DMHF) together with the beetle or (in the Omicrini) on a transparent plastic label below the beetle. Label data are cited verbatim in type material, using a slash (/) for dividing rows, double-slash (//) for separate labels and square brackets ([]) for additional notes of the author; for non-type material, label data are adapted into the common format.

Figures of external characters were traced from photographs; drawings of aedeagi were prepared using a drawing tube attached to the Olympus BX40 light microscope from temporary glycerine slides. Any asymmetry shown in a drawing but not mentioned in the respective description is caused by artifact of preparation.

Morphometric measurements of *Psalitrus* ORCHYMONT were taken using an ocular micrometer on a MBS-10 stereomicroscope. Measurements follow BAMEUL (1992a). The morphological terminology largely follows KOMAREK (2004). Generic and higher level nomenclature are in accordance with HANSEN (1999). Most of the localities have been located according to KUSCHEL (1998). Information on the habitat association of specimens loaned from NZAC were adopted from field notes of G. Kuschel and C. Watt, provided to me by L. Clunie (NZAC).

The specimens examined are deposited in the following collections:

BMH	Bishop Museum, Honolulu, Hawaii, USA; G.A. Samuelson
CNC	Canadian National Collection, Ottawa, Canada; A. Davies, P. Bouchard
FMNH	Field Museum of Natural History, Chicago; A.F. Newton, M. Thayer
IAC	Institut Agronomique Néo-Calédonien, Pocquereux, New Caledonia; S. Cazères, C. Mille
IRSNB	Institut royal des Sciences naturelles de Belgique, Brussels, Belgium; P. Limbourg
KSEM	Natural History Museum, University of Kansas, Lawrence, USA; A.E.Z. Short
MBPC	Collection Milan Boukal, Pardubice, Czech Republic
MHNG	Muséum d'Histoire naturelle, Genève, Switzerland; I. Löbl, G. Cuccudoro
MNHN	Muséum national d'Histoire naturelle, Paris, France; H. Perrin
MNHW	Museum of Natural History, Wrocław University, Poland; M. Wanat
MTD	Museum für Tierkunde, Dresden, Germany; O. Jäger
NHML	The Natural History Museum, London, U.K. (formerly British Museum of Natural History); R. Booth, M. Barclay
NMP	Národní muzeum v Praze, Czech Republic; J. Hájek, M. Fikáček
NMW	Naturhistorisches Museum Wien, Vienna, Austria; M.A. Jäch, A. Komarek
NZAC	New Zealand Arthropod Collection, Auckland, New Zealand; R.A.B. Leschen
TTPC	Collection Thomas Théry, Fleury les Aubrais, France
ZMUC	Zoological Museum, University of Copenhagen, Denmark; A. Solodovnikov

BL	total body length	EL	length of elytra
HW	width of head	MH	maximum height
PL	length of pronotum	PW	width of pronotum
TW	total body width		

The following additional species were examined in order to confirm the relationships of the New Caledonian species:

Aculomicrus brendelli BAMEUL, 1993: holotype (NHML), see BAMEUL (1993) for label data.

Aculomicrus testudo SMETANA, 1975: holotype (CNC), see SMETANA (1975) for label data.

Aculomicrus minimus SMETANA, 1975: 2 paratypes (CNC): "MEX., Ocosingo / Chis., VI-1-2- / 1969, Bright & / Campbell // PARATYPE / Aculomicrus / minimus / A. Smetana 1975n / CNC. No. 13708".

Dactylosternum subquadratum (FAIRMAIRE, 1849): 1 ♂ (NHML): Indonesia, Tanimbar, Larat, leg. F. Muir, det. J. Balfour-Browne; 1 ♂, 1 unsexed ex. (NHML): Fiji, Viti Levu, Natova, 25.VI.1916, leg. R. Veitch, det. J. Balfour-Browne; 1 ♂ (NHML): Vanuatu ["New Hebrides"], Santo [possibly referring to Espiritu Santo], VIII.–IX.1929, leg. L.E. Cheesman, det. J. Balfour-Browne; 1 ♂ (NHML): Samoa, Tutuila, Pago Pago, 18.IV.1924, leg. E.H. Bryan Jr., det. A. d'Orchymont.

Psalitrus mahanuwara BAMEUL, 1992: holotype and 20 paratypes (MHNG), see BAMEUL (1992a) for label data.

List of Localities

(**Loc. 2001/NC**: leg. Balke & Wewalka, **Locs. 2009/NC**: leg. Jäch)

Loc. 2001/NC 8: 15 km NE Voh, 50 m a.s.l., 6.XI.2001. Almost stagnant river, 10–15 m wide and max. 1 m deep, gravelly, partly shaded, edge with dense mats of submerged vegetation; backflows with leaf packs. Specimens were collected at light (neon lamp) at edge of river.

Loc. 2009/NC 18a: ca. 2 km NNE Farino, Refuge de Farino, ca. 270 m a.s.l., 21°38'55"S/165°46'53"E, 29.–30.XI.2009, 3.XII.2009. At light.

Loc. 2009/NC 22a: ca. 2 km NE Sarraméa, near La Cuve, ca. 160 m a.s.l., 21°38'13"S/165°51'53"E, 30.XI.2009. Cow dung on pasture.

Loc. 2009/NC 26 (see JÄCH & BALKE 2010: Fig. 50): Mt. Do, ca. 20 km ESE La Foa, near summit (ca. 1,000 m a.s.l., 21°45'14"S/166°48'00"E) and further below (ca. 820 m a.s.l., 21°45'38"S/165°59'59"E), 3.XII.2009.

Checklist of Sphaeridiinae of New Caledonia

Omicrini

Aculomicrus alesi sp.n.
Aculomicrus reticulatus sp.n.
Psalitrus altipaniensis sp.n.
Psalitrus kuscheli sp.n.
Psalitrus lapita sp.n.

Coelostomatini

Coelostoma fabricii (MONTROUZIER, 1860)
Dactylosternum abdominale (FABRICIUS, 1792)
Dactylosternum auripes FAUVEL, 1883
Dactylosternum circumcinctum sp.n.
Dactylosternum helleri ORCHYMONT, 1925
Dactylosternum kanakorum sp.n.
Dactylosternum montaguei BALFOUR-BROWNE, 1939

Megasternini

[*Cercyon inquinatus* WOLLASTON, 1854 – unconfirmed literature record]
Cercyon nigriceps (MARSHAM, 1802)
Kanala bipunctata FIKÁČEK, 2010
Kanala loebli FIKÁČEK, 2010
Kanala montaguei BALFOUR-BROWNE, 1939
Kanala punctiventris FIKÁČEK, 2010
Kanala reticulata BALFOUR-BROWNE, 1939

Key to genera of New Caledonian Sphaeridiinae

1 Clypeus declined in comparison to frons, projecting to lateral subrectangular lobes in front of antennae (Fig. 1). Elytron with more than 10 irregular longitudinal series of punctures; irregular punctation of distinctly smaller punctures standing between punctural series absent at least mesally; punctural series never impressed to striae. Prosternum reduced to a very narrow band and thus barely visible anterior to procoxae. Body length less than 2 mm. Omicrini 2

– Clypeus not declined in comparison to frons, without subrectangular projections in front of antennae (Figs. 2–3). Elytron with 10 series of very regular punctural rows at least in posterior half and irregularly arranged smaller punctures between these series, or with irregular punctation without any trace of serial arrangement except of deeply impressed sutural stria. Prosternum distinctly defined and clearly visible anterior to procoxae. Body length: 1.7–5.5 mm 3

2 Antennal club compact (Fig. 29), labrum clearly exposed, elytron with impressed sutural stria, first abdominal ventrite carinate medially, preepisternal elevation of mesothorax arrow-like (Figs. 23–24)..... ***Aculomicrus* SMETANA**

– Antennal club loose (Fig. 30), labrum concealed under clypeus except for minute anterior-most parts, elytron without impressed sutural stria, first abdominal ventrite without median carina, preepisternal elevation widely pentagonal (Fig. 31)..... ***Psalitrus* ORCHYMONT**

3 Antennal bases not visible in dorsal view, concealed by lateral parts of clypeus; head with distinct even though sometimes quite fine frontoclypeal sulcus (Fig. 3). Hypomeron without defined antennal grooves. Antennal club loose or compact. Elytron with 10 or 11 punctural series or without series only with deeply impressed sutural stria. Body length: 3.0–5.5 mm. Coelostomatini..... 4

– Antennae attached in a deep emargination between eyes and clypeus, antennal bases therefore exposed in dorsal view; frontoclypeal sulcus absent (Fig. 2). Hypomeron at least with narrow but well-defined antennal grooves. Elytron always with 10 longitudinal punctural series. Antennal club compact. Body length: 1.7–3.5 mm. Megasternini 5

4 Elytron without longitudinal punctural series except of impressed sutural stria. First abdominal ventrite not carinate medially ..... ***Coelostoma* BRULLÉ**

– Elytron with 10 punctural series distinct, at least in its posterior half. First abdominal ventrite carinate medially..... ***Dactylosternum* WOLLASTON**

5 Male with median part of sternite 9 crescent-like. Antennal grooves very narrow. Preepisternal elevation with large bulges posterolaterally, preepisternal plate narrowly elongate, drop-like or triangular. Anteromedian part of metaventrite distinctly projecting anteriad, reaching mid-length of mesocoxae ..... ***Kanala* BALFOUR-BROWNE**

– Male with median part of sternite 9 tongue-like. Antennal grooves wide. Preepisternal elevation never triangular, elongate oval to very narrow (nearly lamelar), without postero-lateral bulges. Anterior part of metaventrite only indistinctly projecting anteriad, not reaching midlength of mesocoxae..... ***Cercyon* LEACH**

Coelostoma BRULLÉ

Coelostoma (s.str.) *fabricii* (MONTROUZIER, 1860)

Ochthebius fabricii MONTROUZIER 1860: 372.

TYPE LOCALITY: New Caledonia (details unknown).

TYPE MATERIAL: not examined.

MATERIAL EXAMINED:

NEW CALEDONIA:

NORTH PROVINCE: 1 ♂ (MNHW): Tiendanite, 20°44.8'S 164°52.8'E, 50 m a.s.l., at light, 12.I.2007, leg. M. Wanat & R. Dobosz; 1 ♂, 1 unsexed ex. (BMH): La Crouen, W of Canala, 16.III.1961, leg. J. Sedlacek.

SOUTH PROVINCE: 1 ex. (NMW): Loc. 2009/NC 18a.

AUSTRALIA: QUEENSLAND: 1 unsexed ex. (NMP): Carnavon National Park, S. Lake, Nuga Nuga, I.1997, collector unknown.

DIAGNOSIS: Among other New Caledonian Sphaeridiinae, this species is easily recognizable by large body size (5.7–5.9 mm long, 3.4–3.5 mm wide), black coloration, elytra without longitudinal punctural series, abdominal ventrite 1 without longitudinal keel, aedeagus as in Fig. 10.

Due to the abdominal ventrite lacking posterior excision, simple claws and preepisternal elevation without any trace of transverse ridge, this species clearly belongs to the subgenus *Coelostoma* s.str. Within this subgenus, *C. fabricii* can be distinguished by the morphology of the aedeagus: corona subapical; parameres not narrowing subapically, pointed apically; lateral margin of parameres evenly and only very slightly convex subapically (see ORCHYMONT 1936, MOUCHAMPS 1958, PU 1963).

VARIABILITY: ORCHYMONT (1936) discussed the great variability of the male genitalia, body size and sculpture of the metafemora in this species. Comparison of Australian and New Caledonian specimens showed that they are very similar in all external characters, the aedeagus of the Australian specimen examined having slightly wider, apically symmetrical parameres.

HABITAT: *Coelostoma fabricii* is an aquatic species, which probably inhabits mainly stagnant water (HANSEN 1995).

DISTRIBUTION (Fig. 36): Originally described from New Caledonia, distributed in the Oriental Region (China, Laos, Vietnam, Borneo, Sumatra), Australian Region (S and W Australia, Tasmania, New Caledonia, Vanuatu, Irian Jaya), and Pacific Region (Hawaiian Isl.) (HANSEN 1999). Because this species is generally wide-spread in the region but obviously rare in New Caledonia, it cannot be excluded that it is introduced.

Dactylosternum WOLLASTON

Key to species of *Dactylosternum* of New Caledonia:

1 Antennal club compact. Body elongate oval, nearly parallel-sided in anterior half of elytra, depressed in lateral view (Fig. 4). For aedeagus see SMETANA (1978: Fig. 28) ..... ***abdominale***

– Antennal club loose (Fig. 15). Body wider, not as parallel-sided, moderately to highly convex in lateral view (Figs. 5–9) 2

2 Mesal elytral series not reaching elytral base, with very fine punctures anteriorly, mesobasal part of elytra therefore seemingly without any trace of elytral series (Figs. 5–7). Preepisternal elevation of mesothorax short and wide, not more than 1.5 × as long as wide (as in Fig. 13) 3

– All elytral series nearly reaching elytral base, not reduced anteriad, thus mesobasal part of elytra with distinctly recognizable punctural series (Figs. 8–9). Preepisternal elevation narrow and long, always more than 3 × as long as wide (as in Fig. 14) 5

3 Series 1 finely but sharply impressed posteriorly, series 2 hardly impressed. General coloration black, with slightly paler margins of pronotum and elytra (Fig. 5) ..... ***auripes***

– Series 1 and 2 equally impressed posteriorly. General coloration black, with distinct paler stripe along lateral margins of pronotum and elytra or with large pale spot at elytral apex (Figs. 6–7) 4

4 Interval punctation of elytra very fine, punctation on pronotum nearly indistinct. Elytra only with pale stripe at lateral margins, without apical pale spot (Fig. 6). Body length: 3.2–3.5 mm.. ..... ***circumcinctum***

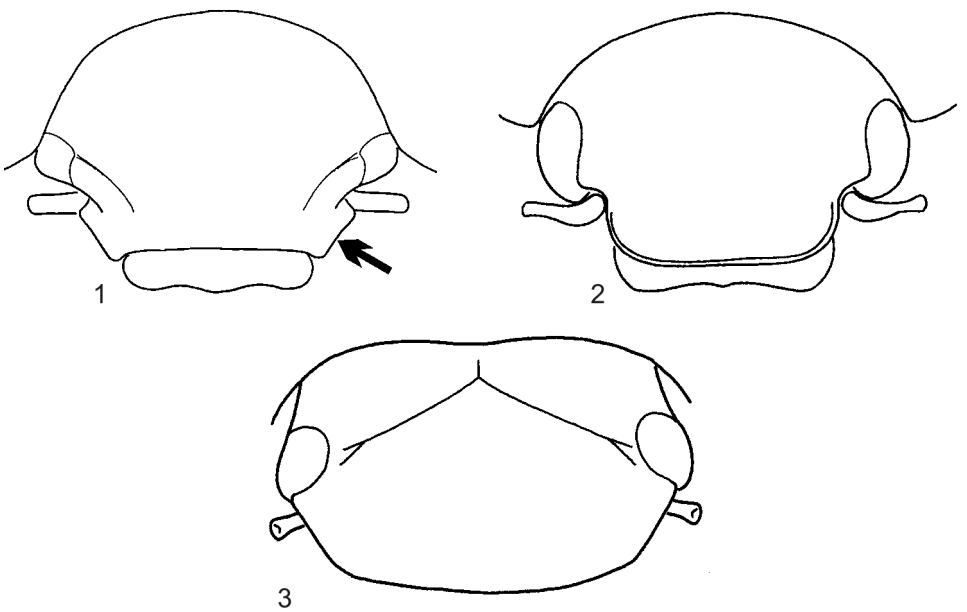
– Interval punctation of elytra and punctation on pronotum very distinct. Elytra with pale stripe along lateral margins, and with large pale apical in posterior part of elytra reaching elytral base (Fig. 7). Body length: 4.7 mm ..... ***helleri***

5 Elytra not apparently explanate in posterior 0.33, quite flat and abruptly declined in posterior 0.33 in lateral view (Fig. 9). Body length: 3.7 mm..... ***montaguei***

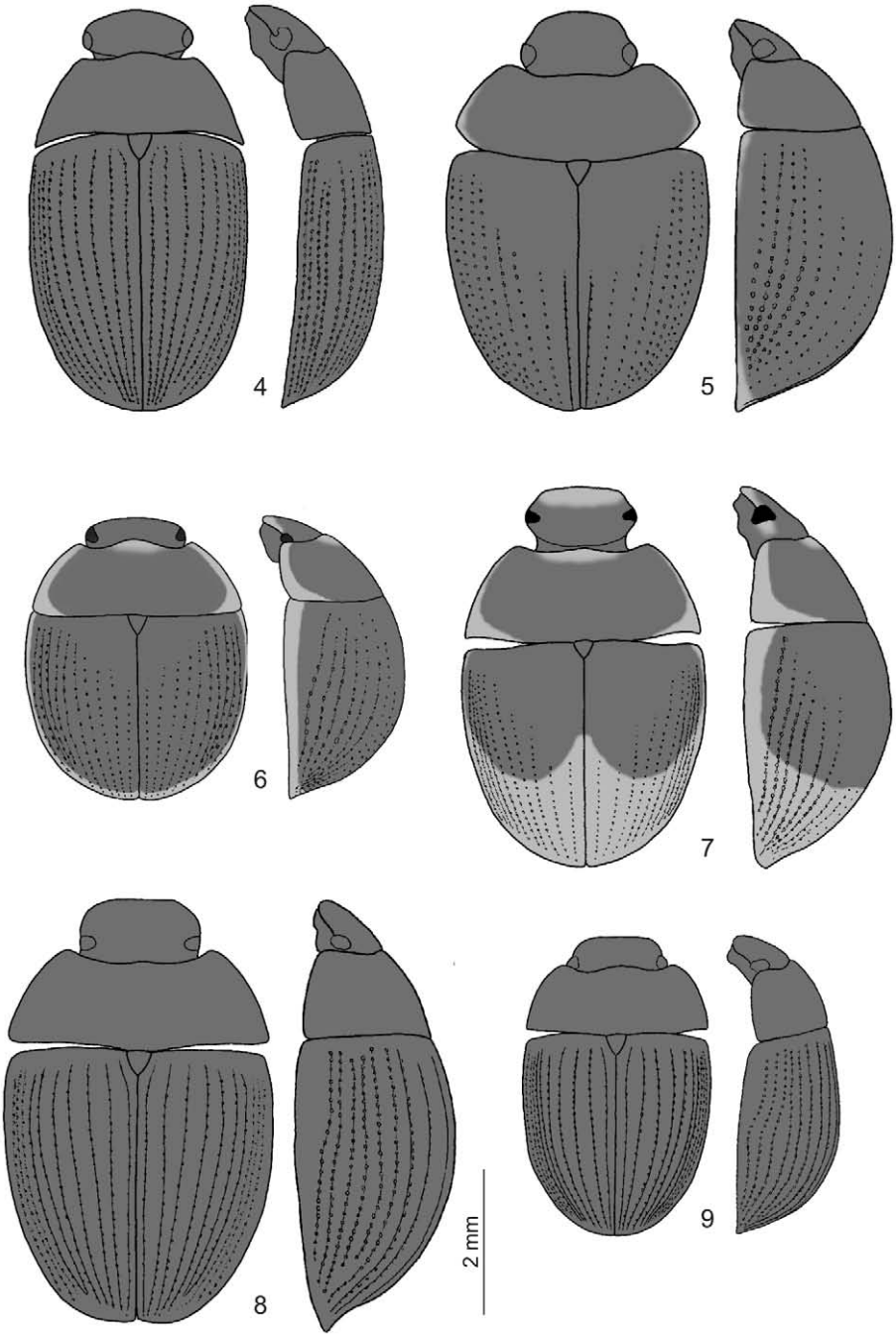
– Elytra apparently explanate in poterior 0.33, evenly convex throughout in lateral view (Fig. 8). Body length: 4.9–5.4 mm ..... ***kanakorum***

DISCUSSION: The circumtropical genus *Dactylosternum* is one of the most speciose and morphologically diverse genera of the Coelostomatini. The genus seems to serve as a "dust-bin" for coelostomatine species lacking any apparent generic character. *Dactylosternum* is therefore most likely polyphyletic, which is also suggested by the larval morphology (ARCHANGELSKY 1997). No detailed morphological studies or phylogenetic analyses have yet been carried out. However, preliminary comparison of the external morphology of many species of *Dactylosternum* (HEBAUER 2008) shows that the species vary even in most of the characters considered as important for generic identification by HANSEN (1991).

Except of *Dactylosternum abdominale*, which is surely introduced to New Caledonia, the remaining five species of this genus are endemic. These endemic species share the following features: (1) abdominal ventrites 1–3 crenulate, (2) antennal club loosely segmented, and (3) median part of metaventrite very widely banded. The first character is absent from other *Dactylosternum* species, while the second and third characters are quite unusual among the known *Dactylosternum* species. The combination of these characters could therefore support monophyly of the New Caledonian species of *Dactylosternum*.



Figs. 1–3: Head in anterodorsal view, 1) *Aculomicrus alesi*, 2) *Cercyon* sp. A, 3) *Dactylosternum auripes*. Arrow: lateral extension of clypeus, diagnostic character of the Omicrini.



Figs. 4–9: New Caledonian *Dactylosternum*, general body shape and coloration in dorsal and lateral view (semi-schematical), 4) *D. abdominale*, 5) *D. auripes*, 6) *D. circumcinctum*, 7) *D. helleri*, 8) *D. kanakorum*, 9) *D. montaguei*.

Dactylosternum abdominale (FABRICIUS, 1792)

Sphaeridium abdominale FABRICIUS 1792: 79.
(for complete synonymy see HANSEN 1999)

TYPE MATERIAL: not examined.

MATERIAL EXAMINED (New Caledonia):

NORTH PROVINCE: 5 exs. (BMH): Hienghène, 4.X.1940, leg. F.X. Williams; 1 ex. (BMH): Poindimié, II.1962, leg. N.L.N. Krauss.

SOUTH PROVINCE: 1 ex. (NZAC): Col d'Amieu, 400 m, 18.X.1978, sifted litter and rotten wood, leg. G. Kuschel "78/240"; 1 ex. (NZAC): Plum, 8.X.1978, sifted leaf litter, leg. G. Kuschel "78/215"; 1 ex. (BMH): Sarraméa, 12.II.1963, leg. G. Kuschel; 1 ex. (IAC): La Foa, pittfall trap, 28.IX.2005, leg. S. Cazères & R.M. M'Bouéri; 1 ex. (BMH): Nouméa, coll. Fleutiaux; 4 exs. (BMH): same locality, 28.V.1945, leg. Milliron; 1 ex. (NMP): Mt. Koghi, 22.–25.III.1999, leg. S. Bílý; 1 ex. (BMH): same locality, 200–300 m, XII.1984, leg. N.L.H. Krauss.

DIAGNOSIS: 3.8–5.0 mm long, 1.9–2.4 mm wide; body shape as in Fig. 4, black, elytra parallel-sided in anterior 0.6, weakly convex in lateral view; antennal club compact, eyes deeply emarginate anteriorly; elytron with 10 punctural series, all nearly reaching elytral base, series 1 more impressed than adjacent series posteriorly; preepisternal elevation ca. 1.5 × as long as wide, subrhomboid in shape; abdominal ventrites without short longitudinal sulci at anterior margins. For detailed description and aedeagus drawings see SMETANA (1978).

DISCUSSION: Based on the morphology, this species does not seem to be related to the remaining *Dactylosternum* species in New Caledonia.

DISTRIBUTION (Fig. 36): This species is circumtropical, widely distributed in all major biogeographic regions (HANSEN 1999). It is found all over Grande Terre.

HABITAT: This is a terrestrial species, which inhabits various kinds of decaying plant material (HANSEN 1995, SMETANA 1978).

Dactylosternum auripes FAUVEL, 1883

Dactylosternum auripes FAUVEL 1883: 358.
Dactylosternum auripes: FAUVEL (1903), ORCHYMONT (1925), HANSEN (1999).

TYPE LOCALITY: New Caledonia, Grande Terre, South Province, Mt. Mou.

TYPE MATERIAL: **Lectotype** (by present designation) ♀ (IRSNB): "Mt. Mou [small label with handwritten text, glued on larger pink printed label with following text] Coll. R. I. Sc. N. B. / Nouvelle Calédonie / Rec. Deplanche / ex col. Fauvel // Dactylosternum / auripes Fvl. (small label with text handwritten, glued on larger label with following text] Coll. et det. A. Fauvel // Syntype".

Paralectotype: 1 ♀ (IRSNB): "Ourail [small label with text handwritten, glued on larger pink printed label with following text] Coll. R. I. Sc. N. B. / Nouvelle Calédonie / Rec. Deplanche / ex coll. Fauvel // Coll. et det. A. Fauvel / Dactylosternum / auripes Fvl. / R. I. Sc. N. B. 17.479 // Syntype".

I obtained four specimens labelled as syntypes of *Dactylosternum auripes* from the IRSNB. Only two of them are provided with the locality data mentioned in the original description (FAUVEL 1883). I therefore consider only these two specimens as a part of the type series. One specimen labelled "Baie du Prony" was first mentioned by FAUVEL (1903) and, in fact belongs to a different species (*D. kanakorum*, see below). Of the two syntypes, only one corresponds with the original description in most details and bears the original identification label handwritten by Fauvel. This specimen is therefore selected as lectotype.

ADDITIONAL MATERIAL EXAMINED:

1 ex. (IRSNB): "Nouvelle Calédonie" coll. Fauvel.

NORTH PROVINCE: 2 exs. (MNHW): Mandjélia summit, 20°23.9'S 164°31.9'E, 750–780 m a.s.l., beating montane forest, 11.I.2007, leg. M. Wanat & R. Dobosz; 1 ex. (MNHW): same locality data, sifting rainforest litter; 1 ♂, 1 ♀, 1 ex. (NZAC): Mt. Panié, 250 m, 29.X.1978, sifted leaf litter and rotten wood, leg. G. Kuschel "78/264"; 1 ex. (BMH): Mt. Panié Trail, 8.–9.II.1963, leg. C.M. Yoshimoto; 1 ♂ (ZMUC): "Tinchlalit" [= Mt.

Tinchialit], 2020 ft., in base of bromeliad leaf, 21.IX.–3.X.1949, leg. L.E. Cheesman "B.M. 1950-I"; 1 ex. (NMW): Tindou, Hienghène, 2.IX.1970, leg. H. Franz "Pa 63"; 1 ex. (NZAC): Aoupinié, 21°11'S/165°17'E, 800 m, leaf litter berlesate, 24.III.2007, leg. R.A.B. Leschen "(NC077)".

SOUTH PROVINCE: 3 exs. (NZAC): Table Unio near Col d'Amieu, 800 m, 16.X.1978, sifted litter and rotten wood, leg. G. Kuschel "78/235"; 1 ex. (NZAC): same locality, 900 m, sifted leaf litter and rotten wood in rainforest, leg. G. Kuschel "78/234"; 1 ex. (NZAC): same locality, 1,000 m, sifted litter, leg. G. Kuschel "78/233"; 1 ex. (IAC): Sarramea, Col d'Amieu, 21°34.694'S 165°46.278'E, 489 m a.s.l., Malaise trap, 8.II.2006, leg. S. Cazères; 1 ex. (TTPC): Col d'Amieu (Sarraméa), 8.II.2006, Malaise trap, leg. IAC team [J.-P. Kataoui, J. Brinon, S. Cazères & C. Mille]; 1 ex. (NZAC): Col d'Amieu, 550 m, moss, 15.X.1978, leg. G. Kuschel "78/231"; 1 ex. (NZAC): same label data, leg. G. Kuschel "78/229"; 2 exs. (MHNG): same locality, 480–520 m, 22.X.1998, secondary forest, leg. I. Löbl "#6"; 1 ♂ (BMH): same locality, 750 m, 3.III.1960, leg. J.L. Gressit; 1 ex. (NZAC): same locality, 900 m, leg. G. Kuschel "78/234"; 3 exs. (NZAC): Mt. Do, NW of Bouloupari, 900 m, 22.X.1978, sifted litter and rotten wood, leg. G. Kuschel "78/249"; 1 ex. (NZAC): same locality, 900–1,000 m, 31.X.1978, leg. G. Kuschel; 1 ♂, 2 exs., duplicate specimens in alcohol (NZAC): same label data, 1,000 m, sifted litter, leg. G. Kuschel "78/248"; 1 ♂, 2 exs. (CNC): Col des Roussettes, N Bourail, 500 m, 7.VIII.1978, rainforest litter, leg. S. & J. Peck; 8 exs. (NZAC): Col des Roussettes, 500 m, 31.X.1978, sifted litter in rainforest, leg. G. Kuschel "78/270"; 3 exs. (NZAC): same locality, 400 m, 26.X.1978, sifted litter and rotten wood, leg. G. Kuschel "78/254"; 3 exs. (NZAC): same locality, 500 m, 31.X.1978, in crown of *Burretiokentia*, leg. G. Kuschel; 1 ex. (NZAC): Mt. Mou, 750 m, 2.XI.1978, sifted leaf litter and rotten wood", leg. G. Kuschel "78/244"; 4 exs. (NZAC): Mt. Koghi, 500 m, 26.I.1963, litter, leg. G. Kuschel; 2 exs. (NMP, KSEM; both specimens in pure alcohol): Mt. Koghi, 22°10'40"S/166°30'25"E (NC010), 485–600 m, leaf litter, 12.III.2007, leg. K. Will; 1 ♀, 3 exs. (NZAC): Mt. Koghi, 550 m, 5.X.1978, sifted litter, leg. G. Kuschel "78/208"; 3 exs. (NZAC): same label data, G. Kuschel "78/207"; 1 ♀, 3 exs. (NZAC): same label data, leg. G. Kuschel "78/206"; 1 ♂, 4 exs. (NZAC): same label data, 7.X.1978, leg. G. Kuschel "78/211"; 2 exs. (NZAC): same label data, sifted leaf litter, leg. G. Kuschel "78/212"; 1 ♀, 2 exs. (NZAC): same locality, 700 m, 9.X.1978, sifted leaf litter, leg. G. Kuschel "78/219"; 1 ♂, 8 exs. (NMW): Mt. Koghi, 30.VIII.1970, leg. H. Franz "Pa 58"; 1 ex. (BMH): Mt. Koghi, 450–600 m, 4.–6.X.1967, leg. J. & M. Sedlacek; 1 ex. (CNC): Mt. Koghi, 500 m, 26.VII.–13.VIII.1978, rainforest, berlese, leaf litter, leg. S. & J. Peck; 1 ♂, 7 exs. (NZAC): Mt. Rembai, 700 m, 20.X.1978, sifted litter and rotten wood, leg. G. Kuschel "78/242"; 1 ♂, 8 exs., duplicate specimens in alcohol (NZAC): same label data, 800 m, 21.X.1978, leg. G. Kuschel "78/244"; 1 ex. (NZAC): Yahoué, 11.X.1978, sifted leaf litter and rotten wood, leg. G. Kuschel "78/224"; 1 ex. (BMH): Foret de Thy, 4 km N of St. Louis, 100–300 m, rotting papaya trunk, 7.VIII.1979, leg. G.M. Nishida; 2 exs. (CNC): Col de Mouirange, 30 km E of Nouméa, 300 m, 11.VIII.1978, forest leaf litter, leg. S. & J. Peck; 4 exs. (NMW): Pic du Pin, 26.VIII.1970, leg. H. Franz "Pa 48–49"; 2 exs. (NZAC): Rivière Bleue (provincial park), 10.X.1978, sifted litter and rotten wood, leg. G. Kuschel "78/220"; 3 exs. (MNHW): Rivière Bleue (provincial park), forest near Grand Kaori, 22°06'S 166°41'E, 160 m a.s.l., 26.I.2004, leg. M. Wanat.

1 ex. (NMW): Loc. 2009/NC 26.

LOYALTY ISLANDS: 1 ♂ (IRSNB): Lifou Isl., Képenéé, 21.IV.1912, leg. F. Sarasin & J. Roux.

DIAGNOSIS: Body shape as in Fig. 5. Dorsal side black to piceous, with slightly paler margins of elytra and pronotum; elytra slightly explanate in posterior half; elytral series 1–4 not reaching elytral base, with very fine punctures anteriorly (i.e. anteromesal part of elytra seemingly without elytral series); elytral series 1 distinctly more impressed than series 2 posteriorly; punctation of pronotum and elytra very fine; preepisternal elevation 1.2 × as long as wide; aedeagus (Fig. 11): median lobe much shorter than parameres, cut off apically, slightly narrowing apicad; parameres continuously rounded on outer margin.

Based on the morphology of the aedeagus, *D. auripes* is quite similar to *D. subquadratum* and *D. corbetti* according to BALFOUR-BROWNE (1942). Both latter species differ very clearly from *D. auripes* in the antennal club being quite compact (but not as strongly as in *D. abdominale*), in the serial punctures being present in the mesobasal part of the elytra and in the median lobe and the parameres being of slightly different shape.

REDESCRIPTION: Body widely oval, maximum width in anterior 0.1 of elytra, elytra continuously narrowing posteriad, highly convex in lateral view. Length 4.2–5.6 mm (lectotype: 5.6 mm, paralectotype: 4.4 mm), width 2.7–3.7 mm (lectotype: 3.7 mm, paralectotype: 3.0 mm).

Coloration: Dorsal side piceous black; anterior margin of clypeus, lateral and posterior margins of pronotum and lateral margins of elytra slightly paler. Ventral surface black, legs and head appendages piceous to ferrugineous.

Head: strongly widened at level of eyes, slightly narrowing anteriad. Clypeus straight on anterior margin, without marginal rim; surface with moderately dense and strong punctation becoming slightly denser anteriorly, interstices with distinct mesh-like microsculpture. Frontoclypeal suture weakly developed but distinct. Frons with punctation similar as on clypeus. Eyes small, nearly semicircular in dorsal view, separated by 4.3 × of the width of one eye, only weakly emarginate anteriorly. Mentum ca. 1.5 × as wide as long, widest between anterolateral corners, slightly narrowing posteriorly, deeply bisinuate and distinctly rimmed on anterior margin, lateral margins straight, bearing a dense row of setae; surface with fine sparse punctation bearing long yellowish setae laterally; surface of mentum deeply concave anteromedially, interstices with fine microsculpture consisting of transverse ridges. Gula narrow and nearly parallel-sided anteriorly, strongly widened posteriorly. Maxillary palpi short and stout, length of palpomeres: 2 > 4 > 3, palpomeres 2 and 3 slightly widened distally, palpomere 4 with obtuse apex. Antenna (Fig. 15) with nine antennomeres, scapus moderately long, slightly longer than antennomeres 2–6 when combined, ca. 3 × as long as pedicel; antennomeres 2 and 3 elongate, subequal in length, slightly longer than palpomeres 4–5; cupula small; antennal club loose, densely pubescent, only slightly shorter than remaining part of the antenna.

Prothorax: Pronotum arcuately narrowing anteriorly, not explanate laterally; anterolateral angles obtusely rounded, posterolateral angles rectangular with blunt corners; anterior margin bisinuate, posterior margin nearly evenly rounded; anterior and lateral margins with fine but distinct rim; punctation slightly finer but as dense as on frons, interstices with fine mesh-like microsculpture much weaker than on head. Prosternum with medial portion distinctly elevated and subcarinate anteriorly, hardly carinate posteriorly, not separated from lateral portions, simply pointed posteriorly; hypomeron without defined antennal grooves, bearing sparse and long pubescence.

Mesothorax: Scutellar shield small, equilaterally triangular, bearing numerous very fine punctures. Elytron with 10 punctural series; series 1 distinctly impressed, series 2–10 not impressed mesally, becoming slightly sulcate laterad; serial punctures moderately large in mesal series, becoming slightly larger laterad and posteriad; series 1 reaching basal 0.3, series 2–7 reaching gradually more basad, series 8 nearly reaching elytral base; anterior sections of series 1–4 consisting of very fine and sparse punctures similar to interval punctation, thus basomesal part of elytron seemingly without any distinct series. Series 6–7 joining subapically. Elytral intervals with fine and sparse punctation, punctures as large as on pronotum, interstices with obsolete fine mesh-like microsculpture. Elytral margin slightly explanate in posterior 0.5; epipleuron wider than pseudepipleuron basally, oblique, reaching metacoxae; pseudepipleuron vertical, reaching elytral apex, very wide even in posterior half of elytron. Mesoventrite with highly and abruptly raised preepisternal elevation (Fig. 13) posteromesally. Elevation with well-defined, arrow-like plate ca. 1.2 × as long as wide, anteriorly widely obtusely pointed, bearing sparse setiferous punctation, contacting metaventrite before midlength of mesocoxae. Grooves for reception of procoxae absent.

Metathorax: Metaventrite with median portion slightly raised, bearing smooth shiny interstices and moderately coarse and dense setiferous punctation; small posteromesal area lacking punctation; lateral portions densely pubescent with long setae, with very fine microsculpture. Hind wings present.

Legs short, femora and tibiae flattened; metafemora slightly bending posteriad distally; metatibia narrowing in proximal 0.3, bearing numerous long, stout spines along lateral and mesal margins, covered by both large and small spines on ventral surface. All tarsi with long and dense

yellowish pubescence ventrally; metatarsomere 1 widened, ca. as long as tarsomeres 2–3 combined.

Abdomen: First ventrite carinate anteromedially, with very distinct additional sulci submesally and laterally along anterior margin. Remaining ventrites without carina, ventrite 2 with very distinct but short sulci along anterior margin.

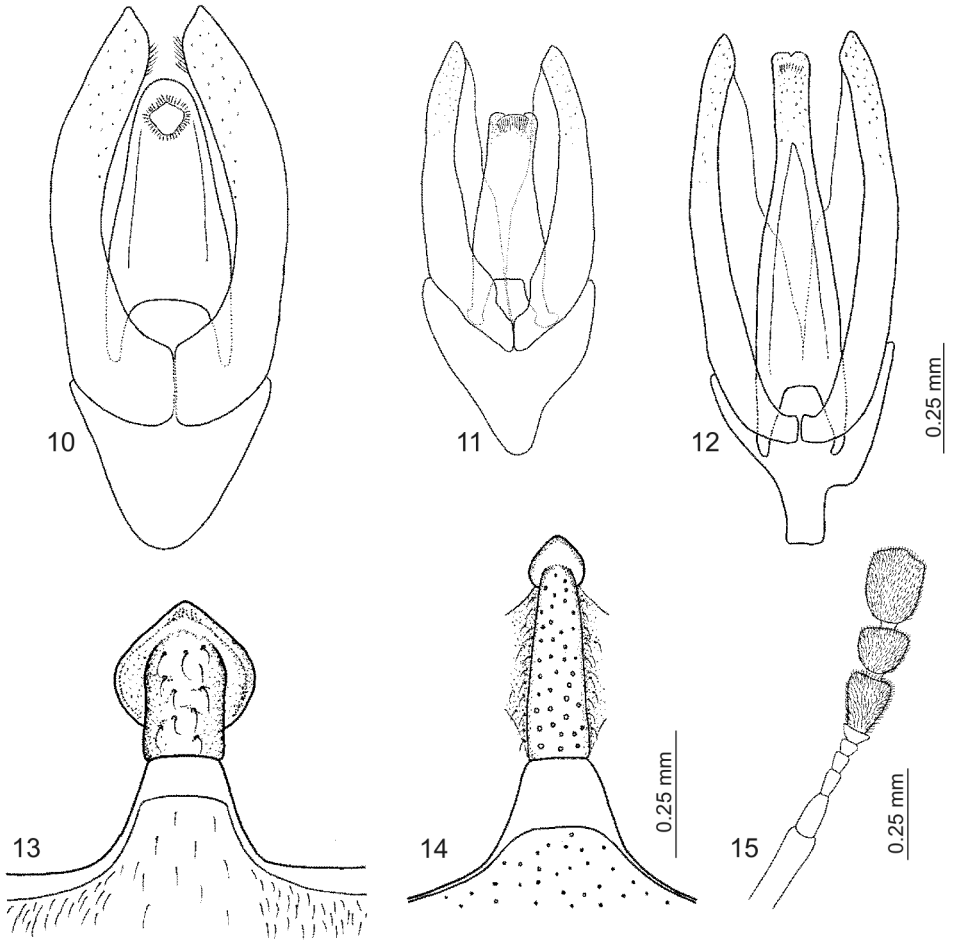
Male genitalia (Fig. 11): Parameres ca. 1.6 × as long as phallobase, the latter with short posteriorly rounded manubrium. Parameres slightly narrowing from base towards apex, obtusely pointed apically, lateral margins slightly and continuously convex. Median lobe cut off on apex, slightly but distinctly narrowing apicad, only slightly wider than parameres apically, apex of median lobe reaching ca. apical 0.25 of parameres.

VARIABILITY: Very variable species especially in size and superficial structures. Both type specimens represent the opposite sides of the variation of this species, the paralectotype differs from the lectotype redescribed above as follows: body distinctly smaller, punctation of head and pronotum much finer, interstices of head, pronotum and elytra with equally developed, strong, mesh-like microsculpture (therefore the whole beetle appears dull in contrast to the shiny appearance of the lectotype), mentum with more distinct microsculpture, anteromedian part of prosternum less carinate, punctures of lateral elytral series larger, punctation of median portion of metaventrite much coarser and slightly denser, interstices with fine but distinct mesh-like microsculpture, area without punctation absent; ventrites with lateral sulci much coarser and longer, developed on ventrites 1–3.

Some male specimens corresponding externally with both types in most details as well as in the widely ranging size are deposited in NZAC. The male genitalia of these specimens are nearly identical, differing only in indistinctly wider parameres (in the specimen corresponding in size with the lectotype). This slight variability of parameres was, however, observed also among specimens collected in the same locality, sharing the external morphology. In the material available to me, a nearly continuous spectrum of states intermediate to those represented by both type specimens in most of the mentioned variable characters can be found. Therefore neither the differences of external characters nor of the genitalia are considered to have specific significance. In most cases, the specimens collected at one locality are quite constant in their morphology (e.g. only dull smaller specimens were collected on Mt. Rembai and Mt. Do, whereas shiny and larger specimens predominate on Mt. Koghi). However, the specimens of different morphology were rarely found in most localities and the morphology can also differ among specimens collected in quite closely situated locations (e.g. Mt. Rembai and Table Unio) and in the same altitudes. The variability therefore does not seem to be influenced geographically or by different altitude.

HABITAT: This is a terrestrial species living in various kinds of decaying plant remains. Most of the specimens examined were sifted from leaf litter or rarely from moss in various kinds of rainforests – damp to wet rainforests (*Notophagus codonandra*, *Araucaria biramulosa*, *Podocarpus ferruginoides*, *Pandanus* sp. and palms are the principal woods mentioned for some of these localities), more rarely dry forests with *Syzygium* sp. and Sapindaceae as canopy woods. Few specimens were collected at the boundary between rainforest and maqui, sometimes on steep slopes. Some specimens were collected also from a rotting papaya stem, and in the crown of a *Burretiokentia* palms.

DISTRIBUTION (Fig. 34): Widely distributed on Grande Terre; known also from Lifou Island.



Figs. 10–15: Morphology of New Caledonian Coelostomatini, 10–12) aedeagus, 13–14) preepisternal elevation of mesothorax, 15) antenna. 10: *Coelostoma fabricii*, New Caledonia, La Crouen, 11, 13, 15: *Dactylosternum auripes*, 12, 14: *D. kanakorum*.

Dactylosternum circumcinctum sp.n.

TYPE LOCALITY: New Caledonia, Grande Terre, North Province, Mt. Panié, 600 m a.s.l.

TYPE MATERIAL: **Holotype** ♀ (NZAC): "NEW CALEDONIA / Mt. Panié, 600m / 28 Oct 1978 / J. C. Watt // sifted leaf / litter 78/263 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand".

Paratype: 1 ♀ (NZAC): "NEW CALEDONIA / Mt. Panié, 350m / 28 Oct 1978 / J. C. Watt // sifted litter / and rotten wood / 78/262 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand".

DIAGNOSIS: Dorsal side piceous, with broad pale stripe on lateral sides of pronotum and elytra; body highly convex; elytra only slightly explanate; elytral series 1–4 not reaching elytral base,

with very fine punctures anteriorly (i.e. anteromesal part of elytra seemingly without elytral series); elytral series 1 not more impressed than series 2 posteriorly; punctation of pronotum and elytra very fine, nearly indistinct; preepisternal elevation 1.1 × as long as wide.

By the combination of reduced mesal elytral series, loosely segmented antennal club, non-carinate prosternum and highly convex body shape resembling only *D. detersum* HEBAUER, 2001 from New Guinea. From this species, *D. circumcinctum* can be easily distinguished by the paler stripe on lateral margins of pronotum and elytra, by the very distinct lateral series on elytra, and by the unimpressed sutural stria. For characters distinguishing it from other New Caledonian species, see identification key.

DESCRIPTION: Body (Fig. 6) widely oval, maximum width in anterior 0.33 of elytra, elytra continuously narrowing posteriad, highly convex in lateral view. Size of holotype: length 3.3 mm, width 2.6 mm; size of paratype: length 3.5 mm, width 2.7 mm.

Coloration: Dorsal side piceous; head slightly paler; lateral margins and posterolateral angles of pronotum broadly paler, reddish; lateral margins of elytra with sharply defined broad reddish stripe, apical spot absent. Ventral surface dark brown. Tarsi, mouthparts and antennae pale brown.

Head: strongly widened just before eyes, slightly narrowing anteriad. Clypeus indistinctly concave on anterior margin, without marginal rim; surface with very fine and moderately dense punctation, interstices with very fine microsculpture, dull. Frontoclypeal suture weakly developed but distinct. Frons with punctation similar as on clypeus. Eyes very small, nearly semicircular in dorsal view, separated by 5.8 × of the width of one eye, only indistinctly emarginate anteriorly. Mentum ca. 1.5 × as wide as long, widest between anterolateral corners, slightly narrowing posteriad, deeply bisinuate and finely rimmed on anterior margin, lateral margins straight, bearing dense long yellowish setae laterally; deeply concave anteromedially, surface with fine sparse punctation, interstices with fine microsculpture consisting of transverse ridges. Gula narrow and nearly parallel-sided anteriorly, strongly widened posteriad. Maxillary palpi short and stout, length of palpomeres: 2 > 4 > 3, palpomeres 2–3 slightly widened distally, palpomere 4 with obtuse apex. Antenna with nine antennomeres, scapus moderately long, slightly longer than antennomeres 2–6 combined, ca. 3 × as long as pedicel; antennomeres 2 and 3 elongate, subequal in length, slightly longer than antennomeres 4–5; cupula small; antennal club loose, densely pubescent, only slightly shorter than antennomeres 1–6 combined.

Prothorax: Pronotum arcuately narrowing anteriad, not explanate laterally; anterolateral angles nearly indistinct, posterolateral angles obtusely rounded; anterior margin bisinuate, posterior margin nearly evenly rounded, anterior and lateral margins finely rimmed; punctation sparse and extremely fine, nearly indistinct (at 90 × magnification), interstices without microsculpture. Prosternum with medial portion slightly elevate, without longitudinal carina, not separated from lateral portions, simply pointed posteriorly; hypomeron without defined antennal grooves, bearing sparse and long pubescence.

Mesothorax: Scutellar shield small, equilaterally triangular, bearing a few very fine punctures similar to punctation on pronotum. Elytron with 10 punctural series, not impressed mesally, becoming slightly sulcate posteriorly and laterally; serial punctures very small in series 1, becoming distinctly larger both laterally and posteriorly, series 1 slightly less impressed than other series even posteriorly; series 1 reaching basal 0.3, more lateral series reaching gradually more basad, series 5 nearly reaching elytral base; anterior parts of series 1–4 consisting of very fine and sparse punctures similar to interval punctation, thus basomesal part of elytron seemingly without any distinct series; series 6 and 7 joining subapically. Elytral intervals with fine and sparse punctation, punctures larger than on pronotum, interstices with fine mesh-like microsculpture. Elytral margin not explanate; epipleuron wider than pseudepipleuron basally,

vertical, reaching metacoxae; pseudepipleuron vertical, reaching elytral apex, very wide even in posterior half of elytron. Mesoventrite with highly and abruptly raised preepisternal elevation posteromedially, the elevation with well-defined, anteriorly rounded arrow-like plate 1.1 × as long as wide, bearing sparse setiferous punctation, contacting metaventrite at midlength of mesocoxae. Grooves for reception of procoxae absent.

Metathorax: Metaventrite with median portion slightly raised, bearing smooth shiny interstices and fine and sparse setiferous punctation; lateral portions with densely set, long setae, with coarse scale-like microsculpture. Hind wings absent.

Legs short, femora and tibiae flattened; posterior femora slightly bent posteriad distally; hind tibia narrowing in proximal 0.3, bearing numerous long, stout spines along lateral and mesal margins, covered by only short spines on ventral surface. All tarsi with long yellowish pubescence ventrally; metatarsomere 1 slightly shorter than tarsomeres 2–3 when combined.

Abdomen: First ventrite carinate medially, with very distinct additional sulci submesally and laterally along anterior margin. Remaining ventrites without carina, ventrites 2 and 3 with very distinct but short sulci along anterior margins.

Male genitalia: Unknown.

VARIABILITY: The median part of clypeus and frons is darker brown in the paratype. No other variability has been observed.

HABITAT: Based on the label data, the species is terrestrial, inhabiting leaf litter in the rainforests at 350–600 m a.s.l.

DISTRIBUTION (Fig. 36): Known only from the type locality.

ETYMOLOGY: The latin name is composed of a prefix "circum" (= around) and an adjective "cinctus" (= bearing a cincture) which refers to the pale stripe around the elytra and pronotum.

Dactylosternum helleri ORCHYMONT, 1925

Dactylosternum helleri ORCHYMONT 1925: 151.

TYPE LOCALITY: New Caledonia, Grande Terre, North Province, Mt. Ignambi.

TYPE MATERIAL: **Holotype** ♀ (MTD): "Drs. F. Sarasin & J. Roux / Neukaledonien / Iguambi Gipfel [= Mt. Ignambi summit] [blue label] // Typus [red label] // A. d'Orchymont / Dactylosternum / Helleri / TYPE // Staatl. Museum für / Tierkunde Dresden".

DIAGNOSIS: Dorsal side of body dark piceous, with broad pale stripe on lateral margins of pronotum and elytra, and with large pale spot in apical 0.4 of elytra; elytral series 1–4 not reaching elytral base, with very fine punctures anteriorly (i.e. anteromesal part of elytra seemingly without elytral series); elytral series 1 not more impressed than series 2 posteriorly; punctation of pronotum and elytra coarse; preepisternal elevation 1.25 × as long as wide.

Clearly differing from other Oriental and Australian *Dactylosternum* by the slightly explanate elytra, elytral series 1–4 reduced anteriorly, loosely segmented antennal club and pronotum not foveolate basally.

REDESCRIPTION: Body (Fig. 7) widely oval, maximum width at base of elytra, elytra continuously narrowing posteriorly, moderately convex in lateral view. Length 4.70 mm, width 3.15 mm.

Coloration: Dorsal side dark piceous; clypeus and anterior and lateral pronotal margins paler, reddish; elytra with sharply defined reddish spot posteriorly, reaching posterior 0.4 and projecting to apical 0.6 at suture and to elytral base along lateral elytral margins; epipleura

reddish. Ventral surface dark brown. Legs, mouthparts and antennae pale reddish, antennal club slightly darker than remaining antennomeres.

Head strongly widened between eyes, then slightly narrowing anteriad. Clypeus indistinctly convex on anterior margin, without marginal rim; surface with fine sparse punctation, interstices without microsculpture. Frontoclypeal suture weakly developed but distinct. Frons with punctation similar as on clypeus, punctures becoming slightly larger and denser posteriorly. Eyes small, transverse in dorsal view, separated by 4.5 × of the width of one eye, only indistinctly emarginate anteriorly. Mentum ca. 1.5 × as wide as long, widest between anterolateral corners, slightly narrowing posteriad, deeply bisinuate on anterior margin, lateral margins straight, densely pubescent; surface with long yellowish pubescence laterally; deeply concave anteromedially, with fine sparse punctation, interstices with fine microsculpture consisting of transverse ridges; anterior margin with fine but distinct rim. Gula narrow and nearly parallel-sided anteriorly, strongly widened posteriorly. Maxillary palpi short and stout, length of palpomeres: 2 > 4 > 3, palpomeres 2 and 3 slightly widened distally, apex of palpomere 4 obtuse. Antenna with nine antennomeres, scapus not very long, shorter than antennomeres 2–6 when combined, ca. 2.5 × as long as pedicel; palpomeres 2 and 3 elongate, subequal in length, slightly longer than palpomeres 4–5; cupula small; antennal club loose, densely pubescent, only slightly shorter than remaining part of the antenna.

Prothorax: Pronotum arcuately narrowing anteriorly, not explanate laterally; anterolateral angles obtusely rounded, posterolateral ones obtusely pointed; anterior and posterior margins bisinuate; anterior and lateral margins with very fine rim; punctation slightly finer and sparser than on frons, interstices without microsculpture. Prosternum with medial part only slightly elevate, without longitudinal carina, not divided from lateral portions, simply pointed posteriad; hypomeron without defined antennal grooves, bearing sparse and long pubescence.

Mesothorax: Scutellar shield small, equilaterally triangular, bearing a few fine punctures. Elytron with 10 punctural series, not impressed mesally, becoming apparently sulcate laterad; serial punctures small in series 1, becoming distinctly larger both laterad and posteriad, series 1 not apparently more impressed than other series posteriorly; series 1 reaching basal 0.6, more lateral series reaching gradually more basad, series 10 reaching elytral base; basomesal part of elytron without any distinct series; series 6 and 7 joining subapically. Elytral intervals with loose punctation consisting of punctures slightly smaller than those on elytral series 1, interstices smooth. Elytral margin only indistinctly explanate; epipleuron wider than pseudepipleuron basally, vertical, reaching metacoxae; pseudepipleuron vertical, reaching elytral apex, very wide even in posterior half of elytron. Mesoventrite with highly and abruptly raised preepisternal elevation posteromedially, the elevation with well-defined, anteriorly rounded plate 1.25 × as long as wide, bearing sparse setiferous punctation, contacting metaventrite at midlength of mesocoxae. Grooves for reception of procoxae absent.

Metathorax: Metaventrite with median portion slightly raised, bearing smooth shiny interstices and fine and sparse setiferous punctation; lateral portions with densely set, long setae, with coarse scale-like microsculpture. Hind wings not examined.

Legs short, femora and tibiae flattened; posterior femora slightly bent posteriad distally; hind tibia narrowing in proximal 0.3, bearing numerous long, stout spines along lateral and mesal margins, covered only with fine short spines on ventral surface. All tarsi with long yellowish pubescence ventrally; metatarsomere 1 much shorter than tarsomeres 2–3 when combined.

Abdomen: First ventrite carinate medially, with not very distinct additional sulci submesally and laterally along anterior margin. Remaining ventrites without carina, ventrite 2 with distinct short sulci along anterior margin.

Male genitalia: Unknown.

VARIABILITY: Unknown.

HABITAT: Unknown.

DISTRIBUTION (Fig. 36): Known only from the type locality.

Dactylosternum kanakorum sp.n.

TYPE LOCALITY: New Caledonia, Grande Terre, North Province, Mt. Panié trail.

TYPE MATERIAL: **Holotype** ♂ (BMH): "NEW CALEDONIA / Mt. Panié Trail / 8.-9.II.1963 / C.Yoshimoto // C. M. Yoshimoto / Collector".

Paratypes: NORTH PROVINCE: 5 exs. (NMP, ZMUC): "NEW CALEDONIA / Mt. Panié Trail / 8.-9.II.1963 / C.Yoshimoto // Pandanus // C. M. Yoshimoto / Collector // Dactylosternum / auripes / det. M. Hansen [handwritten]"; 1 ex. (BMH): "NEW CALEDONIA / Mt. Panier, 500- / 1000m, 11.X.1967 / J. Sedlacek // J. & M. Sedlacek / Collectors / BISHOP"; 1 ex. (BMH): "NEW CALEDONIA / Mt. Panie trail / 8.-9.II.1963 // N. L. H. Krauss / Collector / BISHOP". SOUTH PROVINCE: 1 ex. (IRSNB): "Baie du / Prony [small label in hadwritten glued on larger pink printed label with following data:] Coll. R. I. Sc. N. B. / Nouvelle Calédonie / Rec. / Savés / Fauvel // Coll. et det. Fauvel / Dactylosternum / auripes Fvl. / R. I. Sc. N. B. 17.479 // Syntype".

DIAGNOSIS: Dorsal side black, without paler spots or stripes; body moderately convex; elytra distinctly explanate; all elytral series reaching elytral base, not reduced anteriorly; elytral series 1 not more deeply impressed than series 2; punctation of pronotum and elytra fine but very distinct; preepisternal elevation 3.7 × as long as wide; aedeagus (Fig. 12): median lobe as long as parameres, cut off apically, narrowing apically; parameres continuously rounded on outer margin.

Differing from all Pacific, Oriental and Afrotropical *Dactylosternum* species by the combination of the following features: all elytral series reaching elytral base, body moderately convex, elytra explanate, antennal club loosely segmented, prosternum with pronounced median process, prosternum generally not carinate.

DESCRIPTION: Body (Fig. 8) widely oval, maximum width on posterior pronotal margin, elytra continuously narrowing posteriad in posterior 0.7, moderately convex in lateral view. Length 4.9–5.4 mm (holotype: 5.4 mm), width 3.2–3.4 mm (holotype: 3.4 mm).

Coloration: Dorsal side black, with indistinctly paler lateral margins of pronotum and elytra, epipleura black. Ventral surface black. Legs dark reddish brown, mouthparts, antennae and tarsi pale reddish.

Head slightly widened between eyes, widest just anterior of eyes, slightly narrowing anteriad. Clypeus nearly straight on anterior margin, without marginal rim; surface with fine and sparse obsolete punctation, interstices with very distinct mesh-like microsculpture. Frontoclypeal suture distinctly developed. Frons with punctation and intersticial microsculpture similar as on clypeus. Eyes small, circular in dorsal view, separated by 5.5 × of the width of one eye, only indistinctly emarginate anteriorly. Mentum ca. 1.5 × as wide as long, widest between anterolateral corners, slightly narrowing posteriad, bisinuate on anterior margin, lateral margins straight, densely pubescent; surface with short and sparse setae laterally; deeply concave anteromesally, interstices with very fine microsculpture consisting of transverse ridges; anterior margin very broad. Gula narrow and nearly parallel-sided anteriorly, strongly widened posteriad. Maxillary palpi short and stout, length of palpomeres: 2 = 4 > 3, palpomeres 2 and 3 slightly widened distally, palpomere 4 with rounded apex. Antenna with nine antennomeres, scapus not very long, shorter than antennomeres 2–6 when combined, ca. 2.5 × as long as pedicel; palpomeres 2 and 3 elongate, subequal in length, slightly longer than palpomeres 4–5; cupula small; antennal club loose, densely pubescent, only slightly shorter than remaining part of the antenna.

Prothorax: Pronotum arcuately narrowing anteriad, not explanate laterally; anterolateral angles obtusely rounded, posterolateral ones rounded, nearly rectangular, slightly pronounced posterolaterally; anterior and posterior margins weakly bisinuate; anterior and lateral margins with narrow but very distinct rim; punctation very fine and not very dense, finer and denser than on frons, interstices with fine but very distinct microsculpture consisting of obliquely elongate, slightly waved cells. Prosternum highly but blunty carinate medially, with anterior pronounced process, not divided from lateral portions, bearing rounded projection with median pit posteriorly; hypomeron without defined antennal grooves, with sparse and long setae.

Mesothorax: Scutellar shield small, triangular, nearly as wide as long, bearing numerous fine punctures, interstices with very strong microsculpture. Elytron with 10 punctural series finely impressed mesally, becoming only slightly sulcate laterad and posteriad; serial punctures small, becoming slightly larger laterad, series 1 not apparently more impressed than other series posteriorly; all series nearly reaching elytral base; series 6 and 7 joining subapically. Elytral intervals with loose punctation consisting of shallow punctures much smaller than those on elytral series, interstices with fine but distinct mesh-like microsculpture. Elytral margin distinctly explanate in posterior 0.33; epipleuron wider than pseudepipleuron basally, vertical, reaching metacoxae; pseudepipleuron vertical, reaching elytral apex, very wide even in posterior half of elytron. Mesoventrite with highly and abruptly raised preepisternal elevation (Fig. 14) posteromedially, the elevation with indistinctly defined narrow plate, the latter 3.7 × as long as wide, slightly widened anteriorly, bearing sparse setiferous punctation, contacting metaventrite ca. at midlength of mesocoxae. Grooves for reception of procoxae indistinct.

Metathorax: Metaventrite with median portion slightly raised, bearing smooth shiny interstices and sparse and very fine punctation; lateral portions with dense and long pubescence, with fine microsculpture. Hind wings present.

Legs short, femora and tibiae flattened; posterior femora straight throughout; hind tibia narrowing in proximal 0.3, bearing numerous short but stout spines along lateral and mesal margins, covered by large densely arranged punctures on ventral surface. All tarsi with long yellowish pubescence ventrally; metatarsomere 1 shorter than tarsomeres 2–3 combined.

Abdomen: First ventrite carinate medially, with very distinct additional sulci submesally and laterally along anterior margin. Remaining ventrites without carina, ventrites 2 and 3 with distinct short sulci along anterior margin.

Male genitalia (Fig. 12): Parameres 2.0 × as long as phallobase, nearly equally wide throughout, obtusely pointed apically, lateral margin slightly but continuously convex. Phallobase with narrow manubrium cut off proximally. Median lobe weakly bilobed at apex, narrow, slightly narrowing from base to apex, ca. as wide as parameres apically, apex nearly reaching apices of parameres.

VARIABILITY: There is a slight variability in the intensity of the superficial pronotal microsculpture and shape of microsculpture cells – the latter can be either as small and regular as on elytra, or some adjacent cells can merge into obliquely elongate, slightly waved larger cells.

HABITAT: Label data indicate that one specimen was collected in *Pandanus* forest, another specimen was found at about 500–1,000 m a.s.l. on Mt. Panié. No other habitat data are available. This species is most probably terrestrial.

DISTRIBUTION (Fig. 34): Known from two distant localities – Mt. Panié in northern New Caledonia, and near Prony in the southernmost part of the island. This species has not been recorded from New Caledonia since 1967.

ETYMOLOGY: Derived from “Kanak”, the name of the indigenous Melanesian inhabitants of New Caledonia.

Dactylosternum montaguei BALFOUR-BROWNE, 1939

Dactylosternum montaguei BALFOUR-BROWNE 1939: 372.

TYPE LOCALITY: New Caledonia, Grande Terre, North Province, Mt. Arago, 21°14'S/ 165°29'E.

TYPE MATERIAL: **Holotype** ♀ (NHML): "Mt. Arago / New Caledonia / 18.7. [19]14 // New Caledonia / P. D. Montague / 1918-87 / Dactylosternum / montaguei Type! / J. Balfour-Browne".

ADDITIONAL MATERIAL EXAMINED:

NORTH PROVINCE: 1 ♀ (MNHW): Aoupinié, 21°09'S 165°19'E, 530 m a.s.l., sawmill, at light, 6.II.2004, leg. M. Wanat.

SOUTH PROVINCE: 1 ♀ (IAC): Sarraméa, 22.III.2004, leg. C. Mille.

DIAGNOSIS: Dorsal side black, without paler spots or stripes; elytra not explanate; all elytral series reaching elytral base; elytral series 1 not more deeply impressed than elytral series 2 posteriorly; punctation of pronotum and elytra very distinct and quite dense; preepisternal elevation 4.5 × as long as wide.

Of all *Dactylosternum* species occurring in New Caledonia, this species is most similar to the widely distributed Pacific *D. subquadratum*, from which it can be easily distinguished by the rounded pronotal punctures (in contrast to scrap-like punctures in *D. subquadratum*), distinctly impressed elytral series (not impressed basally in *D. subquadratum*), loosely segmented antennal club and crenulate anterior margins of abdominal ventrites 1–3.

REDESCRIPTION: Body (Fig. 9) widely elongate oval, maximum width at posterior pronotal margin, elytra nearly parallel-sided in anterior 0.5, continuously narrowing posteriorly, moderately convex in lateral view. Length 3.70 mm, width 2.35 mm.

Coloration: Dorsal side black, with slightly paler lateral margins of pronotum and elytra, epipleura reddish.Ventral surface piceous, legs, mouthparts and antennae reddish brown.

Head widest between eyes, slightly narrowing anteriad. Clypeus straight on anterior margin, without marginal rim; surface with fine sparse punctation, interstices with fine mesh-like microsculpture. Frontoclypeal suture distinctly developed. Frons with punctation and intersticial microsculpture similar as on clypeus. Eyes small, distinctly emarginate anteriorly, slightly transverse in dorsal view, separated by 7 × of the width of one eye. Mentum ca. 1.5 × as wide as long, widest between anterolateral corners, slightly narrowing posteriorly, deeply bisinuate on anterior margin, lateral margins straight, densely pubescent; surface with long yellowish pubescence laterally; deeply concave anteromesally, with coarse sparse punctation, interstices with coarse mesh-like transverse microsculpture; anterior margin narrowly rimmed. Gula narrow and nearly parallel-sided anteriorly, strongly widened posteriorly. Maxillary palpi short and stout, length of palpomeres: 2 > 4 > 3, palpomeres 2 and 3 slightly widened distally, palpomere 4 with obtuse apex. Antenna with nine antennomeres, scapus long, ca. as long as antennomeres 2–6 when combined, ca. 5 × as long as pedicel; palpomeres 2 and 3 elongate, subequal in length, slightly longer than palpomeres 4–5; cupula small; antennal club loose, densely pubescent, only indistinctly shorter than remaining part of the antenna.

Prothorax: Pronotum arcuately narrowing anteriorly, not explanate laterally; anterolateral angles obtusely rounded, posterolateral ones roundly rectangular; anterior margin bisinuate, posterior margin nearly evenly arcuate; anterior and lateral margins finely rimmed; punctation finer and sparser than on frons, interstices with mesh-like microsculpture. Prosternum highly carinate medially, not divided from lateral portions, simply pointed posteriorly; hypomeron without defined antennal grooves, bearing very short and dense pubescence.

Mesothorax: Scutellar shield small, triangular, slightly longer than wide, bearing fine punctures and fine mesh-like intersticial microsculpture. Elytron with 10 punctural series, slightly impressed mesally, becoming somewhat sulcate laterally; serial punctures moderately larger in series 1, becoming slightly larger both laterally and posteriorly, series 1 not apparently more impressed than other series posteriorly; all series nearly reaching elytral base; series 6 and 7 joining subapically, series 7 reaching elytral apex. Elytral intervals with very fine and loose punctation consisting of punctures, which are much smaller than those on elytral series, interstices smooth. Elytral margin only indistinctly explanate; epipleuron wider than pseudepipleuron basally, oblique, reaching metacoxae; pseudepipleuron vertical, reaching elytral apex, narrow in posterior half of elytron. Mesoventrite with highly and abruptly raised preepisternal elevation posteromedially, the elevation very narrow, 4.5 × as long as wide, only slightly widened anteriorly, with sparse setiferous punctation, contacting metaventrite at midlength of mesocoxae. Grooves for reception of procoxae absent.

Metathorax: Metaventrite with median portion slightly raised, with smooth shiny interstices and moderately coarse and dense punctation; lateral portions with dense and long pubescence, with fine microsculpture. Hind wings present.

Legs short, femora and tibiae flattened; posterior femora nearly straight throuhout; hind tibia narrowing in proximal 0.3, with sparse moderately long and not very stout spines along lateral and mesal margins; ventral surface with fine short spines, numerous stouter spines present subapically. All tarsi with long yellowish pubescence ventrally; metatarsomere 1 distinctly shorter than tarsomeres 2–3 when combined.

Abdomen: First ventrite carinate medially, with very distinct additional sulci submesally and laterally along anterior margin. Remaining ventrites without carina, ventrite 2 with distinct short sulci along anterior margin.

Male genitalia: Unknown.

VARIABILITY: Unknown.

HABITAT: Unknown, one specimen was collected at light.

DISTRIBUTION (Fig. 34): Known only from Central Grande Terre.

Aculomicrus SMETANA

Key to species of *Aculomicrus* of New Caledonia:

1 Interstices of pronotum with fine but distinct microsculpture consisting of longitudinal furrows (Fig. 28). Three lateral-most punctural series with punctures only slightly larger than irregular punctures standing next to them, the latter fine but very distinct (Fig. 25). Elytra moderately convex, oblique in posterior 0.25 in lateral view (Fig. 21)..... ***alesi***

– Interstices of pronotum with fine obsolete mesh-like microsculpture (Fig. 27). Three lateral-most series of punctures with punctures much larger than irregular punctures standing next to them, the latter very fine, nearly indistinct (Fig. 26). Elytra highly convex, nearly vertical in posterior 0.25 in lateral view (Fig. 22). ..... ***reticulatus***

TAXONOMY: The genus *Aculomicrus* was described by SMETANA (1975: 175). However, this name remained unavailable until 1990, when a type species was designated (see SMETANA 1990).

DISCUSSION: The genus *Aculomicrus* so far comprised four species from the Neotropical (three species) and the Oriental Region (one species) (HANSEN 1999). Two additional species of

the genus are described from New Caledonia in this contribution. In contrast to the Neotropical species of *Aculomicrus* (the aedeagus of *A. testudo* SMETANA, 1975 is unknown), the aedeagi of all three Oriental-Pacific species share a very long phallobase (much longer than parameres) and lack the apical narrowly lobate projections on parameres.

Note: Recently, I have found out that the generic status of both New Caledonian species ascribed here to *Aculomicrus* as well as that of *A. brendelli* BAMEUL, 1993 is incorrect and that the above three species are more related to *Omicrus*, especially to *O. brevipes* SHARP, 1879 from the Hawaiian Islands. A paper resolving the generic status of these species and their relationship to the Neotropical *Omicrus* is in preparation. Here, I am maintaining the placement of the New Caledonian taxa in *Aculomicrus* used originally in the manuscript of this paper for two reasons: (1) resolving their correct generic status requires more detailed comparison with Neotropical Omicrini; (2) type specimens of both New Caledonian species were labelled as *Aculomicrus* and are mostly returned back to the institutions already.

Aculomicrus alesi sp.n.

TYPE LOCALITY: New Caledonia, Grande Terre, South Province, Mt. Koghi.

TYPE MATERIAL: **Holotype** ♂ (CNC): "NEW CALEDONIA / Mt. Koghis, 13.VIII.78 / S.&J.Peck, berlese, woody fungi".

Paratypes: SOUTH PROVINCE: 1 ex. (MNHN): "NEW CALEDONIA: P. Sud / Col d'Amieu (Sarraméa) / 21°34.407'S 165°45.674'E / 412 m, FIT [Flight Intercept Trap], 5.-19.xii.2007 / T. Théry lgt."; 1 ♀ (CNC): "NEW CALEDONIA / Mt. Koghis, Auberge / 26.VIII.1978 / S. & J. Peck, 500m // berlese, log / and bark litter"; 2 ♀♀, 5 exs. (FMNH, NMP): "NEW CALEDONIA / Monts Koghis, Auberge / near Nouméa, 500m / 26.VII.-13.VIII.1978 / rainforest, S&J Peck"; 1 ♀, 1 ex. (CNC): "NEW CALEDONIA, Mt. / Koghis nr. Noumea / 500m, 26.VIII.1978 / S. & J. Peck, berlese / log + bark litter"; 1 ex. (MNHW): "NEW CALEDONIA (S) / 20°10.7'S 166°30.4'E / Mt Koghi 400-450 m / 16.12.2006 rainforest / leg. M. Wanat & R. Dobosz // Muzeum Przyrodnicze / Uniwersytetu Wrocławkiego / ---------- MNHW ---------- / Museum of Natural History / Wroclaw University".

DIAGNOSIS: Body 1.50–1.75 mm long; head with distinct microsculpture consisting of irregular waves, equally dense on clypeus and median part of frons; pronotum with microsculpture consisting of fine longitudinal ridges; elytra without microsculpture; parameres symmetrical, without finger-like apical projections. The combination of the above mentioned characters distinguish *A. alesi* from all other species of *Aculomicrus*.

DESCRIPTION: Body (Fig. 21) widely elongate oval, widest at base of elytra, the latter nearly parallel-sided in anterior 0.5, continuously narrowing more posteriorly; in lateral view lowly and evenly convex, oblique in posterior 0.25. Length 1.50–1.75 mm (holotype: 1.75 mm); width 1.05–1.15 mm (holotype: 1.15 mm).

Coloration: Dorsal surface reddish, frons slightly but distinctly darker, brown. Ventral side reddish to dark reddish; labrum, antennae, maxillary palpi and tarsi yellowish.

Head: Clypeus deflexed, obliquely vertical, anterior margin indistinctly concave, lateral portions with large subrectangular projections anterior to antennae; anterior and lateral margins distinctly rimmed; surface with fine and sparse punctation, interstices with fine but distinct microsculpture consisting of transverse furrows. Eyes small, situated on lateralmost parts of head, separated by 9 × of one eye. Punctation of frons similar to that on clypeus, microsculpture of interstices as on clypeus medially, becoming slightly sparser laterad. Mentum slightly wider than long, subrectangular, indistinctly wider posteriorly, anterior margin slightly convex, distinctly rimmed; surface without punctures, with fine transverse mesh-like microsculpture. Labrum exposed. Length of maxillary palpomeres: 1<3<2<4; palpomere 2 apparently widened distally, palpomere 4 thin and long, spindle-shaped. Labial palpi protruding anteriad to labrum in dorsal view,

densely pubescent on mesal surface. Antenna with nine antennomeres, scapus short, ca. 3 × as long as pedicel; palpomeres 3–5 minute, ca. as long as scapus when combined; cupula distinctly larger than palpomere 5; palpomeres 7–9 forming compact pubescent club, antennomeres 7 and 8 subequal in length, ca. as long as palpomere 9 when combined; palpomere 9 conical, obtusely pointed.

Prothorax: Pronotum arcuately narrowing anteriad, widest at posterior margin, not explanate laterally; anterior margin weakly bisinuate, posterior margin continuously arcuate, posterolateral corners subrectangular, lateral margins with distinct rim; surface with fine and sparse punctation, interstices with fine but very distinct (at 90 × magnification) microsculpture consisting of longitudinal furrows (Fig. 28). Prosternum with subrhomboid median portion, slightly elevate, strongly carinate medially, with small but distinct notch at posteromedian margin; extremely reduced and very narrow anterior of procoxae. Hypomeron with obtusely defined antennal grooves.

Mesothorax: Scutellar shield very small, slightly longer than wide, with a few very fine punctures. Elytron without serial punctures different from general surface punctation mesally, with indistinctly defined series of slightly larger punctures laterally (Fig. 25); punctation arranged in more or less regular longitudinal rows, more irregular and obsolete in scutellar region; interstices without microsculpture, shiny. Epipleuron narrow throughout; pseudepipleuron very wide basally, oblique, continuously narrowing apically, reaching elytral apex. Mesoventrite with highly raised preepisternal elevation (Fig. 24) posteromedially, with well-defined arrow-like plate broadly contacting anteromedian margin of metaventrite, basal stalk-like part very short, median obtuse carina wide posteriorly, strongly narrowing anteriorly. Grooves for reception of procoxae well-developed.

Metathorax: Median portion of metaventrite slightly elevated, projecting slightly anterior of midlength of mesocoxae, with moderately long and not very dense pubescence; lateral portion with sparse small cup-like punctures and fine shortly pubescent microsculpture. Hind wings present.

Legs short. Femora flattened, bearing sparse spiniform setae on ventral surface. Tibiae cylindrical, bearing a few not very long, stout spines on outer margins and near distal end. Tarsi with five tarsomeres, almost equally long, densely pubescent ventrally.

Abdomen: First abdominal ventrite finely carinate medially, ventrites 2–5 without median carina. All ventrites with short and very dense pubescence.

Male genitalia (Fig. 20): Phallobase 1.9 × as long as parameres, narrowly elongate, without distinct manubrium, with large opening in basal 0.5. Parameres distinctly separated in apical 0.5, widely and evenly arcuate laterally, apparently narrowing subapically, apex of each paramere with three short setae. Median lobe 0.8 × as long as parameres, distinctly and nearly straightly narrowing from base to apex, obtusely pointed at apex, distinct corona present. Sternite 9 not examined.

Female genitalia: Not examined.

HABITAT: This species is terrestrial. It was collected from woody fungi, log and bark litter and from rotten wood in the rainforest.

DISTRIBUTION (Fig. 35): Known only from Col d'Amieu (central Grande Terre) and Mt. Koghi (southern Grande Terre).

ETYLOMOGY: I dedicate this species to Aleš Smetana (Ottawa, Canada), an outstanding entomologist who was the first taxonomist to carry out detailed studies of the New World

Sphaeridiinae and particularly the Omicrini. By this dedication I want to thank him for his valuable and friendly support of my Sphaeridiinae studies.

Aculomicrus reticulatus sp.n.

TYPE LOCALITY: New Caledonia, Grande Terre, South Province, Riviére Bleue Provincial Park.

TYPE MATERIAL: **Holotype** ♂ (NMP): "New Caledonia S. P. / Parc. Nat. Riv. Bleue / 31.3.-4.4.1999 / S. Bílý leg.".

Paratypes: 2 exs. (NMP): same data as holotype. SOUTH PROVINCE: 1 ex. (NZAC) "NEW CALEDONIA / Mt Rembai, 800m / nr Col d'Amieu / 17 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/237 // This litter / number may be / incorrect - / refer litter / book // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 16 exs. (NZAC): "NEW CALEDONIA / Mt. Rembai, 800m / 21 Oct 1978 / G. Kuschel // sifted rotten / wood 78/245 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 1 ex. (NZAC) "NEW CALEDONIA / Col d'Amieu, 550m / 15 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/229 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 1 ex. (NZAC) "NEW CALEDONIA / Table Unio, 800m / nr Col d'Amieu / 16 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/235 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 4 exs. (MNHN, NMP, TTPC): Col d'Amieu (Sarraméa), 21°34.407'S 165°45.674'E, 412 m a.s.l., flight intercept trap, 19.XII.2007–11.I.2008, leg. T. Théry; 1 ex. (MNHN): Col d'Amieu (Sarraméa), 21°34.407'S 165°45.674'E, 412 m a.s.l., flight intercept trap, 7.–14.II.2008, leg. T. Théry; 1 ex. (NMW): "Umg. Noumea / Neu-Kaledonien / lg. H. Franz / [underside of same label] Pa 58 // Mt. Koghis [handwritten]" [30.VIII.1970]; 3 exs. (CNC): "NEW CALEDONIA / Mt. Koghis, Auberge / 26.VIII.1978 / S. & J. Peck, 500m // berlese, log / & bark litter"; 1 ex. (CNC): "NEW CALEDONIA / Monts Koghis, Aub- / erge, 13.VIII.1978 / S.&J. Peck, 500 m // berlese, fungi / in rainforest"; 1 ♂, 19 exs. (FMNH, NMP): "NEW CALEDONIA / Monts Koghis, Auberge / near Nouméa, 500m / 26.VII.-13.VIII.1978 / rainforest, S. & J. Peck"; 1 ex. (MHNG): "New Caledonia / La Trappe above / St. Louis, 22.X.1998 / I. Löbl, wood & leaf litter"; 7 exs. (MHNG): "New Caledonia / Col de Mouirange / nr. Table d'Unio [label error: I. Löbl, personal communication!] / 260m, 16.ix.1997 / I. Löbl, litter".

ADDITIONAL MATERIAL EXAMINED:

NORTH PROVINCE: 1 ex. (NMP, specimen in pure alcohol): Mt. Panié, 200–500 m, 20°49'S/164°49'E (NC059), 200–500 m, ex *Ganoderma*, 22.III.2007, leg. R.A.B. Leschen.

SOUTH PROVINCE: 5 exs. (MNHN, NMP, TTPC): Col d'Amieu (Sarraméa), 21°34.407'S 165°45.674'E, 412 m a.s.l., flight intercept trap, 5.–19.xii.2007, leg. T. Théry; 5 exs. (MNHN, NMP, TTPC): Col d'Amieu (Sarraméa), 21°34.407'S 165°45.674'E, 412 m a.s.l., flight intercept trap, 23.XI.–5.XII.2007, leg. T. Théry; 8 exs. (MNHN, NMP, TTPC): Col d'Amieu (Sarraméa), 21°34.407'S 165°45.674'E, 412 m a.s.l., flight intercept trap, 19.XII.2007–11.I.2008, leg. T. Théry; 6 exs. (MNHN, NMP, TTPC): Col d'Amieu (Sarraméa), 21°34.407'S 165°45.674'E, 412 m a.s.l., flight intercept trap, 7.–14.II.2008, leg. T. Théry; 2 ♂♂, 13 exs. (FMNH, NMP): Mt. Koghi, near Nouméa, 500 m, 26.VII.–13.VIII.1978, leg. S. & J. Peck; 1 ex. (KSEM, specimen in pure alcohol): Mt. Koghi, 22°10'40"S/166°30'25"E (NC009), 485–600 m, sap flow at night, 12.III.2007, leg. R.A.B. Leschen.

DIAGNOSIS: Body 1.40–1.50 mm long; head without microsculpture; pronotum with fine mesh-like microsculpture; parameres symmetrical, without apical finger-like projections.

DESCRIPTION: Body (Fig. 22) widely elongate oval, widest at base of elytra, the latter nearly parallel-sided in anterior 0.5, continuously narrowing more posteriorly, in lateral view highly convex, nearly vertical in posterior 0.25. Length 1.40–1.50 mm (HT: 1.45 mm); width 0.95–1.00 mm (HT: 0.95 mm).

Coloration: Dorsal surface reddish to dark reddish, clypeus and lateral margins of pronotum and elytra slightly paler. Ventral side dark reddish; labrum, antennae, maxillary palpi and tarsi yellowish.

Head: Clypeus deflexed, obliquely vertical, anterior margin weakly concave, lateral parts with large subrectangular projections anterior to antennae; anterior and lateral margins distinctly rimmed; surface with sparse, fine but very distinct punctation, interstices shiny, without any

trace of fine microsculpture. Eyes very small, situated on lateralmost parts of head, separated by 8 × of one eye. Frons with obsolete, nearly indistinct punctation much sparser than on clypeus, interstices shiny, without any trace of microsculpture. Mentum slightly wider than long, subrectangular, indistinctly wider posteriorly, anterior margin slightly convex, indistinctly rimmed; surface without punctures, with fine transverse mesh-like microsculpture. Labrum exposed, weakly sclerotized. Length of maxillary palpomeres: 1<3<2<4; palpomere 2 apparently widened distally; palpomere 4 slightly thicker than palpomere 3, long, spindle-shaped. Labial palpi protruding anteriad to labrum in dorsal view, densely pubescent on mesal surface. Antenna (Fig. 29) with nine antennomeres, scapus short, ca. 3 × as long as pedicel; palpomeres 3–5 minute, ca. as long as scapus when combined; cupula distinctly larger than palpomere 5; palpomeres 7–9 forming compact pubescent club, antennomeres 7 and 8 subequal in length, ca. as long as palpomere 9 when combined; palpomere 9 conical, obtusely pointed.

Prothorax: Pronotum arcuately narrowing anteriad, widest at posterior margin, not explanate laterally; anterior margin weakly bisinuate, posterior margin continuously arcuate, posterolateral corners subrectangular, lateral margins with distinct rim; surface with fine and very sparse punctation, interstices with very fine but distinct (at 90 × magnification) mesh-like microsculpture (Fig. 27). Prosternum with median part subrhomboidal, slightly elevate, finely carinate medially, with small but distinct notch at posteromedian margin; reduced and therefore extremely narrow anterior of procoxae. Hypomeron with vaguely defined antennal grooves.

Mesothorax: Scutellar shield very small, slightly longer than wide, bearing a few very fine punctures. Elytron without serial punctures different from general surface punctation mesally, with indistinctly defined series of punctures much larger than adjacent ones laterally (Fig. 26); punctation arranged in more or less regular longitudinal rows, more irregular and smaller in scutellar region; interstices with fine obsolete mesh-like microsculpture similar as on pronotum. Epipleuron narrow throughout; pseudepipleuron very wide basally, obliquely vertical, continuously narrowing apicad, reaching elytral apex. Mesoventrite with highly raised preepisternal elevation (Fig. 23) posteromedially, with well-defined arrow-like plate broadly contacting anteromedian margin of metaventrite, basal stalk-like part distinct, forming posterior 0.3 of the elevation, median obtuse carina wide posteriorly, indistinctly narrowing anteriad. Grooves for reception of procoxae well-developed.

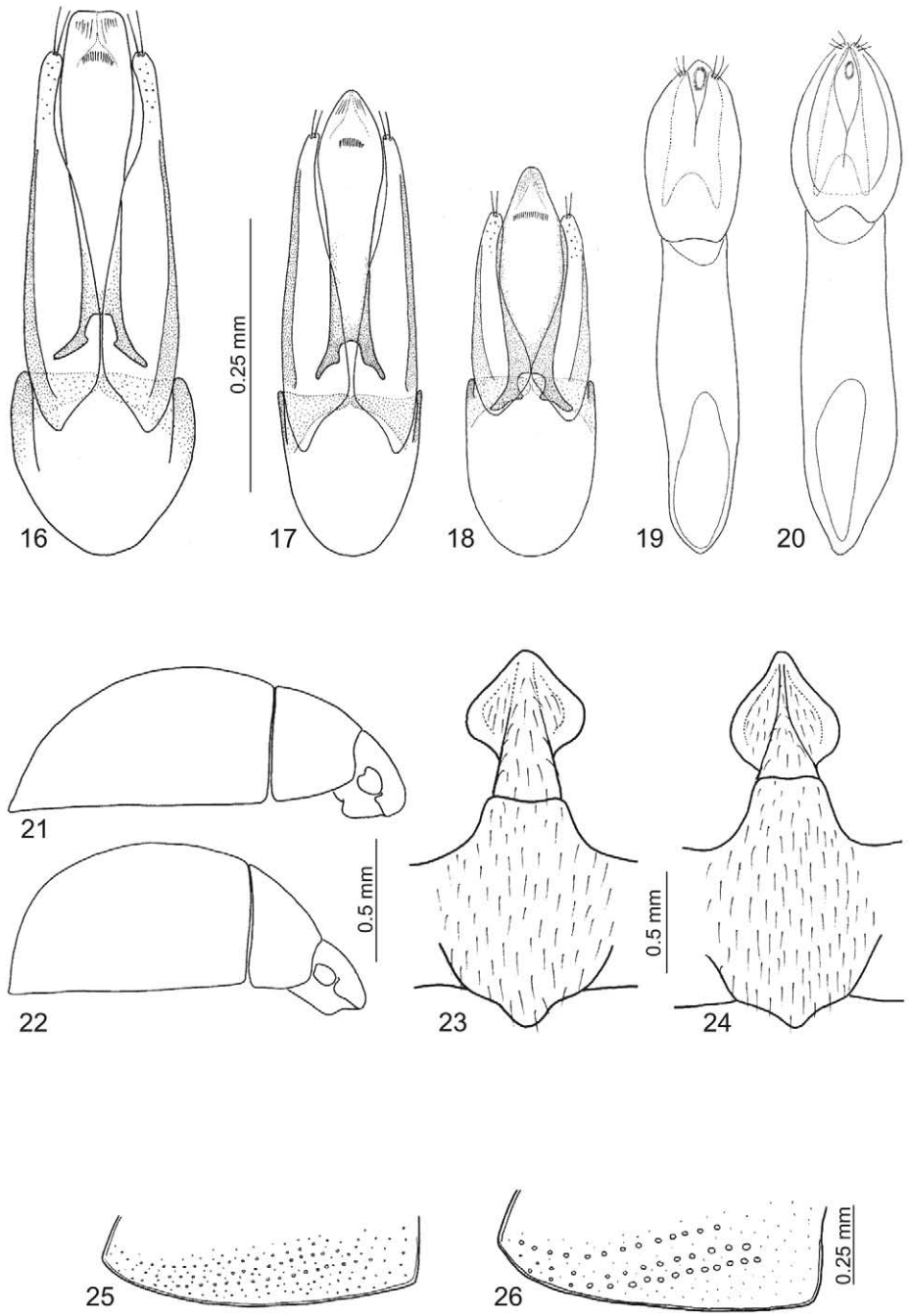
Metathorax: Median portion of metaventrite slightly elevated, projecting slightly anterior of midlength of mesocoxae, bearing moderately long and not very dense pubescence; lateral portion with fine shortly pubescent microsculpture. Hind wings absent.

Legs short. Femora flattened, bearing sparse spiniform setae on ventral surface. Tibiae cylindrical, bearing a few not very long but stout spines on outer margins and subapically. Tarsi with five tarsomeres, almost equally long, densely pubescent ventrally.

Abdomen: First abdominal ventrite finely carinate medially, ventrites 2–5 without median carina. All ventrites with short and very dense superficial pubescence.

Male genitalia (Fig. 19): Phallobase 1.9 × as long as parameres, narrowly elongate, without distinct manubrium, with large opening in basal 0.5. Parameres distinctly separated in apical 0.5, continuously arcuate laterally, not apparently narrowed subapically, apex of each paramere with three setae. Median lobe 0.9 × as long as parameres, nearly parallel-sided in basal 0.8, abruptly narrowing into rounded apex more apically; distinct corona situated subapically. Median part of sternite 9 with wide base rounded posteriorly, with very long tongue-like projection apically, basal part of the projection narrow, stalk-like, apical part strongly widened, slightly asymmetrical, obtusely pointed at apex, bearing three long hair-like setae and dense and very short pubescence subapically.

Female genitalia: Not examined.



Figs. 16–26: Morphology of New Caledonian *Aculomicrus* and *Psalitrus*, 16–20) aedeagi, 21–22) general habitus in lateral view, 23–24) preepisternal elevation of mesothorax and median part of metaventrite, 25–26) punctation of lateral parts of elytra. 16: *Psalitrus altipaniensis*; 17: *P. kuscheli*; 18: *P. lapita*; 19, 22–23, 26: *Aculomicrus reticulatus*; 20–21, 24–25: *A. alesi*.

VARIABILITY: The type specimens do not show any considerable variability except of slight variability in body size. The specimens listed above under "Additional material examined" differ from the type specimens in the different shape of the elytra (not as markedly vertical in posterior part in lateral view) or in the slightly larger body size (1.6 mm), in both cases irrespective to the sex of the specimens. The male genitalia of these specimens seem to be identical with the holotype. In spite of this, I do not include these specimens to the type series of *A. reticulatus*.

HABITAT: This is a terrestrial species; it was sifted from leaf litter and rotten wood, fungi and bark litter in the rainforest. In some cases, the samples of rotten wood included ant nests.

DISTRIBUTION (Fig. 35): This species is wide-spread in the southern half of New Caledonia, found at 250–800 m a.s.l.

ETYMOLOGY: The name refers to the microreticulation on the pronotum.

Aculomicrus sp.

MATERIAL EXAMINED:

NORTH PROVINCE: 1 ♀ (MHNG): "New Caledonia / Hyenghène [= Hienghène]: / Werap, 8.xi.97 / I. Löbl leg."; 1 ♀ (FMNH): "NEW CALEDONIA / Mt. Panié, 20km NW / Hienghène, 500m / 2.VIII.78, S&J Peck / rainforest, fungus".

SOUTH PROVINCE: 1 ♀ (NZAC): NEW CALEDONIA / Yahoué / 11 Oct 1978 / G. Kuschel // sifted leaf / litter and / rotten wood // N. Z. Arthropod / Collection NZAC / Private Bag 92170 / AUCKLAND / New Zealand".

DISCUSSION: These specimens are very similar to *A. alesi* sp.n., but differ in weaker pronotal microsculpture and slightly darker coloration. Therefore they might represent a separate species. Male specimens are needed to confirm their status.

Psalitrus ORCHYMONT

Key to species of *Psalitrus* of New Caledonia:

1 General coloration black, without paler stripe along elytral suture. Punctation of elytra very fine, nearly indistinct even laterally. Posterior margin of abdominal ventrite 5 not emarginate in both sexes. Phallobase short, ca. 0.5 × as long as parameres, apex of median lobe cut off, roundly subrectangular in shape (Fig. 16). Body length: 1.45 mm ..... ***altipaniensis***

– General coloration reddish to dark brown, often with slightly paler stripe along elytral suture. Punctation of elytra coarse and very distinct laterally. Posterior margin of abdominal ventrite 5 at least slightly emarginate in male, not emarginate in female. Phallobase ca. 0.5–1.0 × as long as parameres, apex of median lobe obtusely pointed. Body length: 1.10–1.45 mm..... 2

2 Parameres ca. as long as phallobase, median lobe longer than parameres (Fig. 18) ..... ***lapita***

– Parameres ca. 2 × as long as phallobase, median lobe as long as parameres (Fig. 17) ..... ***kuscheli***

DISCUSSION: The genus *Psalitrus* currently comprises 28 species distributed in the Afrotropical and Oriental Regions (HANSEN 1999, SHORT & HEBAUER 2006). Three additional species are described in this contribution. At present, it is not possible to define the relationships of the New Caledonian *Psalitrus* to other species of the genus. However, the New Caledonian species are somewhat similar to some Oriental species.

Psalitrus altipaniensis sp.n.

TYPE LOCALITY: New Caledonia, Grande Terre, North Province, Mt. Panié, summit, 1638 m.

TYPE MATERIAL: **Holotype** ♂ (NZAC): "NEW CALEDONIA / Mt. Panié / summit, 1638m / 29 Oct 1978 / J. C. Watt // sifted litter / 78/269 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand".

Paratypes: 1 ♂ (NMP): same label data as holotype; 1 ♀ (NZAC): "NEW CALEDONIA [printed] / Mt. Panie / Smt 1638m / 29 Oct 1978 / J. C. Watt [handwritten] // sifted / litter / 78/269 [handwritten] // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand".

DIAGNOSIS: General coloration black, without pale stripe on elytral suture; punctation of elytra sparse and very fine, nearly indistinct in scutellar and humeral areas; hind wings absent; abdominal ventrite 5 entire in both sexes; phallobase 0.5 × as long as parameres; apex of median lobe roundly rectangular.

Based on the very short phallobase and absence of hind wings resembling *P. mahanuwara* BAMEUL, 1992 from Sri Lanka and *P. kuscheli*, described below. From both species, *P. altipaniensis* is easily distinguished by its distinctly darker coloration and much finer elytral punctation, as well as the shape of the apical part of the median lobe (apically pointed in *P. mahanuwara* and *P. kuscheli*). From *P. kuscheli* it can be distinguished also by the entire posterior margin of the male ventrite 5 (this ventrite is slightly emarginate in males of *P. kuscheli*).

Table 1: Morphometric data for New Caledonian *Psalitrus* species (min: mimimum; max: maximum; med: median; std: standard deviation).

		PL	EL	TW	PW	HW	MH	BL	TW/BL	PW/TW	MH/BL
P. altipaniensis	min	0,33	1,07	1,14	1,03	0,53	0,79	1,44	0,79	0,89	0,54
(n=3)	max	0,34	1,10	1,17	1,04	0,54	0,80	1,46	0,80	0,90	0,55
	med	0,34	1,07	1,16	1,03	0,54	0,80	1,46	0,79	0,89	0,55
	std	0,01	0,02	0,01	0,01	0,01	0,01	0,01	0,01	0,01	0,01
P. kuscheli	min	0,26	0,79	0,86	0,77	0,40	0,50	1,11	0,70	0,83	0,41
(n=92)	max	0,33	1,13	1,14	1,01	0,53	0,74	1,46	0,87	0,97	0,53
	med	0,29	0,97	1,00	0,91	0,47	0,60	1,30	0,78	0,90	0,47
	std	0,02	0,07	0,06	0,06	0,03	0,04	0,07	0,03	0,03	0,03
P. lapita	min	0,26	0,80	0,83	0,74	0,41	0,54	1,09	0,73	0,87	0,46
(n=20)	max	0,33	1,03	1,03	0,93	0,49	0,64	1,39	0,88	0,92	0,53
	med	0,29	0,92	0,96	0,86	0,44	0,61	1,22	0,78	0,89	0,50
	std	0,02	0,07	0,05	0,04	0,02	0,03	0,08	0,04	0,01	0,02

DESCRIPTION: Body widely elongate oval, widest at anterior 0.3 of elytra, the latter arcuate from base towards apex, highly arcuately convex in lateral view. For body measurements see Tab. 1.

Coloration: Dorsal surface black, with anterior margin of clypeus, lateral and posterior margins of pronotum, posterolateral angle of pronotum and lateral margins of elytra slightly paler. Ventral side brown; antennae, maxillary palpi, tibiae and tarsi reddish.

Head: Clypeus slightly deflexed, obliquely vertical, anterior margin slightly concave, lateral parts with moderately large subrectangular projections anterior to antennae; anterior and lateral margins very finely rimmed; punctation very fine and sparse, interstices without microsculpture, shiny. Eyes very small, situated on lateralmost parts of head, separated by 8 × of one eye diameter. Punctation of frons similar to that on head, interstices without microsculpture, shiny. Mentum ca. 1.5 × as wide as long, widest between anterolateral corners, subrectangular posteriorly, anterior margin bisinuate, without marginal rim; surface with very fine mesh-like microsculpture and sparsely distributed, very fine punctures bearing fine but long setae. Labrum concealed under clypeus except of minute anterolateral parts, weakly sclerotized. Length of

maxillary palpomeres: 1<3<4<2; palpomere 2 moderately widened distally; palpomere 4 thin, spindle-shaped. Labial palpi slightly protruding anteriad of labrum, only sparsely pubescent on mesal surface. Antenna with eight antennomeres, scapus ca. 2.5 × as long as pedicel; palpomere 3 ca. 2 × as long as palpomere 4, cupula small; antennomeres 6–8 forming loose, longly pubescent antennal club, antennomeres 6 and 7 ca. equally long, antennomere 8 slightly longer.

Prothorax: Pronotum arcuately narrowing anteriad, widest at posterior margin, not explanate laterally; anterior margin deeply emarginate medially, posterior margin continuously arcuate, posterolateral corners roundly subrectangular, lateral margins with fine rim; surface with extremely fine, very indistinct sparse punctation, interstices smooth, without any trace of microsculpture. Prosternum with median part strongly reduced, subtriangular, only slightly projecting between procoxae posteriad, without median carina; reduced and therefore extremely narrow anterior of procoxae. Hypomeron with very vaguely defined antennal grooves.

Mesothorax: Scutellar shield very small, ca. as long as wide, lacking punctation. Elytron without serial punctures differing from general surface punctation; punctation sparse and very fine, arranged in more or less regular longitudinal rows, more irregular and nearly indistinct in scutellar and humeral regions; interstices shiny, without microsculpture. Epipleuron wider than pseudepipleuron throughout, both latter obliquely vertical, reaching elytral apex. Mesoventrite with highly raised preepisternal elevation posteromedially, bearing well-defined subpentagonal plate indistinctly overlapped by anteromedian margin of metaventrite posteriorly. Grooves for reception of procoxae absent.

Metathorax: Median portion of metaventrite not elevated, shiny, with quite dense and coarse shallow punctation, interstices slightly rugose; anteromedian portion projecting to anterior margin of mesocoxae, rounded anteriorly, lacking marginal rim; lateral portion with fine mesh-like microsculpture. Hind wings absent.

Legs short. Femora flattened, profemora bearing dense punctation ventrally, meso- and metafemora entirely covered with dense pubescence on ventral surface, widened in proximal portion of posterior margin, tibial groove defined in apical 0.5 only. Tibiae cylindrical, bearing a few not very long but stout spines on outer margins and subapically; metatibiae slightly bent laterad in distal 0.5. Tarsi with five tarsomeres, almost equally long, densely pubescent ventrally.

Abdomen: All abdominal ventrites without median carina, covered by short and very dense pubescence. Ventrite 5 entire on posterior margin in both sexes.

Male genitalia (Fig. 16): Aedeagus 0.50 mm long. Phallobase 0.5 × as long as parameres, slightly narrowing basally. Parameres continuously narrowing from base towards apex, slightly concave on inner margin in apical 0.15, apex obtusely rounded, bearing two long setae. Median lobe 0.95 × as long as parameres, narrower than parameres subbasally, widened to apical 0.3, indistinctly narrowing and subrectangularly rounded at apex. Corona distinct, situated in apical 0.15. Sternite 9 not examined.

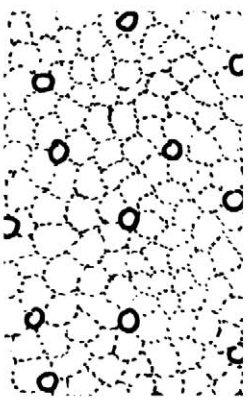
Female genitalia: Not examined.

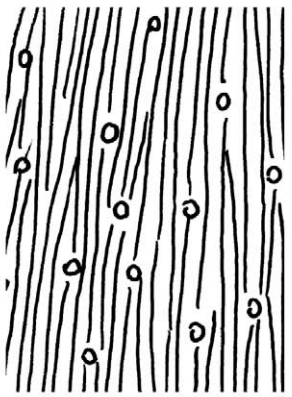
VARIABILITY: unknown.

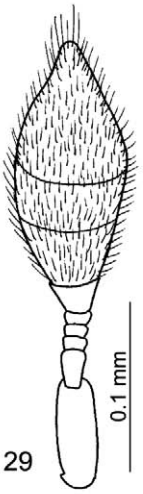
HABITAT: Terrestrial species. Specimens were sifted from leaf litter in dry rainforest.

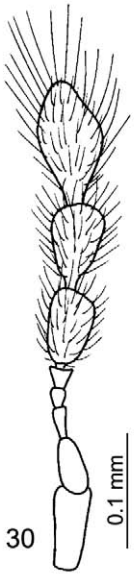
DISTRIBUTION (Fig. 35): Known only from the type locality.

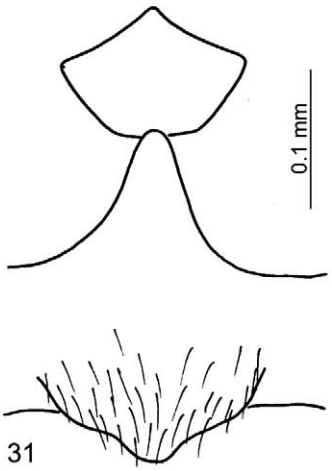
ETYMOLOGY: The name is composed of a prefix “alti-” (Latin: “altus” = high) and the topographic adjective “paniensis”, referring to the type locality.

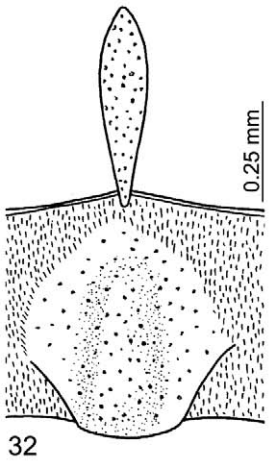


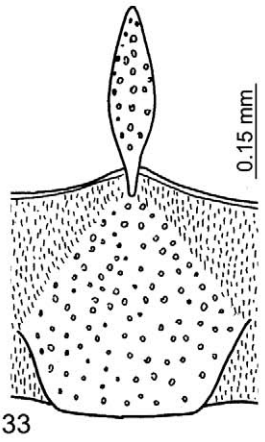












Figs. 27–33: Morphology of New Caledonian *Aculomicrus*, *Psalitrus* and *Cercyon*, 27–28) microsculpture of pronotum, 29–30) antenna, 31–33) preepisternal elevation of mesothorax and median part of metaventrite. 27, 29: *Aculomicrus reticulatus*; 28: *A. alesi*; 30–31: *Psalitrus kuscheli*, 32: *Cercyon* sp. A, 33: *C. inquinatus*.

Psalitrus kuscheli sp.n.

TYPE LOCALITY: New Caledonia, Grande Terre, South Province, Mt. Rembai, 700 m.

TYPE MATERIAL: **Holotype** ♂ (NZAC): "NEW CALEDONIA / Mt. Rembai, 700m / 20 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/242 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand".

Paratypes: SOUTH PROVINCE: 1 ♂ (MHNG): "New Caledonia / Sarraméa: trail to / Plateau Dogny / 700-900m, 23.X.98 / I. Löbl, wood & leaf litter"; 6 ♂♂ (NZAC): "NEW CALEDONIA / Mt. Rembai, 700m / 20 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/242 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 1 ♂ (NZAC): "NEW CALEDONIA / Mt. Rembai, 700m / nr Col d'Amieu / 18 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/239 // this litter / number may be / incorrect - / refer litter / book // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 1 ♂ (NZAC) "NEW CALEDONIA / Col d'Amieu, 550m / 15 Oct 1978 / G. Kuschel / moss, 78/231 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 2 ♂♂ (NZAC): "NEW CALEDONIA / Col d'Amieu, 550m / 15 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/230 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 2 ♂♂ (NZAC): "NEW CALEDONIA / Table Unio, 900m / near Col d'Amieu / 16 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / in rainforest / 78/234 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand".

ADDITIONAL MATERIAL EXAMINED:

SOUTH PROVINCE: 4 ♀♀ (MHNG): "New Caledonia / Sarraméa: trail to / Plateau Dogny / 700-900m, 23.X.98 / I. Löbl, wood & leaf litter"; 1 ex. (MHNG): "NEW CALEDONIA / above Sarraméa / creek, leaf litter / 24.X.1998, I. Löbl"; 6 ♀♀, 34 exs. (NZAC): "NEW CALEDONIA / Mt. Rembai, 700m / 20 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/242 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 2 exs. (NZAC): "NEW CALEDONIA / Mt. Rembai, 800m / 21 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/244 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 2 exs. (NZAC): "NEW CALEDONIA / Mt. Rembai, 800m / nr Col d'Amieu / 17 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/237 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 8 exs. (NZAC): "NEW CALEDONIA / Mt. Rembai, 700m / nr Col d'Amieu / 18 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/239 // this litter / number may be / incorrect - / refer litter / book // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 1 ♀ (NZAC): "NEW CALEDONIA / Table Unio, 1000m / near Col d'Amieu / 16 Oct 1978 / G. Kuschel // sifted litter / at summit / 78/233 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 1 ♀ (NZAC): "NEW CALEDONIA / Table Unio, 900m / near Col d'Amieu / 16 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / in rainforest / 78/234 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 1 ♀, 3 exs. (NZAC): "NEW CALEDONIA / Col d'Amieu, 550m / 15 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/230 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 12 exs. (NZAC): "NEW CALEDONIA / Col d'Amieu, 550m / 15 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/229 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand".

DIAGNOSIS: General coloration ferrugineous to brown, often with pale stripe along elytral suture; punctation of elytra sparse but distinct, becoming finer in scutellar and humeral areas; hind wings absent; abdominal ventrite 5 very slightly emarginate in male, entire in female; phallobase ca. 0.5 × as long as parameres; apex of median lobe arcuately obtusely pointed.

By the above mentioned characters resembling *P. altipaniensis* from New Caledonia and *P. mahanuwara* from Sri Lanka. Characters distinguishing it from *P. altipaniensis* are mentioned under that species and in the key (see above). From *P. mahanuwara* it can be distinguished by the much finer elytral punctation (in contrast, the elytral punctures are moderately large and densely arranged, and therefore very distinct especially in the lateral portions of the elytra in *P. mahanuwara*), by the slightly emarginate posterior margin of the male ventrite 5, by the different shape of the apical part of the median lobe (only slightly widened and sharply pointed in *P. mahanuwara*, very distinctly widened and obtusely pointed in *P. kuscheli*), and by the parameres (in *P. kuscheli* the apical part is narrower and lacks the subapical angle of the outer margin). Most of the specimens of *P. kuscheli* examined are also much darker than the type

specimens of *P. mahanuwara*. Both species are very similar in body measurements, slightly differing in the MH/BL ratio. *Psalitrus kuscheli* differs from the remaining species bearing an emargination on the posterior margin of the male ventrite 5 by the parameres being only slightly shorter than the median lobe and being not bent in lateral view (in contrast to *P. smetanai* BAMEUL, 1992 and *P. fungifer* BAMEUL, 1993) and by the parameres being much narrower than the median lobe apically (in contrast to *P. saundersi* BALFOUR-BROWNE, 1948).

Externally, this species is nearly indistinguishable from *P. lapita*, described below (see there for comments on differential characters). For this reason, only dissected male specimens were included in the type series.

DESCRIPTION: Body widely elongately oval, widest at anterior 0.3 of elytra, the latter arcuate from base towards apex, highly arcuately convex in lateral view. For body measurements see Table 1.

Coloration: Dorsal surface piceous, anterior margin of clypeus, lateral and posterior margins of pronotum, lateral margins of elytra and elytral suture paler, ferrugineous. Ventral side ferrugineous; antennae, maxillary palpi and tarsi yellowish.

Head: Clypeus deflexed, obliquely vertical, anterior margin straight, lateral portions with large subrectangular projections anterior to antennae; anterior and lateral margins distinctly rimmed; surface with obsolete and very fine, sparse punctation, interstices without microsculpture, shiny. Eyes very small, situated on lateralmost parts of head, separated by 8.5 × of one eye. Punctation of frons similar to that on head, interstices without microsculpture, shiny. Mentum ca. 1.5 × as wide as long, widest between anterolateral corners, subrectangular posteriorly, anterior margin bisinuate, without marginal rim; surface with very fine mesh-like microsculpture, lacking punctures. Labrum concealed under clypeus except of minute anterolateral parts, weakly sclerotized. Length of maxillary palpomeres: 1<3<2<4; palpomere 2 moderately widened distally; apical palpomere thin, spindle-shaped. Labial palpi slightly protruding anteriad of labrum, only sparsely pubescent on mesal surface. Antenna (Fig. 30) with eight antennomeres, scapus long, ca. 3 × as long as pedicel; palpomere 3 ca. 2 × as long as palpomere 3, cupula small; antennomeres 6–8 forming loose, longly pubescent antennal club, antennomeres 6 and 7 subequally long, antennomere 8 slightly longer.

Prothorax: Pronotum arcuately narrowing anteriad, widest at posterior margin, not explanate laterally; anterior margin deeply emarginate medially, posterior margin evenly arcuate, posterolateral corners subrectangular, blunt; lateral margins with fine rim; surface with extremely fine obsolete, sparse punctation, interstices smooth, without microsculpture. Prosternum with median part strongly reduced, subtriangular, not projecting between procoxae posteriad, without median carina, with minute median tooth on anterior margin; reduced and therefore extremely narrow anterior of procoxae. Hypomeron with very vaguely defined antennal grooves.

Mesothorax: Scutellar shield very small, about as long as wide, lacking punctation. Elytron without serial punctures differing from general surface punctation; punctation sparse and fine, arranged in more or less regular longitudinal rows, more irregular and obsolete in scutellar and humeral regions; interstices shiny, without microsculpture. Epipleuron wider than pseudepipleuron throughout, both obliquely vertical, reaching elytral apex. Mesoventrite with highly raised preepisternal elevation (Fig. 31) posteromedially, with well-defined subpentagonal plate slightly overlapped by anteromedian margin of metaventrite posteriorly. Grooves for reception of procoxae absent.

Metathorax: Median portion of metaventrite not elevated, shiny, with dense and coarse shallow setiferous punctation; anteromedian portion projecting to anterior margin of mesocoxae, rounded

anteriorly, lacking marginal rim; lateral portion with fine mesh-like microsculpture. Hind wings absent.

Legs short. Femora flattened, pro- and mesofemora densely punctate ventrally, metafemora densely pubescent on entire ventral surface; meso- and metafemora widened in proximal portion of posterior margin, with tibial groove defined in apical 0.5 only. Tibiae cylindrical, with a few not very long, stout spines on outer margins and near distal end; metatibiae slightly bending laterad in distal 0.5. Tarsi with five tarsomeres about subequal in length, densely pubescent ventrally.

Abdomen: Ventrites without median carina, covered by short and very dense superficial pubescence. Ventrite 5 very slightly emarginate on posterior margin in male, entire in female.

Male genitalia (Fig. 17): Aedeagus 0.41–0.43 mm long. Phallobase 0.5× as long as parameres, slightly narrowing posteriorly. Parameres continuously narrowing from base towards apex, with numerous campanilliform sensilla and two apical setae. Median lobe 0.9 × as long as parameres, slightly narrower than parameres subbasally, distinctly widened to apical 0.25, then continuously narrowing to obtusely pointed apex; corona distinct, situated in apical 0.2. Sternite 9 not examined.

Female genitalia: Not examined.

VARIABILITY: Very variable species. The variability concerns the body measurements (see Table 1), coloration and elytral punctation. The coloration varies from uniformly reddish or ferrugineous to dark brown, dark specimens often with paler stripe along elytral suture. Elytral punctation varies slightly in the distribution of the punctures (the punctural rows are more or less regular) and in their size. In some specimens, the alternate rows consist of slightly larger punctures than the adjacent punctures.

HABITAT: This is a terrestrial species. Most specimens were sifted from leaf litter and rotten wood in rainforests, some samples were sifted from ant nests.

DISTRIBUTION (Fig. 35): Known only from central Grande Terre, 550–1,000 m a.s.l.

ETYMOLOGY: This species is dedicated to a specialist of the Curculionidae and Anthribidae, G. Kuschel (Auckland, New Zealand), who collected the majority of the known specimens of this species.

Psalitrus lapita sp.n.

TYPE LOCALITY: New Caledonia, Grande Terre, North Province, Mt. Panié, 600 m a.s.l.

TYPE MATERIAL: **Holotype** ♂ (NZAC): "NEW CALEDONIA / Mt. Panié, 600m / 28 Oct 1978 / J. C. Watt // sifted leaf / litter 78/263 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand".

Paratypes: NORTH PROVINCE: 1 ♀, 1 ex. (NZAC): "NEW CALEDONIA / Mt. Panié, 600m / 28 Oct 1978 / J. C. Watt // sifted leaf / litter 78/263 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 7 ♂♂, 4 ♀♀, 5 exs. (NZAC) "NEW CALEDONIA / Mt. Panié, 350m / 28 Oct 1978 / J. C. Watt // sifted litter / and rotten wood / 78/262 // N. Z. Arthropod / Collection, NZAC / Private Bag 92170 / AUCKLAND / New Zealand"; 2 ♂♂, 1 ♀, 7 exs. (IAC, KSEM, MNHN, NMP, NZAC; four specimens in pure alcohol deposited in NMP and KSEM): "NEW CALEDONIA Prov. Nord / Mont Panié, 22.iii.2007, NC064 / R. Leschen lgt., leaf litter / 200-500m, 20°49'S/164°49'E". SOUTH PROVINCE: 3 ♂♂, 2 ♀♀, 14 exs. (IAC, KSEM, MNHN, NMP, NZAC; five specimens in pure alcohol deposited in NMP and KSEM): "NEW CALEDONIA prov. Nord / L'Aoupinié, 24.iii.2007, NC077 / R. Leschen, leaf litter berlesate / 800m, 21°11'S/165°17'E".

DIAGNOSIS: General coloration ferrugineous to brown, dark specimens with pale stripe along elytral suture; punctation of elytra sparse but distinct, becoming finer in scutellar and humeral

areas; hind wings absent; abdominal ventrite 5 emarginate in male, entire in female; phallobase ca. 0.9 × as long as parameres, wider than paramere basally; apex of median lobe obtusely pointed.

Resembling *P. loebli* BAMEUL, 1992 by the following characters: long phallobase, subapical position of corona on the median lobe, the shape of the median lobe, the simple parameral apex and the elytra lacking colored spots. It differs from the latter by the median lobe being distinctly widened subapically and being longer than the parameres (the median lobe is slightly shorter than the parameres and not widened subapically in *P. loebli*), and by the paler coloration (general coloration in *P. loebli* black). By the emarginate posterior margin of the male ventrite 5, *P. lapita* resembles *P. smetanai*, *P. fungifer* and *P. saundersi*. From all latter species, *P. lapita* differs in the very different shape of the aedeagus.

Psalitrus lapita can be distinguished from *P. kuscheli* by the aedeagus. In all other characters both species are extremely similar, although *P. lapita* is often uniformly ferrugineous and slightly smaller than *P. kuscheli*, the elytral series are more regular, and the alternate series never has punctures larger than the adjacent ones.

DESCRIPTION: Body widely elongate oval, widest at anterior 0.25 of elytra, the latter arcuate from base towards apex, highly arcuately convex in lateral view. For body measurements see Table 1.

Coloration: Dorsal surface ferrugineous, anterior margin of clypeus, lateral and posterior margins of pronotum and lateral margins of elytra slightly paler. Ventral side ferrugineous; antennae, maxillary palpi and tarsi yellowish.

Head: Clypeus deflexed, obliquely vertical, anterior margin slightly concave, lateral parts with large subrectangular projections anterior to antennae; anterior and lateral margins distinctly rimmed; surface with obsolete and very fine, sparse punctation, interstices without microsculpture, shiny. Eyes very small, situated on lateralmost parts of head, separated by 9 × of one eye diameter. Punctation of frons similar to that on head, interstices without microsculpture, shiny. Mentum ca. 1.5 × as wide as long, widest between anterolateral corners, subrectangular posteriorly, anterior margin bisinuate, without marginal rim; surface with very fine mesh-like microsculpture, with sparsely distributed, fine long setae; punctures indistinct. Labrum concealed under clypeus except of minute anterolateral parts, weakly sclerotized. Length of maxillary palpomeres: 1<3<2<4; palpomere 2 moderately widened distally; palpomere 4 thin, spindle-shaped. Labial palpi slightly protruding anteriad of labrum, only sparsely pubescent on mesal surface. Antenna with eight antennomeres, scapus long, ca. 3.5 × as long as pedicel; palpomere 3 ca. 2 × as long as palpomere 4, cupula small; antennomeres 6–8 forming loose, longly pubescent antennal club, antennomeres 6 and 7 about equally long, antennomere 8 slightly longer.

Prothorax: Pronotum arcuately narrowing anteriad, widest at posterior margin, not explanate laterally; anterior margin deeply emarginate medially, posterior margin continuously arcuate, posterolateral corners roundly subrectangular, lateral margins with fine rim; surface with extremely fine obsolete sparse punctation, interstices smooth, without any trace of microsculpture. Mesal portion of prosternum strongly reduced, subtriangular, only slightly projecting between procoxae, median carina absent. Prosternum reduced and therefore extremely narrow anterior of procoxae. Hypomeron with very vaguely defined antennal grooves.

Mesothorax: Scutellar shield very small, about as long as wide, lacking punctation. Elytron without serial punctures differing from general superficial punctation; punctation sparse and fine, arranged in more or less regular longitudinal rows, more irregular and obsolete in scutellar and humeral regions, coarser sublaterally at midlength of elytron; interstices shiny, without microsculpture. Epipleuron and pseudepipleuron obliquely vertical, reaching elytral apex, epipleuron much wider than pseudepipleuron throughout. Mesoventrite with highly raised

preepisternal elevation posteromedially, bearing well-defined subpentagonal plate not overlapped by anteromedian margin of metaventrite. Grooves for reception of procoxae absent.

Metathorax: Median portion of metaventrite not elevated, shiny, with moderately dense but very fine punctation; anteromedian portion projecting to anterior margin of mesocoxae, rounded anteriorly, lacking marginal rim; lateral portion with fine mesh-like microsculpture. Hind wings absent.

Legs short. Femora flattened, profemora bearing dense punctation ventrally, meso- and metafemora covered by dense pubescence on whole ventral surface, widened in proximal portion of posterior margin, with tibial groove defined in apical 0.5 only. Tibiae cylindrical, bearing a few not very long, stout spines on outer margins and near distal end; metatibiae slightly bending laterad in distal 0.5. Tarsi with five tarsomeres about subequal in length, densely pubescent ventrally.

Abdomen: All abdominal ventrites without median carina, covered by short and very dense pubescence. Ventrite 5 with shallow semicircular emargination in male, entire in female.

Male genitalia (Fig. 18): Aedeagus 0.34–0.37 mm long. Phallobase 0.90 × as long as parameres, widely rounded posteriorly. Parameres continuously narrowing from base towards obtusely rounded apex. Median lobe 1.20 × as long as parameres, slightly narrower than parameres subbasally, widened to apical 0.3, then narrowing to obtusely pointed apex; corona distinct, situated in apical 0.2. Sternite 9 not examined.

Female genitalia: Not examined.

VARIABILITY: The species varies especially in coloration, which is uniformly ferrugineous in paler specimens, but brown with slighty paler elytral suture (i.e. resembling the most frequent coloration of *P. kuscheli*) in darker specimens. The variability of the elytral punctation is (in contrast to the latter species) very low.

HABITAT: This is a terrestrial species. All type specimens were sifted from leaf litter and rotten wood in rainforest. For habitat photograph see FIKÁČEK (2010a).

DISTRIBUTION (Fig. 35): Known only from lower altitudes (350–800 m a.s.l.) of Mt. Panié (northern Grande Terre) and Mt. Aoupinié (central Grande Terre).

ETYMOLOGY: The species is named after the Lapita, an ancient Pacific island culture in New Caledonia.

Psalitrus sp.

MATERIAL EXAMINED:

NORTH PROVINCE: 1 ♂, 1 ♀ (NZAC): “Mt. Panié, 350m / 28 Oct 1978 / J. C. Watt // sifted litter / and rotten wood / 78/262 // N. Z. Arthropod / Collection NZAC / Private Bag 92170 // AUCKLAND / New Zealand”.

SOUTH PROVINCE: 1 ♀ (NZAC): “NEW CALEDONIA / Mt. Rembai, 700m / 20 Oct 1978 / G. Kuschel // sifted litter / and rotten wood / 78/242 // N. Z. Arthropod / Collection NZAC / Private Bag 92170 // AUCKLAND / New Zealand”; 10 ♀♀, 5 exs. (KSEM, NMP, NZAC; 5 specimens in pure alcohol deposited in KSEM and NMP): “NEW CALEDONIA Prov. Sud / trail to Plateau de Dogny, 15.iii. / 2007, R. Leschen & K. Will lgt. / litter / NC039, 870m / 21°37'15"S/165°52'29"E”; 1 ♀ (CNC): “NEW CALEDONIA, N of / La Foa, Col. d’Amieu / 500m, 7. VIII. 1978 / S. & J. Peck, berlese / rainforest litter”; 2 ♀♀ (NZAC): “NEW CALEDONIA / Mt. Do 1020m / 22 Oct 1978 / G. Kuschel // sifted litter / 78/248 // N. Z. Arthropod / Collection NZAC / Private Bag 92170 // AUCKLAND / New Zealand // duplicate / specimens / in alcohol”; 1 ♀ (NZAC): “NEW CALEDONIA / Mt. Do 900m / NW of Bouloupari / 22 Oct 1978 / G. Kuschel // sifted litter / and rotten wood // N. Z. Arthropod / Collection NZAC / Private Bag 92170 // AUCKLAND / New Zealand”.

DISCUSSION: Because of the pattern of the elytral punctation, coloration and size I could not ascribe the above listed material to any of the species described. The series from the trail to the Plateau de Dogny (leg. R.A.B. Leschen & K. Will) seems to consist exclusively of females (only five specimens in pure alcohol were left undissected).

Cercyon LEACH

Key to *Cercyon* of New Caledonia:

1 Preepisternal plate very narrow, ca. 9 × as long as wide; metaventrite with very distinct femoral lines nearly reaching anterolateral corners. Elytra usually pale reddish, sometimes slightly darkened subapically, pronotum brown, head black. Body length: 1.00–1.85 mm…… ..... ***nigriceps***

– Preepisternal elevation slightly wider, ca. 4.0–4.5 × as long as wide; metaventrite without any trace of femoral lines. Elytra, pronotum and head of the same color, elytron usually only with small vague slightly paler humeral spot. Body length: 3.1–4.0 mm..... 2

2 Body length: 3.5–3.7 mm. Preepisternal plate bearing fine punctation on whole surface; widest in anterior 0.4, nearly straightly narrowing posteriad (Fig. 32)..... **sp. "A"**

– Body length: 2.0–2.7 mm. Preepisternal elevation with coarse superficial punctation; widest at about midlength, lateral margins concave in posterior half, projecting into long and very narrow posterior part lacking superficial punctation (Fig. 33). ..... [***inquinatus***]

Cercyon sp. "A"

MATERIAL EXAMINED (New Caledonia):

NORTH PROVINCE: 2 ♀♀ (BMH): Pouébo, NE coast, 10 m, 11.I.1964, light trap, leg. R. Straatman.

DIAGNOSIS: Body 3.50–3.70 mm long, 1.90–2.00 mm wide, dark reddish brown, elytra with obsolete slightly paler humeral spot; elytral series fine, very finely impressed, intervals flat, with extremely fine scar-like punctation; antennal club dark; antennal grooves large but not reaching lateral margins of hypomeron; preepisternal plate (Fig. 32) 4.0–4.5 × as long as wide, widest in anterior 0.4, slightly overlapping anteromesal margin of metaventrite, surface with dense but fine punctation; metaventrite finely punctate on median portion, with wide and weak posteromedian longitudinal depression; femoral lines absent.

HABITAT: Unknown. Most probably terrestrial.

DISCUSSION: At present I am not able to identify this species. Based on the key by HEBAUER (2001) and description by KNISCH (1925), it resembles *C. afflatus* KNISCH, 1925 from the Bismarck Archipelago (New Britain) in many aspects. The comparison with types of the latter and examination of males of the New Caledonian population are, however, needed.

The fact, that the specimens were collected at light near the coast might indicate that this species is not indigenous in New Caledonia. A very high flight vagility is characteristic for many species of *Cercyon* and the long-distance migration of this species from any of the adjacent islands (e.g. New Guinea, Fiji) is therefore quite probable.

Cercyon inquinatus WOLLASTON, 1854

MATERIAL EXAMINED:

A U S T R I A: 3 exs. (NMW): Scheibbs district, Schauboden, Oberpichl, in excrements of chicken, 10.IX.1973 (paratype of *C. austriacus* VOGT, 1974), 6.IX.1974, 14.IX.1993, leg. F. Ressl.

C Z E C H R E P U B L I C: 1 ♀ (MBPC): Dobratice, 30.III.1974, leg. M. Kubáň.

U S A: Illinois, Alexander Co., McClure, 9.V.1976, leg. A. Smetana, 1 ex. (NMP).

DIAGNOSIS: Body 2.00–2.70 long, 1.10–1.50 mm wide, brown to piceous, elytra with very small obsolete slightly paler humeral spot; elytral series fine, finely impressed, intervals flat, with moderately coarse and dense scar-like punctation; antennal club dark; antennal grooves moderately large, not reaching lateral margins of hypomeron; preepisternal plate (Fig. 33) 4.4 × as long as wide, widest at midlength, narrowing posteriad into concave lateral margins and long and narrow posterior tip lacking punctation, superficial punctation coarse and moderately dense; metaventrite without depression, bearing median part with moderately coarse but quite dense punctation especially in anterior half; femoral lines absent. For detailed descriptions and illustration of aedeagus see SMETANA (1979).

HABITAT: Terrestrial species inhabiting various kinds of decaying organic matter (SMETANA 1979).

DISCUSSION: No material from New Caledonia was examined for this study. The only specimen from New Caledonia (Nouméa, leg. T. Savés) was mentioned by FAUVEL (1903). This record was adopted by SMETANA (1979), BAMEUL (1986) and HANSEN (1999). As this species is widely distributed (at present it is known to occur in the Canary Isl., Mediterranean Region, central Europe, Japan, USA, Brazil, Mascarene Islands and Java; HANSEN 1999, HOFMANN & FLECHTNER 2002), its occurrence in New Caledonia seems possible. On the other hand, this species is similar to *Cercyon* sp. "A" (see above) in body shape, coloration, scar-like elytral punctation, and proportions of preepisternal elevation. Therefore, I cannot rule out that the record of *C. inquinatus* from New Caledonia in fact concerns *Cercyon* sp. "A" or even another species.

Cercyon nigriceps (MARSHAM, 1802)

MATERIAL EXAMINED (New Caledonia):

NORTH PROVINCE: 2 exs. (MNHW): road Bonde – Mandjélia Mt., 20°28.6'S 164°15.6'E, niaouli forest, at light, 9.I.2007, leg. M. Wanat & R. Dobosz; 2 exs. (MNHW): Tiendanite, 20°45'S 164°53'E, 50 m a.s.l., at light, 4.II.2004, leg. M. Wanat; 5 exs. (MNHW): Tiendanite, 20°44.8'S 164°52.8'E, 50 m a.s.l., at light, 12.I.2007, leg. M. Wanat & R. Dobosz.

1 ♂ (NMW): Loc. 2001/NC 8.

SOUTH PROVINCE: 1 ex. (MNHW): Farino (roadside camp), 21°39.1'S 165°46.4'E, 300 m a.s.l., at light, leg. M. Wanat & R. Dobosz; 1 ex. (MNHW): Pocquereux, IAC station, 21°44.2'S 165°53.8'E, 30 m a.s.l., at light, 3.I.2007, leg. M. Wanat & R. Dobosz; 3 exs. (BMH): Ouano Beach, near La Foa, 13.IX.1958, leg. C.R. Joyce; 1 ex. (BMH): Bourail, 4.II.1963, leg. J.L. Gressitt, C. Yoshimoto & N. Krauss; 7 exs. (BMH): same label data, light trap, 4.–6.II.1963; 1 ex. (NMP): Paita, 20.III.1999, leg. S. Bílý; 4 exs. (BMH): Nouméa, ex manure, 3.VIII.1940, leg. F.X. Williams.

4 exs. (NMW): Loc. 2009/NC 22a.

DIAGNOSIS: Body 1.0–1.9 mm long, 0.7–1.0 mm wide; elytra reddish, sometimes with slightly darker subapical spot, pronotum brown, head black; elytral series fine, finely impressed; intervals flat, with moderately dense and coarse scar-like setiferous punctation; antennal club reddish; antennal grooves small, not reaching lateral parts of hypomeron; preepisternal plate ca. 9 × as long as wide, bearing a few sparsely distributed punctures; median part of metaventrite with coarse scar-like punctation; femoral lines reaching anterolateral corners of metaventrite. For synonymy, detailed description and illustration of aedeagus see SMETANA (1978).

HABITAT: This species is terrestrial. According to SMETANA (1978) it inhabits various kinds of decaying organic matter. Specimens recently collected in New Caledonia by M.A. Jäch (see above) were found in fresh cow dung.

DISTRIBUTION (Fig. 37): *Cercyon nigriceps* is cosmpolitan (HANSEN 1999). Its origin is unclear. It is here recorded from New Caledonia for the first time.

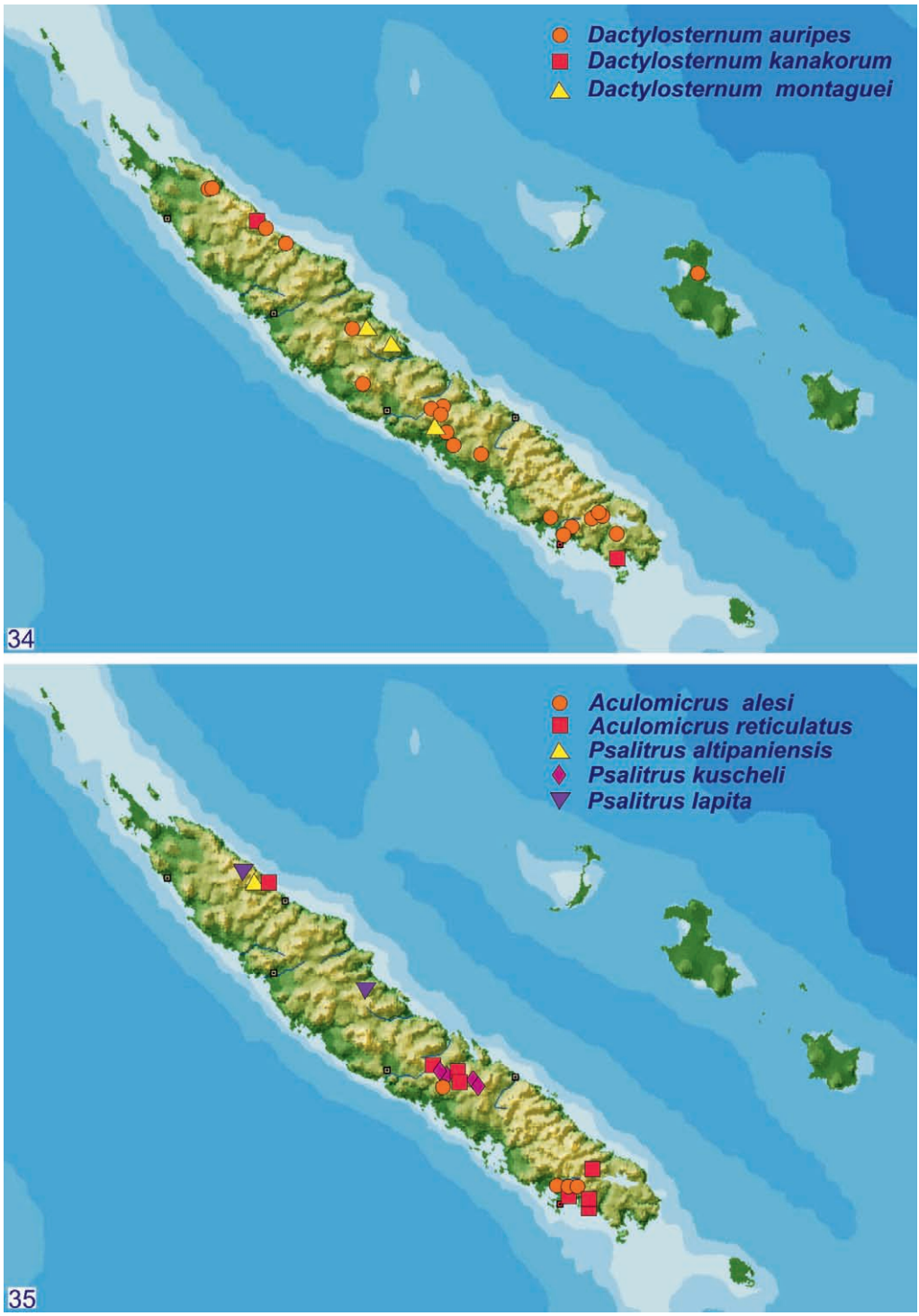
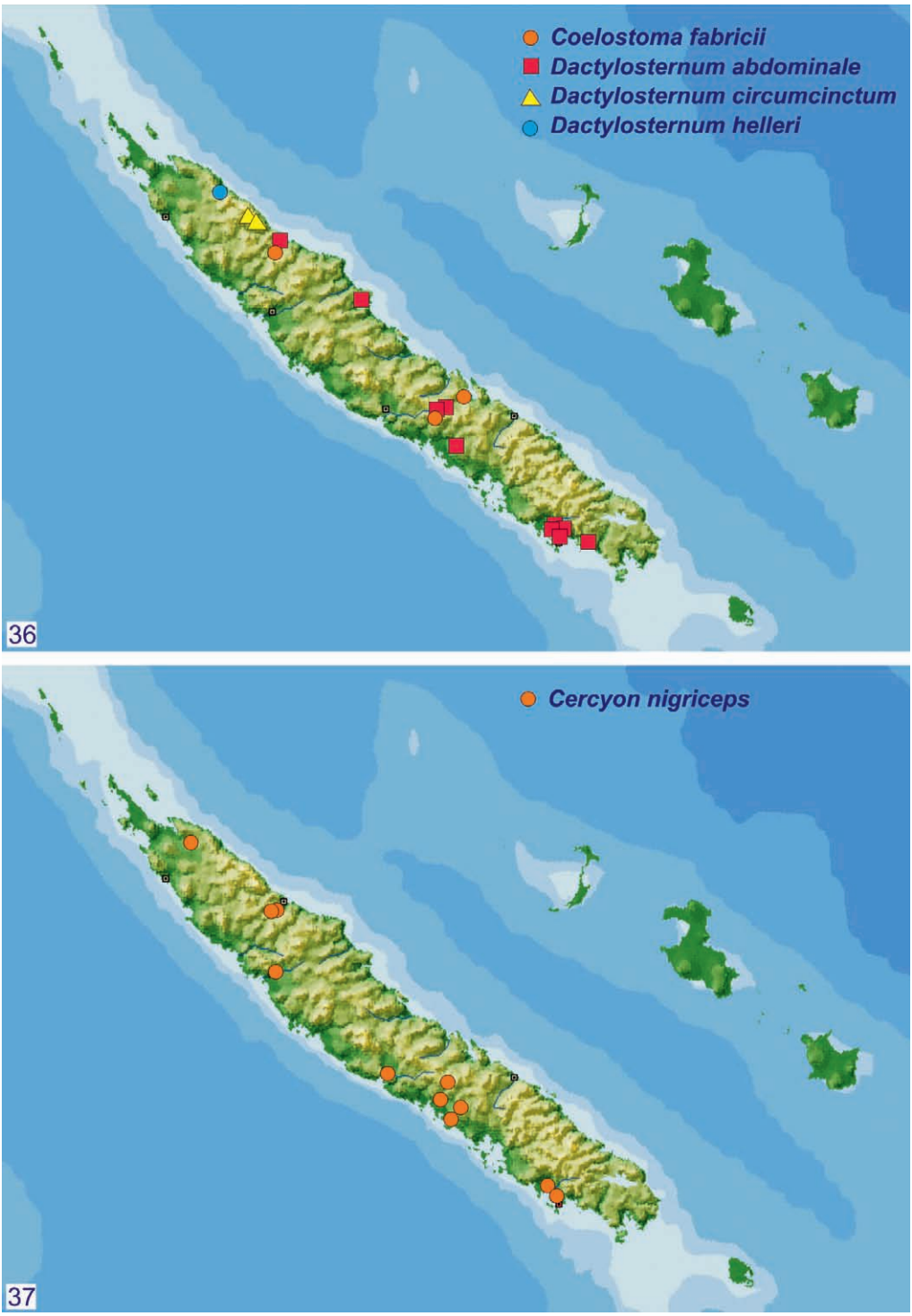


Fig. 34–35: Distribution of the species of 34) *Dactylosternum auripes*, *D. kanakorum*, *D. montaguei*, 35) *Aculomicrus* spp. and *Psalitrus* spp. in New Caledonia.



Figs. 36–37: Distribution of the species of 36) *Coelostoma fabricii*, *Dactylosternum abdominale*, *D. circumcinctum*, *D. helleri* and 37) *Cercyon nigriceps* in New Caledonia.

DISCUSSION

The data on the diversity and distribution of the Sphaeridiinae taxa presented in this paper and by FIKÁČEK (2010b) allows to provide preliminary conclusions concerning the faunal composition and conservation of this group in New Caledonia.

Currently, the Sphaeridiinae of New Caledonia comprise 19 species, of which 16 are presumed to be indigenous and 15 are supposed to be endemic to Grande Terre (*Dactylosternum auripes* also occurs on Lifou Island). Compared with the Sphaeridiinae fauna of some other Pacific islands, three apparent differences can be found in the fauna of New Caledonia: (1) the fauna is relatively poor in species – in contrast, more than 80 species of Sphaeridiinae are recorded from New Guinea (HEBAUER 2001), about 40 species occur in New Zealand (HANSEN 1997, 1999); (2) only a few species are introduced – in contrast, 13 of 16 Hawaiian species are introduced, see HANSEN (1995); (3) some widely distributed Pacific species are obviously absent from New Caledonia (e.g. *Dactylosternum subquadratum* and *Cryptopleurum evansi* BALFOUR-BROWNE, 1945).

The indigenous Sphaeridiinae fauna of New Caledonia is a combination of Oriental, Australian and Pacific faunal elements (Table 2).

Australian elements are represented by the species of the endemic genus *Kanala*, which seems to be closely related to the Australian genera *Notocercyon* BLACKBURN, 1898, *Cenebriophilus* HANSEN, 1990 and *Ceronocyton* HANSEN, 1990 (FIKÁČEK 2010b). Although the Australian fauna of Sphaeridiinae is very diverse (HANSEN 1990), none of the Australian genera or species occur in New Caledonia except *Coelostoma fabricii* which is widely distributed in Southeast Asia and the West Pacific.

Table 2: Biogeography of New Caledonian Sphaeridiinae.

Status		Faunal element	Species
Indigenous	Endemic	Australian	*Kanala bipunctata* *Kanala loebli* *Kanala montaguei* *Kanala punctiventris* *Kanala reticulata*
		Pacific?	*Dactylosternum auripes* *Dactylosternum circumcinctum* *Dactylosternum helleri* *Dactyloternum montaguei* *Dactylosternum kanakorum* *Aculomicrus alesi* *Aculomicrus reticulatus*
		Oriental	*Psalitrus altipaniensis* *Psalitrus kuscheli* *Psalitrus lapita*
	Non-endemic	Oriental-Pacific-Australian	*Coelostoma fabricii*
Introduced		Circumtropical / cosmopolitan	[*Cercyon inquinatus*] *Cercyon nigriceps* *Dactylosternum abdominale*

Oriental elements are represented by the genus *Psalitrus*, which is most diverse in Southeast Asia. The number of *Psalitrus* species known from the Malay Archipelago is low, the genus being virtually missing on some islands (e.g. Sulawesi, see BAMEUL 1993). The New Caledonian *P. kuscheli* and *P. altipaniensis* are very similar to *P. mahanuwara* occurring in Sri Lanka. The

fauna of Sri Lanka was shown to be more similar to the fauna of the islands of southeastern Asia than to the Indian fauna by TURNER et al. (2001), which does, however, not generally apply for water beetles (see e.g. JÄCH 1984).

Pacific elements are represented by the two species assigned here to the genus *Aculomicrus* (see above). In addition, five endemic *Dactylosternum* species do not show any morphological similarity to the species inhabiting other biogeographic regions and are therefore tentatively considered as Pacific elements.

In agreement with results of biogeographic analyses based on various plant and animal taxa (SANMARTÍN & RONQUIST 2004), the Sphaeridiinae fauna of New Caledonia does not show any relation to the fauna of New Zealand, although they otherwise have very close zoogeographic relations (JÄCH & BALKE 2010). On the contrary, TURNER et al. (2001) demonstrate faunal and floral similarities of New Caledonia with adjacent Pacific islands (Samoa, Fiji, Tonga, Vanuatu, Solomon Islands, Moluccas), Australia and New Guinea. In contrast to the fauna of New Caledonia, New Zealand Sphaeridiinae represent an unique assemblage of almost exclusively endemic genera representing early diverging sphaeridiine groups: Rygmodini, Tormissini and a morphologically distinct branch of Coelostomatini (HANSEN 1991, 1997). All these groups are absent from New Caledonia. Based on the discordance of the geological history of the islands and the composition of their current fauna, it seems that the ancient fauna became extinct in New Caledonia (possibly during the series of Paleogene catastrophic geological events), and the island was later re-colonized by a long-distance dispersal followed by speciation (SANMARTÍN & RONQUIST 2004, MURIENNE et al. 2005, BALKE et al. 2007). BALKE et al. (2007) showed the very recent colonization (Miocene, 12 MYA) of west Pacific islands by Colymbetinae (Coleoptera: Dytiscidae), followed by their radiation. An even more recent radiation dating back to the Pliocene-Pleistocene border (2 MYA) was confirmed for the New Caledonian cockroach genus *Angustonicus* GRANDCOLAS (MURIENNE et al. 2005). A similar scenario of recent colonization and radiation seems to be probable also for the Sphaeridiinae, and the New Caledonian fauna of the subfamily seems of much younger origin than the fauna of New Zealand and Australia.

Leaf-litter inhabiting beetles are often quite closely related to their habitats and an analysis of their diversity was shown useful for working out conservation priorities for Staphylinidae and Curculionidae (ANDERSON & ASHE 2000). Of the localities from which the samples were available for this study, the following three show the highest diversity of Sphaeridiinae: Mt. Panié (seven species, two only here), Mt. Koghi (five species, two only here) and Table Unio (six species). All endemic Sphaeridiinae (only except of those supposed to be extinct) occur at least at one of these three localities. According to the limited data available, some taxa seem to be restricted in their distribution to only small areas. The distribution of *Dactylosternum kanakorum* (collected near Prony at the end of the 19th century and on Mt. Panié between 1963–1967) suggests, however, that the original distribution of at least some taxa could be wider, possibly occupying suitable habitats throughout Grande Terre. The recent local distribution of many taxa can therefore result from inadequate sampling or from the recent destruction of suitable habitats (e.g. by man or wild boar) rather than from historical geologic reasons (e.g. orogenesis and peneplanation) which have been hypothesized to influence the distribution of various species of the cockroach genus *Angustonicus* by MURIENNE et al. (2005).

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