Twenty-one new *Polyplectropus* species from New Caledonia (Trichoptera: Polycentropodidae)

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Abstract. Twenty-one new Polycentropodidae (Trichoptera) species are described: *Polyplectropus aberrus, P. dorsospinus, P. nodyg, P. yndog, P. clavus, P. nathalae, P. millei, P. christinae, P. koueus, P. viklundi, P. hovmoelleri, P. aoupiniensis, P. tenerus, P. angustus, P. curvispinus, P. caledonia, P. piroguensis, P. triangulatus, P. pemodensis, P. taensis, and P. papei spp. novae*, representing the first species records of this family from New Caledonia. A key to males of the New Caledonian Polycentropodidae is provided, and distribution maps are presented for all species.


Keywords: Trichoptera, Polycentropodidae, Polyplectropus, new species, New Caledonia.

The Polycentropodidae is a moderately large, cosmopolitan family with about 600 described extant species in 3 subfamilies and 21 genera (Morse 1999). The largest subfamily, Polycentropodinae Ulmer 1903, includes 18 extant genera and the majority of the species diversity in the family. The genus *Polyplectropus* Ulmer 1905 was erected for the Brazilian species *P. flavicornis* Ulmer 1905.

*Polyplectropus* was described as having: Spur formula 3, 4, 4; fore tibial subapical spur reaches end of fore tibiae; female mid leg strongly expanded. Antennae short, stout. Maxillary palp segments 1 and 2 short, segment 3 rather long, segment 4 shorter, segment 5 as long as the sum of segments 1-4. Wings rather long and narrow; all 5 forks present in the forewings, all except fork 2 stalked; hind wings with fork 2 and fork 5 present, both stalked; forewing discoidal cell closed; hind wing discoidal cell closed; in the figure (Ulmer 1905, fig. 132) the broken lines represent hyaline cross veins. Median cell narrow. Mosely & Kimmins (1953: 359) presented a revised description differing from that of Ulmer (1905) and based on 2 species from New Zealand and Australia, in stating that forks 1 and 3 of the forewings are stalked, that the forewing median cell is always narrower than the discoidal cell, and that Cu2 and A1 in the hind wings are not connected by a crossvein. In the important work on Chinese *Polyplectropus* Li & Morse (1997: 300) concluded that the chief difference between *Polycentropus* Curtis 1835 and *Polyplectropus* is that the forewing fork 1 is absent in *Polyplectropus* while present in *Polycentropus*. In their illustration (fig. 3) the forewing fork 1 is present but absent in the hind wing, and we suspect that the hind wing was mixed with forewing. It has been demonstrated that the hind wing fork 1 is lacking in some species, such as *P. manni* Banks 1936 (from Fiji).

The New Caledonian species have forewing fork 1 absent or present, when present it is stalked; in all species forewing forks 2 and 4 are sessile, and forks 3 and 5 are stalked. In the hind wings fork 1 is present or absent, if present it is stalked; and fork 5 is always present, and is usually stalked. The variation in venation present in the New Caledonian species is also found in other species in the Australian Region.

The highest diversity of the family is recorded in the Oriental, Holarctic and Neotropical regions, and the lowest diversity in Africa. The Australian region holds about 50 species within nine genera (Morse 1999). Two of these genera are endemic to Australia, namely:
Adectophylax Neboiss 1982, and Tasmanoplegas Neboiss 1977, both monotypic (Neboiss 1986). The New Caledonian Polycentropodidae fauna was first recorded by Mary (1999) who collected three unidentified species as larvae. No further determinations of the larvae were presented, and, due to lack of descriptions, the correct taxonomic position of these larvae is not clear at this stage.

Material and methods
In late 2001, 2003, 2004, and 2006 staff from the Swedish Museum of Natural History (NRM) performed a collecting expedition to New Caledonia to explore and add to the knowledge of its Trichoptera fauna, among other groups. The collecting methods included Malaise traps set up across forest streams (fig. 128) and light traps in about 150 different localities. The Malaise traps were active 3 to 14 days at each site before emptied and moved to new sites. Additional material was borrowed from Illinois Natural History Survey, Champaign, Illinois, USA (INHS) comprising material collected on light in 1986 by R. Brown & O. Pellmyr; and in Malaise trap in 2000 by M. E. Irwin & D. W. Webb. A single specimen was borrowed from the Canterbury Museum, Christchurch, New Zealand (CMNZ), collected by H. D. Holloway in 1971. The total Polycentropodidae material that was sampled and determined to species included nearly 700 males and 75 females representing 21 species, all which were new to science. The abdomen of the holotypes of the new species were extracted

Figures 1–5
Polyleptropus aberrus n. sp., holotype. 1, head an thorax, dorsal; 2, tentorium, dorsal; 3, head, frontal; 4, head and pronotum, lateral; 5, right wings.
for DNA following the animal tissue protocol of the DNeasy DNA extraction kit (Qiagen, Valencia, CA) and macerated at the same in ProteinaseK at 76 °C for about 2 hours. Additional clearing was performed in some cases in hot KOH for 1 hour before completely cleaned in destilled H₂O. The right wings of the holotype of some species were removed from the body and temporarily mounted in glycerol for drawing. The genitalia were mounted on temporary slides in Euparal for drawing, and transferred back to the alcohol vial afterwards. The holotypes are deposited at the National Museum of Natural History, Paris, France (MNHN). The paratypes are deposited in CMNZ, INHS and the Swedish Museum of Natural History, Stockholm, Sweden (NRM). The terminology on male genitalia follows Nielsen (1957) and Oláh & Johanson (2008). Maps indicating the present known distribution of each species are given.

Descriptions of new species

*Polyplectropus* Ulmer 1905

*Type species* *Polyplectropus flavicornis* Ulmer 1905: 103.

*Polyplectropus aberrus* n. sp.

*Diagnosis.* *P. aberrus* is similar in the genitalia to *P. nodygn. sp.*, *P. yndog n. sp.*, *P. clavus n. sp.*, and *P. dorsospinus n. sp.* in having relatively broad gonopods not strongly widening apically, and with modified megasetae on the inner surfaces. *Polyplectropus aberrus* is unique in the presence of a large area of small, dark megasetae on the inside of the gonopods. The megasetal apices slightly protrude the dorsal gonopod margin in lateral view, a characteristic that separates the species from *P.*

Figures 6–11

*Polyplectropus aberrus* n. sp., holotype. 6, genitalia, lateral; 7, gonopod, mesal; 8, genitalia, dorsal; 9, genitalia, ventral; 10, phallic apparatus, lateral; 11, phallic apparatus, ventral.
dorsospinus n. sp. that has longer megasetae originating from a smaller area inside the gonopods. Also P. clavus n. sp. has small dark megasetae inside the gonopod, but this species is easily distinguished from P. aberrus in lateral view in the more slender and club-shaped gonopods. The lateral shape of the gonopods in P. aberrus n. sp. resembles that of P. nodyg n. sp. from which it is separated by the presence of dark gonocoxal megasetae and larger superior appendage.

♂ head, dorsal view (fig. 1), with cephalic warts forming slender, drop-shaped lobes exceeding posterior head margin; darkly pigmented central part of head carries transversely falcate median warts which fuse centrally. Frontal setal warts bean-shaped (fig. 3). Eye diameter approximately 2/3 the head length (fig. 4). Tentorium (fig. 2) without prominent lateral process on anterior arms, transverse bridge without spine. Antenna with scape approximately as long as first flagellomere, and 2x longer than pedicel. Maxillary palp (fig. 3) segments 1 and 2 equally long; segment 3 about as long as segments 1 and 2 together; segment 4 slightly shorter than segment 3; segment 5 nearly as long as previous segments together.

♂ pronotum (figs 1, 4) with large, sub-rectangular central warts, and small, oval, lateral warts. Mesoscutum (fig. 1) with pair of rounded warts situated very closely to each other, about as large as lateral pronotal warts; sharply triangular mesoscutellum with pair of large, half-spherically shaped warts.

Legs: spurs 3,4,4.

Figures 12–18
Polyplectropus dorsospinus n. sp., holotype. 12, right wings; 13, genitalia, lateral; 14, gonopod, mesal; 15, genitalia, dorsal; 16, genitalia, ventral; 17, phallic apparatus, lateral; 18, phallic apparatus, ventral.
New Caledonian Polycentropodidae

♂ wings (fig. 5): forewing 4.2 mm; forks 2, 3, 4 and 5 present; Dc slender, about one fourth the wing length; forks 2 and 4 about as long as Dc and nearly 3x longer than fork 3; fork 5 slightly longer than 1/3x wing length; A ends in wing margin at some distance before Cu2. Hind wing 3.4 mm; forks 2 and 5 present; Dc absent; fork 2 about 1/4x wing length; fork 5 slightly longer than 1/3x wing length.

♀ genitalia (figs 6-11): Segment IX (fig. 6), in lateral view with anterior margins produced anteroventrad into anteriorly rounded plates located ventrally in genitalia; expanding posterad into triangular process hiding basal part of gonopods. Setae on segment IX confined to posterior margin at mid-height, posterior part of sternite, and posterior sternal process. Superior appendages forming dorsal, setose lobes oriented posterad into triangular process hiding basal part of gonopods. Paraproctal processes long, slightly curving dorsad, smooth, needle-shaped, reaching apex of segment X and gonopods (figs 6, 8). Segment X complex, divided into membranous central lobe and sclerotized lateral branches; dorsal margin of central lobe strongly undulating in lateral view, apex covered by long microtrichia, central part with group of apical setae; central lobe, dorsal view (fig. 8) divided longitudinally into two rounded lobes. Gonopods simple, slightly curving dorsad along their lengths (figs 6, 7); with trichoid setae on lateral surfaces in proximal and distal groups (fig. 6); median surfaces with distal half covered by small, dark, spines (fig. 7); in ventral view (fig. 9) median margins sub-parallel until narrowing at mid-length. Phallus (Figs 10, 11) complex; divided into thick, sclerotized proximal part with prominent venal plate; sclerotized, slender distal part with slightly protruding endotheca; membranous central part running dorsally, covered by long ventral microtrichia.

**Etymology.** Anetinus, from Latin anetus, meaning “to differ”, alluding to the many small, dark megasetae on the inside of the gonopods, representing a unique trait in Polycentropodidae.

**Material.** ♂ holotype: Province Sud, Rivière Bleue, 282 m, stony river, loc 4, 22°05.705'S, 166°38.225'E, Malaise trap, 13-16.XI.2001 [Johanson, Pape, Viklund] (MNHN). Paratypes: New Caledonia, Province Nord, Wemwâdiu stream, 850 m E summit Kôgï Mt., 5 m upstream road, about 200 m S Tiwaka River, 20°49.020'S, 165°14.165'E, 24 m, 6-27.XII.2003, Malaise trap, loc#067 [KA Johanson leg.]; DNA voucher F3); 1 ♀, ditto, except no DNA vouchers; 34 ♂♂, 1 ♀; New Caledonia, Province Sud, Monts des Koghi, ca 800 m S Kôghi Restaurant, 22°18.365'S, 166.50451'E, 440 m, 11-26.XI.2003, Malaise trap, loc#021 [KA Johanson leg.]; 1 ♀.

**Polyplectropus dorsospinus n. sp.** (Figs 12-18, 118)

**Diagnosis.** P. dorsospinus is similar in the genitalia to P. nodug n. sp., P. yndug n. sp., P. clavus n. sp., and P. aberrus n. sp. in having relatively broad gonopods not strongly widening apically, and with modified megasetae on the inner surfaces. It is separated from other Polyplectropus species by the long, gently dorsal curving paraproctal processes, which is right angled proximally and exceeding segment X; the ventral parts of segment IX being produced posterad into finger-like processes; segment X widening apically in dorsal view; nearly straight gonopods each armed with dark megasetae fused into dorsomedial oriented plates.

♂ wings (fig. 12): Forewing 4.2 mm; forks 1, 2, 3, 4 and 5 present; Dc slender, about one fifth the wing length; fork 1 present, half as long as forks 3 and 4; forks 2 and 5 about one third the wing length; A ends in wing margin together with Cu2. Hind wing 3.2 mm; venation as in P. aberrus. 

♀ genitalia (figs 13-16): Segment IX (fig. 12), anterior margins produced anterad into rounded plates in lateral view; located at lower part of genitalia; expanding posterad into finger-like process hiding basal part of gonopods. Setae on segment IX confined to finger-like process and below. Superior appendages forming dorsal setose, posteriorly oriented lobes as long as breadth of gonopods in lateral view. Paraproctal processes long, gently curving dorsad, smooth, needle-shaped, well exceeding apex of segment X and gonopods (Figs 13, 15). Segment X complex, divided into membranous, bifid central lobe and 2 pairs sclerotized lateral branches; central lobe dorsal margin more or less straight in lateral view (fig. 12), apex covered by short microtrichia, central part without setae; in lateral view lateral branches with ventral anterior branches and posteral oriented dorsal branches (fig. 13); in dorsal view widening distally into truncate apices with lateral setae (fig. 15). Gonopods simple, nearly straight in lateral and ventral views (Figs 13, 16); covered by setae; median blackish megasetae fused into pair of median plates oriented posteromedial, rectangular (Figs 13, 14, 16); in ventral view (fig. 16) median margins diverging along their lengths (fig. 16). Phallus (Figs 17, 18), simple, broad, tubular; sclerotized proximal part dominating; membranous part slightly extruding sclerotized part; without microtrichia.

**Etymology.** Dorsospinus, from Latin dorsum, meaning “back”, upper side”, and spineus, meaning “thorny”, alluding to the dark plate medially on the gonopods and formed by fused megasetae.

166°28.460'E, 810 m, 18.XI-4.XII.2003, Malaise trap, loc#030 [KA Johanson] (DNA voucher F5), 1 ♂; ditto, except no DNA vouchers, 3 ♀; New Caledonia, Province Sud, Plateau de Dogny, source of Dogny River, about 900 m SE summit of Plateau de Dogny, 21.61917°S, 165.88072°E, 919 m, 25.XI-16.XII.2003, Malaise trap, loc#046 [KA Johanson] (DNA voucher F6), 1 ♂; New Caledonia, Province Nord, Aoupinié Mt., Réserve spéciale de faune de l'Aoupinié, spring to side stream to Orôpômwarî river, 21°09.032°S, 165°19.179°E, 441 m, 6-27.XII.2003, Malaise trap, loc#065 [KA Johanson] (DNA voucher F8), 1 ♂; ditto, except no DNA vouchers, 8 ♀, 4 ♀; New Caledonia, Province Nord, 50 m upstream bridge on Hiênghê-Trêdo road, 3.9 km S summit of Mt. Trêdo, 2.2 km E Trêdo, 20°43.085°S, 164°49.928°E, 29 m, 7.XII.2003, light trap, loc#071a [KA Johanson] (DNA voucher F9), 1 ♂; New Caledonia, Province Nord, 50 m upstream bridge on Hiênghê-Trêdo road, 3.9 km S summit of Mt. Trêdo, 2.2 km E Trêdo, 20°43.085°S, 164°49.928°E, 29 m, 7.XII.2003, light trap, loc#071a [KA Johanson] (DNA voucher G1), 1 ♂; New Caledonia, Province Nord, Xwê Dachava Stream, Rembai Mt., 21°34.854°S, 165°49.478°E, 317 m, 5.I.2004, Malaise trap, loc#108 [KA Johanson] (DNA voucher G2), 1 ♂; ditto, except no DNA vouchers, 19 ♀; New Caledonia, Province Nord, Aoupinié Mt., Réserve spéciale de faune de l'Aoupinié, source stream to Napwê Naatinga stream, about 100 m E bridge on north-south heading track through park, 21°07.186°S, 165°18.944°E, 149 m, 6-27.XII.2003, Malaise trap, loc#063 [KA Johanson], 1 ♂; New Caledonia, Province Sud, Rivière Ouanéoue, at bride crossing road to Koghi Mountains, about 1.5 km from road RT1 Noumea-Dumbea, 22°10.861°S, 166°29.531°E, 11.XI.2003, light trap, loc 024a [KA Johanson] (DNA voucher G3), 1 ♂; ditto, except no DNA vouchers, 1 ♀; New Caledonia, Province Sud, Xwê Wya River, at Hotel Evasion130, 21°38.318°S, 165°51.582°E, 127 m, 18.I.2004, 01-02h, light trap, loc#121a [KA Johanson] (DNA voucher X1), 1 ♂; ditto, except no DNA vouchers, 3 ♀; ditto, except no DNA vouchers, 3 ♀; New Caledonia, Province Sud, Sarraméa, Xwê Wya River, at Hotel Evasion130, 21°38.318°S, 165°51.582°E, 127 m, 17.I.2004, 20-21h, light trap, loc#121a [KA Johanson] (DNA voucher X2), 1 ♀; ditto, except no DNA voucher, 3 ♀; ditto, except no DNA vouchers, 3 ♀; ditto, except no DNA vouchers, 1 ♀; New Caledonia, Province Sud, Plateau de Dogny, source of Dogny River, about 1.2 km SE summit of Plateau, about 200 m from waterfall, 21.62067°S, 165.88290°E, 915 m, 25.XI-16.XII.2003, Malaise trap, loc#048 [KA Johanson] (DNA voucher X9), 1 ♂; ditto, except no DNA vouchers, 9 ♀; New Caledonia, Province Sud, Plateau de Dogny, source of Dogny River, about 900 m SE summit of Plateau de Dogny, 21.61917°S, 165.88072°E, 919 m, 25.XI-16.XII.2003, Malaise trap, loc#046 [KA Johanson] (DNA voucher Y4), 1 ♂; ditto, except no DNA vouchers, 4 ♀; Provincial Sud, Sarraméa River, 2.6 km SW summit Mt. Dô Nyi, below waterfall, 21°37.389°S, 165°51.083°E, 122 m, loc 143a (12-2001), Malaise trap 18-21.XI.2001 [KA Johanson, T Pape, B. Bivikland] (DNA voucher Y6), 1 ♂; ditto, except no DNA vouchers, 17 ♀, 1 ♀; New Caledonia, Province Sud, Monts des Koghis, ca 300 m S Koghi Restaurant, 22.18228°S, 166.50393°E, 447 m, 2-16.XII.2003, Malaise trap, loc#02a [KA Johanson] (DNA voucher Y1), 1 ♀; New Caledonia, Province Sud, Mt. Dzumac, source stream of Ouine River, downstream cross point to mountain track, 22°01.997°S, 166°28.486°E, 795 m, over about 30 m waterfall, 16.XI-4.XII.2003, Malaise trap, loc#031 [KA Johanson] (DNA voucher X6), 1 ♂; ditto, except no DNA vouchers, 3 ♀; New Caledonia, Province Sud, Sarraméa, Xwê Wya River, at Hotel Evasion 130, 21°38.318°S, 165°51.582°E, 127 m, 17.I.2004, 18-19h, light trap, loc#121a [KA Johanson] (DNA voucher Y5), 1 ♂; ditto, except no DNA voucher, 1 ♀; New Caledonia, Province Nord, 30 m upstream bridge on Hiênghê-Trêdo road, 3.9 km S summit of Mt. Trêdo, 2.4 km E Trêdo, 20°43.099°S, 164°50.108°E, 27 m, 7.XII.2003, Malaise trap, loc#069 [KA Johanson] (DNA voucher X3), 1 ♂; ditto, except no DNA vouchers, 112 ♀, 20 ♀; New Caledonia, Province Sud, Plateau de Dogny, source of Dogny River, about 1.4 km SE summit of Plateau, about 20 m upstream waterfall, 21.62054°S, 165.88503°E, 912 m, 25.XI-16.XII.2003, Malaise trap, loc#049 [KA Johanson] (DNA voucher X4), 1 ♂; ditto, except no DNA voucher, 1 ♀; New Caledonia, Province Sud, Mt. Panié, 30 m, near stream at base, 30.X.1986, UV trap [R. Brown & O. Pellmyr] (INHS, alcohol), 1 ♂.

**Polyleptropus nodyg n. sp.**

(Figs 19–24, 117)

**Diagnosis.** *P. nodyg* is similar in the genitalia to *P. dorsospinus n*. sp., *P. yndog n*. sp., *P. clavus n*. sp., and *P. aberrus n*. sp., in having relatively broad gonopods not strongly widening apically, and with modified megasetae on the inner surfaces. It is separated from other *Polyleptropus* species by the combination of having long, strongly anterad produced and somewhat pointing lateral plates of sternite IX, and short, nearly straight paraproctal processes not exceeding gonopod apices posteriorly.

♂ Head and thorax as in *P. aberrus*.

Wings (fig. 19): Forewing 3.8 mm; venation as in *P. aberrus*, except forewing fork 3 slightly shorter, less than half length of fork 2. Hind wing 2.8 mm; venation as in *P. aberrus*. 

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♂ genitalia (Figs 20-24): Segment IX, anterior margins strongly produced anterad into narrowly hyperboloid plates (fig. 20); located at lower-most part of genitalia; expanding posterad into finger-like process hiding basal part of gonopods. Setae on segment IX confined band along posterior margin, finger-like process and below. Superior appendages forming pair of short, broad, setose, posteriorly oriented lobes with undulating posterior margins. Paraproctal processes slightly curving dorsad, smooth, needle-shaped, not exceeding apex of segment X and gonopods (fig. 20). Segment X complex, divided into membranous central lobe and 3 pairs sclerotized lateral branches; central lobe longer than lateral branches, more or less club-shaped in lateral view (fig. 20); rhomboid in dorsal view (fig. 22), covered by long microtrichia, with setae present at central part; lateral branches forming 1 pair dorsal branches and 2 pairs more or less fused pairs of ventral branches (fig. 20); dorsal branches finger-like, oriented posterolaterad, with 3 very long setae (fig. 20, 22); ventral branches oriented posteroventrad, short, broad, with apical setae (fig. 20). Gonopods simple, nearly straight in lateral and ventral views (figs 20, 23), diverging along their lengths (fig. 23); covered by setae; median megasetae short, thick, nearly drop-shaped, present on small, dorsoapical area (fig. 20, 21, 23); median margins of gonopod nearly fusing basally (fig. 23), concave. Phallus (fig. 24) simple, broad, tubular; sclerotized proximal part dominating; membranous part slightly extruding sclerotized part; without microtrichia.

Etymology. *Nodyg*, an anagram of Dogny, alluding to the type locality of the species.


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*Figures 19–24*

*Polyplectropus nodyg* n. sp., holotype. 19, right wings; 20, genitalia, lateral; 21, gonopod, mesal; 22, genitalia, dorsal; 23, genitalia, ventral; 24, phallic apparatus, lateral.
source of Dogny River, about 500 m SE summit of Plateau de Dogny, 21°36.841’S, 165°52.747’E, 942 m, 25.XI-16.XII.2003, Malaise trap, loc#045 [KA Johanson], 6 ♂♂ (DNA voucher I1); New Caledonia, Province Sud, Plateau de Dogny, source of Dogny River, about 500 m SE summit of Plateau de Dogny, 21°36.841’S, 165°52.747’E, 942 m, 25.XI-16.XII.2003, Malaise trap, loc#045 [KA Johanson], 10 ♂♂.

*Polyplectropus yndog* n. sp.  
(Figs 25–28, 119)

**Diagnosis.** *P. yndog* is similar in the genitalia to *P. dorsospinus* n. sp., *P. nodog* n. sp., *P. clavus* n. sp., and *P. aberrus* n. sp. in having relatively broad gonopods, especially in ventral view, and with modified megasetae on the inner surfaces. It is separated from other *Polyplectropus* species by the combination of having long, strongly anterad produced and widely rounded lateral plates of sternite IX; long, nearly straight paraaproctal processes being about 2 times longer than gonopods and exceeding gonopod apices posteriorly; and gonopods narrowing apically in lateral view and strongly curving dorsad; apices of gonopods partly hidden by posterior process of sternite IX.

♂: Head and thorax as in *P. aberrus.*

Wings: Forewing 4.1 mm; hind wing 3.2 mm; venation as in *P. nodog.*

♀ genitalia (Figs 25–28): Sternite IX strongly produced anterad into wide ellipsoid plates (fig. 25); anterior apices located at mid-height of genitalia; expanding posterad into long, tapering process hiding basal-most of gonopods and part of gonopod apices in lateral view (fig. 25). Setae on segment IX in wide band from superior appendage, along posterior margin, on posterior process and below. Superior appendages forming pair of relatively short, broad, setose, posteriorly oriented lobes with undulating posterior margins. Paraproctal processes straight, oriented posterad along their lengths, smooth, needle-shaped, well exceeding apex of segment X and gonopods (fig. 25); about 2 times longer than gonopods; in dorsal view (fig. 26) slightly curving mediad toward apices. Segment X divided into membranous central lobe and 1 pair sclerotized lateral branches; central lobe slightly incised apically (fig. 26), covered by long microtrichia, without setae; lateral branches oriented posterolateral, with irregular margins (fig. 26). Gonopods simple, curving dorsad along their lengths (fig. 25); in ventral view forming pair of oval, basally fused lobes diverging along their lengths (fig. 27); densely covered by setae; median megasetae short, thick, nearly drop-shaped, present in narrow band along apices and posteromedian margins (fig. 25, 27). Phallus (fig. 28) simple, broad, tubular; sclerotized proximal part dominating; membranous part slightly extruding sclerotized part; without microtrichia.

**Etymology.** *Yndog,* an anagram of Dogny, alluding to the type locality of the species.


Paratypes: New Caledonia, Province Sud, Plateau de Dogny,

Figures 25–28
*Polyplectropus yndog* n. sp., holotype. 25, genitalia, lateral; 26, genitalia, dorsal; 27, genitalia, ventral; 28, phallic apparatus, lateral.

Polyplectropus clavus n. sp.  
(Figs 29–34, 119)

**Diagnosis.** *P. clavus* is similar in the genitalia to *P. dorsospinus n. sp.*, *P. nodog n. sp.*, *P. yndog n. sp.*, and *P. aberrus n. sp.* in having relatively broad gonopods, especially in ventral view, and with modified megasetae on the inner surfaces. It is separated from other *Polyplectropus* species by the combination of having long, strongly anteroventrad produced and narrowing lateral plates of sternite IX; sternite IX broadly produced posterad; long, straight paraproctal processes being slightly longer than gonopods, and shortly exceeding gonopod apices posteriorly; each gonopod apex strongly curving dorsad; and tergite X nearly as long as gonopods.

♂: Head and thorax as in *P. aberrus.*

♀ wings (fig. 29): Forewing 3.8 mm; hind wing 3.2 mm; venation as in *P. dorsospinus n. sp.*, except with longer fork 1 and shorter fork 3 in the forewings.

♀ genitalia (Figs 30-34): Sternite IX strongly produced anterad into wide hyperboloid plates (fig. 30); anterior apices located at lower part of genitalia; expanding posterad into long, very broad, tapering process hiding basal-most of gonopods and located dorsally of gonopods (fig. 30). Setae on segment IX on posterior process and below. Superior appendages in lateral view (fig. 30) relatively prominent, very broad, setose, oriented posteriorly, ellipsoid, with undulating posterior margins. Paraproctal processes straight, oriented posterad along their lengths, smooth, needle-shaped, slightly exceeding apex of segment X and gonopods (fig. 30); slightly longer than

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Figures 29–34
*Polyplectropus clavus n. sp.*, holotype. 29, right wings; 30, genitalia, lateral; 31, genitalia, dorsal; 32, genitalia, ventral; 33, phallic apparatus, lateral; 34, phallic apparatus, ventral.
gonopods; in dorsal view (fig. 31) slightly curving laterad along their lengths. Segment X divided into prominent membranous central lobe and 2 pairs sclerotized lateral branches; central lobe deeply incised apically (fig. 31), covered by long microtrichia, with setae at central part; lateral branches with anterior pair oriented posterolateral, with slightly irregular margins (fig. 30, 31); posterior pair oriented posterior, slightly club-shaped apically, with numerous setae confined to apical margin (fig. 30, 31). Gonopods simple, curving dorsad along their lengths (fig. 30); in ventral view forming pair of bent rectangular lobes, being basally fused near posterior margin of sternite IX (fig. 32); proximally diverging before running parallel from mid-length (fig. 32); densely covered by setae; median megasetae short, thick, nearly pointed, present in narrow band at apices (fig. 32). Phallus (fig. 33, 34) simple, broad, tubular; sclerotized proximal part dominating; membranous part slightly extruding sclerotized part; without microtrichia; posterovertrally slightly produced posterovertral (fig. 33, 34).

**Etymology.** *Clavus*, (Latin) club-shaped, alluding to the shape of the gonopods in lateral view.

**Material.** Holotype ♂: New Caledonia, Province Sud, Réserve spéciale de fauna de la haute Yaté, along road on southern part of Marais de la Rivière Blanche, stream draining to Marais de la Rivière Blanche, 1.35 km S Pont Pérignon, 22°08.496’S, 166°42.152’E, 180 m, 6.XI-16.XI.2003, Malaise trap, loc#009a [KA Johanson] (DNA voucher H5).

Paratype: New Caledonia, Province Sud, Monts Kwa Ne Mwa, on road between Noumea and Yaté, 2.0 km E Pic Mouirange, 22°12.356’S, 166°40.798’E, 220 m, 7-16.XI.2003, Malaise trap, loc#014a [KA Johanson] (DNA voucher H2), 1 ♂.

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**Figures 35–39**

*Polyplectropus nathalae n. sp.*, holotype. 35, right wings; 36, genitalia, lateral; 37, genitalia, dorsal; 38, genitalia, ventral; 39, phallic apparatus, lateral.
**Polyplectropus nathalae** n. sp.  
(Figs 35–39, 120)

**Diagnosis.** *P. nathalae* is similar in the genitalia to *P. millei* n. sp., *P. christinae* n. sp., and *P. koueus* n. sp. in the shape of the gonopods having strongly dorsad produced apices with modified megasetae on median surfaces, and being longer than sternite IX in ventral view. *Polyplectropus nathalae* n. sp. is separated from the other similar species in the presence of a long posterad-oriented process on the posterior marginal part of sternite IX being narrower than the narrowest part of gonopods in lateral view. In *P. koueus* n. sp., the processes are as wide as the narrowest part of the gonopods, and the processes are absent in *P. millei* n. sp. and *P. christinae* n. sp.

♂ head and thorax as in *P. aberrus*.

♂ wings (fig. 35): Forewing 4.5 mm; hind wing 3.7 mm; venation as in *P. dorsospinus* n. sp., except with longer fork 1 and shorter fork 3 in the forewings, and presence of fork 1 in the hind wings.

♀ genitalia (Figs 36–39): Sternite IX strongly produced anterad into relatively narrow hyperboloid plates (fig. 36); anterior apices located at lower part of genitalia; expanding posterad into long, finger-like, slightly tapering processes above basal part of gonopods (fig. 36). Setae on segment IX from apex of posterior finger-like processes into subapical, ventral band; setae also present in small group at basis of paraproctal processes (fig. 36, 38). Superior appendages in lateral view (fig. 36) short, very broad, setose, oriented posterodorsad, rectangular with undulating posterodorsal margins. Paraproctal processes weakly curving dorsad in lateral view, smooth, needle-shaped, slightly exceeding apex of gonopods (fig. 36); slightly shorter than gonopods; in dorsal view (fig. 37) curving mesad from mid-lengths, nearly meeting apically. Segment X half as long as gonopods (fig. 36); dividing into prominent membranous central ridge and 1 pair sclerotized lateral branches; central ridge pointing apically (fig. 37), with setae and few long microtrichia along lateral margins, setae absent from central part; lateral branches oriented posteroverentral, with slightly smooth margins; setae in large area along central lateral margins (fig. 36, 37). Gonopods simple, strongly widening dorsad into club-shaped apices (fig. 36); apices slightly longer than width of basal part of gonopods in lateral view (fig. 36); in ventral view forming pair of long, nearly parallel-sided lobes, being basally fused anteriorly of posterior margin of sternite IX (fig. 38); slightly diverging along their lengths (fig. 38); densely covered by setae; median megasetae short, thick, drop-shaped, present in group at apical surfaces (fig. 36) also seen in ventral view (fig. 38). Phallus (fig. 39) simple, broad, tubular; sclerotized proximal part dominating; membranous part dorsally slightly extruding sclerotized part; without microtrichia; posteroverventrally slightly produced posteroverentral (fig. 39).

**Etymology.** *Nathalae*, named after Dr. Nathalie Mary (ETHYCO, Cornelle del Vercol, France) for her valuable work on New Caledonian caddisflies.


**Polyplectropus millei** n. sp.  
(Figs 40–45, 121)

**Diagnosis.** *P. millei* n. sp. is similar in the genitalia to *P. nathalae* n. sp., *P. christinae* n. sp., and *P. koueus* n. sp. in the shape of the gonopods having strongly dorsad produced apices with modified megasetae on median surfaces, and being longer than sternite IX in ventral view. *Polyplectropus millei* n. sp. is separated from the other similar species in the absence of posteral-oriented processes on sternite IX, instead the posterior margins are produced into wide vertical plates. This process is also absent in the closely related *P. christinae* n. sp., from which *P. millei* n. sp. is separated by the presence of a convex posterior margin of the gonopods, the smaller ventral pair of branches on segment X, the weakly curving paraproctal processes, and in the phallus by the slightly shorter and thicker ventrodistal process.

♂ head and thorax as in *P. aberrus*.

♂ wings (fig. 40): Forewing 3.8 mm; hind wing 3.1 mm; venation as in *P. aberrus* n. sp., except in forewings with fork 2 sessile on Dc and shorter fork 4, and in the hind wings with longer fork 2.

♀ genitalia (Figs 40–45): Superior appendages in lateral view (fig. 41) short, broad, setose, oriented posterolateral, rounded with smooth posterodorsal margins. Paraproctal processes slightly sigmoid in lateral view (fig. 41), smooth, needle-shaped, slightly exceeding apex of gonopods (fig. 41); slightly shorter than gonopods; in dorsal view (fig. 42) slightly curving mesad along their lengths, nearly meeting apically. Sternite IX strongly produced anterad into broadly ellipsoid plates (fig. 41); located at lower part of genitalia; posterior margins produced into triangular vertical plates (fig. 41); setae present from vertical plate and below in marginal band (fig. 41, 43). Segment X slightly longer than half gonopod lengths (fig. 41); dividing into prominent membranous central ridge and 2 pairs sclerotized lateral branches; central ridge pointing apically (fig. 42), with central setae and few short microtrichia along
lateral margins, setae absent from lateral parts; dorsolateral branches oriented posterolaterad with apical setae (fig. 41, 42); ventrolateral branches oriented posterad, with very long and robust apical setae (fig. 41, 42). Gonopods strongly widening dorsad into club-shaped apices (fig. 41); club-shaped apices more than 2 times longer than width of basal part of gonopods in lateral view (fig. 41). In ventral view gonopods forming pair of long lobes, being basally fused anteriorly of posterior margin of sternite IX (fig. 43); with median, anterad curving projection on mesal margin (fig. 43); slightly directed laterad along their lengths (fig. 43); densely covered by setae; median megasetae short, thick, drop-shaped, present in group at mesal projection (fig. 43). Phallus (fig. 44, 45) simple, broad, tubular; sclerotized proximal part dominating; membranous part not seen; without microtrichia; posteroventrally strongly produced posteroventrally (fig. 44, 45).

**Etymology.** *Millei,* named after Mr. Christian Mille (address) in recognition of his great support during the fieldwork on New Caledonia.


**Polyplectropus christinae n. sp.**
(Figs 46–51, 121)

**Diagnosis.** *P. christinae* n. sp. is similar in the genitalia to *P. nathalae* n. sp., *P. millei* n. sp., and *P. koueus* n. sp. in the shape of the gonopods having strongly dorsad produced apices with modified megasetae on median surfaces, and being longer than sternite IX in ventral view. *Polyplectropus christinae* n. sp. is separated from the other similar species in the absence of posterad-oriented processes on sternite IX, instead the posterior margins are slightly produced into wide vertical plates. This process is also absent in the closely related *P. millei* n. sp., from which *P. christinae* n. sp. is separated by the presence of a concave posterior margin of the gonopods, the much larger ventral pair of branches on segment X, the more strongly curving paraproctal processes, and in the phallic apparatus by the slightly longer, in lateral view slightly sigmoid, and more sigmoidal phallic apparatus.

Figures 40–45
*Polyplectropus millei* n. sp., holotype. 40, right wings; 41, genitalia, lateral; 42, genitalia, dorsal; 43, genitalia, ventral; 44, phallic apparatus, lateral; 45, phallic apparatus, ventral.
slender ventrodistant process.

♂ head and thorax as in *P. aberrus*.

♂ wings (fig. 46): as in *P. millei n. sp.*, except fork 2 in forewings with short stalk and fork 2 in hind wings slightly shorter. Forewing length 4.2 mm, hind wing length 3.6 mm.

♂ genitalia (Figs 47–51): Sternite IX strongly producing anterad into broadly ellipsoid plates (fig. 47); located at lower part of genitalia; posterior margins produced into broad vertical plates (fig. 47); setae present along posterior margins in marginal band (fig. 47, 49). Superior appendages in lateral view (fig. 47) short, broad, setose, oriented posterolaterad, posterior part expanded dorsad and ventrad; smooth, nearly straight posterior margins. Paraproctal processes upcurving along their lengths in lateral view (fig. 47), smooth, needle-shaped, reaching apices of gonopods (fig. 47); shorter than gonopods; in dorsal view (fig. 48) strongly curving mesad from mid-lengths, nearly meeting apically. Segment X slightly longer than half gonopod lengths (fig. 47); dividing into prominent membranous central ridge and 2 pairs sclerotized lateral branches; central ridge pointing apically in dorsal view (fig. 48), with central setae and covered by short microtrichia. Dorsolateral branches oriented posterolaterad, apices with many short and 2 pairs long, strong setae (fig. 47, 48); ventrolateral branches oriented slightly more posteralad, with apical setae (fig. 47, 48). Gonopods strongly widening dorsad into club-shaped apices (fig. 47); apices nearly as long as width of basal part of gonopods in lateral view (fig. 47). In ventral view gonopods forming pair of long lobes, being basally fused anteriorly of posterior margin of sternite IX (fig. 49); with median, anterad curving projection distally above

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Figures 46–51
*Polyplectropus christinae n. sp.*, holotype. 46, right wings; 47, genitalia, lateral; 48, genitalia, dorsal; 49, genitalia, ventral; 50, phallic apparatus, lateral; 51, phallic apparatus, ventral.
mesal margin (fig. 49); slightly directed laterad along their lengths (fig. 49); densely covered by setae; median megasetae short, thick, drop-shaped, present in group at projection (fig. 49). Phallic apparatus (fig. 50, 51) simple, broad, tubular; sclerotized proximal part dominating; membranous part slightly extruding; without microtrichia; strongly produced into slightly sigmoid posteroventrally oriented projection (fig. 50, 51).

**Etymology.** *Christinae*, named after Dr. Christine Pöllabauer in recognition of her great support during the fieldwork on New Caledonia.


Paratypes: same data as holotype, except no DNA vouchers, 3 ♂♂.

**Polyplectropus koueus** n. sp. (Figs 52–55, 121)

**Diagnosis.** *P. koueus* n. sp. is similar in the genitalia to *P. nathalae* n. sp., *P. millei* n. sp., and *P. christinae* n. sp. in the shape of the gonopods having strongly dorsal produced apices with modified megasetae on median surfaces, and being longer than sternite IX in ventral view. *Polyplectropus koueus* n. sp. is separated from the other similar species in the presence of a prominent posterad-oriented processes on sternite IX. This process is absent in *P. millei* n. sp. and *P. christinae* n. sp. *Polyplectropus koueus* n. sp. is easily distinguished from *P. nathalae* n. sp. by the shorter sternite IX; the longer dorsoad-oriented projection of the gonopods; the presence of posterad produced apex of gonopods; and the apically strongly widening tergite X in dorsal view.

♂ head and thorax as in *P. aberrus*.

♂ wings not examined.

♂ genitalia (Figs 52–55): Sternite IX slightly producing anteriorly into widely ellipsoid plates (fig. 52); anterior apex located below mid-height of genitalia; posterior margins strongly produced into broad, finger-like processes (fig. 52); setae present on posterior processes and immediately anteriorly of posterior process, and in ventral group (fig. 52, 55). Superior appendages in lateral view (fig. 52) long, setae restricted to apices, oriented posterodorsad; about as long and broad as dorsal projection of gonopods. Paraproctal processes smooth, needle-shaped, exceeding apices of gonopods (fig. 52); about as long as...
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gonopods; in dorsal view (fig. 54) strongly curving mesad along their lengths before crossing apically. Segment X nearly as long as gonopods (fig. 52); dividing into small membranous central ridge and 1 pair sclerotized lateral branches; central ridge fusing apically with lateral branches (fig. 54), with central setae and covered by short microtrichia. Lateral branches long, thick, oriented posterad, apices covered by setae (fig. 52, 54). Gonopods dividing into dorsal and posterior branches (fig. 52); dorsal branches about parallel-sided with rounded apices; posterior margin undulating; posterior branches about as broad as dorsal branches, with undulating dorsal and posterior margins; mesal surfaces of dorsal branches covered by small, finger-like lobes associated with setae (fig. 53, 55). In ventral view gonopods forming pair of long lobes being basally fused anteriorly of posterior margin of sternite IX (fig. 55) and with apex of dorsal branches visible between median margins (fig. 55); slightly directed laterad along their lengths (fig. 55); setae scattered on surfaces; median megasetae absent. Phallic apparatus not examined.

Etymology. **Koueous**, named after the type locality, Koue River.


**Polyplectropus viklundi n. sp.**
(Figs 56–61, 122)

**Diagnosis.** *P. viklundi n. sp.* is separated from all other New Caledonian *Polyplectropus* species in the presence of large dorsal branch of gonopods, the ventrad looping paraproctal process,
and the large membranous part of tergite X forming a narrowly ellipsoidal plate above the rest of tergite X and the basal parts of the superior appendages.

♂ head and thorax as in *P. aberrus*.

♂ wings (fig. 56): venation as in *P. dorsospinus*, except with sessile fork 2 and shorter fork 3 in the forewings, and presence of fork 1 in the hind wings. Forewing length 5.2 mm, hind wing length 4.2 mm.

♂ genitalia (Figs 56–61): Sternite IX apparently separated from rest of genitalia, forming rhomboid vertical plates with straight ventral and posterodorsal margins and widely ellipsoidal anterodorsal margins (fig. 57), not produced posterad; in dorsal view narrowly oval (fig. 58); setae present in band along posterior margin (fig. 57). Superior appendages small, produced laterad before curving posterad (fig. 58), with strongly setose margins including 3 long, stout posteromarginal setae (fig. 57). Mesoventral branch of superior appendages narrowest at mid-length in lateral view (fig. 57); apex slightly bifid and strongly sclerotized (fig. 57, 58); in dorsal view (fig. 58) fusing apically. Paraproctal processes proximally wide, with three marginal setae, producing into distal smooth, needle-shaped, slightly exceeding branches (fig. 57); about as long as gonopods; strongly looping ventrad in lateral view (fig. 57); in dorsal view (fig. 58) curving mesad from mid-length before nearly meeting apically. Segment X longer than gonopods (fig. 57); dividing into a very large membranous dorsal plate, 1 pair of lateral branches, and 1 pair of ventral branches (fig. 57). Membranous dorsal plate, in lateral view (fig. 57), anteriorly broad, tapering apically from mid-length; with microtrichia mostly on surface of ventral half; in dorsal view (fig. 58) forming narrowly ellipsoidal plate with setae from distal half along lateral margins (fig. 58). Lateral branches absent (fig. 57). Gonopods without megasetae, dividing into large setose dorsal and posterior branches (fig. 57), and 1 pair of small smooth mesal branches; dorsal branches orienting posterodorsad, with about parallel-sided margins before narrowing towards rounded apices (fig. 57), apices truncate in dorsal view (fig. 58); ventral branches oriented posterad, apically truncate; in ventral view (fig. 59) very broad, rounded posteriorly; posterodorsad directed mesal branches pointing apicad in lateral and ventral views (fig. 57, 59), inner margins parallel-sided in ventral view (fig. 58). In ventral view gonopods fuse basally anteriorly of posterior margin of sternite IX (fig. 59). Phallic apparatus longer than rest of genitalia; divided into broad, slightly curving proximal two-thirds, and narrow, needle-shaped, ventrad curving distal

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Figures 62–66

*Polyplectropus hovmoelleri* n. sp., holotype. 62, right wings; 63, genitalia, lateral; 64, genitalia, dorsal; 65, genitalia, ventral; 66, phallic apparatus, lateral.
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one-third (fig. 60, 61); basis broad, oval in ventral view (fig. 61); membranous area absent.

**Etymology.** *Viklundii*, named after Mr. Bert Viklund, one of the collectors of the species.

**Material.** Holotype ♂: Province Sud, Sarramea, stream Xwé Wya, ca 0.9 km NE Hotel Evasion 130, 21°38.081'S, 166°51.735'E, loc 131a (10-2001), light trap 19.XI.2001 [KA Johanson, T Pape, B Viklund] (DNA voucher C2).

Paratype: same data as holotype, except with no DNA voucher, 1 ♀.

**Polyplectropus hovmoelleri n. sp.**

*(Figs 62–66, 122)*

**Diagnosis.** *Polyplectropus hovmoelleri* n. sp. is separated from all other New Caledonian *Polyplectropus* species in having a nearly circular superior appendage with broad, strictly ventrad oriented mesoventral branches with rectangular apex; a small, circular tergum X in lateral view; a pair of thick, dorsad-looping paraproctal processes; and gonopods that widens strongly distally in ventral view. The species resembles *P. aoupiniensis* n. sp. in the shape of the gonopods in lateral view, but is easily separated in that the mesal margin of the gonopods in *P. aoupiniensis* n. sp. are not sharply produced mesad.

♂ head and thorax as in *P. aberrus*.

♂ wings (fig. 62): venation as in *P. dorsospinus*, except with sessile fork 2 and shorter fork 4 in the forewings, and presence of fork 1 and longer fork 2 in the hind wings. Forewing length 5.1 mm, hind wing length 4.2 mm.

♂ genitalia (Figs 63–66): Sternite IX nearly pyriform in lateral view, slightly tapering posterodorsally, with ellipsoid anterior margins (fig. 63); posterior margins nearly straight in lateral view, except shallowly concave ventrally (fig. 63); plates narrow and undulating in dorsal view (fig. 64), apparently separated from rest of genitalia; setae restricted to small, ventromesal group. Superior appendages nearly circular in lateral view (fig. 63), with marginal and central setae; mesoventral branch of superior appendages smooth, except with few setal tubercles, orienting ventrad along their lengths, proximally narrow before rectangular apex, hidden by gonopods in ventral view (fig. 65). Segment X shorter than gonopods (fig. 63); membranous lobe with minute microtrichia, with convex dorsal margin in lateral view (fig. 63); about parallel-sided and apically incised in dorsal view (fig. 64); with posteroapical setae. Paraproctal processes long, tubular and dorsoad looping, with apical megaseta; short pair of straight, finger-like median branches present immediately below and laterally of dorsoad looping branches, and with apical megaseta. Gonopods without megasetae, undividing; apical lobes half as broad as proximal parts in lateral view (fig. 63);
in ventral view widening along their lengths (fig. 65), with pair of mesal triangular plates sharply pointing posteromesad, and lateral apices pointing posterad. Phallic apparatus (fig. 66) longer than rest of genitalia; divided into broad, tubular, slightly curving proximal main part being broadest at base, and short distal membranous part pointing ventrad.

**Etymology.** *Hovmoelleri,* named after Dr. Rasmus Hovmöller for his great support in the collecting of caddisflies in New Caledonia.


**Polyleptropus aoupiniensis n. sp.** (Figs 67–70, 122)

**Diagnosis.** *Polyleptropus aoupiniensis n. sp.* is separated from all other New Caledonian *Polyleptropus* species in tergite X that includes a long, horizontal membranous central lobe supported ventrally by sclerotized, horizontal dorsal branches and very short paraproctal processes with apical megaseta. It resembles *P. hovmoelleri n. sp.* from which it is easily distinguished in the above characters, and by the rounded mesad plates on the mesal margin of the gonopods.

♂ head and thorax as in *P. aberrus*.

♂ wings: venation as in *P. hovmoelleri n. sp.* Forewig length 4.7 mm, hind wing length 3.7 mm.

♂ genitalia (Figs 67–70): Sternite IX rounded triangular in lateral view, lateral plates anteriorly rounded (fig. 67); posterior margins slightly convex at mid-height in lateral view, with ventral posterad projection (fig. 67); plates narrow and undulating in dorsal view (fig. 68), apparently separated from rest of genitalia; setae restricted to marginal band. Superior appendages narrowly ellipsoid in lateral view (fig. 67), with marginal and central setae; mesoventral branches orienting ventrad along their lengths, generally broad except narrowing strongly distally below rectangular, setose part, hidden by

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**Figures 71–74**

*Polyleptropus tenerus n. sp.*, holotype. 71, genitalia, lateral; 72, genitalia, dorsal; 73, genitalia, ventral; 74, phallic apparatus, lateral.
gonopods in ventral view (fig. 69). Segment X shorter than gonopods (fig. 67); dividing into long, horizontal membranous dorsal lobe and pair of ventrolateral branches meeting mesally below membranous part (fig. 67, 68); oriented horizontally, with pair of subapical stout lateral setae, in dorsal view (fig. 68) covered by membranous dorsal lobe. Paraproct processes short, oriented posterad, with apical megasetae as seen in lateral and dorsal view (fig. 67, 68). Gonopods without megasetae, un-dividing; uniformly tapering apically posterior of mesal lobes (fig. 67); in ventral view wide, parallel-sided before mid-length (fig. 69) due to presence of pair of rounded mesal plates; distally slightly curving mesad, apices rounded. Phallic apparatus (fig. 70) about as long as gonopods, nearly straight, slightly widening in lateral view, with minute posteroventral process.

**Etymology.** *Aoupiniensis*, named after the type locality, Reserve spéciale de faune de l’Aoupinié.


*Polyplectropus tenerus* n. sp.  
(Figs 71–74, 123)

**Diagnosis.** *Polyplectropus tenerus* n. sp. is separated from all other New Caledonian *Polyplectropus* species in the tergite X that has a strongly dorsad produced membranous dorsal lobe; gonopods that are divided into long dorsal branches and short, triangular ventral branches; and in the long, ventrad curving posterior part of the phallic apparatus.

♂ head and thorax as in *P. aberrus*.

♂ wings: not examined.

♂ genitalia (Figs 71-74): Sternite IX nearly oval in lateral view (fig. 71), anteriorly rounded; posterior margins slightly convex at mid-height in lateral view, with ventral, posterad projection (fig. 71); plates narrow and smooth in dorsal view (fig. 72), apparently separated from rest of genitalia; anteriorly strongly curving mesad (fig. 72); setae restricted to marginal band. Superior appendages short, broad, somewhat stalked, with undulating margins (fig. 71); mesoventral branches smooth, orienting ventrad along their lengths, generally broad; divided into long, strictly ventrad pointing branch and thorn-shaped posterior branch; strongly sclerotized (fig. 71, 73). Segment X half as long as gonopods (fig. 71); dividing into prominent, membranous dorsal lobe and apicolateral branches (fig. 71, 72). Membranous dorsal lobe nearly as high as sternite IX in lateral view; with pair of small, slightly sclerotized processes at mid-height near posterior margin (fig. 71). Lateral branches of tergite X located apically, oriented posterad, short, with 3 posteroventral setae (fig. 71, 72); in dorsal view (fig. 72) shallowly incised at center, with laterad pointing apices. Paraproct processes with short dorsal and long ventral branch (fig. 71); dorsal branches moderately long, thick, tubular, with truncate apex and stout apical megaseta (fig. 71, 72), originate above more slender ventral branches behind superior appendages. Tergite X ventral branches straight in lateral view (fig. 71), curving posterad in dorsal view (fig. 72); about half as long as median branches, with apical, stout seta. Gonopods without megasetae, divided into long, dorsad curving, dorsal branches and short triangular ventral branches (fig. 71); distal half about one-third breadth of proximal half (fig. 71); in ventral view, wide, parallel-sided before mid-length (fig. 73); ventral branches broad; well separated from dorsal branches; apices curving mesad from mid-length, rounded; dorsal branches straight in ventral view (fig. 73). Phallic apparatus (fig. 74) longer than rest of genitalia; proximal part thick; orienting dorsad before bending posterad into more slender, tubular, central part. Slightly sclerotized posterior lobe originating from inside of phallic apparatus; about half as thick as central part of phallic apparatus; curving ventrad along its length; membranous area absent.


Paratypes: same data as holotype, except NRM, 2 ♀♂; New Caledonia, Province Sud, Rivière Ouanéoué, at bride crossing road to Koghi Mountains, about 1.5 km from road RT1 Noumea-Dunumba, 22°10.861’S, 166°29.531’E, 11.XI.2003, light trap, loc 024a [KA Johanson], 2 ♀♂; New Caledonia, Province Sud, stream crossing Noumea—Yaté road immediately W of turnoff to Rivière Bleue Reserve, 22°10.1915, 166°44.474’E, 162 m, 22.XI-04.XII.2003, Malaise trap, loc 040a [KA Johanson], 11 ♀; New Caledonia, Province Sud, stream crossing way to Sanatorium 2.3 km E St. Laurent, ca. 30 m downstream bridge, 22°04.484’S, 166°19.900’E, 15.XI.2003, light trap, loc 028 [KA Johanson], 1 ♀; New Caledonia, Province Sud, stream crossing road between Noumea and Yaté, 1.5 km S Yaté Dam, 22°09.913’S, 166°52.571’E, 182 m, 12-22.XI.2003, Malaise trap, loc#025 [KA Johanson], 1 ♀; Province Sud, Réserve Spéciale de faune du Col d’Amieu et Table Unio, branch of Fa Tööiri Stream, 21°34.844’S, 165°49.677’E, loc 154 (23-2001), Malaise trap 30.XI-05.XII.2001 [KA Johanson, T Pape, B Viklund] (DNA voucher E5), 1 ♀.

*Polyplectropus angustus* n. sp.  
(Figs 75–78, 123)

**Diagnosis.** *Polyplectropus angustus* n. sp. is separated from all other New Caledonian *Polyplectropus* species in the shape of the paraproctal processes forming a pair of horizontal, posterad oriented, tubular branches immediately below the membranous lobe of tergite X; the in lateral view narrow and ventrally broadening sternite IX, and nearly straight, tapering gonopod. Similar species are *P. curvispinus* n. sp., *P. caledonia* n. sp., *P. pirogenius* n. sp., *P. triangulatus* n. sp., and *P. pernodensis* n. sp., all having slender gonopods but easily distinguished from *P. angustus* n. sp. in the above characters.

♂ head and thorax as in *P. aberrus*.

♂ wings (fig. 75): venation as in *P. dorsospinus*, except forewing fork 3 shorter and hind wing fork 1 present. Forewing length 5.9 mm, hind wing length 4.7 mm.

♂ genitalia (Figs 76-78): Sternite IX lateral plates dorsally very slightly broad in lateral view (fig. 76), widening ventrally; posterior margin long, nearly straight; with pair of anterodorsal apodemes being ellipsoid cup-shaped in lateral and dorsal view (fig. 76, 77); posterior margins slightly undulating in lateral view, each with small ventral, posterad projection (fig. 76); plates very narrow.
in dorsal view (fig. 77). Superior appendages short, broad, with smooth margins (fig. 76). Paraproctal processes originating dorsally of superior appendage, smooth, straight, tubular, orienting posterad, generally broad; with apices produced into minute, finger-like process (fig. 76, 77). Tergite X more than half as long as gonopods (fig. 76); forming prominent, horizontal, membranous area being broader than paraproctal processes (fig. 76); in dorsal view (fig. 77) about half as broad as long, with bifid apex, covered by minute microtrichia. Gonopods long, nearly straight, orienting posterodorsad; broadest at bases, tapering apicad; with modified, drop-shaped setae in pair of transverse ventral rows (fig. 76, 78); pair of posterolaterad orienting setose lobes present between gonopods in ventral view (fig. 78), attached to vertical apodemes between anterodorsal lobes and gonopods (fig. 76). Phallic apparatus unknown.

**Etymology.** *Angustus*, (Latin) narrow, alluding to the narrow sternite IX in lateral view.


Paratypes: same data as holotype, except DNA voucher G8, 1 ♀; ditto, except no DNA vouchers, 15 ♂; New Caledonia, Province Nord, Mt. Panié, stream at camp, 20.58139°S, 164.76444°E, 1310 m, 9.XII.2003, Malaise trap, loc#074 [KA Johanson], 20 ♂; New Caledonia, Province Nord, Aoupinié Mt., Réserve spéciale de faune de l’Aoupinié, source stream to Napvé Naatinga stream, about 100 m E bridge on north-south heading track through park, 21°07.186’S, 165°18.944’E, 149 m, 6-27.XII.2003, Malaise trap, loc#063 [KA Johanson] (DNA voucher H7), 1 ♂; 22 ♂, 6 ♀♀ paratypes: ditto, except no DNA voucher.

**Polyplectropus curvispinus** n. sp.

(Figs 79–84, 123)

**Diagnosis.** *Polyplectropus curvispinus* n. sp. is separated from all other New Caledonian *Polyplectropus* species in the presence of a simple, in lateral view straight, tubular gonopod orienting posterodorsad; and a large sclerotized plate (possibly formed by the mesoventral branch of the superior appendages) originating from ventral part of superior appendages and extending to bases of gonopods, being nearly as wide as sternite IX in ventral

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**Figures 75–78**

*Polyplectropus angustus* n. sp., holotype. 75, right wings; 76, genitalia, lateral; 77, genitalia, dorsal; 78, genitalia, ventral.
view. Similar species are *P. angustus* n. sp., *P. caledonia* n. sp., *P. piroquensis* n. sp., *P. triangulatus* n. sp., and *P. pernodensis* n. sp., all having slender gonopods but easily distinguished from *P. curvispinus* n. sp. in the above characters.

♂ head and thorax as in *P. aberrus*.

♂ wings (fig. 79): venation as in *P. dorsospinus*, except forewing fork 1 very short, fork 2 sessile, forks 3 and 4 shorter; and hind wing fork 1 present and fork 2 longer. Forewing length unknown mm, hind wing length 3.3 mm.

♂ genitalia (Figs 80–84): Sternite IX lateral plates dorsally very short in lateral view (fig. 80), widening ventrally; posterior margins long slightly undulating in lateral view, with large ventral, posterad projection (fig. 80); plates narrow in dorsal view (fig. 81) and anteriorly curving mesad. Superior appendages short, broad, with slightly undulating margins (fig. 80). Large sclerotized plate (possibly modified mesoventral branch of the superior appendages) originating from ventral part of superior appendages, extending to base of gonopods, being nearly as wide as sternite IX in ventral view; slightly pointing posteroventrad in lateral view (fig. 80); with setae at apex in lateral view (fig. 80), forming central group in ventral view (fig. 82). Segment X half as long as gonopods (fig. 80); forming broad membranous area in lateral view; broad in dorsal view (fig. 81), with parallel-sided lateral margins; apex truncate. Paraproctal processes absent. Gonopods long, nearly straight, orienting posteroventrad; parallel-sided along their lengths in lateral view (fig. 80), slightly tapering apicad; in ventral view (fig. 82) orienting slightly laterad; without modified setae. Phallic apparatus (fig. 83, 84) very large, in lateral view about as thick as total length of rest of genitalia (fig. 80, 83); anterior apex produced ventrad; posteriorly divided into lobe-shaped apices curving mesoventrad; with pair of long, thin, ventrad curving, pointed sclerous processes originating inside phallic apparatus and ending before posterior apices of phallic apparatus; in ventral view (fig. 84) with basal part nearly as broad as breadth of sternite IX (fig. 81, 82).

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Figs 79–84
*Polyplectropus curvispinus* n. sp., holotype. 79, right wings; 80, genitalia, lateral; 81, genitalia, dorsal; 82, genitalia, ventral; 83, phallic apparatus, lateral; 84, phallic apparatus, ventral.
**Etymology.** *Curvispinus*, from, *curvo* (Latin), to bend, to curve; and *spina*, (Latin) spine, alluding to the pair of spinose, sclerous processes in the phallic apparatus.


Paratypes: New Caledonia, Province Sud, Plateau de Dogny, source of Dogny River, about 900 m SE summit of Plateau de Dogny, 21.61917°S, 165.88503°E, 912 m, 25.XI-16.XII.2003, Malaise trap, loc#046 [KA Johanson], 1 ♂; New Caledonia, Province Sud, Plateau de Dogny, source of Dogny River, about 1.4 km SE summit of Plateau, about 20 m upstream waterfall, 21.62054°S, 165.88503°E, 912 m, 25.XI-16.XII.2003, Malaise trap, loc#049 [KA Johanson], 2 ♂; New Caledonia, Province Sud, Mt. Dzumac, source stream of Ouinne River, downstream cross point to mountain track, 22°01.997°S, 166°28.486°E, above waterfall, 795 m, 3.XII.2003, light trap, loc#061 [KA Johanson], 1 ♂; New Caledonia, Province Sud, Mt. Dzumac, source stream of Ouinne River, downstream cross point to mountain track, 22°02.330°S, 166°28.605°E, 796 m, 3.XII.2003, light trap, loc#062 [KA Johanson], 1 ♂; New Caledonia, Province Sud, Mt. Dzumac, source stream of Ouinne River, near cross point to mountain track, 22°02.073°S, 166°28.460°E, 810 m, 18.XI-4.XII.2003, Malaise trap, loc#030 [KA Johanson] (DNA voucher F4), 1 ♂; ditto, except no DNA vouchers, 10 ♂.

**Polyplectropus caledonia n. sp.**
(Figs 85–88, 124, 129)

**Diagnosis.** *Polyplectropus caledonia n. sp.* is separated from the other New Caledonian *Polyplectropus* species in the presence of posterodorsad orienting, simple, in lateral view straight, tubular gonopods; a large sclerotized plate (possibly formed by the mesoventral branch of the superior appendages) originating from ventral part of superior appendages and extending to bases of gonopods, being divided into pair of very large posterad orienting triangular lobes in ventral view and nearly as wide as sternite IX; and a very thick phallic apparatus with 1 pair dorsad hooked sclerous processes, and 1 pair straight sclerous processes. Similar species are *P. angustus n. sp.*, *P. curvispinus n. sp.*, *P. piroguensis n. sp.*, and *P. triangulatus n. sp.*, all having slender gonopods but easily distinguished from *P. caledonia n. sp.* in the above characters.

♂ head and thorax as in *P. aberrus*.

♂ wings: not examined.

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**Figures 85–88**

*Polyplectropus caledonia n. sp.*, holotype. 85, genitalia, lateral; 86, genitalia, dorsal; 87, genitalia, ventral; 88, phallic apparatus, lateral.
♂ genitalia (Figs 85–88): Sternite IX dorsally narrow in lateral view (Fig. 85), widening ventrally into oval lateral plates; posterior margins long, slightly convex in lateral view, with large ventral, posteroventral projection (Fig. 85) being short, tongue-shaped in ventral view (Fig. 87); lateral plates short, narrow in dorsal view (Fig. 86) and orienting anterad. Superior appendages short, broad, with short posteroventral projection (Fig. 85). Large sclerotized plate (possibly modified mesoventral branch of the superior appendages) originating from ventral part of superior appendages, extending to bases of gonopods, being nearly as wide as sternite IX in ventral view; slightly pointing posteroventrad in lateral view (Fig. 80); posterior margins convex; with setae along posteroventral margin in lateral view (Fig. 85); in ventral view deeply bifurcating, forming pair of prominent triangular posterior processes, each with setae along medial margin (Fig. 87). Segment X half as long as gonopods (Fig. 85); forming broad, irregular membranous area in lateral view; broad and apically narrowing in dorsal view (Fig. 86); apex shallowly incised (Fig. 86). Paraprostom processes absent. Gonopods long, nearly straight, orienting postero dorsad; parallel-sided along their lengths in lateral and ventral view (Fig. 85, 87), except slightly widening apically in ventral view; in ventral view (Fig. 87) orienting posteroad; with row of minute, drop-shaped setae along posterior margin hidden by posteroventral process of sternite IX (Fig. 87). Phallic apparatus (Fig. 88) very large, in lateral view nearly as wide as height of rest of genitalia (Fig. 85, 88); anteriorly rounded; posterior apex with 2 pairs sclerotic processes; dorsal pair anteriorly thick before narrowing apically and being dorsally hooked; ventral pair gradually tapering along their lengths, slightly shorter than dorsal processes; slightly curving dorsad along their lengths.

Etymology. Caledonia, derived from New Caledonia.


Paratypes: New Caledonia, Province Sud, Monts des Koghis, ca 300 m S Koghi Restaurant, 22.18288°S, 166.50490°E, 457 m, 16-26.XI.2003, Malaise trap, loc#001a [KA Johanson], 9 ♂♂, 1 ♀; New Caledonia, Province Sud, Monts des Koghis, ca 300 m S Koghi Restaurant, 22.18288°S, 166.50490°E, 457 m, 02-16.XI.2003, Malaise trap, loc#001a [KA Johanson], 3 ♂♂. New Caledonia, Province Sud, Monts des Koghis, ca 300 m S Koghi Restaurant, 22.18288°S, 166.50393°E, 447 m, 16-26.XI.2003, Malaise trap, loc#002b [KA Johanson], 6 ♂♂, 1 ♀; New Caledonia, Province Sud, Plateau de Dogny, source of Dogny River, about 900 m SE summit of Plateau de Dogny, 21.61917°S, 165.88072°E, 917 m, 25.XI-16.XII.2003, Malaise trap, loc#005 [KA Johanson], 9 ♂♂, 1 ♀; New Caledonia, Province Sud, Plateau de Dogny, source of Dogny River, about 1000 m S of loc#004 and nearly 1.0 km downstream bridge, 22°04.484’S, 166°19.910’E, 15-30.XI.2003, Malaise trap, loc#027 [KA Johanson], 3 ♂♂, 1 ♀; New Caledonia, Province Sud, stream crossing way to Sanatorium 2.3 km E St. Laurent, ca. 150 m upstream bridge, 22°04.484’S, 166°19.910’E, 15-30.XI.2003, Malaise trap, loc#027 [KA Johanson].

New Caledonian Polycentropodidae
of Dogny River, about 1.2 km SE summit of Plateau, about 200 m from waterfall, 21.62067°S, 165.88290°E, 915 m, 25 XI-16 XII. 2003, Malaise trap, loc#048 [KA Johanson], 1 ♂, 6 ♀; New Caledonia, Province Sud, Xwé Pemou Stream, 300 m N bridge over Dathio River at Até, 6.2 km WNW of Thio, 21.5883°S, 166.15117°E, 13 m, 29 XI. 2003, light trap, loc#056 [KA Johanson], 2 ♂; New Caledonia, Province Sud, Haute Yaté fauna reserve, 1760 m S bridge Pont Perignon, 50 m upstream bridge over stream, 22.14954°S, 166.70111°E, 180 m, 14 XII. 2003-13 I. 2004, Malaise trap, loc#081 [KA Johanson], 15 ♂; New Caledonia, Province Nord, Kōm Pumwudu River, 20 m upstream bridge on RPN3 road Canala-Thio, 2.6 km ESE Nakety, 21°33.445°S, 166°04.204°E, 17 m, 12 I. 2004, light trap, loc#117 [KA Johanson], 12 ♂; New Caledonia, Province Sud, Monts Kwa Ne Mwa, on road between Noumea and Yaté, 2.0 km E Pic Mouirange, 22°12.356°S, 166°40.798°E, 220 m, 7-16 XII. 2003, Malaise trap, loc 014a [KA Johanson], 11 ♂, 2 fe; New Caledonia, Province Sud, stream NW Lac Yaté, 22°08.795°S, 166°42.313°E, loc 140 (loc 5-2001), Malaise trap 13-16 XII. 2001 [KA Johanson], 3 ♂; Province Sud, Plateau de Dogny, 846 m, 18-21 XI. 2001, Malaise trap, 21°37.000°S, 166°52.500°E, loc 145 (15-2001), Malaise trap 18-21 XI. 2001 [KA Johanson, T Pape, B Viklund], 1 ♂; New Caledonia, Province Sud, Monts des Koghis, ca 300 m S Koghi Restaurant, 22.18288°S, 166.50490°E, 457 m, 2-16 XII. 2003, Malaise trap, loc#001a [KA Johanson] (DNA voucher I7), 1 ♂; New Caledonia, Province Sud, Monts des Koghis, ca 300 m S Koghi Restaurant, 22.18288°S, 166.50490°E, 457 m, 02-16 XII. 2003, Malaise trap, loc#001a [KA Johanson] (DNA voucher I8), 1 ♂; Province Sud, Plateau de Dogny, northern part, 21°36.853°S, 165°52.548°E, loc 159 (32-2001), Malaise trap 2-5 XII. 2001 [KA Johanson, T Pape, B Viklund] (DNA voucher C8), 1 ♂; New Caledonia, Province Sud, Plateau de Dogny, source of Dogny River, about 1.2 km SE summit of Plateau, about 200 m from waterfall, 21.62067°S, 165.88290°E, 915 m, 25 XI-16 XII. 2003, Malaise trap, loc#048 [KA Johanson] (DNA voucher I9), 1 ♂; ditto, except (DNA voucher J1), 1 ♀; New Caledonia, Province Sud, Monts Kwa Ne Mwa, on road between Noumea and Yaté, 2.0 km E Pic Mouirange, 22°12.356°S, 166°40.798°E, 220 m, 5-18 XI. 2006, Malaise trap, loc 014b [KA Johanson & M Espeland], 13 ♂, 1 ♀; New Caledonia, Province Sud, Réserve spéciale de fauna de la

Figures 89–94
Polyplectropus piroguensis n. sp., holotype. 89, right wings; 90, genitalia, lateral; 91, genitalia, dorsal; 92, genitalia, ventral; 93, phallic apparatus, lateral; 94, phallic apparatus, ventral.
Polyplectropus piroguensis n. sp.  
(Figs 89–94, 125)

**Diagnosis.** Polyplectropus piroguensis n. sp. is separated from all other New Caledonian *Polyplectropus* species in the presence of posterodorsad orienting, simple, in lateral view straight, tubular gonopods; a moderately large sclerotized plate (possibly formed by the mesoventral branch of the superior appendages) originating from ventral part of the superior appendages and extending to base of gonopods, and produced posterad behind gonopods in lateral view; being slightly divided into 2 posterad orienting rounded lobes in ventral view and one-third the width of sternite IX; and a relatively thick phallic apparatus with straight, posterior membranous lobe. Similar species are *P. angustus* n. sp., *P. caledonia* n. sp., *P. triangulatus* n. sp., and *P. pernodensis* n. sp., all having slender gonopods but easily distinguished from *P. piroguensis* n. sp. in the above characters.

♂ head and thorax as in *P. aburus*.

♀ wings (fig. 89); venation as in *P. dorospinus* except with sessile fork 2 and slightly shorter fork 3 in forewings. Forewing length 4.1 mm, hind wing length 3.4 mm.

♂ genitalia (Figs 90–94): Sternite IX dorsally narrow in lateral view (fig. 90), widening ventrally into irregular, lateral plates; posterior margins long, slightly concave in lateral view, without ventral, posterodorsad projection (fig. 90); lateral plates short, narrow in dorsal view (fig. 91), orienting anterad; setae present on ventral half. Superior appendages long, about as thick as thickness of gonopods in lateral view (fig. 90). Large sclerotized plate (possibly modified mesoventral branch of the superior appendages) originating from ventral part of the superior appendages, dorsally narrow; extending to base of gonopods, produced posterad between gonopods (fig. 90, 92); being about one-third as broad as breadth of sternite IX in ventral view (fig. 92); with setae along ventral margin (fig. 90, 92); in ventral view shallowly bifurcate. Segment X minute (fig. 90); slightly wider than superior appendage in lateral view, irregular membranous; in dorsal view (fig. 91) about one-third the breadth of sternite IX; apex truncate (fig. 91). Paraproctal processes absent. Gonopods long, nearly straight, orienting posterodorsad; parallel-sided along their lengths in lateral view (fig. 90); tapering in ventral view (fig. 92); in ventral view (fig. 92) directed posteromesad; with row of minute, drop-shaped setae along posterior margin of posteroventral process (fig. 90, 92); small lobe present above ventral process (fig. 90, 92). Phallic apparatus (fig. 93, 94) moderately large, in lateral view about one-third thick as height of rest of genitalia (fig. 90, 93); anteriorly rounded; posteriorly truncate; posterior apex with membranous, posterad orientated, tongue-shaped process.

**Etymology.** *Piroguensis*, derived from the type locality, Rivière des Pirogues.

**Material.** Holotype ♀: New Caledonia, Province Sud, Monts Kwa Ne Mwa, on road between Noumea and Yaté, Rivière des Pirogues, 22°11.225’S, 166°43.338’E, 100 m, 7.XI.2003, light trap, loc#016 [KA Johanson] (DNA voucher G6).

Paratypes: New Caledonia, Province Sud, W part of Plaine des Lacs, 150 m downstream bridge at La Capture, 22°15.967’S, 166°49.493’E, 261 m, 22.XI-17.XII.2003, Malaise trap, loc#007 [KA Johanson], 2 ♂; New Caledonia, Province Sud, Monts Kwa Ne Mwa, on road between Noumea and Yaté, 800 m N Pont des Japonais, 22°11.043’S, 166°43.566’E, 120 m, 7-16.XI.2003, 16-30.XI.2003, Malaise trap, loc#015 [KA Johanson], 1 ♂, 1 ♀; New Caledonia, Province Sud, Xwé Pémiou Stream, 300 m N bridge over Dathio River at Aré, 6.2 km WNW of Thio, 21.58835’S, 166.15117’E, 13 m, 29.XI.2003, light trap, loc#056 [KA Johanson], 1 ♂; New Caledonia, Province Sud, stream draining to Rivière des Pirogues, 850 m E summit of Mont Imbaah, 5.5 km E Lucky Creek in Plum, 22°16.837’S, 166°42.195’E, 31 m, 1.XII.2003, light trap, loc#060 [KA Johanson], 1 ♂, 1 ♀; New Caledonia, Province Sud, Monts Kwa Ne Mwa, along Noumea-Yaté road, 2.0 km E Pic Mouriange, 20 m upstream road, 22°12.356’S, 166°40.798’E, 220 m, 15-16.I.2004, light trap, loc#120 [KA Johanson], 3 ♂; New Caledonia, Province Sud, stream crossing Noumea-Yaté road immediately W of turnoff to Rivière Bleue Reserve, 22°10.191S, 166°44.474’E, 162 m, 22.XI-4.XII.2003, Malaise trap, loc#040a [KA Johanson] (DNA voucher I2), 1 ♂; New Caledonia, Province Sud, stream crossing Noumea—Yaté road immediately W of turnoff to Rivière Bleue Reserve, 22°10.191S, 166°44.474’E, 162 m, 22.XI-4.XII.2003, Malaise trap, loc#040a [KA Johanson], 3 ♂, 1 ♀.

Polyplectropus triangulatus n. sp.  
(Figs 95–100, 126)

**Diagnosis.** Polyplectropus triangulatus n. sp. is separated from all other New Caledonian *Polyplectropus* species in the presence of posterodorsad orienting, in lateral view straight simple gonopods with undulating margins; a pair of very large, triangular superior appendages; a moderately large sclerotized plate (possibly formed by the mesoventral branch of the superior appendages) originating from the ventral part of the superior appendages and extending to base of gonopods, and produced posteroventral behind gonopods in lateral view; un-dividing in ventral view and about one-third the width of sternite IX; and a relatively thick phallic apparatus with short, tongue-shaped posterior membranous lobe. Similar species are *P. angustus* n. sp., *P. dorospinus* n. sp., *P. caledonia* n. sp., *P. triangulatus* n. sp., and *P. pernodensis* n. sp., all having slender gonopods but easily distinguished from *P. triangulatus* n. sp. in the above characters.

♂ head and thorax as in *P. aburus*.

♀ wings (fig. 95); venation as in *P. piroguensis*, except with fork 1 present in hind wings. Forewing length 3.9 mm, hind wing length 3.1 mm.

♂ genitalia (Figs 96–100): Sternite IX dorsally narrow in lateral view (fig. 96), widening ventrally into irregularly triangular, lateral plates; posterior margins long, slightly convex in lateral view, without ventral, posterodorsad projection (fig. 96); lateral plates short, narrow in dorsal view (fig. 97), slightly curving mesad; setae present on ventral half. Superior appendages very long and broadly triangular in lateral view (fig. 96). Paraproctal processes originating from ventral part of superior appendages (fig. 96), nearly straight in lateral view, curving mesad in dorsal view (fig. 97), smooth, needle-shaped, apices sharply pointing (fig. 96, 97). Large sclerotized plate (possibly modified from mesoventral branch of the superior appendages) originating...
from ventral part of superior appendages, triangular in lateral view (fig. 96); dorsally narrow; extending to base of gonopods; being about one-third as broad as breadth of sternite IX in ventral view (fig. 98); with setae along ventral margin (fig. 96, 98); in ventral view without bifurcated apex. Segment X about as large as superior appendages (fig. 96); irregularly membranous; in dorsal view (fig. 97) about half the breadth of sternite IX; apex slightly convex with producing corners (fig. 97). Gonopods long, nearly straight, orienting posterodorsad; with undulating margins in lateral view (fig. 96); tapering along their lengths in lateral and ventral view (fig. 96, 98); in ventral view (fig. 98) directed posterad and curving mesad before apices; with row of minute, drop-shaped setae along mesal margin of posteroventral process (fig. 96, 98); small lobe present above ventral process (fig. 96). Phallic apparatus (fig. 99, 100) very large, in lateral view about two-thirds as thick as height of rest of genitalia (fig. 96, 99); anteriorly rounded; posteriorly truncate; posterior apex with membranous, posterad oriented, tongue-shaped process; in ventral view vase-shaped, anteriorly circular (fig. 100).

**Etymology.** *Triangulatus*, derived from *triangulus* (Latin), triangular, alluding to the large superior appendages, triangular in lateral view.

**Material.** Holotype ♂: New Caledonia, Province Sud, Tontouta River, 4.8 km WSW summit of Mt. Vulcain, 21°55.258’S, 166°19.895’E, 41 m, 15.XII.2003, light trap, loc#083 [KA Johanson] (DNA voucher H9).

Paratypes: New Caledonia, Province Sud, Monts Kwa Ne Mwa, on road between Noumea and Yaté, 1.5 km E Pic Mouirange, 22°12.545’S, 166°40.246’E, 143 m, 30.XII.2003, light trap, loc#018 [KA Johanson], 1 ♂; New Caledonia, Province Sud,

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**Figures 95–100**

*Polyplectropus triangulatus* n. sp., holotype. 95, right wings; 96, genitalia, lateral; 97, genitalia, dorsal; 98, genitalia, ventral; 99, phallic apparatus, lateral; 100, phallic apparatus, ventral.
Mt. Dzumac, source stream of Ouinne River, near cross point to mountain track, 22°02.073’S, 166°28.460’E, 810 m, 18.XI-4.XII.2003, Malaise trap, loc#030 [KA Johanson], 7 ♂♂; New Caledonia, Province Sud, Mt. Dzumac, source stream of Ouinne River, downstream cross point to mountain track, 22°01.997’S, 166°28.486’E, 795 m, over about 30 m waterfall, 18.XI-4.XII.2003, Malaise trap, loc#031 [KA Johanson], 2 ♂♂, 1 ♀; New Caledonia, Province Sud, Tontouta River, 4.8 km WSW summit of Mt. Volcain, 21°55.258’S, 166°19.895’E, 41 m, 15.XII.2003, light trap, loc#083 [KA Johanson], 1 ♂; New Caledonia, Province Sud, Dumbea River, Branche Nord, 2.2 km SE summit of Mt. Piditéré, 22°07.503’S, 166°29.899’E, 25 m, 21.I.2004, light trap, loc 124a [KA Johanson & C Pöllabauer], 2 ♂♂, 1 ♀; New Caledonia, Province Sud, Mt. Dzumac, source stream of Ouinne River, downstream cross point to mountain track, 22°01.997’S, 166°28.486’E, 795 m, over about 30 m waterfall, 18.XI-4.XII.2003, Malaise trap, loc#031 [KA Johanson] (DNA voucher I3), 1 ♂; ditto, except (DNA voucher I4), 1 ♀; New Caledonia, Province Sud, Monts Kwa Ne Mwa, on road between Noumea and Yaté, 1.5 km E Pic Mourirange, 22°12.545’S, 166°40.246’E, 143 m, 9.XI.2003, 30.XII.2003, light trap, loc#018 [KA Johanson] (DNA voucher 15), 1 ♂; ditto, except (DNA voucher 16), 1 ♀; New Caledonia, Province Sud, Dumbea River, Branche Nord, 2.2 km SE summit of Mt. Piditéré, 22°07.503’S, 166°29.899’E, 25 m, 07.X.2006, light trap, loc 124b [KA Johanson & M Espeland], 6 ♂♂.

**Polyplectropus pernodensis** n. sp.
(Figs 101–106, 127)

**Diagnosis.** *Polyplectropus pernodensis* n. sp. is separated from all other New Caledonian *Polyplectropus* species in the presence

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**Figures 101–106**

*Polyplectropus pernodensis* n. sp., holotype. **101**, right wings; **102**, genitalia, lateral; **103**, genitalia, dorsal; **104**, genitalia, ventral; **105**, phallic apparatus, lateral; **106**, phallic apparatus, ventral.
of posterodorsad orienting, simple, in lateral view straight, gonopods with straight margins; a pair of small, rounded triangular superior appendages; simple superior appendages, without mesoventral processes; a long, straight paraproctal process in lateral view; a slender phallic apparatus, in ventral view being broad and rectangular anteriorly, and with wide, ovoid posterior apex. Similar species are *P. angustus* n. sp., *P. curvispinus* n. sp., *P. caledonia* n. sp., *P. piroguensis* n. sp., and *P. triangulatus* n. sp., all having slender gonopods but easily distinguished from *P. pernodensis* n. sp. in the above characters.

♂ head and thorax as in *P. aberrus*.

♂ wings (fig. 101): venation as in *P. piroguensis*, except with slightly longer fork 3 in forewings. Forewing length 4.2 mm, hind wing length 3.1 mm.

♂ genitalia (Figs 102–106): Sternite IX nearly rectangular in lateral view (fig. 102), slightly narrower dorsally; posterior margins long, nearly straight in lateral view, without ventral, posterodorsad projection (fig. 102); lateral plates undulating anteriad in dorsal view (fig. 103); setae present on ventral half. Superior appendages small, rounded triangular in lateral view (fig. 102). Mesoventral branch of superior appendages absent. Paraproctal processes originating from dorsal part of superior appendages (fig. 102), straight in lateral view, curving mesad at mid-length and crossing apically in dorsal view (fig. 103), smooth, needle-shaped, apices sharply pointing (fig. 102, 103). Segment X about as long as dorsal part of sternite IX (fig. 102); irregularly membranous; in dorsal view (fig. 103) about half as broad as sternite IX; narrowest at mid-length; apical margin slightly convex (fig. 103). Gonopods long, straight, orienting posterodorsad; with straight margins in lateral view (fig. 102); parallel-sided in lateral view, except slightly widening apically (fig. 102); in ventral view (fig. 104) directed posterad, with mesal curving apices; with row of minute, drop-shaped setae along posteromesal margin of posteroventral process (fig. 102, 104); lobe absent above ventral process (fig. 102). Phallic apparatus (fig. 105, 106) slender in lateral view (fig. 105), irregular in shape (fig. 105, 106); anteriorly rounded; posterior apex produced posterad in lateral view (fig. 105); spoon-shaped
in ventral view (fig. 106).

**Etymology.** *Pernodensis*, derived from the type locality, Pernod Creek.

**Material.** ♂ holotype: New Caledonia, Province Sud, Creek Pernod, 7 m downstream bridge at Route du Carénage on Lac Yaté-Prony road, 22°10.862’S, 166°50.565’E, 162 m, 10.XII.2003, light trap, loc#076 [I. Johanson] (DNA voucher G5).


**Polyplectropus taoensis n. sp.**

(Figs 107–112, 127)

**Diagnosis.** *Polyplectropus taoensis n. sp.* is very closely related to *P. papei n. sp.* from which it is separated by having shorter and laterad produced apical part of tergite X; three long, dark, serrate setae apically on each superior appendage; and the wider and less strongly produced ventral branch of gonopods. It is separated from all other New Caledonian *Polyplectropus* species by the two-branched tergum X with long, dark, serrate apical setae; the superior appendages with long, dark, serrate setae; the ventrally oriented paraproctal processes being completely fused into a single branch exceeding ventral margin of gonopods and with group of apical setae; and the strongly modified gonopod with dorsal branch produced into long, posterad looping, tubular process.

♂ head and thorax as in *P. aberrus*.

♂ wings (fig. 107): venation as in *P. pernodensis*, except with slightly longer fork 3 in forewings and slightly longer fork 1 in hind wings. Forewing length 3.7 mm, hind wing length 2.7 mm.

♂ genitalia (Figs 108–112): Sternite IX high and narrow in lateral view, narrowest dorsally (fig. 108); ventrally slightly curving mesally (fig. 109); head in band along...
posterior and ventral margins. Superior appendages triangular in lateral view (fig. 108); apices with 3 very long, thick, blackish serrate setae. Paraproctal processes absent. Mesoventral branch of superior appendages originating from ventral part of superior appendages (fig. 108), fused, curving anteriad before re-curving into straight branch exceeding ventral margin of gonopods; posterior face of apex with 2 small, slightly sclerotized areas covered by setae (fig. 108, 110); in ventral view slightly narrowing apically, visible between gonopods (fig. 110). Segment X divided at basis into pair of tubular processes being slightly longer than superior appendages, curving posteroverdial in lateral view; with sub-apical group of spines and single, very, long, thick, dark serrate seta on apices; in dorsal view orienting posterad before bending laterad (fig. 109). Gonopods long, basal parts straight, orienting posterodorsad; dividing into short, rounded triangular posterior branches and very long, slender, tubular dorsal branches, each with 3 apical setae; in ventral view, ventral branches with shallowly concave mesal margins, diverging along their length till posterad orienting apices (fig. 110). Phallic apparatus (fig. 111, 112) slender in lateral view (fig. 111), nearly parallel-sided and gently curving along its length; in ventral view (fig. 112) bottle-shaped, with anterior part about 2 times broader than posterior part; posterior apex membranous (fig. 111, 112).

**Etymology.** *Papei*, named after Dr. Thomas Pape, one of the collectors of the holotype.


Paratypes: New Caledonia, Province Sud, Monts Kwa Ne Mwa, on road between Noumea and Yaté, 800 m N Pont des Japonais, 22°11.043’S, 166°43.566’E, 120 m, 7-16.XI.2003, 16-30.XI.2003, Malaise trap, loc#015 [KA Johanson], 2 ♂♂.

**Key to males of New Caledonian *Polyplectropus* species**

1. In genitalia, segment IX in lateral view, with posterior margin strongly expanding posterad into posterior sternal process being finger-like or long, narrow triangular plates above gonopods (figs 6, 13, 20, 25, 30, 36, 52) ............................... 2
   - In genitalia, segment IX in lateral view, without finger-like or long, narrow triangular posterior sternal process above gonopods (figs 56, 71) .................................................. 9

2. In genitalia, gonopods parallel-sided or tapering in lateral view (figs 6, 13, 20, 25) ................................................................. 3
   - In genitalia, gonopods broadening distad in lateral view (figs 30, 36, 52) ................................................................. 6
   - In genitalia, gonopods tapering distad and curving dorsad in lateral view (fig. 25) ................. *Panid n. sp.*
   - In genitalia, gonopods nearly equally wide along their lengths in lateral view (figs 6, 13, 20) ................................................................. 4

3. In genitalia, posterior sternal processes strongly exceeding gonopods in lateral view (fig. 13): gonopods with group of dark modified setae on mesal face (figs 13, 14) ............................................. *Panid n. sp.*
   - In genitalia, paraaproctal processes reaching apex of gonopods in lateral view (figs 6, 20) ................................................................. 5

4. In genitalia, paraaproctal processes strongly exceeding gonopods in lateral view (fig. 13): gonopods with group of dark modified setae on mesal face (figs 13, 14) ............................................. *Panid n. sp.*
   - In genitalia, paraaproctal processes reaching apex of gonopods in lateral view (figs 6, 20) ................................................................. 5

5. In genitalia, superior appendages strongly producing posterior (fig. 6): posterior sternal processes triangular in lateral view (fig. 6) ..................... *Aberrus n. sp.*
   - In genitalia, superior appendages short (fig. 20); posterior sternal process parallel-sided in lateral view (fig. 20) ................................................................. *Panid n. sp.*

6. In genitalia, posterior sternal processes broad, triangular (figs 30, 41) ................................................................. 7
- In genitalia, posterior sternal processes slender, finger-like (figs 36, 52) ........................................... 8

7. Forewing fork 1 absent, fork 2 originating distally of Dc (fig. 29); in genitalia, segment IX strongly producing anterad into sharp triangular (fig. 30); superior appendages very large (fig. 30); gonopods widening gradually distad in lateral view (fig. 30); gonopods with posteromesal corners rounded in ventral view (fig. 32) ............. P. clatus n. sp.

- Forewing fork 1 present, fork 2 originating from ventrodistal corner of Dc (fig. 40); in genitalia, segment IX producing anterad into rounded plates (fig. 41); superior appendages very small (fig. 41); gonopods abruptly widening at midpoint in lateral view (fig. 41); gonopods with posteromesal corners producing into anterad hooks in ventral view (fig. 43) ...................................................... P. millet n. sp.

8. In genitalia, segment IX anteriorly triangular (fig. 36); segment X with triangular lateral margin in dorsal view (fig. 37); gonopods with club-shaped apex (fig. 36) .............................. P. nathalae n. sp.

- In genitalia, segment IX anteriorly rounded (fig. 52); segment X widening along its length in dorsal view (fig. 54); gonopods with two-branched apex (fig. 52, 53) .............................................................. P. koueus n. sp.

9. In genitalia, tergum X with long, dark apical setae; dorsal branch of gonopods very long and slender, curving posterad (figs 108, 114) .................. 10

- In genitalia, tergum X without long, dark apical setae; dorsal branch of gonopods absent or short (figs 47, 57, 63, 67, 71, 80, 85, 90, 96, 102) .................................. 11

10. In genitalia, superior appendages each with 3 long, dark, serrate setae (fig. 108); tergum X with 1 pair long, dark serrate setae (figs 108, 109); gonopods with short apical lobe below dorsal branch (fig. 108) .......... P. taoensis n. sp.

- In genitalia, superior appendages each with 1 long, dark, serrate seta (fig. 114); tergum X with 3 pairs long, dark serrate setae (figs 114, 115); gonopods with long apical lobe below dorsal branch (fig. 114) ...................................................... P. papei n. sp.

11. In genitalia, gonopods slender, finger-like along their length (figs 76, 80, 85, 90, 96, 102) .................. 12

- In genitalia, gonopods irregularly broad along their length (figs 47, 57, 63, 67, 71) ......................... 17

12. In genitalia, paraproctal processes very broad along their length (fig. 76); gonopods narrowly triangular in lateral view (fig. 76) .............. P. angustus n. sp.

- In genitalia, paraproctal processes slender, needle-shaped (figs 96, 102), or absent (figs 80, 85, 90); gonopods nearly parallel-sided along their length (figs 80, 85, 90, 96, 102) ...................................................... 13

13. In genitalia, paraproctal processes present (figs 96, 102) ............................................... 14

- In genitalia, paraproctal processes absent (figs 80, 85, 90) ...................................................... 15

14. In genitalia, superior appendages very large, broad, rectangular in lateral view (fig. 96); segment IX producing posteroventral into mesal plate with apical setae (fig. 96), visible between gonopods in ventral view (fig. 98); phallic apparatus very thick in lateral and ventral view (figs 99, 100) ..................... P. triangulatus n. sp.

- In genitalia, superior appendages very small, rounded in lateral view (fig. 102); segment IX without mesal plate (figs 102, 104); phallic apparatus slender in lateral and ventral view (figs 105, 106) ...................................... P. pernodensis n. sp.

15. In genitalia, segment IX with anteroventral rounded lobe on each side (fig. 90); superior appendages long and slender in lateral view (fig. 90) ....... P. piroguensis n. sp.

- In genitalia, segment IX without anteroventral rounded lobe on each side (figs 80, 85); superior appendages short in lateral view (figs 80, 85) .............................................. 16

16. In genitalia, segment IX with long posteroventral process (fig. 85), rectangular in ventral view (fig. 87); phallic apparatus very high, with pair of large, dorsad curving dorsal, and large, straight ventral spines (fig. 88) .......... P. caledonia n. sp.

- In genitalia, segment IX with short posteroventral process (fig. 80), sharply triangular in ventral view (fig. 82); phallic apparatus slender, with pair of long, ventrad curving dorsal, and long, ventrad curving ventral spines (figs 83, 84) .............................................. P. curvispinus n. sp.

17. In genitalia, gonopods with long, broad plate-like process at apex (fig. 47) ..................... P. christine n. sp.

- In genitalia, gonopods without process at apex (figs 57, 63, 67, 71) .............................................. 18

18. In genitalia, gonopods bifurcating (figs 57, 71); phallic apparatus with long, simple, ventrad curving process extruding posteriorly (figs 60, 74) .................. 19

- In genitalia, gonopods simple (figs 63, 67); phallic apparatus without extruding process (figs 66, 70) ............... 20

19. In genitalia, gonopods with equally large dorsal and ventral branches (fig. 57); tergite X strongly producing ventrad, apically with short anterior and posterior lobes (fig. 57) .................. P. viklundi n. sp.

- In genitalia, gonopods with large dorsal branch and short ventral branch (fig. 71); tergite X strongly producing ventrad, apically with very long anterior lobe and short posterior lobe (fig. 71) .......... P. tenerus n. sp.

20. In genitalia, dorsal branch of tergite X forming pair of tubular, dorsad-curving processes, each with apical megaseta (figs 63, 64); superior appendages round in lateral view (fig. 63); gonopods with pointed posteroventral corners in ventral view (fig. 65) .............................................................. P. hovnoellleri n. sp.

- In genitalia, dorsal branch of tergite X forming pair of tubular, posterad-orienting, straight processes (fig. 67); superior appendages oval in lateral view (fig. 67); gonopods with rounded posteroventral corners in ventral view (fig. 69) ..................... P. aoupinensis n. sp.

Discussion
Neboiss (1993) presented a hypothesis on the phylogenetic relationship between the eight genera of Polycentropodidae united by the absence of fork 1 in the fore wing. Findings in the New Caledonian Polyplectropus shows that presence or absence of fore wing fork 1 is not necessarily a stable character for establishing major taxonomic lines within the family. In other families, like the Helicopsychidae, vention is
variable within a genus (Johanson 1998), and so is also
demonstrated in the New Caledonian *Polyplectropus*
in that fore wing fork 1 is present in *P. dorsospinus* sp. and absent in *P. aberrus* n. sp. and *P. koueus* n. sp. Diagnoses of and keys to Polycentropodidae genera are
frequently based on characteristic wing venation, and

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*Figures 117–119*

*Polyplectropus* spp. distribution on New Caledonia. 117, *P. aberrus* n. sp. (circles), *P. nodyg* n. sp. (square); 118, *P. dorsospinus* n. sp.; 119, *P. yndog* n. sp. (circles), *P. clavus* n. sp. (squares).
a revision of the taxonomy of the groups is needed and apparently to be based on other characters in order to establish a stable classification. Considering the wing forks alone, several genera are possibly independently derived from ancestral forms having complete forks in the fore wing and forks 1, 2, and 5 in the hind wings.

Figures 120–122
Polypectropus spp. distribution on New Caledonia. 120, *P. nathalae* n. sp.; 121, *P. millei* n. sp. and *P. christinae* n. sp. (circle), *P. koueus* n. sp. (square); 122, *P. viklundii* n. sp. (circles), *P. aoupiniensis* n. sp. (squares), *P. hovmoelleri* n. sp. (triangle).
wing, like *Plectrocnemia*, *Tasmanoplegas*, *Polycentropus*, and *Polyplectropus*. Of these genera, *Tasmanoplegas* is unique in the stalked fork 2 in the fore wings, while it is sessile in the other genera. The New Caledonian *Polyplectropus* have no Dc in the hind wings, while *Plectrocnemia* species from other areas have well

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**Figures 123–125**

*Polyplectropus* spp. distribution on New Caledonia. 123, *P. tenerus* n. sp. (circles), *P. angustus* n. sp. (squares), *P. curvispinus* n. sp. (triangles); 124, *P. caledonia* n. sp.; 125, *P. pirogaensis* n. sp.
developed hind wing Dc. Thus, the newly discovered New Caledonian *Polyplectropus* are considered inseparable from *Polycentropus* and *Plectrocnemia* in wing venation. The genitalia of *Polyplectropus papei n. sp.* is unique compared to other species and genera in the absence of membranous, central lobe of segment X.

With this paper the known *Poyplectropus* fauna comprises 186 described species, of which more than two-thirds (70%) were described after 1988 and particularly from the Oriental and Neotropical Regions (Bueno-Soria 1990, Chamorro-Lacayo & Holzenthal 2004, Li & Morse 1997, Malicky 1993a, 1993b, Malicky 1995a, 1995b, Malicky & Chantaramongkol 1993, 1997, Mey 1990, 1998a, 1998b, Neboiss 1989). This indicates that a more exhaustive collecting effort, particularly in the northern Neotropical, Oriental, and northern Australian Regions, may possibly reveal a much richer *Polyplectropus* fauna than presently known.

Trichoptera are recognized as being strongly affected by the water chemistry (Resh 1993, Resh & Unzicker 1975) but little is known about the correlation between presence and absence of ultrabasic substrates and species diversity. About one-third of the New Caledonian mainland Grande Terre is covered by ultrabasic

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**Figures 126–127**

*Polyplectropus* spp. distribution on New Caledonia. 126, *P. triangulatus* n. sp.; 127, *P. pernodensis* n. sp. (circles), *P. taoensis* n. sp. (square), *P. papei* n. sp. (triangles).
substrates, i.e. soil types with high concentrations of Mg, Fe, Cr, Co and Ni, and low content of the nutrients P, K and Ca (Jaffré et al. 1987). Espeland et al. (2008) demonstrated that the early radiation of the New Caledonian endemic Trichoptera genus Xanthochorema took place on ultrabasic substrates, with secondary adaptations to non-ultrabasic substrates involving subsequent speciation. Among New Caledonian Polycentropodidae, Polyplectropus dorsospinus is the most widely distributed species, inhabiting running waters from Mt. Panié to Riviére Bleue (fig. 118). All other species have more restricted areas of distribution. Polyplectropus nathalae has a disjunct distribution comprizing 2 widely separated locality clusters, i.e. Mt. Panié and Platou de Dogny/Sarramea (fig. 120); and aberrus has a widely disjunct distribution including Mt. Kögi and Mt. Kohgi/Riviére Bleue (fig. 117). Also papei, curvispinus and tenerus have disjunct distribution patterns, involving Pont des Japonais/Plateau de Dogny (fig. 127); Aoupinié/Plateau de Dogny/ Mt. Dzumac (fig. 123); and Col d’Amieu/Mt. Kohgi/Riviére Bleue (fig. 123), respectively. All these widely distributed species, except nathalae and aberrus, are found on both ultrabasic substrate and non-ultrabasic substrate. The following species are restricted to areas with non-ultrabasic substrates: nathalae, angustus (fig. 123), taoensis (fig. 127), nodyg (fig. 117), yndog (fig. 119), millei (fig. 121), christinae (fig. 121), kouve (fig. 121), hovmoelleri (fig. 122), aoupinensis (fig. 122), and viklundi (fig. 122). Polyplectropus aberrus, clavus (fig. 119), triangularis (fig. 126), pernodensis (fig. 127), trilobatus (fig. 124), and piroguensis (fig. 125) are present on ultrabasic substrates only.

More than half of the twenty-one New Caledonian Polyplectropus species are restricted to areas with non-ultrabasic substrates. Six species are restricted to areas with ultrabasic substrates, and 4 species are found on both substrate types. At present, we cannot conclude anything about whether presence or absence on ultrabasic substrates is related to the phylogenetic history of the group or not.

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Figures 128–129

128, a Malaise trap installed across a forest stream at the Plateau de Dogny, where Polyplectropus dorsospinus n. sp., P. yndog n. sp., P. nathalae n. sp., P. curvispinus n. sp. and P. caledonia n. sp. have been collected; 129, habitus of P. caledonia n. sp.
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References


