The Brontini of the world: A generic review of the tribe (Coleoptera: Silvanidae: Brontinae)

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Abstract: The genera of the tribe Brontini (Silvanidae: Brontinae) are reviewed. The tribe is considered here to be composed of 12 genera, *Uleiota* Latreille, *Brontopriscus* Sharp, and *Dendrophagus* Schönherr, plus nine **new genera**: *Australodendrophagus, Australohyliota, Brontoliota, Dendrophagella, Macrohyliota, Megahyliota, Microhyliota, Parahyliota*, and *Protodendrophagus*. *Aplatamus* Grouvelle is removed from the Brontini and placed in the Telephanini. Four **new species** are described: *Protodendrophagus antipodes* Thomas; *Brontoliota indivisipennis* Thomas; *Brontoliota intermedius* Thomas; and *Brontoliota monteithi* Thomas.

Described species are assigned to genera with the following **new combinations** resulting: *Australodendrophagus australis* (Erichson); *Australohyliota chilensis* (Blanchard); *Australohyliota macleayi* (Olliff); *Denrophagella capito* (Pascoe); *Macrohyliota truncatipennis* (Heller); *Macrohyliota bicolor* Arrow; *Macrohyliota gracilicornis* (Arrow); *Macrohyliota lucius* (Pascoe); *Macrohyliota militaris* (Erichson); *Macrohyliota spinicollis* (Gory); *Megahyliota feae* (Grouvelle); *Microhyliota integricollis* (Fairmaire); *Parahyliota africanus* Grouvelle; *Parahyliota alticola* (Pal, Sen Gupta, and Crowson); *Parahyliota atratus* (Grouvelle); *Parahyliota brevicollis* (Arrow); *Parahyliota cinamomeus* (Fairmaire); *Parahyliota costicollis* (Reitter); *Parahyliota fallax* (Grouvelle); *Parahyliota indicus* (Arrow); *Parahyliota pallidus* (Arrow); *Parahyliota puberulus* (Reitter); *Parahyliota serratus* (Smith); *Parahyliota serricollis* (Candeze); *Parahyliota siamensis* (Arrow).

Two **new synonymies** are proposed: *Uleiota crenicollis* Grouvelle (=*Uleiota costicollis* Grouvelle) and *Uleiota texana* Dajoz (=*Uleiota dubius* (Fabricius)). *Uleiota truncatus* Motschulsky, formerly treated as a subspecies of *U. dubius* (Fabricius), is elevated to a full species, **new status**.

Introduction

Examining more than 3,000 specimens representing all described species of *Uleiota* Latreille from numerous collections over the past decade convinced me that more than one genus was masquarading under that name and led to this study. Studies of individual genera will follow.

Thomas (1984) divided the Silvanidae into two subfamilies based primarily on genitalic characters, including the genera with inverted male genitalia in Uleiotinae (now Brontinae (Lawrence and Newton 1995)) and the genera with non-inverted genitalia in Silvaninae. The Brontinae was further subdivided into two tribes: the Brontini (Uleiotini *sensu* Thomas 1984) and the Telephanini, based primarily on the condition of the anterior coxal cavities (open in Brontini, closed in Telephanini). Pal *et al.* (1985) provided a taxonomic history of the higher categories of Silvanidae and divided the family into four subfamilies: Uleiotinae (= Uleiotini *sensu* Thomas 1984), Cryptamorphinae and Psammoecinae (together = Telephanini *sensu* Thomas 1984), and Silvaninae.

Brontini Erichson 1845

Description:

Form: Elongate, fusiform to ovate, mostly elongate, parallel-sided; size small to medium, 5mm to 15mm in length.

Surface sculpture and pubescence: Moderately to densely punctate; punctures of two types: simple in non-incrusted species, subtending an erect or suberect simple seta, or broad, shallow, and ocellate in incrusted species, subtending an erect or suberect modified seta (truncate and broadened apically or thick and strongly curved). An integumental incrustation occurs in *Uleiota*, most *Macrohyliota*, *Brontopriscus*, and *Brontoliota*. Microsculpture is present in non-incrusted species, absent in most incrusted species. Pubescence is moderate, usually short and inconspicuous, occasionally long.

Head:

Head capsule: Transverse, somewhat triangular in shape; frontoclypeal suture usually not obvious, but apparently indicated laterally by a short line or by an abrupt elevation change; apex of clypeus subtruncate, usually deeply emarginate over antennal insertions; frontal region bounded laterally by

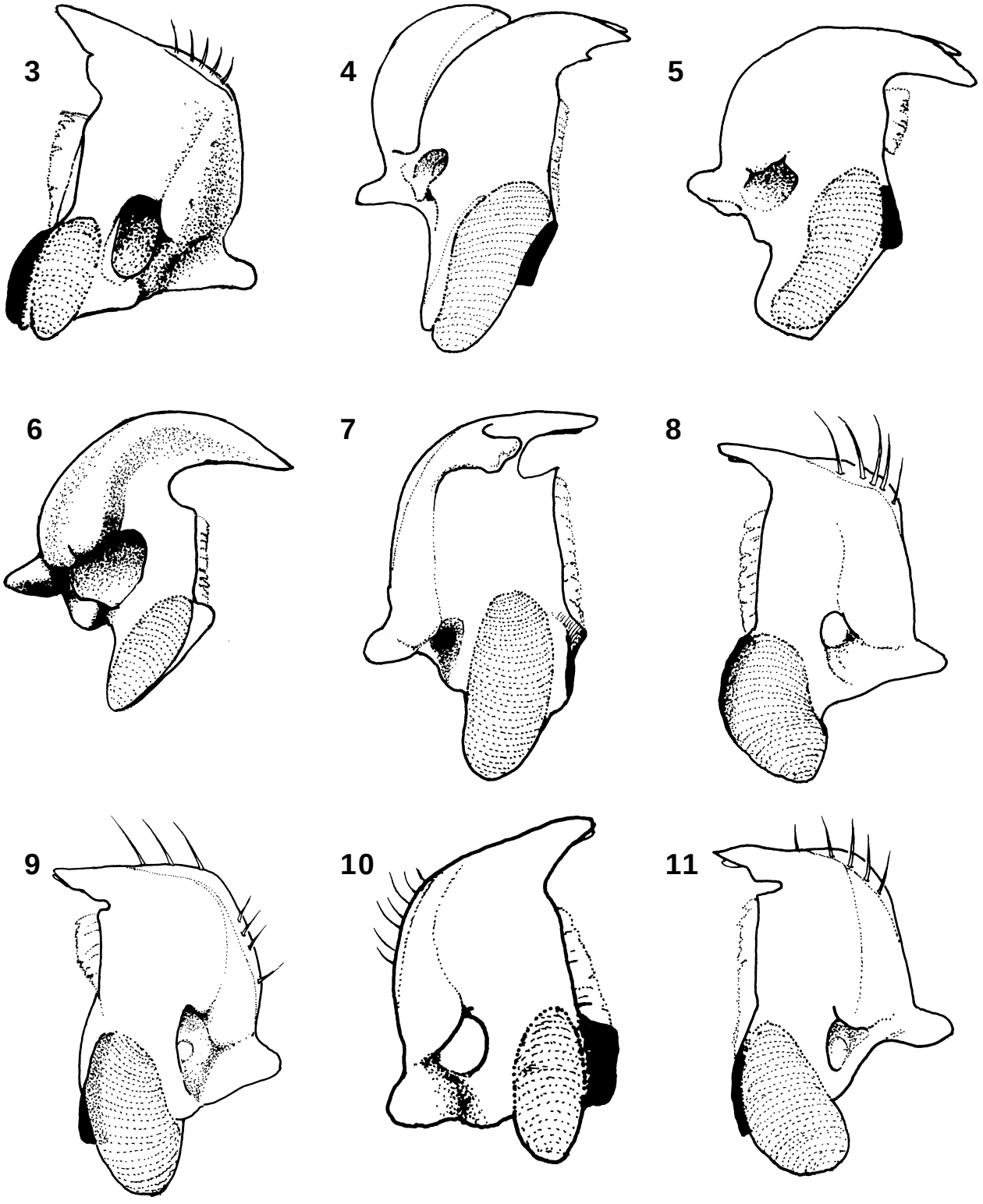
Figures 1-2. *Uleiota dubius*. 1) Dorsal view, habitus of male; 2) Ventral view, habitus of female.

longitudinal grooves in some genera (frontal region subject to sexual dimorphism in *Parahyliota*); temples slightly to markedly produced; head usually transversely impressed behind temples and abruptly constricted to form a neck; gular region simple or semicircularly impressed; gular sutures present, widely separated, divergent posteriorly.

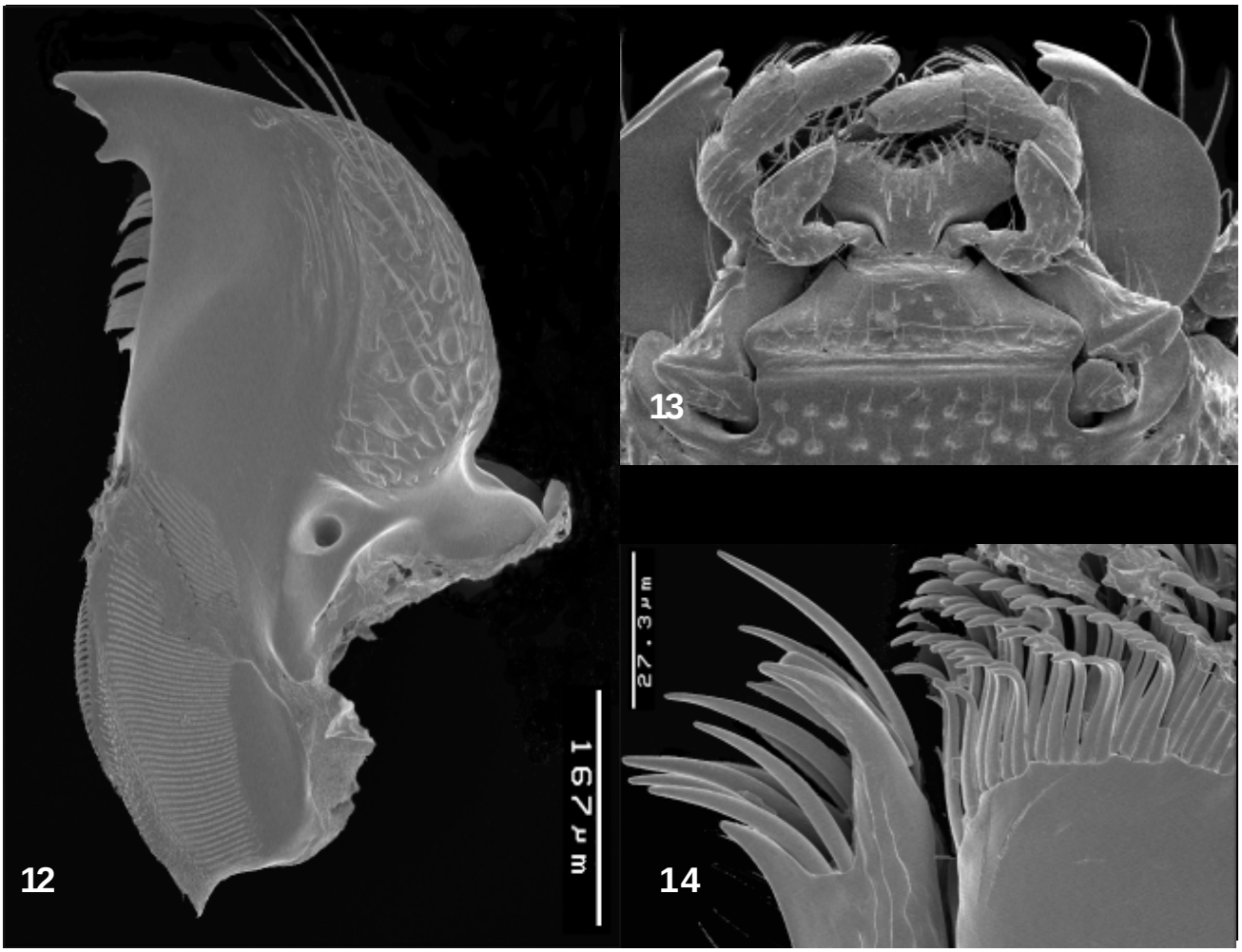
Mouthparts: Mandibles (Figs.3-12) stout, laterally expanded or carinate, with two apical teeth and a dorso-basally located, small to large mycangium bounded anterolaterally with a tubercle; prostheca and mola present; males of some species of several genera with an erect dorsal mandibular horn (Figs. 1, 7), the function of which is unknown. Labrum short, transverse, apparently immoveable. Mentum transverse (Fig. 13). Labial palpomeres (Fig. 13) subequal in length, not strongly expanded (except *Dendrophagus*); terminal palpomere simple; galea broadly rounded and densely setose; lacinia (Fig. 14) with two apical teeth and one subapical tooth. Labial palps with apical palpomere (Fig. 13) moderately to strongly securiform(except simple in *Dendrophagus* and in an intermediate form in *Dendrophagella*); ligula (Fig. 13) corneous and emarginate apically.

Antennae: Filiform, elongate, sometimes exceeding body length; terminal antennomeres not forming a distinct club; scape elongate to very elongate, usually at least as long as head; pedicel usually much shorter than antennomere III; antennae highly modified in males of some species of *Parahyliota*, the function of such modified antennae is unknown.

Eyes: Moderate to large, flattened to hemispherical; conspicuously setose in a few species of *Macrohyliota*.



Figures 3-11. Uleiotini, mandibles, dorsal view: 3) *Dendrophagus cygnaei*; 4) *Parahyliota siamensis*; 5) *Australohyliota macleayi*; 6) *Dendrophagella capito*; 7) *Macrohyliota gracilicornis*; 8) *Macrohyliota militaris*; 9) *Australohyliota chilensis*; 10) *Australodendrophagus australis*; 11) *Macrohyliota bicolor*.



Figures 12-14. *Uleiota dubius*, female. 12) right mandible; 13) mouthparts; 14) lacinia.

Thorax:

Pronotum: Quadrate to transverse, lateral margins denticulate to strongly toothed (except *Dendrophagus*); disk sometimes bounded by longitudinal carinae or costae; present in almost all members of the tribe is what appears to be a glandular pore located in a laterobasal excavation at the hind angles of the pronotum.

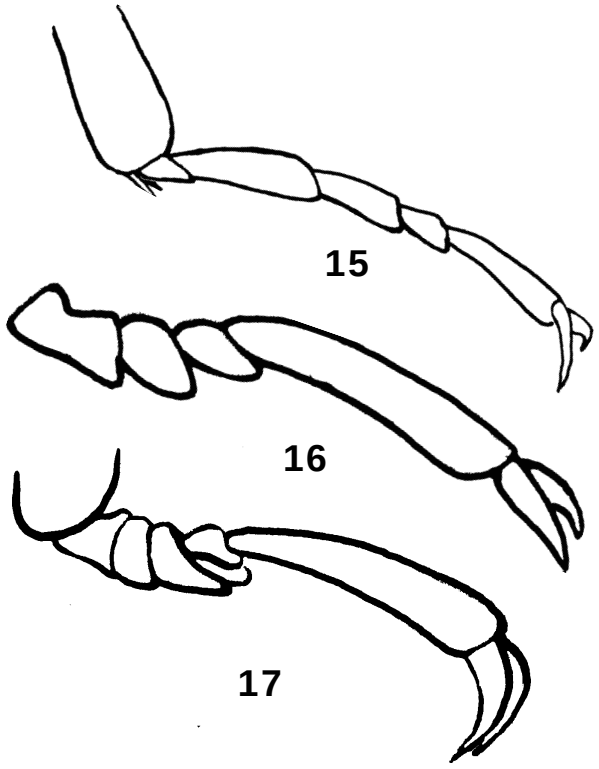
Prosternum: Anterior coxal cavities moderately to broadly separated, open posteriorly; intercoxal process broad; protrochantin not exposed.

Scutellum: Moderate, rounded or angulate posteriorly, usually without distinct transverse carina or groove.

Mesosternum: Meets metasternum in an almost straight line, suture simple; mesocoxal cavities widely separated, open laterally; closed by mesepimeron only, mesepisternum does not contribute to closure; mesotrochantin exposed.

Metasternum: Transverse (very short and transverse in *Brontopriscus*), with median longitudinal line for half or more of length; metendosternite as in Fig. ; Pal *et al.* (1985) reported "...a pair of small glandular cavity-like structure [*sic*] present at apical margin of metathorax...". I have been unable to locate such structures. However, in many Brontini the metasternum immediately behind the mesocoxae is excavate to a greater or lesser degree.

Elytra and hind wings: Elytra striatopunctate, disk usually with six or seven rows of punctures plus a scutellary striole (absent in *Parahyliota*, *Brontopriscus*, and *Uleiota*); intervals flat to costate; humeral carina present or absent; lateral margin explanate to a greater or lesser degree, sometimes denticulate; epipleura usually complete to apex, moderate to very broad; elytra are fused in *Brontopriscus* and *Brontoliota*, in which all known species lack hind



Figures 15-17. Tarsi of Brontini. 15) *Dendrophagus cygnaei*; 16) *Uleiota dubius*; 17) *Parahyliota costacollis*.

wings. Hind wing venation well-developed, remarkably consistent throughout the tribe.

Legs: Usually short, occasionally elongate; femora stout; tibiae short, usually simple, but occasionally with basal spine or carina; tibial spurs present, short, subequal; tarsomeres not lobed (tarsomeres are ventrally emarginate in some *Parahyliota*, but fleshy pads are not present (Fig. 17)); tarsal formula 5-5-5 in both sexes (except in *Uleiota*, in which tarsomere I is fused with II making the tarsal formula 4-4-4 (Fig. 16)); tarsi of two forms: (*Dendrophagus*-type) tarsomere I and IV very short, II-III much longer (Fig. 15); (*Uleiota*-type) tarsomeres I-IV all short and subequal in length (Fig. 16-17); tarsal claws simple.

Abdomen: With five subequal sterna, punctate, without sexual modifications; intercoxal process narrow to broad; femoral lines closed (open in some *Parahyliota*).

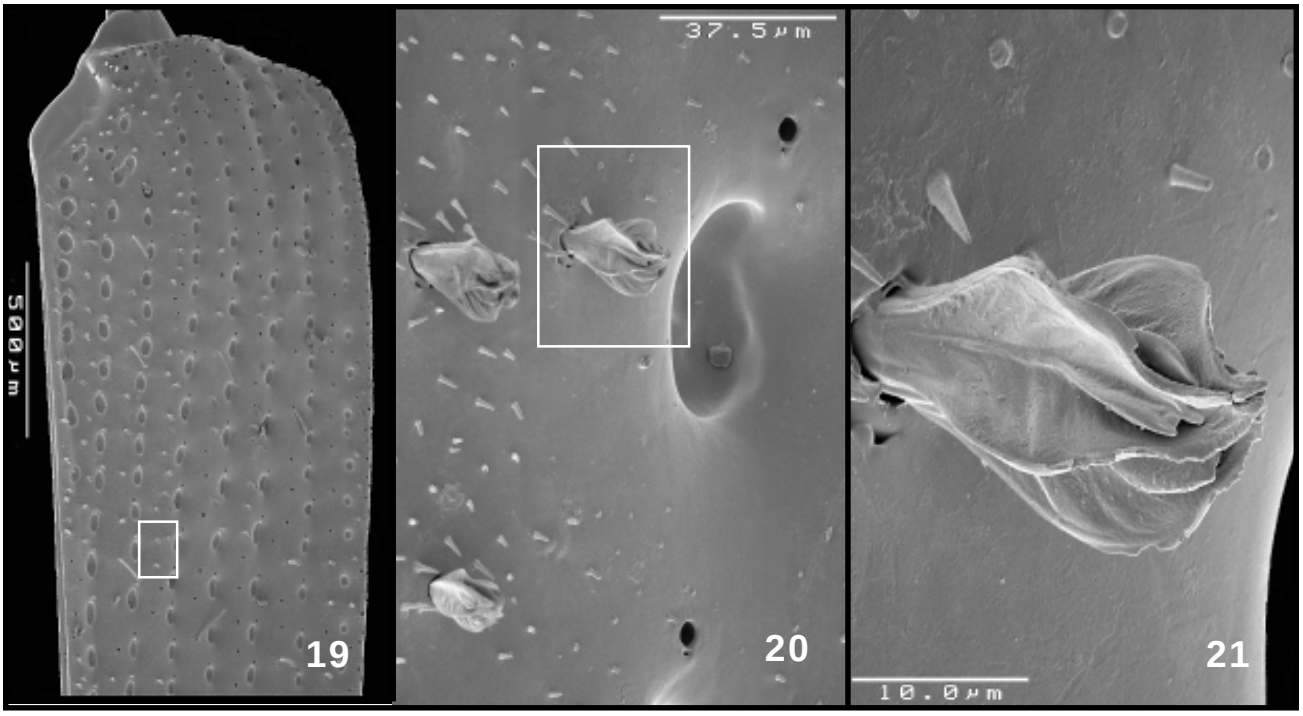
Genitalia: Male genitalia of normal, inverted cucujoid type. Parameres located on the ventral aspect of the median lobe, usually elongate and articulated (*e.g.*, Fig. 55-57), reduced to tooth-like processes in *Parahyliota* (Fig. 59); internal sac often with complex armature and usually with a flagellum.

Discussion of selected characters

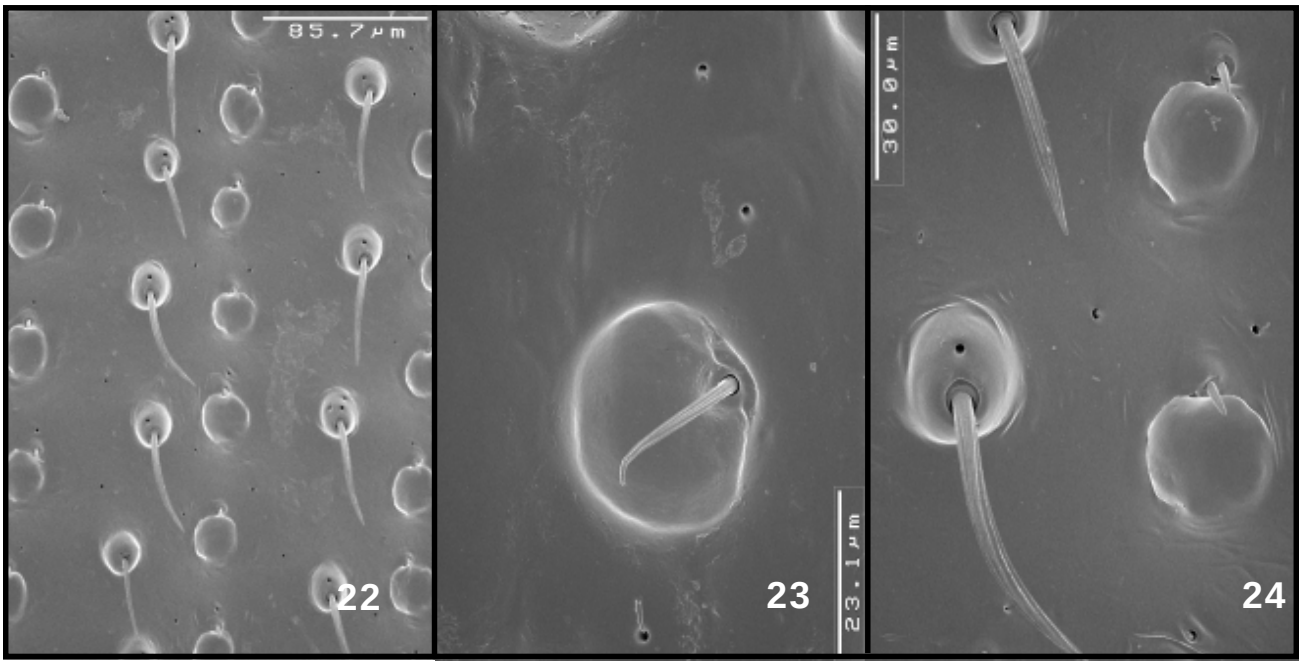
Integumental incrustation: An opaque, brown, somewhat granular substance (Fig. 18) coats the integument of all species of *Uleiota*, *Brontopriscus*, *Brontoliota*, *Megahyliota*, and most species of *Macrohyliota*. Such an incrustation does not appear to occur anywhere else in the Silvanidae, except in the silvanine *Silvanoprus* (Halstead 1993). It often has bits of debris imbedded in it and usually completely obscures the surface. It is not soluble in alcohol, ethyl acetate, or water, but can be removed in a detergent solution using pins to peel it off the surface. An ultrasonic cleaner can speed the process, but can destroy the specimen if care is not used. The incrustation occurs generally on the entire exterior surface except for antennomeres II-XI, eyes, mouthparts, and tarsi. The amount of incrustation varies among individuals and it may be that the incrustation grows heavier as the individual ages. The surface coating most probably functions as camouflage, but may also be a deterent to predators.

I have examined with a scanning electron microscope representatives of two species in which individuals are incrusted: *Uleiota dubius* and *Macrohyliota*

Figure 18. Specimen of *Brontoliota monteithi* showing moderate incrustation and phoretic uropodine mites that are commonly associated with beetles of this tribe.

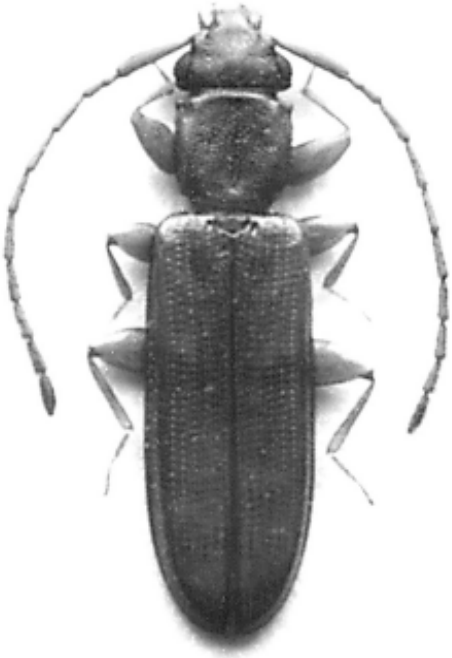


Figures 19-21. *Macrohyliota* n.sp.: 19) base of elytron; 20) enlargement of area enclosed in rectangle of a, showing modified setae, puncture, pores and microsetae; 21) enlargement of area enclosed in rectangle of b, showing modified seta.



Figures 22-24. *Uleiota dubius*: 22) Enlargement of elytral striae; 23) Enlargement of strial puncture; showing modified seta; 24) Enlargement of tubercle on elytral interval, showing modified seta and pore.

n. sp. On the elytra of *U. dubius* are alternating rows of tubercles and punctures (Fig. 22). Each subtends a seta, which arises dorsally from the tubercles (Fig. 24) but is situated at the lateral edge of the punctures (Fig. 23). The tubercles also have one or two openings near the base of the seta that appear to be glandular in nature (Fig. 24). The setae situated at the edge of the punctures are inclined over the puncture and are



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Figures 25-28. 25) *Australodendrophagus australis*; 26) *Australohyliota chilensis*; 27) *Australohyliota macleayi*; 28) *Brontoliota indivisipennis*.

Figures 29-32. 29) *Brontoliota intermedius*; 30) *Brontoliota monteithi*; 31) *Brontopriscus pleuralis*; 32) *Dendrophagella capito*.

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Figures 33-36. 33) *Dendrophagus cygnaei*; 34) *Macrohyliota gracilicornis*; 35) *Megahyliota feae*; 36) *Microhyliota integricollis*.

Figures 37-38. 37) *Parahyliota costicollis*; 38) *Protodendrophagus antipodes*.

angulate apically (Fig. 23). Setae of both the tubercles and punctures are somewhat longitudinally grooved. In *Macrohyliota* n. sp. the setae are even more highly modified, being either long, strongly grooved, and apically truncate, or short, thickened, fluted structures that barely resemble setae (Fig. 20). Additionally, microspines are located between the setae. Situated at the base of each seta are openings in the integument that may be glandular (Fig. 21). All of these modifications can be interpreted as structures to distribute and anchor the substance that forms the base of the incrustation. Such extensive modifications also suggest that the incrustation performs a function that is important to the survival of the beetles or to their reproductive success.

Head: Well-defined temples and posteriorly constricted head capsule are character states of the family as a whole. Longitudinal grooves on the dorsal surface of the head are found in both the Brontini and Telephanini, but not Silvaninae. A frontoclypeal suture occurs in a few Brontini and some but not all Telephanini; it does not occur in the Silvaninae. Male sexual characters on the frons occur only in the Brontini (*Parahyliota*). An elongate antennal scape is present in all Brontinae; absent in all Silvaninae. Male sexual characters occur in the flagellum of the antennae in Brontini (*Parahyliota*) and a few Telephanini (*Telephanus*), but are not known to occur in Silvaninae. Male sexual characters do not seem to occur on the hindlegs of Brontini, but they do occur there in some Telephanini (*Telephanus* and *Cryptamorpha*) and Silvaninae.

Mouthparts: A dorsal mycangium on the mandibles is found in the Brontinae but not the Silvaninae; its absence there is inferred to be derived. Male mandibular horns occur only in certain Brontini.

Thorax: Lateral teeth or spines on the pronotum are found throughout the family. Anterior coxal cavities are open posteriorly in Brontini only. A well-marked transverse groove or carina paralleling the hind margin of the scutellum is present in some Telephanini. In the Brontini, only *Dendrophagella capito* has such a structure conspicuously developed; however, an inconspicuous groove is present in some other brontine genera; it is absent in all Silvaninae. Coxal cavities are moderately or widely separated in all Brontini; narrowly separated in all Telephanini (except *Aplatamus*, which was assigned to Uleiotini by Thomas (1984) and is here moved to the Telephanini)

and most Silvaninae. *Dendrophagus*-type tarsi occur in both tribes of the Brontinae; *Uleiota*-type tarsi only in Brontini; lobed tarsi occur only in Telephanini and Silvaninae. Hindwing venation is very similar in all Brontinae with well-developed venation; hindwing venation is reduced in some Telephanini and most Silvaninae.

Elytra: A scutellary striole is present in most Brontini (except *Parahyliota*, *Brontopriscus*, and *Uleiota*) and some Telephanini, but is absent in all Silvaninae.

Male genitalia: The aedeagus is inverted (parameres lie on dorsal aspect of median lobe) in all Brontinae, the aedeagus is not inverted (parameres lie on ventral aspect of median lobe) in all Silvaninae. Complex armature of the internal sac and a flagellum occur throughout the family. Members of *Macrohyliota*, *Brontopriscus*, *Dendrophagella*, and *Brontoliota* possess a median lobe that is emarginate distally. The median lobe in *Uleiota*, *Megahyliota*, *Parahyliota*, and *Dendrophagus* is entire and acute distally. *Australodendrophagus* and *Microhyliota* possess highly modified male genitalia that do not closely resemble either group. The parameres in *Uleiota* and *Megahyliota* are rather broad and widely divergent apically; the parameres in other genera are more narrowly divergent apically and often nearly parallel-sided, or are otherwise modified.

Biology

Very little has been published on the habits and habitats of this group of beetles, except that they occur under loose bark where they feed on fungi of various kinds. Savely (1939) reported finding only fungal hyphae and spores in the gut of *Uleiota dubius*. Crowson and Ellis (1969) studied the morphology and biology of *Dendrophagus crenatus* and concluded that it was clearly fungivorus and that the adult mandibular pits functioned as spore-transport mechanisms and were truly mycangia. Cekalovic and Quezada (1972) described the larva of *Australohyliota chilensis* and reported on the occurrence of adults and larvae under bark of *Nothofagus*. Pal *et al.* (1985) described and illustrated the larva of *Parahyliota indicus*.

Distribution

Members of the Brontini are found on all continents, but are absent from the American tropics (two species occur in Chile) and are poorly represented in sub-Saharan Africa, where only two species of

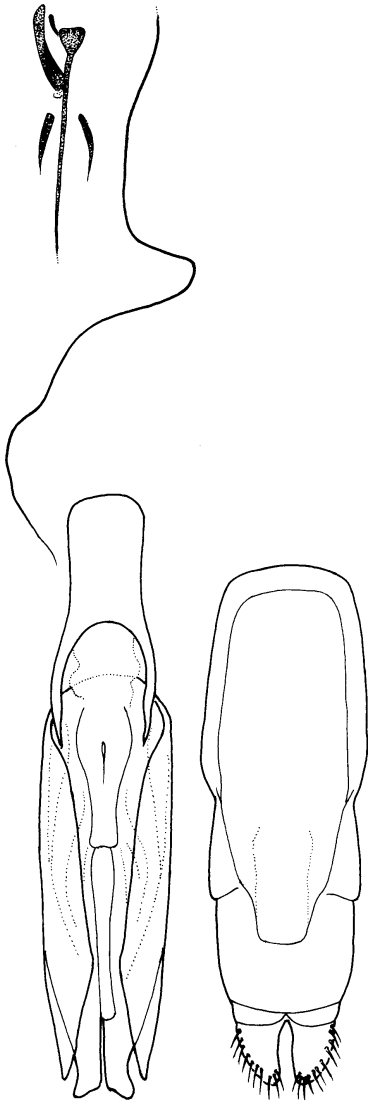


Figure 39. Median lobe and tegmen: *Australodendrophagus australis*.

Parahyliota (one described and one undescribed) occur. The tribe is represented by the greatest number of species and genera from Madagascar east to the Philippines and the Solomon Islands, and both Australia and New Zealand possess diverse and endemic faunas. The genera *Uleiota* and *Dendrophagus* are represented in the Holarctic with a total of four species in the Nearctic, and two each in Europe and Japan.

Australodendrophagus Thomas, new genus
Figs. 10, 25, 39

Type species: *Dendrophagus australis* Erichson, by present designation and monotypy.

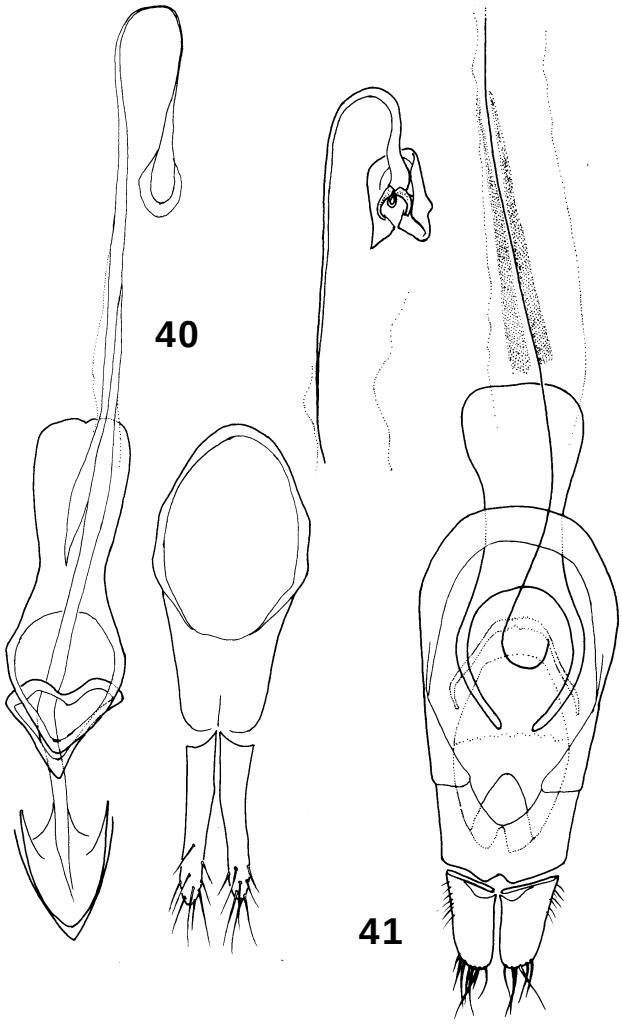


Figure 40-41. Median lobe and tegmen: 40) *Australohyliota macleayi*; 41) *A. chilensis*.

Diagnosis: The combination of head with short longitudinal lines (Fig. 25); subquadrate pronotum with finely denticulate lateral margins and a short, broad tooth at the anterior angles; presence of a scutellary striole; and male genital structure is diagnostic for this genus.

Description: With characteristics of Brontinae: Brontini as described above, plus: frontoclypeal suture absent, mandibles carinate dorsally, but not expanded laterally; eyes large, hemisphaerical, more than 1/3 length of head capsule; temple short, about 0.4 length of eye;antennal scape longer than head. Pronotum more or less quadrate, laterally minutely denticulate; anterior angles with short, broad tooth; posterior angles obtuse. Elytra with scutellary striole and six rows of punctures, laterally costate. Prosternal process wider than a coxal cavity, slightly rounded apically. Male genitalia as in Fig. 39.

Discussion: In general facies, adults of the single member of this genus most resemble members of *Parahyliota*, but differ in many details.

Etymology: Combination of the Latin adjective "*australis*" plus the genus name *Dendrophagus*, meaning "southern *Dendrophagus*." It is masculine.

Included species: *Australodendrophagus australis* (Erichson), **new combination**; Australia.

Australohyliota Thomas, new genus
Figs. 5, 9, 26-27, 40-41

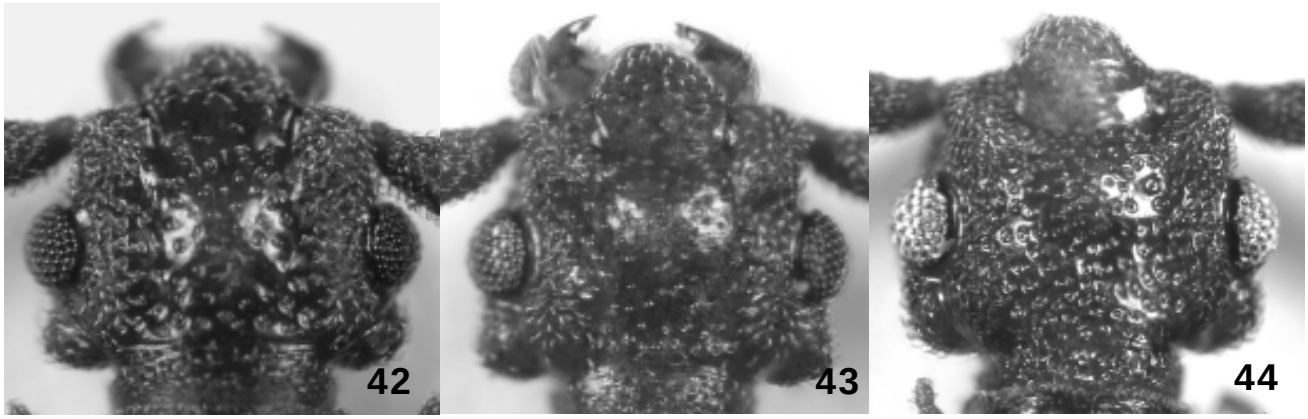
Type species: *Uleiota macleayi* Olliff, by present designation.

Diagnosis: The shape of the pronotum (Fig. 26-27), with short, broad anterolateral teeth, the comparatively long pubescence of the dorsal surface and antennae, and the structure of male genitalia (Fig. 40-41) characterize the members of this genus.

Description: With characteristics of Brontinae: Brontini as described above, plus: Surface without incrustation. Dorsal pubescence long, conspicuous. Head with frontoclypeal suture represented by slight change in elevation; with longitudinal lines or not; temples present, short to long, rounded; basal line impressed; eyes large, convex to somewhat flattened; antennal scape longer to much longer than head; mandibles rounded, slightly expanded laterally. Prothorax more or less quadrate; laterally denticulate, teeth coarse to fine and inconspicuous; anterior angles with longer, sharper teeth, directed somewhat dorsally; posterior angles right to obtuse. Elytra with scutellary striole; with six punctate striae; laterally carinate or not. Legs moderate to long, femora slender; tarsi "*Dendrophagus*-type". Prosternal process as broad as or narrower than coxal cavity; rounded apically. Male genitalia (Fig. 40-41) with basal strut of aedeagus short and broadly spatulate; flagellum recurved basally.

Distribution: Australia, Chile.

Discussion: The two species assigned to this genus seem to be rather isolated in the tribe, but may be



Figures 42-44. *Brontoliota*, heads, dorsal view: 42) *B. indivisipennis*; 43) *B. intermedia*; 44) *B. monteithi*.

closest to *Brontopriscus* and *Protodendrophagus*, based on the structure of the male genitalia.

Etymology: Combination of the Latin adjective "*australis*" plus the genus name *Hyliota*, meaning "southern *Hyliota*." It is masculine.

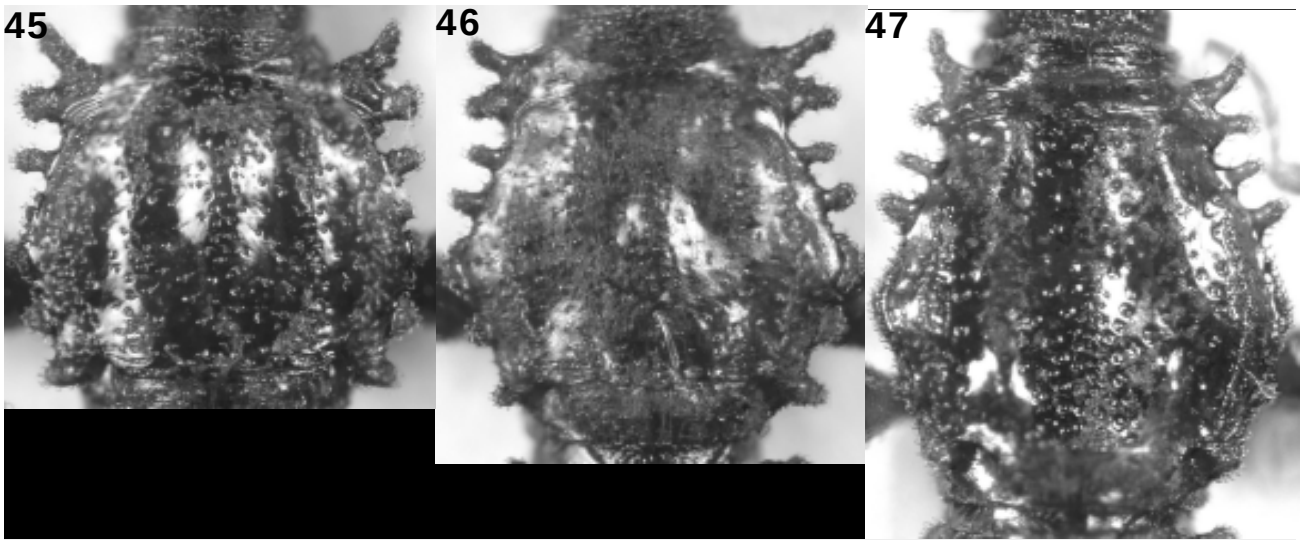
Included species: *Australohyliota chilensis* (Blanchard), **new combination**; *Australohyliota macleayi* (Olliff), **new combination**.

Brontoliota Thomas, new genus
Figs. 18, 28-30, 42-52

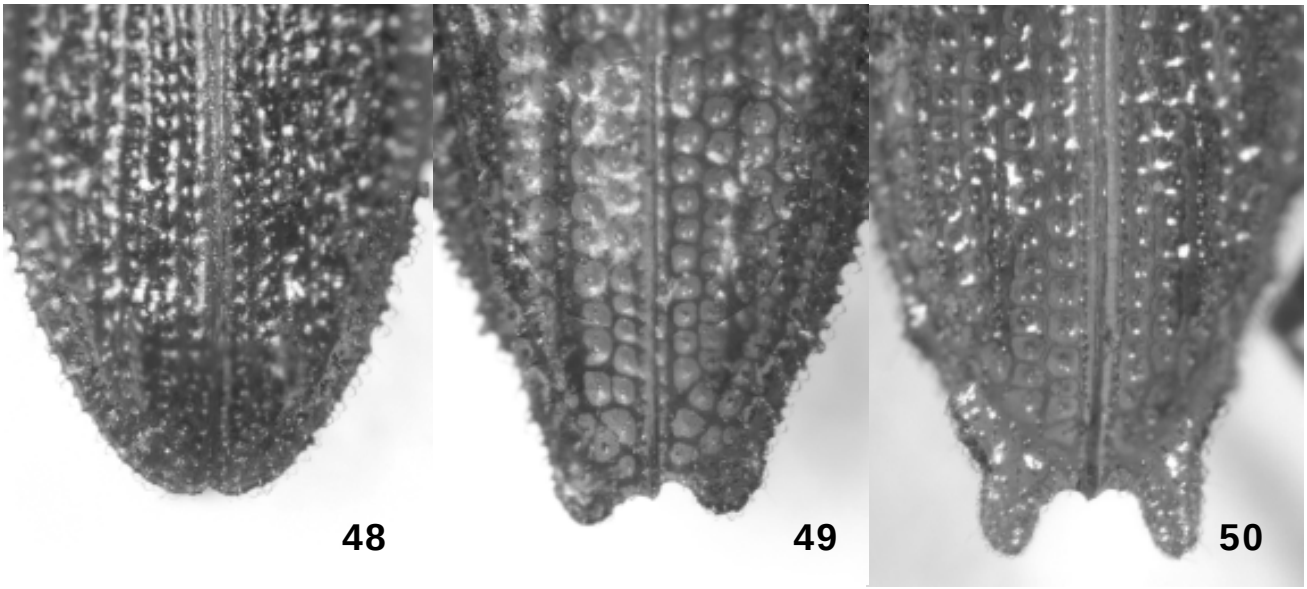
Type species: *Brontoliota monteithi* Thomas, by present designation.

Diagnosis: Adults of this genus (Figs. 28-30) are similar to those of *Brontopriscus* in their lack of hind wings, fused elytra, and short metasternum, but differ in their more elongate, narrow body form, possession of a scutellary striole, and structure of the male genitalia (Fig. 51-52).

Description: With characteristics of Brontinae: Brontini as described above, plus: Body long and slender; parallel-sided or fusiform. Dorsal surface with incrustation (Fig. 18). Head without frontoclypeal suture, but frontoclypeal region depressed below general level of head; longitudinal lines short, obscure;dorsal surface of head with five raised, more densely setose areas, as follows: above antennal insertions, behind eyes, and medially; mandibles slightly expanded laterally; eyes small, very convex, set on short stalks (Figs. 42-44); temple very long, angulate to rounded, with a deep longitudinal sulcus dividing



Figures 45-47. *Brontoliota*, pronota: 45) *B. indivisipennis*; 46) *B. intermedia*; 47) *B. monteithi*.



Figures 48-50. Elytral apices of species of *Brontoliota*: 48) *B. indivisipennis*; 49) *B. intermedius*; 50) *B. monteithi*.

it; basal line not or barely impressed; scape "flower bud vase" shaped, about as long as head; antennae rather thicker than usual for genus. Pronotum quadrate or fusiform; armed laterally with blunt teeth or spines, anterolateral angle with longest spine; posterior angle acute to obtuse; anterior and posterior margins produced to form distinct neck-like regions, which are raised and transversely wrinkled. Elytra dorsally flat, fused; basally constricted and toothed anterior to humerus; with six to eight rows of punctures plus a scutellary striole; alternate intervals raised, intervals continuous basally but interrupted apically to form a series of elongate tubercles; raised intervals more densely setose than rest of elytral disk; elytra laterally explanate, margin armed for entire length; epipleura wide; hind wings absent. Legs rather long; femora moderately stout; tarsi "*Dendrophagus*-type". Prosternal process wider than a coxal cavity, expanded and rounded apically. Male genitalia (Fig. 51-52) very similar to those found in *Macrohyliota*, but with very much longer basal strut and flagellum.

Distribution: Queensland, Australia, with one species extending south into New South Wales.

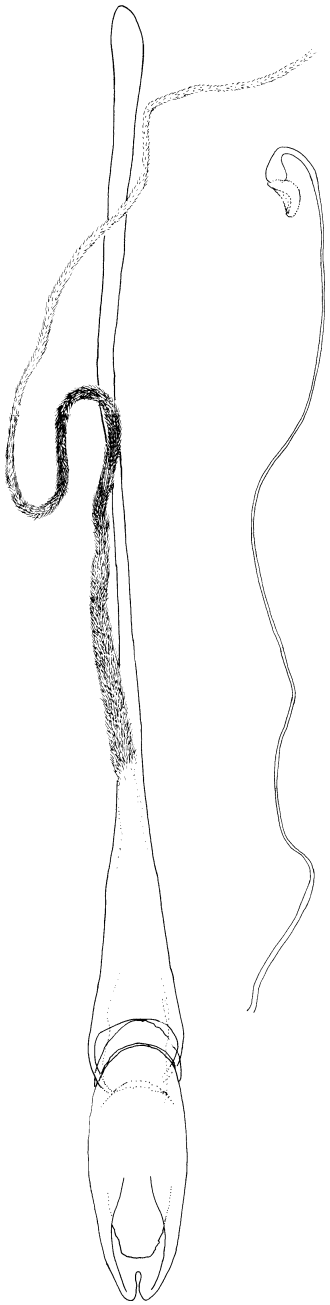
Discussion: The affinities of these remarkable beetles are not clear. Their resemblance to *Brontopriscus*, especially to *B. sinuatus*, may be because of similar adaptations to winglessness or, perhaps, to similar habits or habitat. Dr. Geoffrey Monteith, who collected most of the known specimens of this genus, wrote (*in. litt.*) about their habitat: "I work with the bug family Aradidae which has a lot of bizarre wingless forms which live on the outside of dead logs and sticks lying on the ground in rainforest, especially on the moist underside which is partly in contact with the soil and/or leaf litter. They are sedentary and highly camouflaged, so I spend a lot of time picking up wood from the ground and peering intently at it until my critters swim into focus. So this is the situation where I find your beetles also. They sit perfectly still, flattened against the damp, mouldy bark surface. Rarely do you find one under loose bark, where their more normal winged relatives live."

Etymology: The genus name is an arbitrary combination of letters from *Brontes* and *Hyliota*. It is masculine.

Included species: *Brontoliota indivisipennis* Thomas, new species; *Brontoliota intermedius* Thomas, new species; *Brontoliota monteithi* Thomas, new species.

Brontoliota indivisipennis Thomas, new species
Figs. 28,42,45,48

Diagnosis: The shorter, more compact body (Fig. 28), and entire elytral apices (Fig. 48) are diagnostic for adults of this species.



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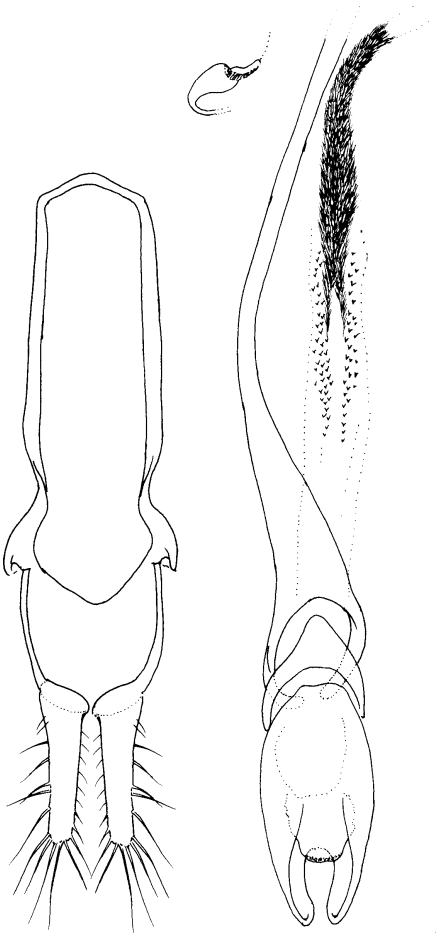

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Figures 51-52. *Brontoliota* spp. 51) *B. monteithi*, median lobe and internal sac; 52) *B. intermedius*, tegmen, median lobe, basal part of internal sac, and sperm duct.

Description: (male holotype)**:** With characteristics of Brontinae: Brontini: *Brontoliota* as described above, plus: Length, 8.3mm. Dark testaceous, tarsi and elytral margins paler, antennal flagellum darker. Head and pronotum with scattered, variably-sized ocellate punctures, smaller and less distinct than in *B. monteithi*, most dense medially and posteriorly, but irregularly placed; each subtending a thick, curved, suberect setae; surface between punctures without microsculpture. Pronotum wider than long (1:1.2 length/width), more or less rectangular in shape, widest behind middle; with three low, longitudinal costae, situated medially and sublaterally, most pronounced apically and basally; costae more densely setose that remainder of pronotum. Elytra 2.4x longer than wide, widest at about apical third; laterally

armed with irregular, short denticles, apices conjointly rounded (Fig. 48). Male genitalia with apex of median lobe broadly emarginate, as in Fig. 52.

Variation: Paratypes range in length from 5.6mm - 7.3mm; elytral length/width proportions range from 2.1 - 2.4; female antennae are a little shorter and stouter proportionally than those of the males, but this is best seen in a series of specimens.

Etymology: The species name is from the Latin "*indivisus*," meaning undivided, and "*penna*," meaning feather or wing, referring to the entire elytral apices.

Types: Holotype male, deposited in the Queensland Museum with accession number QMT.108611, with label data as follows: "Cunninghams Gap, 17.xii.1965 S.E.Q. B. Cantrell". Paratypes (41) with label data in Appendix 1.

Brontoliota intermedius Thomas, new species
Figs. 29, 43, 46, 49, 52

Diagnosis: Adults of this species resemble those of *B. monteithi* rather closely, but are less elongate (Fig. 29); the elytral apices are not as prolonged (Fig. 49); there are few or no punctures on the head and pronotum; and the apex of median lobe is broadly emarginate (Fig. 52).

Description: (male holotype)**:** With characteristics of Brontinae: Brontini: *Brontoliota* as described above, plus: Length, 7.1 mm. Dark testaceous, legs, mouthparts, and elytral margins paler. Head and pronotum appearing impunctate, with thick, curved, suberect setae which seem to arise directly from cuticle; surface without microsculpture. Pronotum quadrate (1:1 length/width), more or less rectangular in shape, with two low, longitudinal costae sublaterally; costae more densely setose that remainder of pronotum. Elytra 2.3x longer than wide, widest just behind humerus; laterally armed with irregular, short denticles, apices bifurcate (Fig. 49). Male genitalia with apex of median lobe broadly emarginate, as in Fig. 52.

Variation: Paratypes range in length from 6.0mm - 8.3mm; elytral length/width proportions range from 2.3 - 2.5; female antennae are a little shorter and stouter proportionally than those of the males, but this is best seen in a series of specimens.

Etymology: The specific epithet refers to the intermediate position of this species.

Types: Holotype male, deposited in the Queensland Museum with accession number QMT.108612, with label data as follows: "Paluma Dam, N. Qld. 27.xii.1963. G. Monteith". Paratypes (25) with label data in Appendix 1.

Brontoliota monteithi Thomas, new species
Figs. 18, 30, 44, 47, 50, 51

Diagnosis: Adults (Fig. 18, 30) of this species are more elongate than those of *B. intermedius*; the elytral apices are more prolonged (Fig. 50); head and pronotum punctate; apex of median lobe narrowly emarginate (Fig.51). Additionally, the temples are more rounded than in either of the other two *Brontoliota* species (Fig. 44).

Description (male holotype)**:** With characteristics of Brontinae: Brontini: *Brontoliota* as described above, plus: Length, 8.6 mm. Dark testaceous, legs and elytral margins paler, antennal flagellum darker. Head and pronotum with scattered, variably-sized ocellate punctures, most dense medially but irregularly placed; each subtending a thick, curved, suberect setae; surface between punctures without microsculpture. Pronotum just barely longer than wide (1:1.1 width/length), distinctly fusiform in shape, widest behind middle and strongly narrowed anteriorly and posteriorly; with low, longitudinal carinae paralleling lateral margin at about middle third; low, longitudinal costae situated medially to lateral costae, most pronounced apically and basally, and a low, longitudinal median costa; costae more densely setose than remainder of pronotum. Elytra 2.9x longer than wide, widest at about apical third; laterally armed with irregular, short denticles, apices strongly bifurcate (Fig. 50). Male genitalia with apex of median lobe narrowly emarginate, as in Fig. 51.

Variation: Paratypes range in length from 6.4mm - 8.2mm; elytral length/width proportions range from 2.8 - 3.0; female antennae are a little shorter and stouter proportionally than those of the males, but this is best seen in a series of specimens.

Etymology: I take pleasure in naming this species after Dr. Geoffrey Monteith, who collected most of the specimens known of this genus, and who gave un-

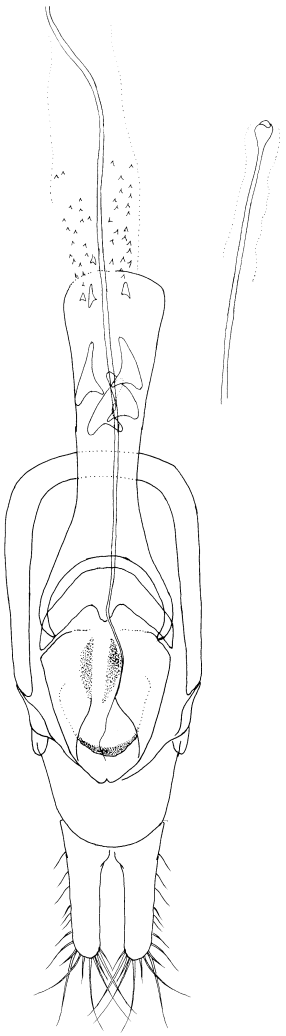


Figure 53. Median lobe and tegmen: *Brontopriscus pleuralis.*

stintingly from his knowledge of their habits and habitat.

Types: Holotype male, deposited in the Queensland Museum with accession number QMT.108613, with label data as follows: "Bellenden Ker Range, NQ 1km S. of Cable Tower 6 Oct. 17-Nov. 5, 1981, 500m EARTHWATCH/QLD MUSEUM Pyrethrum knockdown". Paratypes (112) with label data in Appendix 1.

Key to the species of *Brontoliota*

1. Elytral apices conjointly rounded (Fig. 48) ..... *Brontoliota indivisipennis* Thomas, new species
1'. Elytra apices divaricate (Figs. 49-50) 2

2(1'). Head and pronotum impunctate, or nearly so; body less elongate (Fig. 29), elytra 2.5x or less longer than wide; apex of median lobe broadly emarginate (Fig. 52) .... *Brontoliota intermedius* Thomas, new species
2'. Head and pronotum with large, conspicuous ocellate punctures; body more elongate (Fig. 30), elytra more than 2.5x longer than wide; apex of median lobe narrowly emarginate (Fig. 51)..... ..... *Brontoliota monteithi* Thomas, new species

Brontopriscus Sharp
Fig. 31, 53

Brontopriscus Sharp 1886: 391

Type species: *Brontes pleuralis* Sharp, by original designation. (Although Sharp (1886) did not explicitly state the type species of *Brontopriscus*, he made the following statement: "When I described Brontes pleuralis I stated it might be made the type of a new genus, and the discovery of a second species with the peculiarities still more exaggerated renders it advisable that this should now be done." The phrase "...this should now be done" clearly refers to making *B. pleuralis* the type of *Brontopriscus* and that this was Sharp's intent.)

Diagnosis: The very wide epipleura, fused elytra, lack of an obvious scutellary striole, and absence of hind wings are diagnostic for the members of this genus.

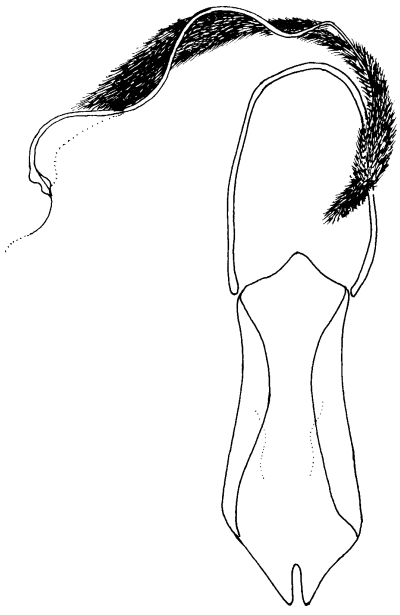


Figure 54. Median lobe: *Dendrophagella capito.*

Description: With characteristics of Brontinae: Brontini as described above, plus: Dorsal surface with incrustation. Head without frontoclypeal suture; longitudinal lines short, obscure or absent; mandibles slightly expanded laterally; eyes moderate, convex; temple long, rounded; basal line impressed or not; scape normal or "flower bud vase" shaped, longer than head. Pronotum more or less quadrate; laterally with blunt teeth, anterior and posterior angles acute. Elytra dorsally flat; fused, with six rows of punctures; without an obvious scutellary striole; laterally broadly explanate, margin minutely denticulate or not; epipleura very wide; hind wings absent. Legs rather long; femora moderate; tarsi "*Dendrophagus*-type". Prosternal process wider than a coxal cavity, expanded and rounded apically. Male genitalia as in Fig. 53.

Distribution: New Zealand.

Discussion: Although the affinities of *Brontopriscus* seem to lay with *Brontoliota*, the male genitalia in the two genera are quite different. One or two punctures occur in the area of the elytron of *B. pleuralis* where the scutellary striole would be located, and they may represent remnants of that. The elytra of *B. sinuatus* are abruptly constricted at the base, forming a characteristic "waist." The narrowing of the elytra there may have been the reason for the loss of the scutellary striole in that species. They do not share the derived tarsal characters of *Uleiota* or *Parahyliota*. The "flower bud vase"-shaped antennal scape seems to be unique within the Brontini with one of two *Brontopriscus* species and all known species of *Brontoliota* possessing it, but a similarly shaped antennal scape occurs in a few *Telephanus* (Telephanini). Sharp (1886) did not mention the flightlessness of these beetles.

Included species: *Brontopriscus pleuralis* (Sharp); *Brontopriscus sinuatus* Sharp.

Dendrophagella Thomas, new genus
Figs. 6, 32, 54

Type species: *Dendrophagus capito* Pascoe, by present designation and monotypy.

Diagnosis: The combination of the pubescent dorsal surface, elytral color pattern, long frontal lines, and *Dendrophagus*-type tarsi is diagnostic for members of this genus.

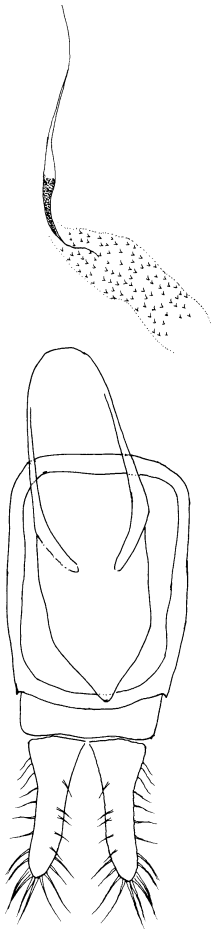


Figure 55. Median lobe and tegmen: *Dendrophagus longicornis*.

Description: With characteristics of Brontinae: Brontini as described above, plus: Surface without incrustation, distinctly pubescent. Head with frontoclypeal suture represented by a vague, broad, transverse impression; with long longitudinal lines; temples present, short, rounded; basal line not impressed; eyes moderate, convex; antennal scape shorter than head; mandibles rounded, slightly carinate dorsally. Prothorax cordate, armed posterolaterally with several denticles and at the anterior angles with a short, broad tooth. Elytra with scutellary striole; with six punctate striae; laterally vaguely costate. Legs moderately long, femora moderate; tarsi "*Dendrophagus*-type". Prosternal process a little broader than a coxal cavity; rounded and weakly expanded apically. Male genitalia (Fig. 54) characteristic.

Distribution: New Zealand.

Discussion: *Dendrophagella capito* shares the long frontal lines and male genitalic characters with members of *Dendrophagus*, but differs from members of this genus in its distinctly pubescent dorsum, color pattern, and shape of the pronotum. I have seen a very few specimens which were nearly uniformly piceous in color, but most specimens resemble the individual pictured in Fig. 32.

Etymology: The genus name is the feminine diminutive of *Dendrophagus*. The species epithet, *capito*, remains masculine as it is a noun in apposition.

Included species: *Dendrophagella capito* (Pascoe), **new combination**.

Dendrophagus Schönherr
Figs. 3, 15, 33, 55

Dendrophagus Schönherr 1809: 50
Hyliota Reitter, 1879: 80 (*sensu* Arrow 1901: 593, in part)

Type species: *Cucujus crenatus* Paykull, by monotypy.

Diagnosis: The combination of simple lateral margins of the pronotum and obsolete anterior angles, long frontal lines (Fig. 33), and *Dendrophagus*-type tarsi is diagnostic for members of this genus.

Description: With characteristics of Brontinae: Brontini as described above, plus: Surface without incrustation, nearly glabrous. Head with frontoclypeal suture represented by a vague, broad, transverse impression; with long longitudinal lines; temples absent or present, rounded; basal line impressed; eyes moderate, flattened to convex; antennal scape shorter to much longer than head; mandibles rounded, slightly carinate dorsally, with a short dorsal tooth in males of one species. Prothorax quadrate, with obsolete anterior and posterior angles; lateral margin sinuate and unarmed. Elytra with scutellary striole; with six punctate striae; laterally vaguely costate. Legs moderately long, femora moderate; tarsi "*Dendrophagus*-type". Prosternal process a little broader than a coxal cavity; rounded and weakly expanded apically. Male genitalia (Fig. 55) characteristic.

Distribution: Holarctic.

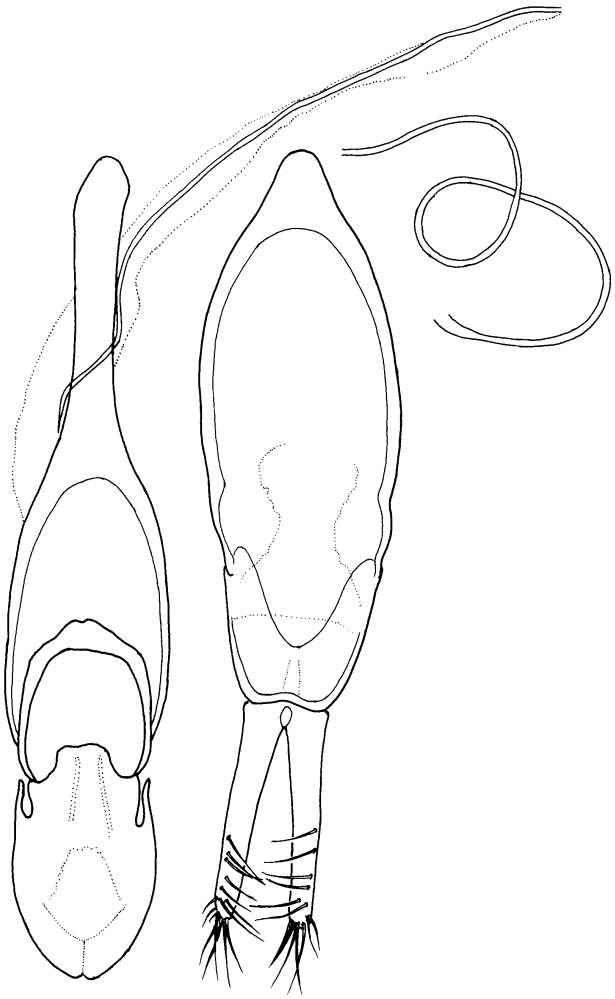


Figure 56. Median lobe and tegmen: *Macrohyliota spinicollis*.

Discussion: The presence of dorsal mandibular horns in one species of this genus (the Japanese *D. longicornis* Reitter) does not appear to have been documented previously.

Included species: *Dendrophagus crenatus* (Paykull); *Dendrophagus cygnaei* Mannerheim; *Dendrophagus longicornis* Reitter.

Macrohyliota Thomas, new genus
Figs. 7-8, 11, 19-21, 34, 56

Type species: *Hyliota gracilicornis* Arrow, by present designation.

Diagnosis: These are relatively large, loosely jointed beetles (Fig. 34). Most individuals are covered with a brown, granular incrustation that obscures the sur-

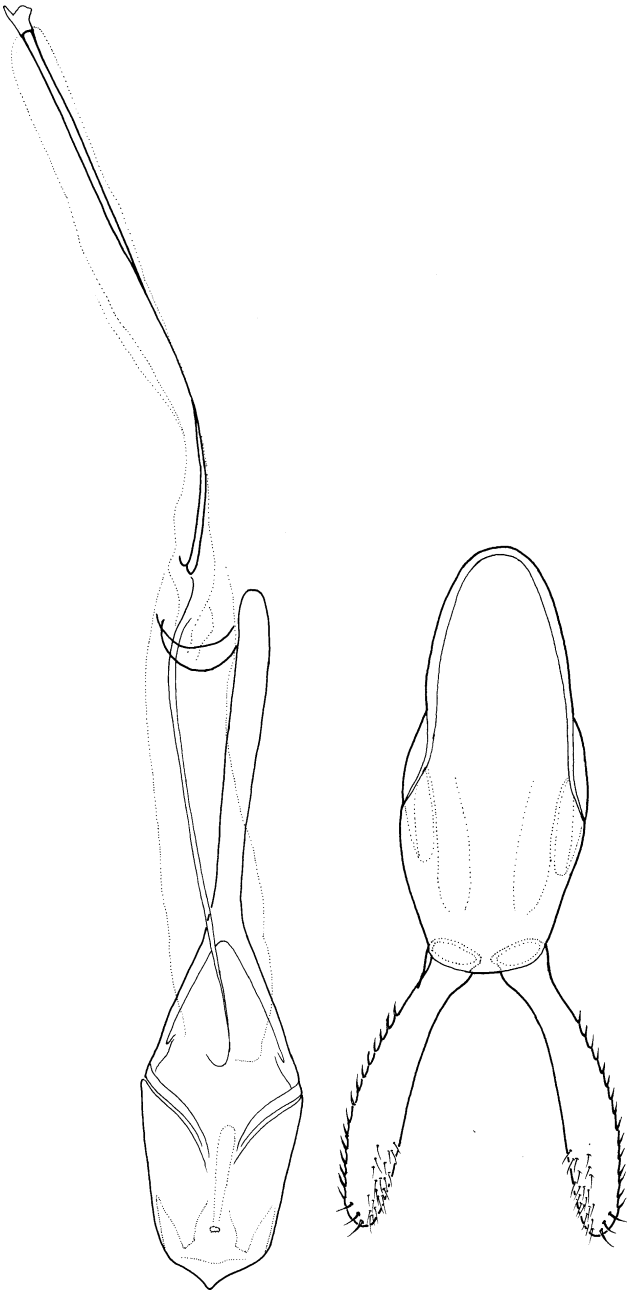


Figure 57. Median lobe and tegmen: *Megahyliota feae* (Grouvelle).

face sculpture to a greater or lesser extent (individuals of two species included here lack the incrustation). Individuals of most of the species have a tooth or carina on the mesotibia. They have "*Dendrophagus*-type" tarsi, and in most of the species there are small mandibular horns in the males.

Description: With characteristics of Brontinae: Brontini as described above, plus: Dorsal surface with incrustation in most species. Head without frontoclypeal suture; longitudinal lines short, obscure, or absent; mandibles slightly expanded laterally; with dorsally directed tooth in males of some species; eyes moderate, convex; temple moderate, rounded, absent in some species; basal line impressed or not; scape much longer than head. Pronotum more or less quadrate; laterally with spines, anterolateral angle with longest spine; posterior angle acute. Scutellum semicircular. Elytra laterally carinate or not; disc with six rows of punctures plus a scutellary striole. Legs rather long for the tribe; femur moderately stout; tibia carinate or toothed basally in most species; tarsi "*Dendrophagus*-type". Prosternal process about as wide as a coxal cavity, expanded and rounded apically. Male genitalia (Fig. 56) with long basal strut; long flagellum, and reduced armature of internal sac.

Distribution: Asia, Australia.

Discussion: Two species (*M. bicolor* and *M. militaris*) lack the incrustation found on the other species of the genus and may represent a different lineage deserving of generic rank. However, except for the lack of an incrustation and the concomitant modifications to surface sculpture and pubescence, *M. bicolor* is very close to *M. lucius*, a typical incrusted species. There are undescribed species of this genus from Australia, New Guinea, the Solomon Islands, and the Philippines.

Etymology: The genus name is a combination of "*macro*," the Greek word for "long", and "*hyliota*," the Greek word for "forester". It is masculine.

Included species: *Macrohyliota bicolor (Arrow),* ***new combination****; Macrohyliota gracilicornis* (Arrow), **new combination**; *Macrohyliota lucius* (Pascoe), **new combination**; *Macrohyliota militaris* (Erichson), **new combination**; *Macrohyliota spinicollis* (Gory), **new combination**; *Macrohyliota truncatipennis* (Heller), **new combination**.

Megahyliota Thomas, new genus
Figs. 35, 57

Type species: *Uleiota feae* Grouvelle, by present designation and monotypy.

Diagnosis: The combination of scutellary striole, six striae, lack of a mandibular tooth in males, and "*Uleiota*-type" tarsi are diagnostic for the members of this genus.

Description: With characteristics of Brontinae: Brontini as described above, plus: Surface with incrustation. Head with frontoclypeal suture represented by an abrupt change in elevation; with short longitudinal lines; temples present, short, angulate; basal line impressed; eyes small, convex; antennal scape longer than head; mandibles laterally expanded, not armed in males. Prothorax transverse; laterally armed with denticles; anterior angles with longer, sharper bifid teeth; posterior angles right to acute. Elytra with scutellary striole; with six punctate striae; humeral carina present; laterally broadly explanate with margin denticulate. Legs short, femora moderately stout; tarsi "*Uleiota*-type", tarsal formula 5-5-5. Prosternal process much broader than coxal cavity; expanded and rounded apically. Intercoxal process of first visible abdominal sternum narrowly rounded. Male genitalia (Fig. 57) with long basal strut and long flagellum present.

Distribution: Southeast Asia.

Discussion: The members of this genus greatly resemble those of *Uleiota* but differ in several characters to the extent that treating them as a separate genus seems necessary. In addition to the differences mentioned above; the alternate elytral intervals in *Megahyliota* are costate and densely covered with short, erect but strongly curved setae. In *Uleiota*, there is a single row of setae on each interval. There is at least one undescribed species in this genus.

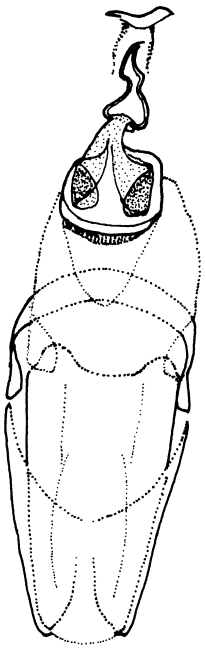


Figure 58. Median lobe and tegmen: *Microhyliota integricollis*.

Etymology: The genus name is a combination of "*mega*," the Greek word for "large", and "*hyliota*," the Greek word for "forester". It is masculine.

Included species: *Megahyliota feae* (Grouvelle), **new combination**.

Microhyliota Thomas, new genus
Figs. 36, 58

Type species: *Uleiota integricollis* Fairmaire, by present designation and monotypy.

Diagnosis: The evenly rounded, denticulate pronotal margins, small body size, and elytral color pattern (Fig. 36) make adults of the single known member of this genus easily recognizable.

Description: With characteristics of Brontinae: Brontini as described above, plus: Surface without incrustation, distinctly pubescent. Head with frontoclypeal suture represented by an abrupt change in elevation; with long longitudinal lines; temples present, long, rounded; basal line impressed; eyes large, convex; antennal scape much longer than head; mandibles rounded, slightly expanded laterally. Prothorax distinctly rounded, with obsolete anterior and posterior angles; laterally denticulate. Elytra with scutellary striole; with six punctate striae; laterally vaguely costate. Legs moderately long, femora slender; tarsi "*Dendrophagus*-type". Prosternal process a little broader than a coxal cavity; rounded and expanded apically. Male genitalia (Fig. 58) characteristic.

Distribution: Chile.

Discussion: The species upon which this genus is erected appears to be rarely collected as I have seen only three specimens. It seems closest to the members of *Dendrophagus* in its narrow, delicate body form, long frontal lines, and median lobe without a basal strut, but differs in other respects, such as the nearly round prothorax, long filiform antennae, and complicated armature of the internal sac.

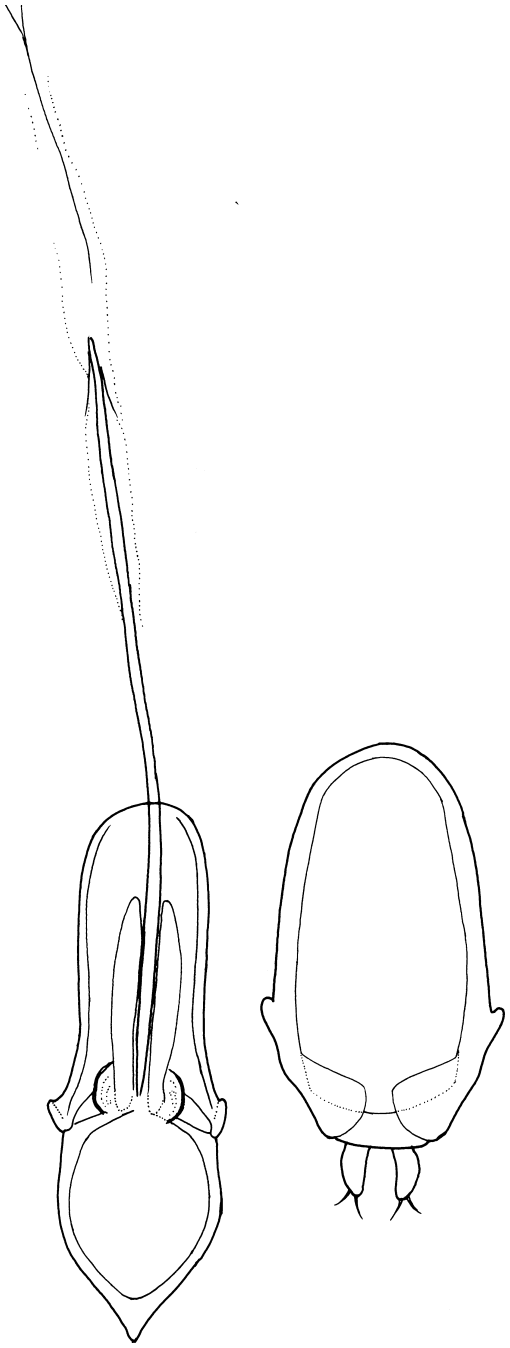


Figure 59. Median lobe and tegmen: *Parahyliota costicollis*.

Etymology: The genus name is a combination of "*micros*," the Greek word for "small", and "*hyliota*," the Greek word for "forester". It is masculine.

Included species: *Microhyliota integricollis* (Fairmaire), **new combination**.

Parahyliota Thomas, new genus
Figs. 4, 17, 37, 59

Type species: *Uleiota costicollis* Reitter, by present designation.

Diagnosis: The absence of a scutellary striole is unique to this genus, *Brontopriscus*, and *Uleiota* within the Brontini. Members of *Parahyliota* also are characterized by the presence of sexual modifications to the antennae and frons in males of some species, the "*Uleiota*-type" tarsi, and the reduction of the parameres in the male genitalia.

Description: With characteristics of Brontinae: Brontini as described above, plus: Surface without incrustation. Head without frontoclypeal suture; with short longitudinal lines, males of some species have elaborate modifications to frons consisting of carinae, grooves, setae-lined excavations, etc.; temples present, short; basal line impressed; eyes moderate, convex; antennal scape longer than head, modified in males of some species, as are the pedicel and some basal flagellomeres; mandibles laterally expanded, with dorsal tooth in males of at least one species. Prothorax more or less quadrate; laterally armed with denticles; anterior angles with longer, sharper teeth; posterior angles right to acute; disk of pronotum in some species bordered by longitudinal carinae. Elytra without scutellary striole; with six punctate striae, plus rows of secondary punctures between striae; laterally costate or carinate. Legs moderate, femora moderately stout; tarsi "*Uleiota*-type" but some species have what appears to be an "asymmetrically" bilobed tarsomere III. Prosternal process much broader than coxal cavity; rounded apically; disk of prosternum and mesosternum flat in some species and laterally carinate; open coxal lines on first visible abdominal sternum present in some. Male genitalia (Fig. 59) with complex armature of internal sac and parameres reduced to tooth-like structures.

Distribution: Asia, Africa

Discussion: This is the largest brontine genus, with 13 described species and several undescribed. It ranges from Africa east through Madagascar to Southeast Asia and the Philippines. It is the only brontine genus represented in Africa and Madagascar. It is also the only brontine genus exhibiting sexual modifications to the frons and antennae. Some of the species are very difficult to distinguish without recourse to the male genitalia. There are a number of undescribed species.

In the course of this study it was determined that *Uleiota crenicollis* Grouvelle 1913:57, described from Taiwan, is a junior synonym of *Uleiota costicollis* Reitter1876: 44, described from Burma, **new synonymy**.

Etymology: The genus name is a combination of "*para*," the Greek word for "near", and "*hyliota*," the Greek word for "forester". It is masculine.

Included species: *Parahyliota africanus* Grouvelle, **new combination**, western Africa; *Parahyliota alticola* (Pal, Sen Gupta, and Crowson), **new combination**, India; *Parahyliota atratus* (Grouvelle), **new combination**, Madagascar; *Parahyliota brevicollis* (Arrow), **new combination**, Madagascar; *Parahyliota cinamomeus* (Fairmaire), **new combination**, Madagascar; *Parahyliota costicollis* (Reitter), **new combination**, SE Asia; *Parahyliota fallax* (Grouvelle), **new combination**, SE Asia; *Parahyliota indicus* (Arrow), **new combination**, India; *Parahyliota pallidus* (Arrow), **new combination**; Madagascar; *Parahyliota puberulus* (Reitter), **new combination**, SE Asia; *Parahyliota serratus* (Smith), **new combination**, Philippines; *Parahyliota serricollis* (Candeze), **new combination**, Sri Lanka; *Parahyliota siamensis* (Arrow), **new combination**, SE Asia.

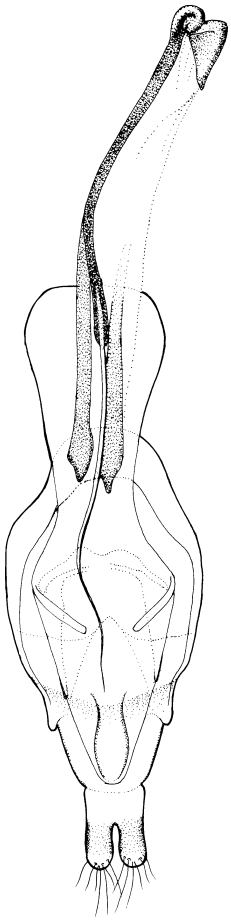


Figure 60. Median lobe and tegmen: *Protodendrophagus antipodes*.

Protodendrophagus Thomas, new genus
Figs. 38, 60

Type species: *Protodendrophagus antipodes* Thomas, by present designation and monotypy.

Diagnosis: The moderate-sized, loosely jointed, wingless adults (Fig. 38) of the only known species most closely resemble members of *Dendrophagus* and *Dendrophagella* in general appearance, but can be distinguished from both by the presence of a distinct frontoclypeal suture, flat eyes, shape of pronotum, and winglessness.

Description: With characteristics of Brontinae: Brontini as described above, plus: Dorsal surface without incrustation. Head with frontoclypeal suture marked by an impunctate, transverse, curved groove, deeper medially than laterally; mandibles carinate dorso-laterally, but not expanded laterally; eyes large, about 1/3 length of head capsule, but flat; temple rounded, longer than eye; basal transverse impression absent; antennae rather short for tribe, attaining apical third of elytra in males, midpoint in female. Pronotum broad, strongly rounded laterally; posterolateral angle obsolete, so that lateral margin flows uninterupted into basal margin; anterolateral angle absent (male) or represented by a small, acute denticle located below and behind the anterior margin (female). Scutellum semicircular, medially impunctate and slightly tumid. Elytra evenly rounded to lateral margin, which is narrowly but sharply explanate, explanate margin continues unbroken anteriorly over the humerus to base; disc with six rows of punctures plus a scutellary striole, punctures small and deep; elytra not fused. Hindwings absent. Legs rather long for genus, femora slender; tarsi "*Dendrophagus*-type". Prosternal process narrower than a coxal cavity, strongly rounded apically. The structure of the male genitalia (Fig. 60) is most similar to that found in *Brontopriscus*.

Distribution: New Zealand.

Discussion: This genus is represented by the single species described below.

Etymology: The genus name is a combination of "*protos*," the Greek word for "first", and the genus name *Dendrophagus*. It is masculine.

Included species: *Protodendrophagus antipodes* Thomas, new species.

Protodendrophagus antipodes Thomas, new species
Figs. 38, 60

Description (male): With characteristics of Brontinae: Brontini: *Protodendrophagus* as described above, plus: Length, 8.7mm. Dorsal surface dark brown, mouthparts, antennal flagellum, tarsi, and elytra paler. Head and pronotum with scattered short, pale, recumbent pubescence; elytra with shorter, denser pubescence, almost forming a pile on the surface; punctation consisting of umbilicate punctures, smaller than an eye facet and separated by about two diameters (low tubercles on which punctures are situated are contiguous); punctation less dense medially on head but rather uniform on pronotum. Temple long, rounded gradually to basal constriction; scape about as long as head. Pronotum 1.1x wider than long, anterior angle armed with low, oblique ridge laterally. Anterior tarsomeres II-III dilated. Male genitalia as in fig. 60.

Variation: Females differ from male as follows: Punctation of head and pronotum similar but simple and much less dense medially; pubescence similar, but less dense on elytra. Temple shorter and more abruptly rounded; antennal scape shorter than head. Pronotum more transverse, 1.3x wider than long, with anterior angle armed with a short, acute tooth. Anterior tarsomeres II-III not dilated. Length, 8.7-9.3mm.

Etymology: The species name is a noun in apposition, referring to the Antipodes, a region encompassing Australia and New Zealand.

Types: Holotype male, in NZAC, with following label data: "Nelson Lakes Nat. Pk. NN Mt. Cedric 5000' O. Calvert."/"under rock": Allotype female, in NZAC, with following label data: "Barton Saddle Nelson, 4500' 10-I-61 J.I. Townsend."/"R.M. Bull Collection"/"[NZAC label]".

Paratypes, all females, 1, "Iron Hill Co. 66 V. Nelson 9 Mar 68 1500m J.S. Dugdale"/"crest ridge under rocks"/"[NZAC label]"; 1, "Mt. Domett 1450-1600m 30 Nov. 71"/"J.S. Dugdale"/"Brontini N. gen. N.sp. Det. J.S. Watt 1983"/"[NZAC label]" (NZAC). One additional female specimen, not designated a paratype because of its poor condition: "Mt. Domett 35-3000 ft NN Nov. 71"/"[NZAC label]" (FSCA).

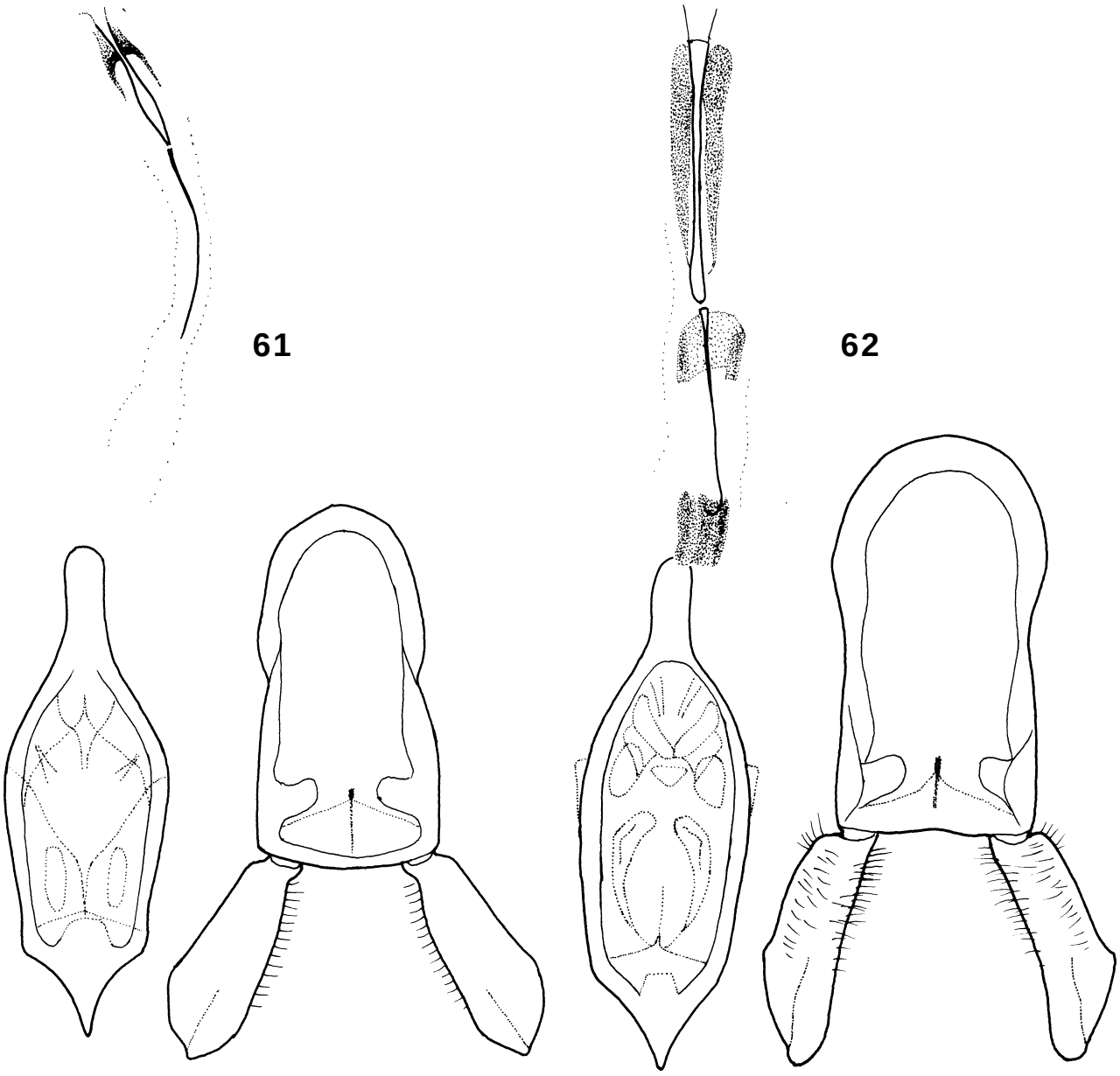
Uleiota Latreille
Figs. 1-2, 12-14, 16, 22-24, 61-62

Uleiota Latreille 1796: 46
Brontes Fabricius 1801: 97
Hyliota Reitter 1880: 80
Hyleota Seidlitz 1888: 55

Type species: Pal *et al.* (1985: 213) stated that Latreille (1796: 46) proposed *Uleiota* for *Cerambyx flavipes* (Fabricius). This is untrue. Latreille (1796: 46) listed *Cerambyx* and *Cucujus* under *Uleiota*, but included no species. Arrow's (1901: 595) statement that "The type of the genus is *H. planata*, L..." seems to be the first designation of a type species. Arrow's concept of the genus was much broader than that adopted here.

Diagnosis: The combination of broad body shape, mandibular horns in the male, lack of a scutellary striole and five discal striae on each elytron, and *Uleiota*-type tarsi (Fig. 16) with only four tarsomeres is diagnostic for this genus.

Description (male holotype)**:** With characteristics of Brontinae: Brontini as described above, plus: Surface with incrustation. Head with frontoclypeal suture represented by an abrupt change in elevation; with short longitudinal lines; temples present, short, angulate; basal line impressed; eyes small, convex; antennal scape longer than head; mandibles in males with long, curved dorsal spine; in females laterally expanded. Prothorax transverse; laterally armed with denticles; anterior angles in most with longer, sharper bifid or trifid teeth; posterior angles right to acute. Elytra without scutellary striole; with five punctate striae; humeral carina present; laterally explanate and margin denticulate. Legs short, femora moderately stout; tarsi "*Uleiota*-like", tarsal formula 4-4-4. Prosternal process much broader than coxal cavity; expanded and rounded apically. Intercoxal process of first visible abdominal sternum narrowly rounded.



Figures 61-62. median lobe and tegmen: 61) *Uleiota truncata*; 62) *Uleiota dubius*.

Male genitalia (Fig. 61-62) with short basal strut and flagellum present.

Distribution: Holarctic.

Discussion: Both *Uleiota* Latreille and *Brontes* Fabricius have been used extensively as the genus-group name. *Brontes* was used more commonly in the 19th Century; *Uleiota* was accepted by Hetschko (1930) as the valid name in his world catalog of the group and has been used most commonly since that time. Latreille (1796) first used the genus-group name *Uleiota* and accompanied it with a brief description, but included no species. Fabricius (1801) first used the genus-group name *Brontes*, accompanied by a more detailed description and with five listed species. Under the second listed species, *flavipes* Fabricius (now considered a synonym of *planatus* Linnaeus), Fabricius (1801) listed *Uleiota* Latreille as a synonym. According to Article 12.1 of the International Code of Zoological Nomenclature (ICZN 1999), genus-group names proposed before 1931 had to have had a

description provided *or* a valid indication. Since Latreille's 1796 use of *Uleiota* meets the first requirement, *Uleiota* Latreille 1796 is valid and clearly has priority over *Brontes* Fabricius 1801.

The genus-group name *Hyliota* was first used by Reitter (1880) without comment and subsequently by several authors, most notably Arrow in his 1901 review of the genus. The late George Steyskal (pers. comm.) explained that *Hyliota* is a more accurate transliteration of the Greek word for "forester," but it is an unjustified emendation.

Uleiota truncatus has been treated consistently as a subspecies of *U. dubius*. However, the structure of the male genitalia (Figs. 61-62) and pronotum (the long bifid spines are missing in *U. truncatus*) supports the elevation of *U. truncatus* to species status, and it is so treated here.

Uleiota texana Dajoz (1989: 198) is here synonymized under *U. dubius*, **new synonymy**. Although Dajoz (1989: 198) claimed the unique type to be a male, there is nothing inconsistent with a female *U. dubius* in Dajoz' description and illustration. I have been unable to borrow the type from the author, but it is clear from the key to species he provided that he was not familiar with the characters separating the Nearctic species.

Included species: *Uleiota algericus* Maran, *Uleiota arboreus* (Reitter); *Uleiota debilis* (LeConte); *Uleiota dubius* (Fabricius); *Uleiota planatus* (Linnaeus); *Uleiota truncatus* Motschulsky, **new status**.

Checklist of the described species of the tribe Brontini

Australodendrophagus australis (Erichson), **new combination**; Australia

Australohyliota macleayi (Olliff), **new combination**; Australia
Australohyliota chilensis (Blanchard), **new combination**; Chile, Argentina

Brontoliota indivisipennis Thomas, **new species**, Australia
Brontoliota intermedius Thomas, **new species**, Australia
Brontoliota monteithi Thomas, **new species**, Australia

Brontopriscus pleuralis (Sharp); New Zealand
Brontopriscus sinuatus Sharp; New Zealand

Dendrophagella capito (Pascoe), New Zealand

Dendrophagus crenatus (Paykull); Palaearctic
Dendrophagus cygnaei Mannerheim; Nearctic
Dendrophagus longicornis Reitter; Japan

Macrohyliota truncatipennis (Heller), **new combination**; SE Asia
Macrohyliota spinicollis (Gory), **new combination**; SE Asia
Macrohyliota gracilicornis (Arrow), **new combination**; SE Asia, New Guinea
Macrohyliota bicolor Arrow, **new combination**; Australia
Macrohyliota lucius (Pascoe), **new combination**; Australia
Macrohyliota militaris (Erichson), **new combination**; Australia

Megahyliota feae (Grouvelle), **new combination**; Thailand

Microhyliota integricollis (Fairmaire), **new combination**; Chile

Parahyliota africanus (Grouvelle), **new combination**, western Africa
Parahyliota alticola (Pal, Sen Gupta, and Crowson), **new combination**, India
Parahyliota atratus (Grouvelle), **new combination**, Madagascar
Parahyliota brevicollis (Arrow), **new combination**, Madagascar
Parahyliota cinamomeus (Fairmaire), **new combination**, Madagascar
Parahyliota costicollis (Reitter), **new combination**, SE Asia
Parahyliota fallax (Grouvelle), **new combination**, SE Asia
Parahyliota indicus (Arrow), **new combination**, India
Parahyliota pallidus (Arrow), **new combination**; Madagascar
Parahyliota puberulus (Reitter), **new combination**, SE Asia
Parahyliota serratus (Smith), **new combination**, Philippines
Parahyliota serricollis (Candeze), **new combination**, Sri Lanka
Parahyliota siamensis (Arrow), **new combination**, SE Asia

Uleiota algericus Maran, Algeria
Uleiota arboreus (Reitter); Japan, Siberia
Uleiota debilis (LeConte); northeastern North America
Uleiota dubius (Fabricius); northeastern North America
Uleiota planatus (Linnaeus); Palaearctic
Uleiota truncatus Motschulsky, **new status**; western North America

Key to the genera of the tribe Brontini of the world

1. Tarsi of "*Dendrophagus*"-type (see Fig. 15) 4
1'. Tarsi of "*Uleiota*"-type (see Fig. 16-17) 2

2(1'). Scutellary striole absent; body with or without incrustation 3
2'. Scutellary striole present; body with incrustation (SE Asia) ..... *Megahyliota* Thomas, new genus

3(2'). Body not incrusted; parameres reduced to tooth-like processes (Fig. 59) (Asia, Madagascar, and Africa) ..... *Parahyliota* Thomas, new genus
3'. Body incrusted; parameres not reduced (Holarctic) ..... *Uleiota* Latreille

4(1). Head with long frontal lines (Fig. 33) 5
4'. Frontal lines, if present, short and inconspicuous 7

5(4) Pronotum with anterior and posterior angles obsolete, pronotum almost circular in outline, margins strongly curved, with minute denticles (Fig. 36); elytra with mottled color pattern (Fig. 36); male genitalia as in Fig. 58. (Chile) .... *Microhyliota* Thomas, new genus
5'. Not as above 6

6(5') Anterior pronotal angles obsolete (Fig. 33); punctation of head simple; elytra without a distinct color pattern (Holarctic) .... *Dendrophagus* Schönherr
6'. Anterior pronotal angles with a short, broad tooth (Fig. 32); head longitudinally strigose; elytra with a distinct color pattern (New Zealand) .... *Dendrophagella* Thomas, new genus

7(4'). Elytra fused; hind wings absent; elytral epipleura very wide (New Zealand, Australia) 8
7'. Elytra not fused; hind wings present or absent; elytral epipleura at most moderately wide 9

8(7). Form broad; scutellary striole absent (New Zealand) ..... *Brontopriscus* Sharp
8'. Form narrow; scutellary striole present (Australia) ..... *Brontoliota* Thomas, new genus

9(7'). Body with incrustation; anterior pronotal angles with long tooth, margins usually with conspicuous teeth (Asia, Australia) .... *Macrohyliota* Thomas, new genus
9'. Body without incrustation; anterior pronotal angles with at most a short tooth; margins with or without conspicuous teeth 10

10(9'). Hind wings present; anterior pronotal angles with short, broad tooth (Fig. 25), margins minutely denticulate; male genitalia as in Fig. 39. (Australia) .... *Australodendrophagus* Thomas, new genus
10'. Hind wings absent; anterior pronotal angle represented by a low, oblique costa or a small, acute denticle (Fig. 38); male genitalia as in Fig. 60. (New Zealand) .... *Protodendrophagus* Thomas, new genus

Collection codons

Collection codons used are from Arnett *et al.* (1993) and are as follows:

NMPC — National Museum (Natural History), Prague
NZAC — New Zealand Arthropod Collection, Auckland
QMBA — Queensland Museum, South Brisbane
UQIC — Insect Collection, University of Queensland, Saint Lucia

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Appendix. Collection data for paratypes of *Brontoliota* spp. "Rep." is repository of specimen; "#" is number of specimens represented by data.

Brontoliota monteithi Thomas

Queensland Locality	Date	Rep	#	Collection data
20km SE Mt. Spurgeon via Mt. Carbine 1100m	20-21-XII-1988	QMBA	1	
21km SE of Millaa Millaa	19-XII-1982	ANIC	1	
29km SE of Mareeba c1100m	14-15-XII-1982	ANIC	2	
7km N Mt. Spurgeon (Camp 2) 16.22S 145.13E 1200-1250m	17-19-X-1991	QMBA	3	
Baldy Mtn. Rd., 7km SW Atherton 1150m	9-XII-1988	QMBA	1	
Bartle Frere Track, 17km W Malanda 700m	8-XII-1988	QMBA	1	
Bellenden Ker Range 1km S. of Cable Tower 6 500m EARTHWATCH/QLD MUSEUM	17-X-5-XI-1981	QMBA, ANIC	5	Pyrethrum knockdown
Bellenden Ker Range, Summit TV Stn rainforest 1560m 17.16S 148.51E	28-X-1983	QMBA	1	Q.M. BERLESATE NO. 602 sieved litter
Bellenden Ker Range, Summit TV Stn., 1560m	IV-X-1982	QMBA	1	pitfall trap
Bellenden Ker Summit	10-VI-1980	QMBA	5	
Bellenden Ker Telecom Station 1560m rainforest	1-30-IV-1982	QMBA	2	pitfall traps
Bellenden Ker, Cable Tower 3 rainforest 1000m 17.16S 145.52E	12-IV-1979	QMBA	1	Q.M. BERLESATE NO. 19 stick brushings
Bellenden Ker Range, Summit TV Stn 1560m	1-7-XI-1981	QMBA	2	
Bellenden Ker Range, Summit TV Stn., 1560m	17-X-5-XI-1981	ANIC	1	Pyrethrum knockdown
Bellenden Ker Range, Summit TV Stn., 1560m	29-IV-3-V-1983	QMBA	1	baited pitfall traps
Bellenden Ker, Cable Tower 3 rainforest 1054m 17.16S 145.52E	25-31-X-1981	QMBA	1	Q.M. BERLESATE NO. 358 sieved litter
Black Mtn., 17km ESE Julatten 800-1000m	14-IV-1982	QMBA	1	
Boonjie, 13km ESE of Malanda 700m	8-XII-1988	QMBA	2	
Carbine Tableland, Devil's Thumb-Plane crash 1300m	27-XI-1990	QMBA	1	
Carbine Tableland, plane crash site 1300m	27-28-XI-1990	QMBA	1	
Charmillin Creek, 17.42S 145.31E 940m 1677	1- II-1997	QMBA	1	
Davies Ck Road, 20km SE Mareeba 750m	17-XII-1989	QMBA	4	
Downey Creek, 25 km SE Milaa Mila 400m	7-XII-1988	QMBA	1	
Graham Range, 17.17S 145.58E 550m	1- I-1995	QMBA	1	Pyrethrum, trees & logs
Graham Range	9-IV-1979	QMBA	2	
Graham Range 100-200m 17.17S 145.57E	9-IV-1979	QMBA	1	Q.M. BERLESATE NO. 6 stick brushings
Henrietta Ck., Palmerston Nat. Pk., N.Qld.	29-XII-1964	UQIC	1	
Hilltop, 18km N MtLewis 16.30S 145.16E 1300m rainforest 1941	23- I-1998	QMBA	2	Pyrethrum, trees & logs
Kirrama Range Mt. Pershouse 900m	12-XII-1986	QMBA	1	
Kirrama S.F. 15km W Kennedy 600-800m	9-V-1983	QMBA	1	
Kirrama State Forest, via Cardwell	17-18-VIII-1966	UQIC	2	
Kirrama State Forest, via Kennedy	6-VI-1972	UQIC	2	
Kirrama Range, via Kennedy, rainforest 700m	2-3-X-1980	QMBA	2	
Kirrama Range Douglas Creek Rd, 850m	10-12-XII-1986	QMBA	1	
Kirrama Range Mt. Hosie 800-900m	10-XII-1986	QMBA	1	
Kirrama Range, via Kennedy, rainforest 500m	2-X-1980	QMBA	1	
Kirrama Range, via Kennedy, rainforest 500m	2-3-X-1980	QMBA	1	
L. Eacham	XI-1970	ANIC	1	
Lacey's Creek, Mission Beach	21-IV-1970	UQIC	2	
Lamb Range, 19km SE Mareeba 1200m	3-XII-1988	QMBA	2	
Lamb Range, 19km SE Mareeba 1100-1200m	11-XII-1988	QMBA	1	
Lambs Head, 10km W Edmonton 1200m	12-13-XII-1988	QMBA	1	
Lambs Head, 10km W Edmonton 1200m	4-XII-1988	QMBA	2	
Longlands Gap Rd.	VI-1950	ANIC	1	
Majors Mtn., 7 km SE Ravenshoe 1000-1100m	4-V-1983	QMBA	1	

Appendix. Collection data for paratypes of *Brontoliota* spp.

Queensland Locality	Date	Rep	#	Collection data
Majors Mtn., 7 km E Ravenshoe 1000-1100m	4-V-1983	QMBA	1	
Malanda Falls, Malanda 750m rainforest	8-12-X-1980	QMBA	1	
Massey Range, 4km W of Centre Bellenden Ker 1250m 17.16S 145.49E	9-11-X-1991	QMBA	3	flight intercept trap
Massey Range, 12km S Gordonvale 1300m rainforest 17.16S 145.49E	2-V-1983	QMBA	1	Q.M. BERLESATE NO. 573 sieved litter
Massey Range, 4km W of Centre Bellenden Ker 1250m 17.16S 145.49E	9-11-X-1991	QMBA	1	
Mt Edith Road Lamb Range	12-X-1982	QMBA	1	
Mt Bartle Frere, Centre Peak ridge 1400-1500m	7-8-XI-1981	QMBA	2	
Mt Spurgeon Summit 16.26S 145.12E 1320m 1630	21- I-1997	QMBA	1	
Mt. Lewis Rd., end of road 1100m	14-I-1990	QMBA	1	
Mt. Lewis Rd. end, 10km N Mt. Lewis 1100m	25-XI-1990	QMBA	1	
Mt. Hypipamee NP 14knSW Malanda, 960m	24-VII-1982	ANIC	1	
Mt. Lewis	12-IX-1973	ANIC	1	ex leaf litter
Mt. Lewis, via Julatten, N. Qld. 3,500-4000'	27-28-XI-1965	UQIC	2	
Mt. Kooroomool, summit 7km S. 17.54S 145.41E 1050m, rainforest 2008	3-4-XII-1998	QMBA	1	
Mt. Hugh Nelson, SE shoulder 17.31S 145.33E 1140m rainforest 2169	7-II-1999	QMBA	1	
Mt. Hugh Nelson, summit 17.31S 145.33E 1200m r/f 2172	7-II-1999	QMBA	1	
Mt. Edith, 3,500', 2 mi. N. of Tinaroo Dam	2-VI-1972	UQIC	3	
Mt. Fisher, 7km SW Millaa Millaa 1050-1100m	27-29-IV-1982	QMBA	2	
NE Mt. Fisher, summit/QM BERLESATE 991 17"34'Sx145"41'E rainforest, 1380m Slaved filter	8-II-1999	QMBA	1	
Nth. Bell Peak, 20km S Cairns 900-1000m	15-16-IX-1981	QMBA	1	
Palmerston Nat. Park	13-15-VII-1986	NMPC	1	
Palmerston Nat. Pk. 350-400m	2-I-1990	QMBA	2	
Palmerston NP E Margin 17.37S 145.46E	89- II-1995	QMBA	1	
Sluice Ck, 9km WSW Millaa Millaa 1150m	5-14-XII-1988	QMBA	1	flight intercept trap
Tully R. Xing, 10 km S. Koombooloomba Dam, N.Q. 750m	8-XII-1989	QMBA	1	Pyrethrum, Log and Trees
Upper High Falls Ck. 16.24S 145.17E 1000m	25-I-12-II-1996	QMBA	1	Flight Intercept Trap
Upper Boulder Ck, 10km N Tully 800m	4-7-XII-1989	QMBA	1	
Upper Boulder Ck, 11kn NNW of Tully 850m	16-19-XI-1984	QMBA	1	
Upper Mulgrave River, N.Qld.	1-3-XII-1965	UQIC	1	
Whifield Range, 550m 17.16S 145.42E	28-VIII-19-X-1991	QMBA	1	pitfall and intercept traps
Windsor Tbld., 35km NNW Mt Carbine 900m Agathis rainforest	15-IV-1982	QMBA	1	Q.M. BERLESATE NO. 391 sieved litter
Windsor Tbld., 35km NNW Mt Carbine 1050m	14-18-IV-1982	QMBA	2	
Windsor Tbld., 35km NNW Mt Carbine 1150m	25-26-IV-1982	QMBA	2	
Windsor Tbld., 35km NNW Mt Carbine 1050m rainforest	25-IV-1982	QMBA	1	Q.M. BERLESATE NO. 403 sieved litter
WindsorTblnd,5.7km past barracks 16.14S 145.00E 1260m 1827	8-II-1998	QMBA	1	pyrethr, R/F tree bases &logs

Brontoliota indivispennis Thomas

New South Wales localities	Date	Rep.	#	Collection data
Dorrigo Nat.Pk., via Dorrigo	10-IV-1966	UQIC	1	
Dorrigo Nat.Pk., via Dorrigo	10-11-IV-1966	UQIC	1	
Mt. Warning	30-VII-1972	UQIC	1	
Tooloom Plateau, via Woodenbong	30-31-XII-1966	UQIC	1	
Wiangaree State Forest, via Kyogle	29-XI-1970	UQIC	1	
Wiangaree SF, Brindle Ck. 740m subtrop. rainfor.	29-II-3-III-1980	ANIC	1	pyrethrum fogging Toona australis bark

Appendix. Collection data for paratypes of *Brontoliota* spp.

Queensland Locality	Date	Rep	#	Collection data
8km NW Mt. Macartney 20.49S 148.30E 690m dry rainforest	21-IV-1979	QMBA	1	Q.M. BERLESATE NO. 49 stick brushings
Blue Mt. 0.6km SE 21.36S 148.58E 930m rainforest 7806	4-X-1999	QMBA	1	pyrethrum, trres & logs
Blue Mt. 0.6km SE 21.36S 148.58'E 800-1058m rain forest 7801	3-4-X-1999	QMBA	1	
Bulburin S.F., 600m 9km. E Many Peaks rainforest	17-IX-1989	QMBA	1	pyrethrum
Eungella Nat. Pk.	10-Xii-1965	UQIC	1	
Eungella Nat. Pk.	2-I-1965	UQIC	1	
Eungella Nat. Pk. Broken River	18-19-IV-1979	QMBA	1	
Eungella NP Pals Lookout rainforest 700m 21.10S 148.31E	18-IV-1979	QMBA	1	
Finch Hatton Gorge 300m 21.04S 148.38E	18-XI-1992	QMBA	6	
Finch Hatton Gorge, via Finch Hatton	19-IV-1968	UQIC	1	
Finch Hatton Gorge, via Mackay	19-IV-1968	UQIC	1	
Imbil	6-XII-1966	UQIC	1	
Kenilworth State Forest, S.E.Qld.	5-XII-1966	UQIC	2	
Kroombit Tops, 65km SW Gladstone 1000-1100m open forest	22-26-II-1982	QMBA	2	
Lamington Nat. Pk.	30-I-1965	UQIC	1	Nothofagus forest, alt. 3,800'
Lamington Nat. Pk., O'Reillys' Guesthouse	23-XI-1989	QMBA	2	
Lamington Nat. Pk.	25-V-1966	UQIC	1	
Lever's Plateau, via Rathdowney	5-7-X-1973	UQIC	1	
Lever's Plateau, via Rathdowney	4-IV-1964	UQIC	1	
Mt. Mee Forestry Reserve	11-12-III-1967	UQIC	1	
Mt. Macartney, Cathu SF rainforest 600m 20.51S 148.33E	20-IV-1979	QMBA	2	Q.M. BERLESATE NO. 44 stick brushings
Mt. Mee Forestry Reserve	20-III-1965	BPBM	1	
Mt. Macartney Summit rainforest 850m 20.51S 148.33E	21-IV-1979	QMBA	1	Q.M. BERLESATE NO. 47 stick brushings
Mt. Mee Forestry Reserve	20-III-1965	ANIC	1	
Springbrook Repeater 28.15S 153.16E 1000m	21-XII-1996	QMBA	1	Pyrethrum, dead trees
UpperCattleCk, Eungella 21.02S 148.36E 900m	17-XI-1992	QMBA	1	

Brontoliota intermedius Thomas

Bluewater Range, 45km WNW Townsville 6-700m	6-8-XII-1986	QMBA	5	
Graham Range, via Babinda	9-10-IV-1979	QMBA	1	
Hinchinbrook Is., Upper Gayundah Ck., 850m	9-11-XI-1984	QMBA	2	
Kirrama Range, via Kennedy 500m rainforest	2-3=X-1980	QMBA	1	
Kirrama Range, via Kennedy	6-VI-1972	UQIC	1	
Koombooloomba 750m	4-VII-1971	ANIC	1	Berlesate ANIC, 360 wet.sclero.for
Mt. Spec	16-I-1965	ANIC	1	
Mt. Spec., via Paluma	8-XII-1965	UQIC	2	
Mt. Spec., via Paluma	21-IV-1968	UQIC	2	
Paluma S.F. 70km NW Townsville 950m	12-V-1983	QMBA	2	
Paluma	8-XII-1964	UQIC	3	
Paluma Dam	30-31-XII-1964	UQIC	4	