RHYSODINI OF THE WORLD PART II. REVISIONS OF THE SMALLER GENERA (COLEOPTERA: CARABIDAE OR RHYSODIDAE)

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Quaestiones Entomologicae
15: 377-446 1979

This paper is the second of a series which will constitute a revision of the Rhysodini of the world and consists of revisions of all genera except for the four largest ones. Treated are: Leoglymmius *Bell and Bell*; Tangaroa *Bell and Bell*; Dhysores *Grouvelle*; Neodhysores *Bell and Bell*; Rhysodes *Dalman*; Kupea *Bell and Bell*; Kaveinga *Bell and Bell;* Grouvellina *Bell and Bell*; Xhosores *Bell and Bell*; Yamatosa *Bell;* Shyrodes *Grouvelle*; Srimara *Bell and Bell*; Arrowina *Bell and Bell*; and Plesioglymmius *Bell and Bell. Some of the genera have been redescribed, incorporating new information.* Yamatosa *NEW NAME replaces* Yamatoa *Bell 1977 which is preoccupied by* Yamatoa *Kiriakoff 1967*

In Kaveinga *Bell and Bell, four subgenera are recognized:* Angekiva, *NEW SUBGENUS, type*–Kaveinga frontalis *(Grouvelle), one sp., Australia;* Ingevaka, *NEW SUBGENUS, type*–Kaveinga orbitosa *(Broun), one sp., New Zealand;* Vakeinga, *NEW SUBGENUS, two spp., New Zealand, New Caledonia;* Kaveinga (sensu stricto), *14 spp., New Guinea, Bismark Archipelago, Solomon Islands, Santa Cruz Island, Moluccas, and Mindanao.*

In Plesioglymmius *Bell and Bell, three subgenera are recognized:* Plesioglymmius sensu stricto *two spp., Sumatra, Borneo, Mindanao;* Ameroglymmius *NEW SUBGENUS, type*–Plesioglymmius meridionalis *(Grouvelle), three spp., South America, Cuba;* Juxtaglymmius *NEW SUBGENUS, type*–Plesioglymmius jugatus *NEW SPECIES, one sp., Java.*

Rhysodes parvus *Grouvelle, accidentally omitted from Part I, is assigned to* Kaveinga (sensu stricto).

The following new species are described (and type localities indicated): Dhysores pan *(ZAIRE, Kivu, Itombwe, 2300 m, Terr. Uvira, Nyalengwe);* Dhysores liber *(LIBERIA, crest of Mt. Nimba, 1400 m);* Kaveinga fibulata *(NEW BRITAIN, Rabaul):* Kaveinga pignoris *(SOLOMON IS., Bougainville, Kokure, 690 m)* Kaveinga nudicornis *(SOLOMON IS., Russell Is., Yandina);* Kaveinga kukum *(SOLOMON IS., Guadalcanal, Kukum):* Kaveinga ulteria *(SOLOMON IS., Santa Cruz Group, Reef Is.);* Kaveinga lupata *(NEW GUINEA, Mt. Kaindi, 16 km SW Wau);* Kaveinga okapa *(NEW GUINEA, Kamira, Eastern Highlands);* Kaveinga marifuanga *(NEW GUINEA, Marifuanga, Asaro-Chimbu Divide);* Kaveinga histrio *(PHILIPPINE IS., Mindanao, e. slope Mt. McKinley, 3300', Davao Prov.);* Kaveinga strigiceps *(Buru);* Grouvellina gigas *(MADAGASCAR, Chutes de la Mort);* Grouvellina cuneata *(MADAGASCAR, Tamatave and Forêt Alahakato);* Grouvellina hova *(MADAGASCAR, Tsaramainiandro);* Grouvellina ranavalona, Grouvellina edentata, Grouvellina cooperi, Grouvellina montana *(MADAGASCAR, only);* Grouvellina radama *(MADAGASCAR, Mahatsinjo);* Grouvellina descarpentriesi *(MADAGASCAR, Annanarivo);* Grouvellina divergens *(MADAGASCAR, Mt. d'Ambre);* Grouvellina dentipes *(MADAGASCAR, Fizono);* Grouvellina cinerea *(MADAGASCAR, Perinet);* Arrowina pygmaea *(SRI LANKA, Dikoya);* Plesioglymmius silus *(PHILIPPINE IS., Mindanao, Zamboanga, Kabasalan);* Plesioglymmius reichardti *(VENEZUELA,*

Suapure, Caura R.); Plesioglymmius compactus *(CUBA); and* Plesioglymmius jugatus *(JAVA).*

Cet article est la deuxième d'une serie qui constitueront une revue taxonomique des Rhysodini du monde. La deuxième partie est composée des revisions taxonomiques de tous les genres sauf les quatre les plus grands. Les genres discutés sont: Leoglymmius *Bell et Bell;* Tangaroa *Bell et Bell;* Dhysores *Grouvelle;* Neodhysores *Bell et Bell;* Rhysodes *Dalman;* Kupea *Bell et Bell;* Kaveinga *Bell et Bell;* Grouvellina *Bell et Bell;* Xhosores *Bell et Bell;* Yamatosa *Bell;* Shyrodes *Grouvelle;* Srimara *Bell et Bell;* Arrowina *Bell et Bell; et* Plesioglymmius *Bell et Bell.*

Nous decrivons certains genres de nouveau, comprendant des renseignements nouveaux. Yamatosa *NOUVEAU NOM remplace* Yamatoa *Bell 1977, car il est preoccupée de* Yamatoa *Kiriakoff 1967.*

Nous divisons le genre Kaveinga *Bell et Bell parmi quatre sous-genres:* Angekiva *NOUVEAUX SOUS-GENRE, type–*Kaveinga frontalis *(Grouvelle), une sp., Australie;* Ingevaka *NOUVEAU SOUS-GENRE, type–*Kaveinga orbitosa *(Broun), une sp., Nouvelle Zélande;* Vakeinga *NOUVEAU SOUS-GENRE, type–*Kaveinga setosa *(Grouvelle), deux spp., Nouvelle Zélande et Nouveau Calédonie;* Kaveinga (sensu stricto) *14 spp., Nouvelle Guinée, Archipel de Bismarque, Îles de Solomon, Îles de Saint Croix, Îles Moluques, et Mindanao.*

Nous divisons le genre Plesioglymmius *parmi trois sous-genres:* Plesioglymmius sensu stricto, *deux spp., Sumatra, Borneo, et Mindanao;* Ameroglymmius *NOUVEAU SOUS-GENRE, type–*Plesioglymmius meridionalis *(Grouvelle), trois spp., Amerique du Sud et Cuba;* Juxtaglymmius, *NOUVEAU SOUS-GENRE, type–*Plesioglymmius jugatus *NOUVELLE ESPÈCE, une sp., Java.*

Par hazard, nous omÎmes Rhysodes parvus *Grouvelle de la première partie. C'appartient au genre* Kaveinga, *sous-genre* Kaveinga (sensu stricto)

On décrit les espèces nouvelles que voici, en indiquant pour chacune la localité du spécimen type: Dhysores pan *(ZAIRE, Kivu, Itombwe, 2300 m, Terr. Uvira, Nyalengwe);* Dhysores liber *(LIBÉRIA, crête du mont Nimba, 1400 m);* Kaveinga fibulata *(NOUVELLE BRETANGE, RABAUL):* Kaveinga pignoris *(ÎLES DE SOLOMON, Bougainville, Kokure, 690 m)* Kaevinga nudicornis *(ÎLES DE SOLOMON, ile Russell, Yandina);* Kaveinga kukum *(ÎLES DE SOLOMON, Guadalcanal, Kukum):* Kaveinga ulteria *(ÎLES DE SOLOMON, groupe Santa Cruz, ile Reef);* Kaveinga lupata *(NOUVELLE GUINEE, Mt. Kaindi, 16 km S.O. Wau);* Kaveinga okapa *(NOUVELLE GUINÉE, Kamira, Highlands de l'Est);* Kaveinga marifuanga *(NOUVELLE GUINÉE, Marifuanga, Asro-Chimbu Divide);* Kaveinga histrio *(ÎLES PHILIPPINES IS., Mindanao, versant est du mont McKinley, 3300', province du Davao);* Kaveinga strigiceps *(INDONÉSIE, Buru);* Grouvellina gigas *(MADAGASCAR, Chutes de la Mort);* Grouvellina cuneata *(MADAGASCAR, Tamatave et Forêt Alahakato);* Grouvellina hova *(MADAGASCAR, Tsaramainiandro);* Grouvellina ranavalona, Grouvellina edentata, Grouvellina cooperi, Grouvellina montana *(MADAGASCAR, sans localités specifiées);* Grouvellina radama *(MADAGASCAR, Mahatsinjo);* Grouvellina descarpentriesi *(MADAGASCAR, Annanarivo);* Grouvellina divergens *(MADAGASCAR, mont d'Ambre);* Grouvellina dentipes *(MADAGASCAR, Fizono);* Grouvellina cinerea *(MADAGASCAR, PERINET);* Arrowina pygmaea *(SRI LANKA, Dikoya);* Plesioglymmius silus *(ÎLES PHILIPPINES IS., Mindanao, Zamboanga, Kabasalan);* Plesioglymmius reichardti *(VÉNÉZUELA, Suapure, Riv. Caura);* Plesioglymmius compactus *(CUBA); et* Plesioglymmius jugatus *(JAVA).*

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INTRODUCTION

This paper, the second of a series of five, includes revisions of all the genera of Rhysodidae except *Clinidium* Kirby, *Rhyzodiastes* Fairmaire, *Omoglymmius Ganglbauer,* and *Pyxiglymmius* Bell and Bell. Some of the genera have been redescribed, incorporating new information. Otherwise, subtribal and generic descriptions have not been repeated; instead, the reader is referred to the appropriate pages in Part I (Bell and Bell 1978). A short list of additional references is added to supplement the extensive list in Part I.

SOURCES OF MATERIAL

The following abbreviations designate collections cited in this paper. The names in parentheses are the curators of the respective institutions.

AIM Auckland Institute and Museum, New Zealand (K.A.J. Wise) ;
AMS Instituut voor Taxonomische Zoologie, Amsterdam, Netherlands (J. Duffels);
BMNH British Museum, Natural History, London (R. Pope);
BPBM Bernice P. Bishop Museum, Honolulu (G Samuelson);

BSL Naturhistorisches Museum, Basel, Switzerland (W. Wittmer);
CAS California Academy of Sciences, San Francisco, CA (D. Kavanaugh);
CMP Carnegie Museum of Natural History, Pittsburgh, PA (G. Wallace);
CNHM Field Museum of Natural History, Chicago, IL (H. Dybas);
DSIR Department of Scientific and Industrial Research, Auckland, N.Z. (J. Watt);
DY Daniel K. Young, Michigan State University, E. Lansing;
LCC Lincoln College, Canterbury, N.Z. (R.M. Emberson);
LEI Rijksmuseum von Natuurlijke Historie, Leiden, Netherlands (J. Krikken);
MCZ Museum of Comparative Zoology, Cambridge, MA (J. Lawrence);
MNHB Museum für Naturkunde der Humboldt-Universtät, Berlin, DDR (F. Hieke);
MNHN Muséum National d'Histoire Naturelle, Paris, France (A. Descarpentries);
MRAC Musée Royal de l'Afrique Centrale, Tervuren, Belgium (P. Basilewsky);
MZSP Museu de Zoologia da Universidade São Paulo, Brazil (U.R. Martins);
NMNH United States National Museum of Natural History, Washington, D.C. (P. Hurd);
NMNZ National Museum of New Zealand, Wellington (R.G. Ordish);
SATO Masatako Satô, Nagoya, Japan.

SUBTRIBE LEOGLYMMIINA

Description. – Part I, 53. Only the one genus is known.

Leoglymmius Bell and Bell 1978

Type species. – *Rhysodes lignarius* Olliff 1885: 471.

Description. – Large, stout rhysodine of somewhat caraboid appearance; with the characters of the subtribe; in addition, with the following : labrum with one pair of setae; one or two minute temporal setae, in isolated punctures posteromedial to eye; temporal lobe otherwise impunctate.

Pronotum slightly longer than wide, its sides curved, widest point anterior to middle; sides strongly convergent to apex; more moderately convergent to base; each side slightly sinuate anterior to hind angle; latter obtuse; median and paramedian grooves narrow, nearly linear, coarsely punctate, closed anteriorly, but widely open posteriorly; marginal groove single, slightly dilated, punctate; one or two marginal setae present; prosternum and propleura densely punctate; prosternum densely punctate, hairy.

Elytra relatively short and broad for a rhysodine; humeral tubercle absent; basal scarp transverse, indistinctly defined; base of Stria VI continued anteromedially from humerus to base of scarp; elytral striae finely punctate, intervals nearly flat; Striae I–VII joined posteriorly in broad densely microsculptured depression; apical tubercle absent; two striae ventral to marginal Stria: upper one (Stria VIII) discontinuous, basal portion opposite metasternum, and apical portion opposite apical half of Sternum VI of abdomen; lower one (Stria IX) on border of epipleural rim, entire; metasternum punctate at sides, with one or more irregular longitudinal rows of punctures near midline; abdominal sterna coarsely punctate; female with densely microsculptured lateral areas on Sterna III–V, those of IV and V in form of shallow lateral pits.

Legs relatively long for a rhysodine; setae of tarsi fewer, coarser than in other genera; male with ventral tooth on anterior femur; middle calcar small, acute, hind calcar shorter and less acute than middle one; female with acute inner process on middle tibia, simulating a calcar.

This genus is a phylogenetic relict. In a number of respects it is more like a normal carabid than are other rhysodines. These include: a suture separating gena and mentum; broad bands of minor setae on the outer antennal segments; the absence of an apical tubercle; and the indistinctness of the basal scarp of the elytron.

We have assigned two additional species to the genus. *L. blackburni* (Grouvelle 1903) and *L. trichosternus* (Lea 1904). The only type specimens studied by us are a series of three *L. blackburni* in the Grouvelle collections (MNHN), all labelled as types. We hereby designate one of these types as

LECTOTYPE. This is a male, labelled "Victoria, Australia". PARALECTOTYPES: one female, same data as lectotype; one male, labelled "doit provenir d"Australie".

The three nominal species were not compared with one another in the original descriptions, and we have not investigated whether they are really separate species or merely three names for the same species. B.P. Moore will deal with the question in his forthcoming revision of the Australian rhysodines.

SUBTRIBE DHYSORINA

Description. – Part I, 53.
Key to Genera. – Part I, 54.

Genus *Tangaroa* Bell and Bell 1978

Type species. – *Rhysodes pensus* Broun 1880.
Description. – Part I, 54. Only one species is known.

Tangaroa pensus (Broun) 1880)

Rhysodes pensus Broun 1880: 215.

Type material. – HOLOTYPE labelled: "TYPE, Mt. Mangaia, Broun Coll." (BMNH)

Another specimen, in the same collection, labelled COTYPE, is without locality data. In the original description, the type locality is given as Whangarei Harbour, and mention is made of an additional specimen from the Wairoa. In the main collection of the BMNH there is an additional TYPE specimen labelled "NEW ZEALAND:Broun". We have not had the opportunity to determine which, if any, of the above specimens represent the genuine type specimen.

Description. – Length 7–9 mm. Minor setae on Segments VI-X; antenna with basal setae on Segments V or VI-X; anterior tentorial pits large, V-shaped; labrum with two setae; orbital groove absent; temporal setae absent; marginal groove of pronotum single; precoxal carina absent; elytral Striae I-V impressed, punctate; Striae VI and VII effaced in anterior third; Stria VI not impressed, represented only by row of fine punctures; Stria VII with apical fifth impressed, remainder represented by fine punctures; metasternum relatively short, impunctate; abdominal sterna with scattered punctures; lateral pits not present in either sex; inner and outer spurs nearly equal on middle and hind tibiae; male with only slight development of calcars, each represented by a swelling on anteromedial portion of apex of tibia; no other obvious secondary sexual characters.

This species is a large, rather stout rhysodine, with a big pronotum and short, rather broad elytra. The absence of frontal grooves easily separates it from other New Zealand rhysodines.

Range. – This species is confined to the North Island of New Zealand where it seems to be restricted to the northern half of the island. In addition to the type material, we have seen the following specimens: one female, Coroglen, 13-1-64, coll. P. Johns, "mixed podocarp & broadleaf forest" (LCC); one female, Kopu Rd., Coromandel Range, 30 Sept., 1967, coll. B. May (DSIR); one male, Little Barrier Island, coll. H. Swale (BMNH); one male, Parakao, Whangarei, 23-IX-1956, coll. R.A. Crowson (CAS); one female, Tamaha, North Auckland, no date, coll. C.E. Clarke (AIM); one male, Titirangi, 18-9-1915 (BMNH); one male, Whangarei, Mar. 18-20, 1931, coll. E.S. Gourley (DSIR).

Genus *Dhysores* Grouvelle 1903
(Fig. 1-8)

Type species. – *Rhysodes thoreyi* Grouvelle 1903.

Description. – Part I, 54.

Type species. – *D. thoreyi* of South Africa occurs from sea level to an elevation of 6000 feet (Brinck 1965). All the remaining species live in tropical Africa, where they are confined to montane forests. They are allopatric, and, with the possible exception of *D. quadriimpressus*, each is limited to a single mountain range. Adults of all the species are much alike externally, but males show clear-cut differences in genitalia. The tropical species do not form clear-cut groups among themselves, suggesting that each of them may have evolved from a relict population of *D. thoreyi*, assuming that the latter species was once able to spread northward during a period of cooler and moister climate.

KEY TO SPECIES

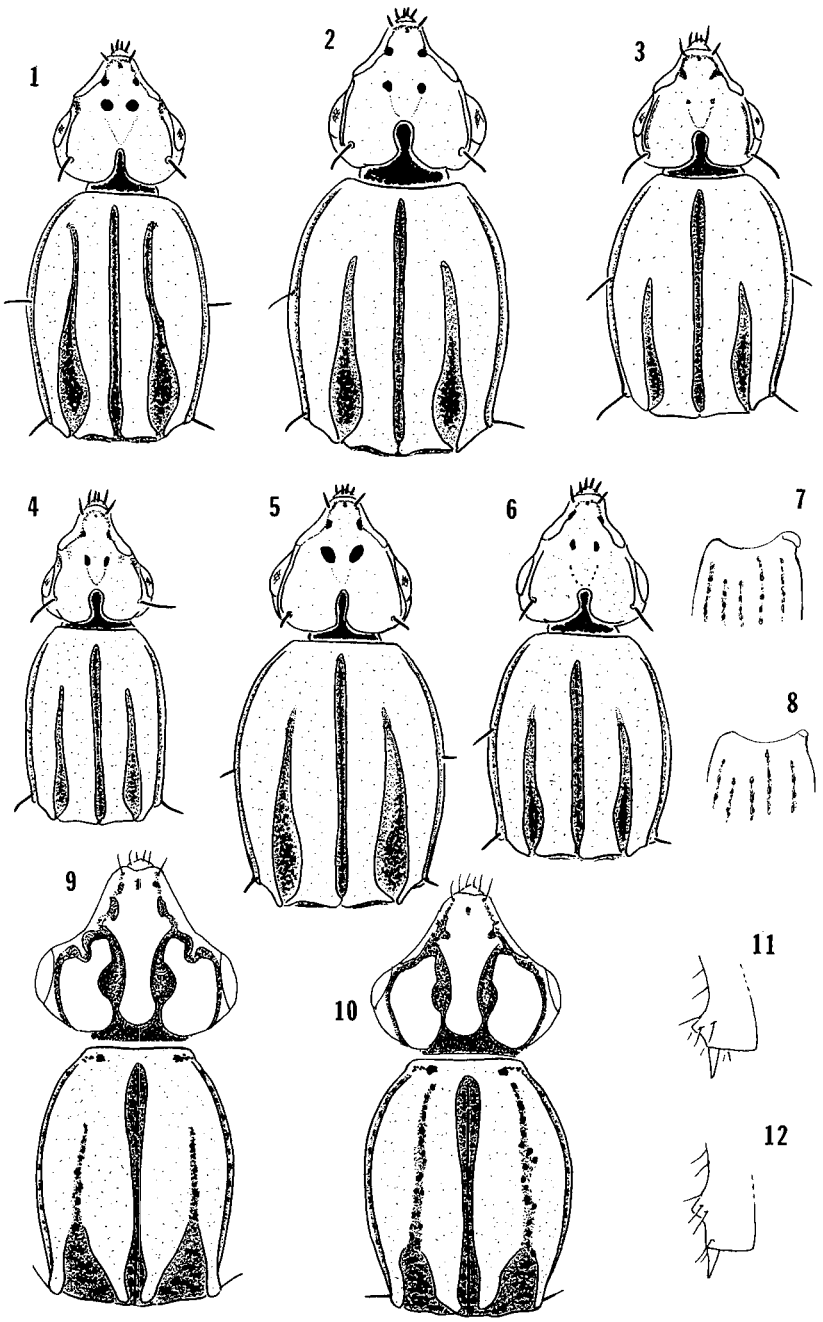
1		Pronotum with discal striole plus basal impression 87% of length of pronotum; prosternum with well-developed precoxal carinae ..... *Dhysores pan* new species, p.	382
1′		Discal striole plus basal impression 50–80% of length of pronotum; precoxal carinae rudimentary or absent	2
2	(1′)	Anterior tentorial pits and prefrontal pits both large and deep, in form of prominent rectangle ..... *Dhysores quadriimpressus* (Grouvelle), p.	384
2′		Anterior tentorial pits small; prefrontal pits varied from large to minute	3
3	(2′)	Pronotum narrow – sides nearly parallel, base and apex only slightly narrowed; small, narrow beetles, length 4.6–5.0 mm ..... *Dhysores liber* new species, p.	384
3′		Pronotum broadened at middle – sides strongly curved, base and apex distinctly narrowed; larger, broader beetles, length 5.2–6.5 mm	4
4	(3′)	Discal striole plus basal impression 50% of length of pronotum; humeral tubercle reduced (Fig. 8) ..... *Dhysores thoreyi* (Grouvelle), p.	384
4′		Discal striole 60–80% of length of pronotum; humeral tubercle larger, more prominent (Fig. 7)	5
5	(4′)	Prefrontal pit deep, larger than anterior tentorial pit.. *Dhysores rhodesianus* (Brinck), p.	385
5′		Prefrontal pit shallow, equal to or smaller than anterior tentorial pit ..... *Dhysores basilewskyi* (Brinck), p.	385

Dhysores pan new species
(Fig. 1)

Type material. – HOLOTYPE male, labelled: "Kivu: Itombwe; 2300 m., Terr. Uvira, Nyalengwe, N. Leleup, XI, 1959" (MRAC). The locality is in eastern Zaire, west of Lake Kivu.

Description. – Length 5.9 mm. Anterior tentorial pits small, indistinct; prefrontal pits large, oval, not at all oblique; frontal grooves scarcely visible; two pairs of postlabial setae; pronotum relatively elongate, its margin not sinuate anterior to hind angle, latter obtuse; base of pronotum conspicuously sinuate medial to hind angle; hind angle obtuse; discal striole (including basal impression) about 87% of length of pronotum, rather sharply divided into basal impression 25% of length of pronotum, and long and sinuate discal striole proper; strioles convergent to anterior fourth of pronotum, slightly divergent more anteriorly; one marginal seta; prosternum with long precoxal carina, extended over half the distance between coxal and anterior margin; Striae VI and VII nearly complete, but faded near humeral tubercle.

This species is easily recognized by the long discal striole and well-developed precoxal carinae.



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Dhysores quadriimpressus (Grouvelle)
(Fig. 2)

Rhysodes quadriimpressus Grouvelle 1910: 325.

Type material. – LECTOTYPE (here designated) male, labelled: "Usumbara, Nguelo" (MNHN). The locality is at present in BURUNDI, formerly German East Africa. Arrow (1942) and Hincks (1950) erroneously attributed it to Tanganyika. PARALECTOTYPE one female, same data as lectotype (MNHN).

Description. – Length 6.0–6.8 mm. Anterior tentorial pits large, round, equal in size to prefrontal pits, the four in form of a conspicuous square; frontal grooves relatively distinct, though very shallow; two pairs of postlabial setae; pronotum relatively narrow anteriorly, basal impressions uniformly deep, about 70% of length of pronotum, narrowed uniformly anteriorly; hind angles denticulate; one marginal seta; Stria VI reduced to fine row of punctures, its anterior fourth effaced; Stria VII impressed, its anterior fourth effaced.

This species is recognized by the enlarged anterior tentorial pits. In addition to the type material, a specimen from Tanzania possibly belongs to this species. It is a female labelled "Tanzanie: Mts. Uluguru, Kinola, for. transition, alt. 1500–1750 m., arbres morts 6–13-VI-71, coll. L. Berger, N. Leleup, J. Debecker" (MRAC). This specimen differs from the type material only in lacking the marginal seta of the pronotum. It may not be conspecific with the specimens from Burundi, but a final decision will have to await study of genitalia of males from both localities.

Dhysores liber new species
(Fig. 4)

Type material. – HOLOTYPE male, labelled: "LIBERIA, Crest of Mount Nimba 1400 meters, 15-VIII-1966. coll. E.S. Ross, K. Lorenzen" (CAS). PARATYPE female, same data (CAS).

Description. – Length 4.6–5.0 mm. Narrower and more cylindrical than other members of the genus; anterior tentorial pits small, punctiform; prefrontal pits shallow, small, elongate oval; frontal grooves distinct though very shallow; one pair of postlabial setae; pronotum with margin nearly parallel, slightly sinuate anterior to scarcely denticulate hind angles; discal striole (including basal impression) about 70% of length of pronotum; basal impression shallow; discal striole almost straight; marginal seta of pronotum absent; precoxal carina short; Stria VI represented by fine punctures, extended almost to humerus; Stria VII very fine, shallow, represented anteriorly by row of fine punctures.

This is the only species of *Dhysores* known from West Africa. It can be recognized by its small size, narrow form, and nearly parallel-sided pronotum.

The paratype differs from all other *Dhysores* in that the minor setae begin on antennal segment IV.

Dhysores thoreyi (Grouvelle 1903)
(Fig. 3,8)

Rhysodes thoreyi Grouvelle 1903: 125.

Type material. – not examined by us. According to Grouvelle (1903) the type series is in the Cape Town Museum. The species is represented by abundant material (BMNH and other museums).

Description. – Length 5.0–6.0 mm. Microsculpture better developed than in related species, body less shining; anterior tentorial pits relatively distinct, oblique; prefrontal pits shallow, small, punctiform, in some specimens virtually obliterated; frontal groove very shallow to almost absent; two pairs of postlabial setae; pronotal margin with short sinuation anterior to hind angle, latter rectangular or nearly so, minutely denticulate; base markedly sinuate medial to hind angle; discal striole, including basal impression, about 50% of length of pronotum; discal striole anterior to basal impression narrow, shallow; marginal seta present; precoxal carina absent; elytra more narrowed at base than in other *Dhysores*, humeral tubercle smaller (Fig. 8); Stria VI reduced to row of minute punctures not extended to humerus; Stria VII effaced in anterior third and interrupted opposite apical striole, gap with several large setigerous punctures; penis with tip tapered to narrow point on left side.

This species is easily recognized by the reduced humeral tubercles, narrow, oblique anterior tentorial pits, markedly reduced or obsolete prefrontal pits, and short discal striae. *Dhysores thoreyi* is known only from the Union of South Africa, where it is found in Natal Province and the eastern Cape Province, from sea level to 6000 feet in altitude (Brinck 1965).

Brinck (1965) provides a map of the localities.

Dhysores rhodesianus (Brinck 1965)
(Fig. 5)

Rhysodes (Dhysores) rhodesianus Brinck 1965: 467–468.

Type material. – According to Brinck, the type series includes many adults in the Transvaal Museum, from RHODESIA: Mt. Selinda Forest, 9-17.4, 1956, leg. G. Van Son and L. Vari. We have not seen this material, but have studied a PARATYPE female, labelled: "RHODESIA: Chirinda Forest, Dec., 1901, leg. G.A.K. Marshall" (BMNH).

Description. – Length 5.2–6.6 mm. Anterior tentorial pits punctiform, small but distinct; prefrontal pits large, oval, somewhat oblique; frontal grooves evident though very shallow; two pairs of postlabial setae; pronotal margin sinuate anterior to minutely denticulate hind angle, base markedly obliquely sinuate medial to hind angle; discal striole including basal impression about 80% of length of pronotum; anterior portion of discal striole very shallow; strioles convergent anteriorly except extreme anterior ends parallel to one another; marginal seta present; prosternum without trace of precoxal carina; Stria VI and VII almost entire, effaced only in anterior tenth of elytron; penis with apex triangular, in form of short, obliquely truncated apical lobe.

The elongate discal strioles give this species a resemblance to *Dhysores pan*, from which it is easily separated by the sinuation anterior to the hind angles and absence of a precoxal carina. The well-developed obliquely oval prefrontal pits are unique in *Dhysores*, and recall those of *Neodhysores*.

In addition to the paratype we have seen one male specimen in MRAC labelled "Chriinda (misspelled?) F., XII-52, vSon".

Dhysores basilewskyi (Brinck 1965)
(Fig. 6,7)

Rhysodes (Dhysores) basilewskyi Brinck 1965: 468–469.

Type material. – HOLOTYPE male, labelled: "RUANDA, Astrida, 1750 m., 22-2-1953, coll. P. Basilewsky" (MRAC). PARATYPE female, same data as type (MRAC).

Description. – Length 5.0–6.5 mm. Anterior tentorial pits scarcely evident; prefrontal pits medium-sized, oval, moderately deep, not oblique; mentum with one pair of postlabial setae; lateral margins of pronotum distinctly sinuate anterior to denticulate hind angles; sinuation medial to hind angle shorter than in related species; discal striole, including basal impression 60–75% of length of pronotum; discal strioles convergent anteriorly, very shallow near apex; marginal seta of pronotum absent from most specimens (present unilaterally in one specimen); Stria VI and VII completely effaced in anterior third of elytron; apex of penis much more obtuse than in *Dhysores thoreyi* and *Dhysores rhodesianus* males.

The denticulate hind angles, shorter discal strioles, and the absence of precoxal carinae separate this species from *Dhysores pan*. The reduced anterior tentorial pits separate it from *Dhysores quadriimpressus*, while smaller prefrontal pits, the shorter discal striole and the more extensive abbreviation of Striae VI and VII are the most obvious differences from *Dhysores rhodesianus*.

In addition to the type material, a series of six specimens from Zaire appear to belong to this species. These are labelled "B. CONGO, 42 mi. N. of Kapona, 1520 m., I-13-58, coll. E.S. Ross, R.E. Leech" (CAS).

Genus *Neodhysores* Bell and Bell 1978

Type species. – *Neodhysores seximpressus* Bell and Bell 1978
Description. – Part I, 56.

KEY TO SPECIES

1 Pronotum relatively short; length/greatest width 1.28; antennal Segment XI as wide as long ..... *Neodhysores seximpressus* Bell and Bell, p. 386
1′ Pronotum elongate, length/greatest width 1.43; antennal Segment XI much longer than wide ..... *Neodhysores schreiberi* (Vulcano and Pereira), p. 386

Neodhysores seximpressus Bell and Bell 1978

Type material. – Part I, 56. The type locality is Nova Teutonia, Santa Catarina State, Brazil.
Description. – Part I, 56.

Neodhysores schreiberi (Vulcano and Pereira) 1975a)

Rhysodes schreiberi Vulcano and Pereira 1975a: 219.
Type material. – One type and one paratype in the collection of the describers; we have not studied the types. The type locality is Belo Horizonte, Minas Gerais State, Brazil.
Description. – Vulcano and Pereira 1975a: 219.

SUBTRIBE RHYSODINA

Description. – Part I, 56.
Key to Genera. – Part I, 57.

Genus *Rhysodes* Dalman 1823
Fig. 9-12

Type species. – *Cucujus sulcatus* Fabricius 1787 (= *Rhysodes exaratus* Dalman 1823, by monotypy)
Synonym. – *Epiglymmius* Lewis 1888: 79 (Type species *Cucujus sulcatus* Fabricius 1787, designated by Hincks, 1950)
Description. – Part I, 58. Prosternum without precoxal carina.

KEY TO SPECIES

1 Pronotum relatively short, length/greatest width 1.1; discal striole of pronotum well separated from anterior margin ..... *Rhysodes sulcatus* (Fabricius), p. 387

1′ Pronotum more elongate, length/greatest width 1.2; discal striole almost reaching anterior margin of pronotum..... *Rhysodes comes* (Lewis), p. 388

Rhysodes sulcatus (Fabricius 1787)
(Fig. 9,11)

Cucujus sulcatus Fabricius 1787: 165.
Rhysodes exaratus Dalman 1823: 93.
Rhizodes europaeus Ahrens 1814: 1.

Type material. – Not located.

Description. – Length 6.8–8.3 mm. Antennal Segment XI slightly less than twice as long as wide; stylet more than 0.33 of length of cone; clypeus slightly emarginate in midline anteriorly; narrow oblique bridge connecting clypeal rim to median lobe, interrupting clypeal groove anterior to each anterior tentorial pit; frontal grooves oblique, sinuate; median lobe distinctly narrowed between openings of frontal pit, medial emargination of temporal lobe relatively wide and deep; anterolateral projection of temporal lobe relatively approximate to antennal rim; latter with distinct narrow brace directed posteromedially from its posterior end, opposite distinct emargination in temporal lobe; orbital groove relatively dilated; base of mentum in form of distinctly projecting lobe in lateral view; mentum with numerous short setae in form of "beard" in male, only scattered setae in female; gular grooves with anterior halves indistinct.

Pronotum relatively short and broad, length/greatest width 1.1, both apex and base more narrowed than in *R. comes*; discal striole plus basal impression 80% of length of pronotum; basal impression about 33% of length of pronotum; hind angles acute; lateral margins parallel in basal fifth, divergent just anterior to hind angles; lateral margin deeply sinuate anterior to hind angles; precoxal rim with short stub representing rudimentary precoxal carina; punctures of prosternum each with prominent seta.

Elytral intervals flatter than in *R. comes*; Stria VII with five to seven setae near apex; apical striole with three to four setae.

Anterior and middle tibiae hairy beneath, more densely so in male; all tibiae hairy medially in both sexes; middle tibia of male with conspicuous lateral setae, that of female with few setae; hind calcar large, pointed, only slightly dorsad to spur (Fig. 11).

Range. – Widely distributed in Europe, but now confined to small, scattered relict areas, probably because centuries of intensive use of wood have restricted the development of overmature trees. Dajoz (1975) gives a detailed account of the recent and nineteenth century distributions. The westernmost localities are in the Pyrenees of southern France. The species also occurs in Italy, Germany, Poland, Ukrainia, Yugoslavia, Rumania, and Sweden. We have seen specimens (NMNH) from Asiatic Turkey, from the Taurus Mountains near Adana. Dajoz also lists it from the Caucasus. It does not now occur in Britain, but is known from subfossil remains (Kelley and Osborne, 1965; Buckland and Kenward, 1972) the most recent remains being from about 1000 B.C.

Bionomics. – Despite its rarity, *Rhysodes sulcatus* is better known ecologically than any other species of Rhysodini. Dajoz (1975) and Burakowsky (1975) have summarized previous work and have added their personal observations about the species. Tiberghien (1969) gives a detailed account of *R. sulcatus* in the Pyrenees. Considering the accounts of these authors together, it is evident that *Rhysodes sulcatus* depends for its survival on the presence of very large, old trees. It is seemingly indifferent to the species of tree. It has been reported from fir (*Abies alba* Mill.), spruce (*Picea excelsa* (Law.) Lk., beech (*Fagus silvatica* L.), aspen (*Populus tremula* L.), and other species of poplar (*Populus* spp.). It is confined to dead wood, but apparently is not particular about the state of the wood, occurring in badly decayed logs, as well as dry, hard ones and even charred stumps in a burned area. It is known from both standing and fallen trunks. Waga (1841, quoted by Grouvelle, 1903) collected specimens from the roots of poplar (*Populus*) at depths down to two meters.

Tiberghien (1969) found *Rhysodes sulcatus* specimens associated with myxomycetes in burnt stumps of fir (*Abies*), while Dajoz (1975) collected them in stumps of beech (*Fagus*) which were infested with oyster fungus (*Pleurotus ostreatus*). Burakowsky (1975) states that Trella (1926, 1939) found numbers of adults hibernating in galleries of the larvae of *Ceruchus chrysomelinus* Hochw. (Coleoptera, Lucanidae) in a rotten fir (*Abies*) trunk.

Burakowsky (1975) has described and illustrated larvae and pupae as well as illustrating many details of structure of adults. He believes that two years are required to complete metamorphosis, as shown by the presence of two size classes of larvae during the summer. Larvae, unlike adults, live in well-defined galleries. These are in the moister, more decayed parts of wood. The older parts of the gallery, behind the larvae, are tightly packed with wood fragments.

Rhysodes comes (Lewis 1888)
(Fig. 10,12)

Epiglymmius comes Lewis 1888: 79.

Type material. – LECTOTYPE (here designated) male, labelled: "JAPAN: Nikko, Aug. 10-18, 1881, coll. G. Lewis" (BMNH). PARALECTOTYPES, two females, JAPAN: Sapporo, Aug. 5-6, 1880, coll. G. Lewis (BMNH).

Description. – Length 6.5–8.0 mm. Antennal Segment XI more than twice as long as wide; cone elongate, stylet less than 33% as long as cone; clypeus truncate anteriorly, not emarginate; bridge from median lobe to margin of clypeus incomplete or lacking; frontal grooves almost longitudinal, in form of acute angle with antennal grooves; median lobe narrowed opposite frontal pits; medial emargination of temporal lobe smaller and shallower than in *Rhysodes sulcatus*; temporal lobe without distinct anterolateral projection; antennal rim without posteromedial brace; temporal lobe scarcely emarginate opposite antennal rim; antennal groove nearly straight; orbital groove relatively narrow, in contact with antennal groove at slight angle anterior to eye; mentum with "beard" in male, scattered setae in female; base of mentum less prominent in lateral view than in *Rhysodes sulcatus*; gular groove complete.

Pronotum longer and narrower than in *Rhysodes sulcatus*, length/greatest width about 1.20; base and apex not as strongly narrowed as in *Rhysodes sulcatus*; basal impression less than 0.25 of total length of pronotum; discal strioles elongate, more than twice as long as basal impressions, extending almost to anterior margin of pronotum; hind angles slightly obtuse; sides of pronotum not parallel anterior to hind angles; lateral sinuation much shallower than in *Rhysodes sulcatus*; precoxal carina absent; punctures of prosternum without evident setae.

Elytral intervals more convex than in *Rhysodes sulcatus*; elytron with one seta at tip of Stria IV, three to six at tip of Stria VII; and with or without one in apical striole.

Male with about four ventral setae on anterior femur, and with or without one ventral seta on middle femur; female without ventral setae on femora; tibiae with only a few medial setae; middle tibia without lateral setae; calcar of hind tibia very small, very obtusely angled, distinctly dorsad to spur (Fig. 12).

Range. – Japan and Siberia. In Japan, known from the following islands; HONSHU: Nikko (the lectotype); Sanno-Toge, Oku-Nikko (DY); Yumato, Iwase (DY); Ooda Iima-Gnu (Mie Pref.) (SATO); KYUSHU: Wakamatsu (DY); HOKKAIDO: the paralectotypes. The Siberian specimen, the first record from the U.S.S.R., is from Kongaus, Siberia, coll. Cockerell, August, 1923. The locality is on Nakhodka Bay, about 75 miles east of Vladivostok.

Genus *Kupea* Bell and Bell 1978

Type species. – *Clinidium arcuatum* Chevrolat 1873a.

Description. – Part I, 58. Only one species is known.

Kupea arcuatus (Chevrolat 1873a)

Clinidium arcuatum Chevrolat 1873a: 216.
Rhysodes aterrimus Broun 1880: 214 (nec Chevrolat 1873a)
Rhysodes brouni Lewis 1888: 79.

Type material. – *Rhysodes arcuatus*: HOLOTYPE male, no locality, labelled: "*Rhyz. antarcticus* ", as far as we can determine an unpublished name (MNHN); *R. aterrimus* Broun; LECTOTYPE – sex not determined, labelled: "NEW ZEALAND: Tairua" (BMNH–Broun Collection). PARALECTOTYPES two specimens, sex not determined (BMNH–1 in general collection, the other in Broun Collection). *Rhysodes brouni* Lewis was a substitute name for *Rhysodes aterrimus* Broun, preoccupied by *Rhysodes aterrimus* Chevrolat 1873a.

Description. – With characters of genus; length 5.0–8.0mm. Pronotum with angular seta but without marginal setae; prothorax with several postcoxal setae; precoxal carina absent; Stria II with one to two setae near tip; Stria IV with one seta near base and another near tip; Striole with one or more setae; Stria VII with about five setae in apical fifth; middle tibia with prominent acute calcar, directed ventroanteriorly; calcar of hind tibia smaller than that of middle tibia, acute, located entirely dorsad to apex of tibia.

This species is easily recognized among New Zealand Rhysodini by the form of the head, with the narrow, parallel-sided median lobe separated on either side from the temporal lobe by a linear frontal groove.

Range. – The North Island of New Zealand and nearby coastal islands. The locality records indicate that it occurs throughout the North Island. In addition to the type material, we have seen specimens from the following localities: one female, Boatmans Reefton (BMNH); one female, Hunua, coll. Drury (BMNH); three males, two females, Kawau I., 6-1902, coll. J.J. Walker (BMNH); one male, three females, Little Barrier I., coll. H. Swale, 1913 (BMNH); one female, Mararainui, Bay of Plenty, May, 1928, coll. A.E. Brookes (DSIR); two males, Maud I., 1-6-3-53, coll. E.S. Gourley (DSIR); two males, one female, Mayar I., Dira Bay, 11 Nov. 55, coll. J.C. Watt (DSIR); one female, Mayar I., Te Ohineitid, 14 Nov. 55, coll. J.C. Watt (DSIR); one female, Okauai, Maramara, Waikato, 1-11-1931, coll. A.E. Brookes (DSIR); one female, Oruru, 6-9-10, coll. A.E Brookes (DSIR); one male, Papakura, Auckland, 26-12, 1926, coll. A.E. Brookes (DSIR); one male, Paparoa, coll. A.E. Brookes (DSIR); one female, Plummerton (MCZ); one male, one female, Pollok, Auckland, 7-1-64, coll. P. & M Johns (LCC); one female, Ratanihipiki, Taranaki (BMNH); one female, Springs Junct. Br., 5-V-1977, coll. R.M. Emberson (LCC); three males, one female, Titirangi, 21-3-1913 (Broun Colln.) (BMNH), same locality, 1913-14, coll. T. Broun (DSIR), same locality, 5-10-27, coll. E.S. Gourley (DSIR); one male, Waikanae, IX-1930, coll. G.V. Hudson (BMNH), one male, same locality, Sept. 5, 1938, "GVH" (DSIR); two females, Waipoua, 4-12-63, Kauri bark, coll. P.M. Johns (LCC); one female, Waitakeri, 31-12-14, coll. A.E. Brookes (DSIR); six males, four females, Wellington (may refer either to province or city) (BMNH); one male, Whangarei, Western Hills, 13-IX-1956, coll. R.A. Crowson (CAS); one male, Whangarei, 18-20,3,31, coll. E.S. Gourley (DSIR); one male, Whangarei Dist., Maunga Karamea, 13-2-1926, coll. E. Fairburn (DSIR); two males, two females, Wilton's Bush, 2-11-44, coll. G.V. Hudson (BMNH), same locality, 6-11-20 (DSIR).

Genus *Kaveinga* Bell and Bell 1978
(Fig. 13-51)

Type species. – *Rhysodes abbreviatus* Lea 1904.

Description. – Antennal stylet absent except in one undescribed Australian species; antennal Segment V without minor setae, latter on Segments VI-X, but confined to more distal articles in specimens of a few species; labrum with two setae; medial margin of temporal lobe curved or oblique, not closely parallel to margin of median lobe; temporal and medial lobes entirely separated or else in contact for short distance posteriorly; orbital groove, if present, terminated near posterior margin of eye; pronotum in most species with complete, entire paramedian grooves (in *Kaveinga orbitosa*) paramedian groove represented by row of very coarse punctures); precoxal carinae present on prosternum; humeral tubercle well developed; middle and hind tibiae each with one spur.

In many species, the tip of the median lobe is supported ventrally by a slender pillar. This feature is easily seen in species such as *K. histrio*, in which the median lobe is markedly raised above the pronotum but would require dissection to verify in those species in which the head is low and wide. One specimen of *K. abbreviata* had the tip of the median lobe broken off, revealing a pillar. Perhaps this feature will prove to be an invariable characteristic of *Kaveinga*. The pillar is entirely posterior to the frontal pit, so that the latter forms a transverse passageway beneath the median lobe (Fig. 37,47).

This markedly diverse and divergent genus differs from its relatives in having only two labral setae, and in having precoxal carinae. It differs from *Rhysodes* in having distinct humeral tubercles and in having the orbital groove ending at or anterior to the posterior margin of the eye. It differs from *Kupea* in having the paramedian grooves complete or nearly so, and in not having the margins of the medial lobe and temporal lobes parallel and close to one another along the entire length of the head.

Kaveinga ranges from New Zealand, New Caledonia and the Santa Cruz Islands through Australia and New Guinea to Buru in the Moluccas and Mindanao in the Philippines.

Phylogeny. – The described species of *Kaveinga* are included in four subgenera. The subgenera can be grouped into pairs which appear to represent major phyletic lines. Within each pair, the two genera are allopatric. In *Vakeinga* and *Kaveinga (sensu stricto)*, the paramedian grooves are broad, deep, entire, and impunctate. *Vakeinga* occurs in New Zealand and New Caledonia, while *Kaveinga (sensu stricto)* occupies the remainder of the range of the genus. The second pair of subgenera appear less certainly related to one another, though they are linked together by having the pronotal grooves coarsely punctate. *Angekiva*, confined to Australia, have the paramedian grooves entire, curved, and nearly linear. *Ingevaka*, confined to New Zealand, have the paramedian grooves represented by a series of very coarse punctures.

There is an undescribed species from Australia which does not fit into the above subgenera, and may require erection of a fifth subgenus, although it may prove to be an aberrant species of *Angekiva*. This species will be described by Dr. Moore in his monograph of the Australian Rhysodini. This species was mistakenly regarded as *Rhysodes lignarius* Olliff by Grouvelle. (The true *R. lignarius* belongs to *Leoglymmius*.) There are two specimens of the undescribed species in the MNHN, one labelled "Richmond R., N.S. Wales", the other without specific locality data. We have also seen two specimens in the MCZ collection, one from the McPherson Range, Queensland, and the other from rain forest north of Dunoon, New South Wales.

The undescribed species differs from all other *Kaveinga* in the presence of an antennal stylet. Both sexes have a ventral tooth on the anterior femur, though that of the female is very small. The pronotum is like that of *Angekiva*, except that the paramedian grooves are scarcely punctate.

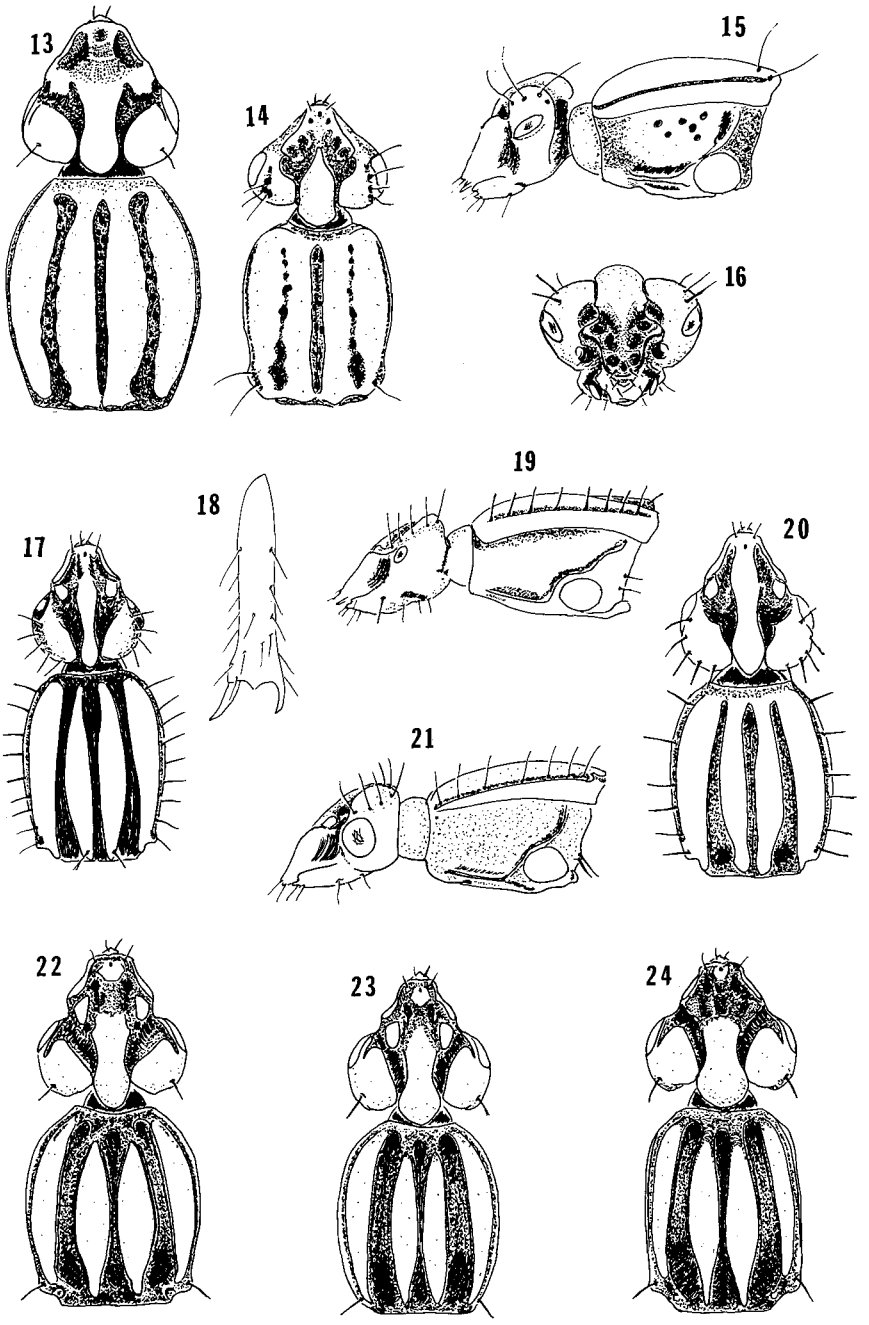
KEY TO SUBGENERA

1		Paramedian grooves entire, open both anteriorly and posteriorly	2
1′		Paramedian groove incomplete, closed both anteriorly and posteriorly, represented by row of very coarse punctures ... *Ingevaka* new subgenus, p.	394
2	(1)	Paramedian grooves linear, markedly curved, punctate; pollinosity, if present, limited to punctures. ... *Angekiva* new subgenus, p.	390
2′		Paramedian grooves not linear, not markedly curved, without punctures, pollinosity continuous from base to apex	3
3	(2′)	Temporal setae numerous; marginal setae of pronotum numerous, in form of continuous row ... *Vakeinga* new subgenus, p.	395
3′		Temporal setae 1–3; marginal setae 0-3, when present, limited to anterior and posterior ends of marginal groove ... *Kaveinga (sensu stricto)*, p.	397

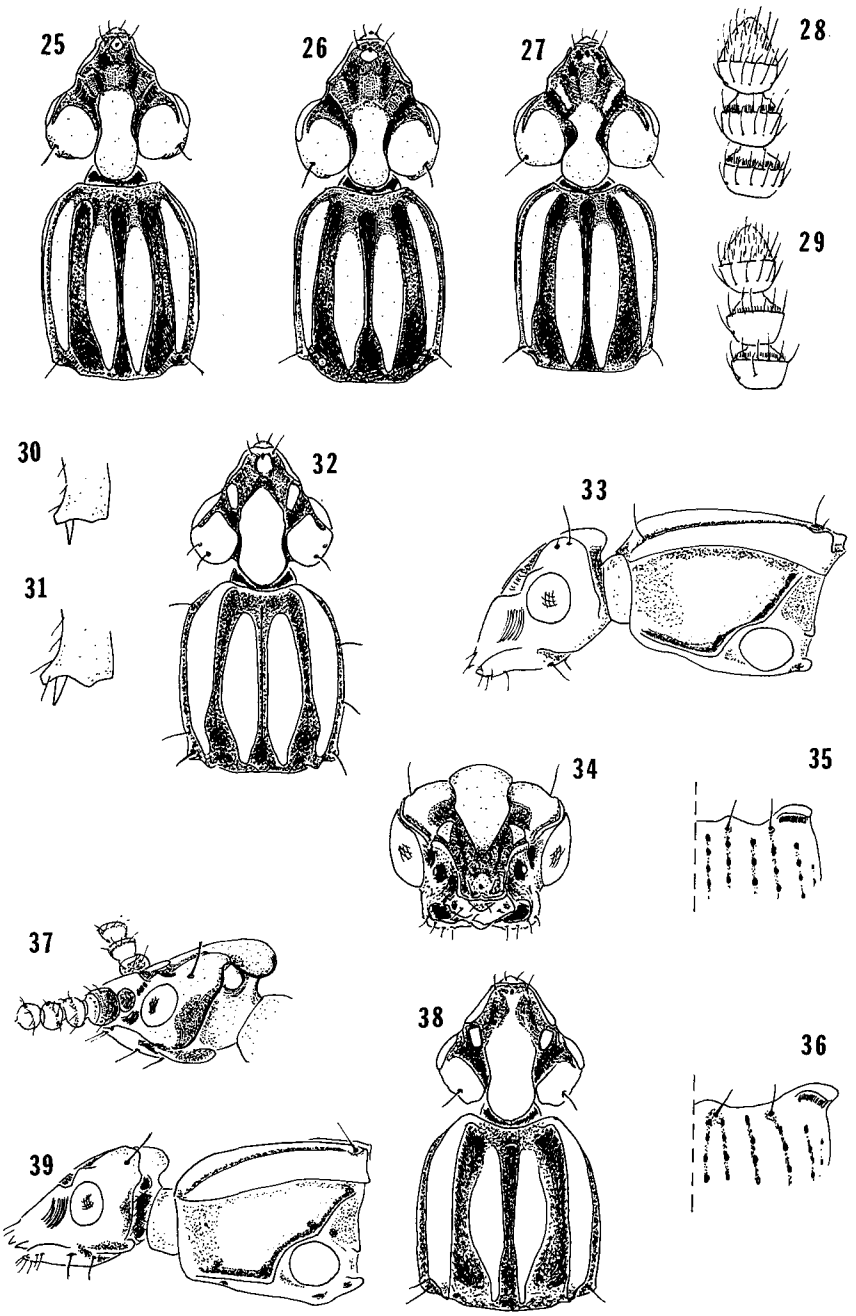
Subgenus *Angekiva* new subgenus

Type species. – *Rhysodes frontalis* Grouvelle 1903.

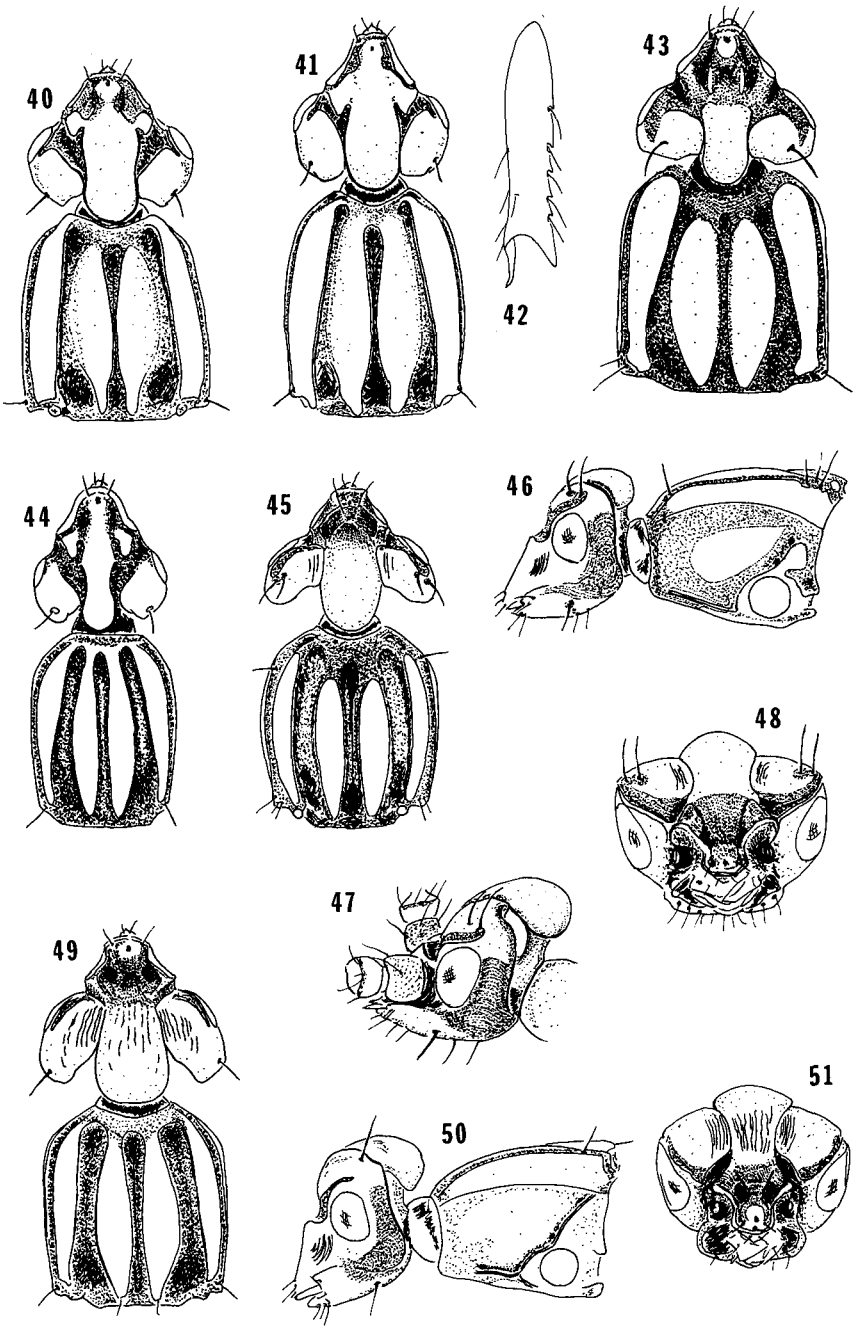
Description. – Antennal Segment XI without stylet; antennal segments not pollinose; median groove of pronotum coarsely punctate; paramedian grooves curved, linear except at base; complete, coarsely to sparsely punctate; pollinosity restricted to punctures, or else absent; angular seta present or absent; marginal setae absent; prosternum coarsely punctate, punctures either generally distributed or else confined to margins of precoxal carinae; elytral striae glabrous; femora glabrous; femur of anterior leg without ventral tooth in either sex (in species where both sexes are known); middle tibia without lateral serrulation, and without lateral setae.



Figures 13 – 24. Fig. 13-51, Genus *Kaveinga;* Fig. 13, Head and pronotum, dorsal aspect, *K. (Angekiva) frontalis* (Grouvelle); Fig. 14-16, *K. (Ingevaka) orbitosa* (Broun); Fig. 14, Head and pronotum, dorsal aspect; Fig. 15, Head and pronotum, lateral aspect; Fig. 16, Head, anterior aspect, antennae omitted; Fig. 17-19, *K. (Vakeinga) lusca* (Chevrolat); Fig. 17, Head and pronotum, dorsal aspect; Fig. 18, Middle tibia; Fig. 19, Head and pronotum, lateral aspect; Fig. 20,21, *K. (V.) setosa* (Grouvelle); Fig. 20, Head and pronotum, dorsal aspect; Fig. 21, Head and pronotum, lateral aspect; Fig. 22-27; Head and pronotum, dorsal aspect; Fig. 22; *K. (Kaveinga) abbreviata* (Lea); Fig. 23, *K. (K.) fibulata,* new species; Fig. 24, *K. (K.) kukum* new species.



Figures 25 – 39. Fig. 25, *K. (K.) pignoris* new species; Fig. 26, *K. (K.) ulteria* new species; Fig. 27, *K. (K.) nudicornis* new species; Fig. 28,29, Antennal Segments IX-XI; Fig. 28, *K. (K.) pignoris* new species; Fig. 29, *K. (K.) nudicornis* new species; Fig. 30,31, Hind tibia, male, apical portion; Fig. 30, *K. (K.) pignoris* new species; Fig. 31, *K. (K.) ulteria* new species; Fig. 32-35 *K. (K.) cylindrica* (Arrow); Fig. 32, Head and pronotum, dorsal aspect; Fig. 33, Head and pronotum, lateral aspect; Fig. 34, Head, anterior aspect, antennae omitted; Fig. 35, Base of right elytron, dorsal aspect; Fig. 36-39, *K. (K.) lupata* new species; Fig. 36, Base of right elytron dorsal aspect; Fig. 37, head, posterolateral aspect; Fig. 38, Head and pronotum, dorsal aspect; Fig. 39, Head and pronotum, lateral aspect.



Figures 40 – 51. Fig. 40, *K. (K.) okapa* new species; Fig. 41, *K. (K.) marifuanga* new species; Fig. 40,41 Head and pronotum, dorsal aspect; Fig. 42, Middle tibia, *K. (K.) marifuanga* new species; Fig. 43,44, Head and pronotum, dorsal aspect; Fig. 43, *K. (K.) occipitalis* (Grouvelle); Fig. 44, *K. (K.) parva* (Grouvelle); Fig. 45-48, *K. (K.) histrio* new species; Fig. 45, Head and pronotum, dorsal aspect; Fig. 46, Head and pronotum, lateral aspect; Fig. 47, Head, posterolateral aspect; Fig. 48, Head, anterior aspect, antennae omitted; Fig. 49-51, *K. (K.) strigiceps* new species; Fig. 49, Head and pronotum, dorsal aspect; Fig. 50, head and pronotum, lateral aspect; Fig. 51, head, anterior aspect, antennae omitted.

The curved, linear, punctate paramedian grooves are diagnostic of this subgenus. The type species is the only described species. However, we have also studied two unnamed species which will be described by Dr. Moore. One species has large eyes which are deeper than long, a complete orbital groove, and a very shallow, glabrous postantennal groove. This species is known from Malanda, north Queensland (MCZ), and from Mt. Kairi, Queensland (CAS).

The second species resembles *K. frontalis* in having the eye reduced, the orbital groove absent, and the postantennal groove deep. It differs in having the median lobe of the head very slender, strongly constricted near the middle, the median pit of the clypeus very small, and the eye circular. This species is represented by a specimen from Mt. Spurgeon, northern Queensland (MCZ).

Kaveinga (Angekiva) frontalis (Grouvelle 1903) NEW COMBINATION
(Fig. 13)

Rhysodes frontalis Grouvelle 1903: 104–105.

Type material. – HOLOTYPE male, labelled: "TASMANIA" (MNHN).

Description. – Length 7 mm. Antennal Segment XI obtuse, 1.5 times longer than wide; minor setae on Segments VI-X; basal setae on Segments VI-X. Head as wide as long; clypeal setae absent; clypeus with enlarged median pit; clypeal grooves dilated; postclypeal grooves incomplete, so median lobe is connected to parafrontal bosses; median lobe relatively broad, about 0.25 of width of head; median lobe only slightly constricted anteriorly; postantennal grooves deep, pollinose; one temporal seta; orbital groove reduced to minute vestige; eye deeper than long, apparently slightly reduced (in holotype very heavily pigmented so that it is difficult to see its outlines).

Pronotum longer than wide, oval, widest near middle, its base and apex both strongly narrowed; sides strongly curved; angular seta absent; prosternum and propleura coarsely punctate.

Elytral setae restricted to apex of Stria VII; metasternum coarsely punctate; abdominal Sterna entirely coarsely punctate; male with very small ventral tooth on anterior femur; female unknown.

Subgenus *Ingevaka* new subgenus

Type species. – *Rhysodes orbitosus* Broun 1880

Description. – Antennal Segment XI without stylet; antennal segments not pollinose; median groove of pronotum coarsely punctate; paramedian grooves nearly straight, coarsely punctate; impressed posteriorly, reduced to row of punctures anteriorly; closed both anteriorly and posteriorly; angular seta present; marginal seta varyingly developed, most often absent; anterior lateral pits absent; elytral striae shallow, glabrous; anterior femur of male with ventral tooth in some specimens, absent from others; females without ventral tooth on anterior femur; tibia of middle leg without lateral serration or lateral setae.

The incomplete paramedian grooves are the mark of this subgenus. The short, high, transverse head resembles those of certain species of *Kaveinga (sensu stricto)*, surely as a result of convergent evolution.

Subgenus *Ingevaka* contains only one species, which is confined to the North Island of New Zealand.

Kaveinga (Ingevaka) orbitosa (Broun 1880) NEW COMBINATION
(Fig 14–16)

Rhysodes orbitosus Broun 1880: 215–216.

Rhysodes luscus auct., nec Chevrolat 1875.

Rhysodes eminens auct., nec Broun 1880

Lewis (1888) wrongly supposed this species to be the male of *R. eminens* Broun (*Rhysodes luscus* Chevrolat).

Type material. – We have studied a specimen labelled as cotype in BMNH. It is without locality data. We have not located any other type material. According to the original description the type material was collected at Whangarei Harbour.

Description. – Length 4–5 mm. Body very short and transverse for a rhysodine; head short, strongly transverse, about twice as wide as long; clypeal setae present; clypeus separated from median lobe by pollinose impression; clypeus with three conspicuous pits; clypeus continuous laterally with antennal lobes; each antennal lobe with two medial braces; median lobe short, high, in form of raised crest (Fig. 16), its anterior end acutely pointed, its posterior end rounded; temporal lobes markedly transverse, their medial margins fitted into cavities on sides of median lobe; three to four temporal setae, each inserted in conspicuous pit (in many specimens pits fused in form of one elongate depression; in other specimens pits separate, in one specimen pits fused on left lobe and separate on right lobe); eye markedly reduced, about twice as long as wide, with about sixty ommatidia; cornea thickened, without facets.

Pronotum subquadrate, widest anterior to middle; sides slightly curved and distinctly sinuate well anterior to posterior angles; marginal groove distinct; prosternum with wide groove medial to each precoxal carina; prosternum impunctate; propleuron with a few very coarse punctures.

Elytra very short, convex, inflated; strial punctures very coarse; Stria 1 with two setae in apex; Stria II and IV with setae both at apex and at base; in many specimens with continuous series of setae in either II or IV, in a few with continuous series in both striae; apical striole with several setae; apex of Stria VII with several setae; metasternum concave in midline, but not truly sulcate; metasternum with median line of coarse punctures, a cluster of punctures anterior to each hind coxa, and with five to six large lateral punctures; abdominal sterna III-V each with narrow transverse, almost uniseriate band of punctures; calcar of male small and pointed.

Variation. – Seven of the nine males examined had well-developed ventral teeth on the anterior femora. Two males differ strikingly in lacking the teeth. One of these is from Little Barrier Island (BMNH), and the other (NMNH) is without locality data. One female from Waitakiri (DSIR) has numerous marginal setae on the pronotum, while in all other specimens the marginal setae are restricted to one near the angular setae or are entirely absent. The variations listed above are quite comparable to specific differences seen in other groups of Rhysodini, so it is possible that future work will show that there are several species of *Ingevaka* in New Zealand.

Range. – We have seen specimens with the following locality data: AUCKLAND: one male, Little Barrier I., coll. H. Swale, 1913-117 (BMNH); one male, Okauia, Matamata, Waikato, A.E. Brookes Colln., 11-3-1923 (DSIR); one female, Omahuta, Kauri foret, Jan. 1972, coll. G.W. Ramsay (DSIR); one male, Waimatenui, Hobson Co., C.E. Clarke Colln. (AIM); one male, one female, Wainui Bay, saddle, Kaea Northland, 4-Nov-67, coll. J.I. Townsend (DSIR); one female, Waipqua, 15 June 66, coll. J.I. Townsend (DSIR); one male, one female, Whangerei, Heads, C.E. Clarke colln. (AIM); one male, Warkworth, The Dome, 21 Oct. 1962, coll. J.C. Watt (DSIR); one female, Whangarei, Tiraki, A.E. Brookes colln, 8-9-23 (DSIR); one male, Whangarei, Western Hills, 13-IX-1956, coll. R.A. Crowson (CAS); HAWKES BAY(?): two females, Waipaua S.F., VI-9, 13-66, coll. J.C. Watt (DSIR); one female, Waitakiri, 26-10-14(380), T. Broun A.E. Brookes colln. (DSIR).

Subgenus *Vakeinga* new subgenus

Type species. – *Rhysodes setosus* Grouvelle 1903

Description. – Antennal Segment XI without stylet; antennal Segment I finely pollinose above; remaining antennal segments without pollinosity; minor setae on Segments VI-X; head with distinct parafrontal bosses; four to five temporal setae; orbital groove absent or vestigial; grooves of pronotum deep, pollinose, impunctate; paramedian grooves relatively broad, open anteriorly and posteriorly; inner carinae not abbreviated anteriorly; marginal groove complete; angular seta present; five to nine marginal setae; prosternum, propleura impunctate; several postcoxal setae on prothorax; elytral striae without pollinosity; elytron with several setae in apices of Striae I and VII, and complete series in striae II and IV (setae sparse or absent from middle third of Striae II and IV in some specimens; female with small lateral pits in Sterna IV-V; femora glabrous; anterior femur without ventral tooth in either sex; middle tibia with row of setae on lateral aspect, but without lateral serrulation.

This subgenus is similar to the allopatric *Kaveinga (sensu stricto)* in the structure of the prothorax. It differs from the latter in having many lateral setae, and in lacking lateral serrulation on the middle tibia (Fig. 18). The deep, entire, pollinose, impunctate paramedian gooves are the best means of separating it from the sympatric *Ingevaka*. *Vakeinga* has one species in New Zealand, and one in New Caledonia.

KEY TO SPECIES

1 Eye large, round, its diameter about half depth of head; pronotum without setae at bases of inner carinae..... *Kaveinga setosa* (Grouvelle), p. 396

1′ Eye very small, oblique, its diameter less than 0.2 depth of head; one seta on each inner carina near its posterior end ..... *Kaveinga lusca* (Chevrolat), p. 396

Kaveinga (Vakeinga) setosa (Grouvelle 1903) NEW COMBINATION
(Fig. 20,21)

Rhysodes setosus Grouvelle 1903: 108.

Type material. – According to Grouvelle, the type was in the Oberthur collection. We could not locate it in MNHN. However, the description and the locality are sufficient to recognize the species.

Description. – Length 4.8–5.0 mm. Minor setae well developed on antennal Segments VI-X; basal setae absent; head slightly longer than wide; median lobe narrowed between eyes, its posterior end spatulate, pointed; anteromedial margin of temporal lobe strongly angulate midway between eye and medial angle; orbital groove vestigial; eye large, nearly round, its diameter over half depth of head; cornea facetted, unpigmented.

Pronotum moderately elongate, length/greatest width 1.20, widest near middle, sides strongly curved; inner pronotal carina without seta near base; five to six marginal setae; prosternum with pair of pits between precoxal carinae; elytra narrow, cylindrical; striae coarsely punctate.

This species is easily distinguished from the next by: fully developed eyes, absence of seta from the base of the inner carina, broader median lobe, shorter head and pronotum, and absence of basal setae from the antennae.

Range. – New Caledonia. The only specimens we have seen are two males and one female labelled: "NEW CALEDONIA, Forêt de Thi, Hanna, VII-16-1958, leg. B. Malkin" (CNHM).

Kaveinga (Vakeinga) lusca (Chevrolat 1875) NEW COMBINATION
(Fig. 17–19)

Rhysodes luscus Chevrolat 1875: 183.
Rhysodes eminens Broun 1880; 215.

Type material. – *R. luscus*: not located by us. *R. eminens*: "COTYPE", sex not recorded, without specific locality data in Broun Collection (BMNH). Broun states that the original specimens were collected at Whangarei Harbour. We do not know whether or not there are additional type specimens. Grouvelle (1903) states that he had studied types of *R. luscus* and had concluded that *R. eminens* and *R. orbitusus* were conspecific, but this is not so. The original description of *R. luscus* agrees with that of *R. eminens* and not *R. orbitosus*.

Description. – Length 4.7–6.6 mm. Minor setae sparse on Segment VI, well developed on Segments VII-XI; basal setae on Segments VI-X, head distinctly longer than wide, median lobe narrower than in *K. setosa*, convex, constricted between eyes; anteromedian margin less distinctly angulate than in *K. setosa*; orbital groove absent; eye markedly reduced and modified; cornea oblique, twice as long as deep; cornea not facetted, clear in some (presumably younger) specimens, markedly pigmented in other specimens; ommatidia about twenty, grouped in round central disc much smaller than cornea.

Pronotum distinctly elongate, length/greatest width about 1.25; sides distinctly curved; inner carina with seta near base; seven to nine marginal setae; precoxal carinae markedly developed, extended to anterior margin of prosternum; each precoxal carina bounded medially by wide groove; these grooves closely approximated at middle of length, separated by median carina; no pits between precoxal carinae; elytra moderately broad, somewhat flattened; striae less coarsely punctate than in *K. setosa*.

The reduced, oblique eyes distinguish this species from *K. setosa*. *K. lusca* differs markedly from *K. (Ingevaka) orbitosa*, with which it was formerly considered conspecific. *K. lusca* has complete paramedian grooves, a low, elongate head and temporal lobes which are not in close contact with the median lobe.

Range. – Confined to the North Island of New Zealand, where it is widespread. We have seen specimens from the following localities: one male, one female, Herekino, Mangonui Co., G.E. Clarke Colln. (AIM); one female, Mt. Hikurangi, 4000, 17-I-64, coll. P. Johns (LCC); one male, Motu R., 12-11-28, A.E. Brookes Colln. (DSIR); one male, two females, Mt. Maungapohatu, 914-1219 m., 3-Mar-71, coll. J.I. Townsend (DSIR); one male, Parkanae Opononi, 17-XI-1968, Hokianga Co., coll. K.A.J. Wise (AIM) one male, Pukerui Hills, Whangarei 21-11, coll. G. Given (DSIR); two males, Tepaki Coastal Park, North Cape, 7 Feb 1975, coll. J.C. Watt (DSIR); three males, five females, Tepaki Coastal Park, S. Pandora, 7 Feb 1975, coll. S.E. Nichols (DSIR); one male, Unuwhao trig., Spirits Bay, 20-28-VIII-1957, coll. J.C. Watt (DSIR); three males, Waimatenui, Hobson Co., C.E. Clarke Colln. (AIM); two females, Wainui Bay, saddle, Kaea, 4 Nov 62, coll. J.I. Townsend (DSIR); two males, three females, Waipoua, VI-66-, X-67, coll. J.C. Watt and VI-66, coll. J.I. Townsend (DSIR); one male, one Whanaki North Whangarei Co., 15-XI-1968, coll. K.A.J. Wise (AIM); one male, one female, Whangarei, 8-9-23, A.E. Brookes Colln. (DSIR); one female, Whangarei, Western Hills, 13-X-56, coll. R.A. Crowson (CAS).

Subgenus *Kaveinga sensu stricto* Bell and Bell 1978

Type species. – *Rhysodes abbreviatus* Lea 1904

Description. – Antennal Segment XI without stylet; antennal Segment I pollinose above; in adults of most species pollinose bands or spots on more distal segments; in adults of few species, pollinosity confined to Segment I; minor setae on Segments VI-X; parafrontal boss either distinct or else fused to median lobe; one to three temporal setae; pronotum with grooves deep, entire, pollinose; paramedian grooves broad, open anteriorly and posteriorly; marginal groove complete; angular seta present or absent; 0-three marginal setae, when present, located near anterior and/or posterior angles of pronotum; prosternum, propleura impunctate; postcoxal setae absent; elytral pollinosity and setae variably developed; abdominal sterna of female without enlarged lateral pits; anterior femur without ventral tooth in either sex; femora in most species with dorsal and ventral pollinose strips (in a few species reduced or absent); middle tibia with row of lateral setae, with a minute tooth between each pair of setae, the teeth in form of serrate lateral margin in anterior or posterior aspect (Fig. 42); serration indistinctly developed in *K. strigiceps* and some specimens of *K. abbreviata*.

Members of this markedly diverse and divergent subgenus differ from those of all other subgenera in having the lateral margin of the middle tibia serrulate. In addition, females differ from those of *Vakeinga* in lacking lateral pits from the abdomen of the female, and in having fewer setae and better developed pollinosity. *Kaveinga (sensu stricto)* occupies most of the range of the genus, but is absent from New Caledonia and New Zealand. In Australia it is limited to northern Queensland.

Phylogeny. – The species *Kaveinga (sensu stricto)* comprise three distinct groups. The members of Group I have deep, pollinose elytral striae and subcarinate to carinate intervals. The abdominal sterna are transversely sulcate. This group includes *K. abbreviata* of Australia, *K. fibulata* of New Britain and the *K. pignoris* complex of the Solomon Islands and Santa Cruz Islands. In this group, all species except *K. abbreviata* have the pronotum elongate.

The species in Group II have the striae shallow or not impressed and without pollinosity. The abdominal sterna each have a transverse row of punctures with an interruption at the midline. This group includes *K. parva, K. cylindrica, K. lupata, K. okapa,* and *K. marifuanga*, all from New Guinea. In this group, all species except *K. parva* have the pronotum scarcely elongate.

The species of Group III have the head very short and broad, and the margin the pronotum raised. They show marked convergence in head structure with subgenus *Ingevaka* of New Zealand. The elytral striae are deep and pollinose, and the intervals are narrow and convex to carinate. The abdominal sterna are transversely sulcate, and the pronotum is not elongate. This group includes *K. occipitalis* of New Guinea, *K. histrio* of Mindanao, and *K. strigiceps* of Buru.

An important question is whether each of these groups is an independent phyletic line or whether either Group I or Group II is simply a collection of primitive (plesiomorphic) species. To answer this question, it is necessary to decide the character states of the elytral striae and intervals in the common ancestor of the subgenus. The other subgenera of genus *Kaveinga* have the elytral striae deep but not pollinose, and the elytral intervals convex but not carinate. In other words, they are intermediate between those of Groups I and II. Of all the species of *Kaveinga (sensu stricto)*, only *K. parva* of Group II approaches the other subgenera in elytral structure.

One possible hypothesis would be that *K. parva* is primitive in the structure of its elytra, and that the remaining species have departed from the ancestral condition in two directions. In the remainder of Group II, the striae have become more shallow and the punctures finer, while in Groups I and III the striae have become deepened and pollinose, and the intervals have become subcarinate to carinate.

A second possible hypothesis is that pollinose striae and subcarinate intervals characterized the ancestral species, and that members of Group II have undergone a secondary loss of pollinosity and a reduction of the depth of the striae. Several lines of evidence seem to us to point to the second hypothesis. Significant are the geographical distributions of the two character states, evidence supplied by pollinosity of the femora, and that of sculpture of the abdominal sterna. The species characterized by shallow, non-pollinose striae and flat elytral intervals form a compact group in New Guinea, while those characterized by carinate intervals and pollinose striae are much more widely distributed and much more varied in structure. This suggests that Group II represents a local radiation within New Guinea. Reduced striation is a conspicuous feature of the species of *Omoglymmius (sensu stricto)* and *Omoglymmius (Nitiglymmius)* in New Guinea also, suggesting that it is in some way an adaptation to local conditions.

Most species of *Kaveinga (sensu stricto)* have conspicuous pollinose bands on the femora. Some species of Group II are characterized by traces of these bands, while in others, the bands are entirely absent. This suggests that the ancestor of the subgenus had such bands, and that they are in the process of being lost in the species of Group II, an idea consistent with the theory that the common ancestor of the subgenus was more like Group I than Group II.

Members of subgenera other than *Kaveinga (sensu stricto)* have the abdominal sterna with the punctures in broad bands. Members of *Kaveinga (sensu stricto)* either have the punctures of each sternum in a uniseriate transverse row (Group II) or else have a transverse sulcus on each sternum (Groups I,III). Transverse sulci may contain punctures, though they are in many specimens concealed by the pollinosity. We postulate that the development of sulci resulted in alignment of the punctures in uniseriate rows, and that a subsequent reduction in sculpture of the body in Group II resulted in the disappearance of the sulci, leaving behind the uniseriate rows of punctures.

If it is accepted that deep, pollinose striae, subcarinate intervals, partly pilose femora, and sulcate abdominal sterna were features of the ancestral species of *Kaveinga (sensu stricto)*, then the possibility exists that Group I is merely a collection of primitive (plesiomorphic) species, and is not a single phyletic line. *K. fibulata* and the *K. pignoris* complex are small, narrow species which appear to be closely related to one another. *K. abbreviata*, however, differs from the preceding species in its shorter, broader form, and in the tendency for the abdominal sulci to be interrupted. It may really be as close to the species in Groups II and III as it is to the remainder of Group I.

In Group II, the most isolated species is *K. parva*, in which the striae are distinctly impressed and the pronotum is elongate. If deep pollinose striae and carinate intervals are regarded as primitive within the subgenus, then this species is the least modified in the group. The four remaining species have the striae reduced to rows of punctures, or, at most, with a few of the inner striae slightly impressed. They also have the pronotum, at most, slightly longer than wide. They form two pairs of closely related species. *K. cylindrica* and *K. lupata* inhabit the middle altitudes of the mountains of the extreme eastern part of New Guinea. *K. okapa* and *K. marifuanga* form a similar pair in the east central mountains. The distribution is markedly similar to that of the New Guinea species of *Omoglymmius* subgenus *Nitiglymmius*. It suggests for each genus that the range of an ancestral species was split, and two daughter species evolved, one in the east central mountains, and the other in the eastern mountains. This was followed by a further fragmentation of range, in which each daughter species became divided into two species. Still later, local barriers disappeared, leading to sympatry within each mountain region. In

Group II of *Kaveinga*, the more specialized pair of species inhabits the east central mountains, while in *Nitiglymmius*, the reverse is true, with the less specialized pair on the east central mountains.

Group III has one species in New Guinea and two species in the islands further west. *K. histrio* of Mindanao and *K. strigiceps* of Buru are much more specialized than *K. occipitalis* of New Guinea, and are obviously related to one another. *K. occipitalis* stands out from other New Guinea *Kaveinga* in having carinate elytral intervals and a transversely sulcate abdomen. Its resemblances are to the members of Group I, especially *K. abbreviata*, rather than to Group II. Its presence on New Guinea requires confirmation, as it is known only from the holotype, collected over a century ago, though there is no concrete reason to doubt the authenticity of the label.

KEY TO SPECIES

1		Head distinctly longer than deep, at least slightly longer than wide	2
1′		Head deeper than long, much wider than long	12
2	(1)	Elytral striae deeply impressed, continuously pollinose; elytral intervals markedly convex, at least the outer ones carinate	3
2′		Elytral striae shallowly impressed or not impressed; striae not pollinose; interval flat or nearly so	8
3	(2)	Pronotum relatively short, broad, length/greatest width 1.1 or less	*Kaveinga abbreviata* (Lea), p. 400
3′		Pronotum elongate, length/greatest width 1.2–1.3	4
4	(3′)	Hind angle of pronotum rounded; parafrontal boss well developed	*Kaveinga fibulata* new species, p. 401
4′		hind angle of pronotum obtuse; parafrontal boss reduced or absent	5
5	(4′)	Basal setae of antennal Segments VI-X well developed, forming transverse row on each segment (Fig. 28); median lobe shallowly sinuate on either side	6
5′		Basal setae of antennal Segments VI-X reduced, each segment with setae limited to lateral margins (Fig. 29); median lobe deeply sinuate on either side	*Kaveinga nudicornis* new species, p. 403
6	(5)	Strial punctures very coarse, each puncture about 0.5 as wide as interval; hind calcar of male relatively longer and less obtuse (Fig. 31)	*Kaveinga ulteria* new species, p. 402
6′		Strial punctures less coarse, each puncture about 0.3 as wide as an interval; hind calcar of male shorter, obtuse (Fig. 30)	7
7	(6′)	Outer carina of pronotum without basal knob; pronotum shorter, its lateral margins more curved	*Kaveinga pignoris* new species, p. 402
7′		Outer carina with distinct basal knob; pronotum more elongate, its sides more nearly straight	*Kaveinga kukum* new species, p. 402
8	(2′)	Pronotum elongate, length/greatest width about 1.25; striae distinctly impressed	*Kaveinga parva* (Grouvelle), p. 403
8′		Pronotum not elongate; length/greatest width 1.0 to 1.1; striae not impressed or only inner striae impressed	9
9	(8′)	Parafrontal boss separate from median lobe; lateral margins of median lobe shallowly emarginate	10
9′		Parafrontal boss partly fused to median lobe; lateral margins of median lobe straight	11
10	(9)	Humeral tubercle not exserted (Fig. 35); elytra narrow, cylindrical	

	..... *Kaveinga cylindrica* (Arrow), p.	403
10′	Humeral tubercle exserted (Fig. 36); elytra broader, somewhat flattened ..... *Kaveinga lupata* new species, p.	404
11 (9′)	Suborbital tubercle prominent; median lobe partly or entirely separated from clypeus by pollinose area; transverse rows of punctures on abdominal sterna III-V not interrupted ..... *Kaveinga okapa* new species, p.	405
11′	Suborbital tubercle very small; median lobe broadly continuous with clypeus; transverse rows of punctures on abdominal sterna III-V broadly interrupted medially ..... *Kaveinga marifuanga* new species, p.	406
12 (1′)	Temporal lobe transverse posteriorly; humeral tubercle exserted ..... *Kaveinga occipitalis* (Grouvelle), p.	406
12′	Temporal lobe with posterior margin strongly oblique in dorsal view; humeral tubercle not exserted	13
13 (12′)	Orbital grooved extended posterior to eye; median lobe smooth; temporal lobe with few rugae ..... *Kaveinga histrio* new species, p.	407
13′	Orbital groove ending opposite eye; median and temporal lobes rugose ..... *Kaveinga strigiceps* new species, p.	407

Kaveinga (sensu stricto) abbreviata (Lea 1904)
(Fig. 22)

Rhysodes abbreviatus Lea 1904: 79–80

Type material. – Lea cites "Cairns, Q." as the type locality and the type depository as the Macleay Collection. We have not been able to see the type specimen but have seen a long series from the type locality with the following data: 11 males, 10 females, Queensland, Upper Little Mulgrave river, S.W. Cairns, 23,27-VII and 3-VIII-69, coll. J.E. Tobler; one female, Cairns, 1952, coll. J. Sedlacek (all CAS).

Description. – Length 5.2–6.7 mm. Antennal Segment I pollinose dorsally; Segments II-V each with narrow pollinose band; basal setae reduced, well developed only on Segments VIII-X or IX-X, in some specimens with few on more proximal segments; head slightly longer than wide; clypeus broadly separated from median lobe by band of pollinosity; parafrontal boss triangular, as wide as long, widely separated from median lobe; sides of median lobe broadly sinuate; orbital groove as long as eye, slightly dilated; temporal lobes slightly wider than long, oblique, anteromedial margins converging posteriorly; medial angle rounded, scarcely overlapped by median lobe; one temporal seta; pollinosity of postorbit well developed, extended to eye ventrally; temporal lobe with slight overhang in lateral view; suborbital tubercle and gular ridge absent.

Pronotum relatively short, broad, length/greatest width 1.10; widest near middle, sides markedly curved, convergent to narrow apex; sides slightly curved in posterior half, side distinctly sinuate anterior to hind angle; latter obtuse, distinct emargination between hind angle and basal knob; latter small, depressed, pollinose; paramedian grooves deep, pollinose, width at middle more than half that of outer carina; anterior ends of inner carinae pollinose, so the glabrous areas of these carinae appear strongly abbreviated anteriorly; marginal grooves broad; marginal setae absent; angular seta present; prosternum with shallow transverse groove between precoxal carinae; latter not extended to anterior margin of prosternum.

Elytra broad, slightly flattened; humeral tubercles slightly exserted; striae deep, pollinose; intervals narrow, convex, outer ones subcarinate; striole punctures coarse, each puncture about 0.5 as wide as one interval; Stria II with one basal and one apical seta; Stria IV with about six setae; striole without setae; several setae in apex of Stria VII; abdominal Sterna III-V each with coarsely punctate transverse sulcus, in most specimens interrupted at midline; femora with pollinose bands; serrulation of middle tibia less developed than in other members of subgenus; hind calcar of male acute.

The genitalia were figured (Part I, 57; Fig. 26).

This species, from the base of the Cape York Peninsula, is the only known representative of the subgenus in Australia. The subcarinate elytral intervals and unspecialized head put it in Group I. The short, rather broad pronotum separates it from other members of the group.

Kaveinga (sensu stricto) fibulata new species
(Fig. 23)

Type material. – HOLOTYPE male, labelled: "NEW BRITAIN: Rabaul, 29-X, 1940, J.L. Froggatt, in dead stump, C-2408, pres. by Imp. Inst. Ent., BM 1946-35" (BMNH).

Description. – Length 4.8 mm. Antennal Segment I pollinose dorsally; Segments II-V each with narrow dorsal pollinose band; basal setae sparse on Segment VI, well developed on Segments VII-X; head longer than wide; clypeus with margins pollinose with small central glabrous area widely separated from median lobe by pollinose depression; parafrontal boss large, oval, longer than wide, widely separated from median lobe; sides of median lobe broadly sinuate; orbital groove dilated, not extended to posterior margin of eye; temporal lobes slightly longer than wide, their anteromedial margins oblique, convergent posteriorly; medial angle rounded, not overlapped by median lobe; one temporal seta; postorbit entirely pollinose; temporal lobe without overhang in lateral view; suborbital tubercle and gular ridge absent.

Pronotum rather narrow, elongate, length/greatest width 1.20; widest near middle, sides strongly curved to apex and to base; latter only slightly wider than apex; sides not at all sinuate anterior to hind angles; latter rounded; margin not at all sinuate posteromedial to hind angles; paramedian grooves deep, pollinose, broad, at middle nearly equal to outer carinae; anterior ends of inner carinae pollinose, glabrous areas apparently abbreviated anteriorly; marginal groove rather narrow; marginal setae absent; angular seta present; no transverse groove or punctures between precoxal carinae; latter not extended to anterior margin of prosternum.

Elytra narrow, cylindrical; humeral tubercles not exserted; striae deep, pollinose; intervals narrow, convex; outer intervals carinate; strial punctures large, each about 0.33 as wide as an interval; Stria II with one basal and two subapical setae; Stria IV with five setae; Striole without a seta; Stria VII with several setae in apex; abdominal Sterna III-V each with transverse sulcus, latter not interrupted medially; femora with pollinose bands; hind calcar of male small, acute.

Adults are small and narrow, belonging to Group I, but differing from other members of the group in having the hind angles rounded. The members of the *pignoris* complex differ in having the hind angles distinct and the parafrontal bosses markedly reduced or absent. *K. parva*, of Group II, is superficially similar, but has shallow striae which are not continuously pollinose, and has the clypeus continuous with the median lobe.

The *pignoris* complex

The subgenus *Kaveinga (sensu stricto)* is known from three of the Solomon Islands and one island of the Santa Cruz group. Although these beetles are very similar to one another, they do not seem, on the basis of very limited material, to be identical. These four forms could be treated as subspecies of a single species. Since Rhysodini from continental landmasses rarely, if ever, have morphologically distinct subspecies, we prefer to regard the Solomon Island's forms as distinct species. It is nevertheless convenient to describe the complex as a whole before describing the individual species.

Description. – Length 4.9–6.4 mm. Antennal Segment I pollinose dorsally; Segments II-IV each with narrow pollinose band; basal setae various in development; head longer than wide; clypeus with margins pollinose, with small central area glabrous, latter widely separated from median lobe by pollinose depression; parafrontal boss reduced or absent; orbital groove extended to posterior margin of eye or nearly so, dilated anteriorly, tapered posteriorly; temporal lobes as wide as long, anteromedial margin of temporal lobe curved, margins convergent posteriorly; median angle rounded, scarcely overlapped by median lobe; one temporal seta in most specimens (holotype of *K. pignoris* with three temporal setae on one temporal lobe and one on the other); postorbit entirely pollinose; temporal lobe without overhang in lateral view; suborbital tubercle and gular ridge absent.

Pronotum elongate, narrow; hind angles distinct, obtuse; margin distinct posteromedial to hind angle; paramedian grooves deep, pollinose, almost as wide as outer carina at middle of length; anterior end of inner carina pollinose, glabrous part of inner carina apparently abbreviated anteriorly; marginal groove well developed; marginal setae absent; angular seta present; no pits or grooves between precoxal carinae.

Elytra narrow, cylindrical; humeral tubercle not exserted; striae deep, pollinose; intervals narrow, convex, outer ones carinate; strial punctures large; Stria II with setae confined to apex or to base and apex; Stria IV with continuous series of approximately six setae; apical striole without setae; several setae in apex of Stria VII; abdominal Sterna III-VI each with complete transverse sulcus; femora with pollinose bands.

Members of this complex are small and narrow with carinate elytral intervals. They differ from *K. fibulata* in having the hind angles distinct, and separated from the base by an emargination.

Kaevinga (sensu stricto) pignoris new species
(Fig. 25,28,30)

Type material. – HOLOTYPE male, labelled "SOLOMON ISLANDS, Bougainville (S). Kokure, 690 m., June 13, 1956, E.J. Ford, Jr." (BPBM).

Description. – With the characters of the *pignoris* complex; length 5.0 mm; basal setae sparse on antennal Segment VI, well developed on Segments VII-X (Fig. 28); parafrontal boss entirely absent; sides of median lobe broadly, rather shallowly emarginate; temporal lobe evenly rounded posteriorly; pronotum moderately elongate, length/greatest width 1.20; pronotum widest near middle, sides feebly curved except strongly curved near apex; basal knob absent; strial punctures about 0.33 as wide as an interval; Stria II with one seta at base and two to three near apex; hind calcar small, narrow. its apex truncate, its width about 0.6 of apical width of hind tibia.

This species differs from *K. kukum* in having the pronotum shorter, its sides more curved, in having the temporal lobe evenly rounded posteriorly, and in having the hind calcar longer and more distinctly truncate.

Kaveinga (sensu stricto) kukum new species
(Fig. 24)

Type material. – HOLOTYPE male, labelled; "SOLOMON ISLANDS, Guadalcanal, Kukum; 22/4, 1963, P. Greenslade 5109, B.M. 1966-477" (BMNH). PARATYPE female, same data as holotype (mounted on same pin).

Description. – With the characters of the *pignoris* complex; length 5.2–6.4 mm; basal setae sparse on Antennal Segment VI, well developed on Segments VII-X; parafrontal boss entirely absent; sides of median lobe broadly, rather shallowly emarginate; temporal lobe more distinctly sinuate medial to occipital angles than in *K. pignoris*; pronotum more elongate than in *K. pignoris* length/greatest width 1.30; pronotum with sides nearly parallel and straight except at base and apex; small detached basal knob posterior to outer carina; strial punctures about 0.33 as wide as an interval; Stria II with one seta at base and one or two near apex; hind calcar much smaller and less distinctly truncate than in *K. pignoris*, its width about 0.33 of apical width of tibia.

This species is close to the preceding, but differs in the form of the hind calcar, the more elongate pronotum with parallel sides, and the presence of a basal knob on the outer carina.

The paralectotype shows an anomaly which we have not seen in any other rhysodine: the anterior half of the median groove is absent, so that the two inner carinae fuse anteriorly.

Kaveinga (sensu stricto) ulteria new species
(Fig. 26,31)

Type material. – HOLOYPE male, labelled: "SOLOMON ISLANDS; Santa Cruz Group; Reef Is. 25/11, 1964, 11813 P. Greenslade BM 1966-477" (BMNH); PARATYPE female, same data as male, mounted on same pin, head and prothorax missing.

Description. – With characters of *pignoris* complex; length 5.0 mm; basal setae on Segments VII-X well developed; parafrontal boss absent; sides of median lobe broadly, rather shallowly emarginate; temporal lobe markedly sinuate medial to occipital angle; pronotum rather elongate; length/greatest width 1.28; pronotum with sides parallel except at base and apex; sides markedly curved and narrowed to apex; pronotum with distinct basal knob posteromedial to base of outer carina; strial punctures very coarse, about 0.5 as wide as an interval; hind calcar more elongate, more narrowly truncate than in *K. pignoris* (Fig. 31).

This species differs from both *K. pignoris* and *K. kukum* in having coarser punctures in the elytral striae. The presence of a basal knob on the pronotum is a similarity to *K. kukum*, but the hind calcars of the two species are quite different.

Kaveinga (sensu stricto) nudicornis new species
(Fig. 27,29)

Type material. – HOLOTYPE sex unknown (hind legs missing); labelled: "SOLOMON IS. Russell Islands; Yandina, in logs, 22-24/11/1967, P.J.M. Greenslade, 13463, log 7, B.M. 1966-477" (BMNH).

Description. – With the characters of the *pignoris* complex; length 4.9 mm; basal setae of Antennal Segments VI-X markedly reduced, represented on each segment by one or two lateral setae only (Fig. 29); parafrontal boss represented by small, oblique glabrous area; sides of median lobe more narrowly and deeply emarginate than in related species, thus median lobe strongly constricted at middle; hind margin of temporal lobe not sinuate medial to occipital angle; pronotum elongate, length/greatest width 1.30; pronotum widest at apical fourth, sides strongly curved from there to apex; sides straight, very slightly convergent from widest point to hind angles; basal knob absent from base of outer carina; strial punctures coarse, each puncture about 0.33 as wide as an interval; Stria II without a seta at base, with two setae near apex.

Reduction of the basal setae of the antennae and the sharp constriction of the median lobe of the head differentiate this species from its relatives.

Kaveinga (sensu stricto) parva (Grouvelle 1895) NEW COMBINATION
(This species was accidentally omitted from Part I, 59)
(Fig. 44)

Rhysodes parvus Grouvelle 1895a: 157.

Type material. – HOLOTYPE female, labelled: "Nouv. Guineé, Baie de Geelvink, Raffray & Maindron- 78" (MNHN). Grouvelle, in his written description, cited "Dorey" as the type locality. Geelfinkk Bay, now called Teluk Sarera, is located on the north side of the western (Indonesian) part of New Guinea. The data is too imprecise to determine whether this species, like its relatives, is a montane one.

Description. – Length 4.8 mm. Antenna without pollinosity; basal setae well developed on Segments VI-X; head longer than wide; clypeus continuous with median lobe; parafrontal boss large, triangular, widely separated from median lobe; sides of median lobe broadly sinuate, orbital groove fine, not extended to posterior margin of eye; temporal lobe oblique, longer than wide; anteromedial margin oblique, nearly straight; margins converging posteriorly; medial angle rounded, well separated from median lobe; one temporal seta; postorbit finely pollinose; temporal lobe with slight overhang in lateral view; suborbital tubercle and gular ridge absent.

Pronotum elongate, narrow; length/greatest width 1.25; widest anterior to middle; sides markedly curved to apex; sides oblique, nearly straight, slightly convergent from widest point to hind angles; latter obtuse; margin shallowly sinuate posteromedial to hind angle; paramedian groove deep, broad, pollinose, at middle nearly equal to outer carinae; inner carinae not at all abbreviated anteriorly, glabrous areas extended anteriorly as far as outer carinae extended; marginal groove deep; marginal setae absent; angular seta present.

Elytra narrow, cylindrical; humeral tubercles not exserted; striae shallow, not pollinose, intervals nearly flat; each strial puncture about 0.25 as wide as an interval, punctures thus coarser than in other members of Group II; Stria II with one basal and one apical seta; Stria IV with seven setae; striole without setae; several setae near tip of Stria VII.

This is a small, narrow species, superficially like *K. fibulata* and the *K. pignoris* complex, but with the clypeus continuous with the median lobe and the elytral striae not continuously pollinose. It differs from the other species from New Guinea in having the pronotum elongate and narrow.

Kaveinga (sensu stricto) cylindrica (Arrow)
(Fig. 32–35)

Rhysodes cylindricus Arrow, 1942: 178.

Type material. – LECTOTYPE male, labelled "PAPUA: Mt. Tafa, 8,500 ft., III-1934, L.E. Cheesman, BM 1934-244" (BMNH). Six PARALECTOTYPES, one male, one female, same data as lectotype; two males, two females, same data as lectotype II-1934 (all (BMNH).

Description. – Length 5.5–7.0 mm. Antennal Segment I pollinose dorsally; more distal segments not pollinose; basal setae well developed on Segments VI-X; head slightly longer than wide; clypeus with pollinose margins and isolated central glabrous area, latter separated from median lobe by slightly depressed pollinose area; parafrontal boss twice as long as wide, broadly separated from median lobe; median lobe broad, sides of median lobe shallowly sinuate; orbital groove narrow, not quite as long as eye; temporal lobe oblique, wider than long, its anteromedial margin oblique, lobes convergent posteriorly; medial angle rounded, slightly overlapped by median lobe; one to two temporal setae; occipital angles prominent; postorbit glabrous; temporal lobe without overhang in lateral view; gular ridge and suborbital tubercle absent; postorbital tubercle very small or indistinct.

Pronotum as long as wide or slightly longer than wide; pronotum widest near middle, sides slightly curved both anteriorly and posteriorly, sides strongly curved medially near apex; margin sinuate anterior to rectangular hind angle, margin distinctly sinuate posteromedial to hind angle; paramedian grooves deep, pollinose, strongly narrowed in middle, less than 0.33 as wide as outer carina at middle; anterior ends of inner carinae pollinose, so that glabrous areas appear abbreviated anteriorly; posterior end of outer carina depressed, pollinose; basal knob of outer carina pollinose; marginal groove rather narrow; one to three marginal setae present; angular seta present; precoxal carinae reaching anterior margin of prosternum; a transverse groove present between precoxal carinae.

Elytra narrow, cylindrical; humeral tubercle narrow, not exserted (Fig. 35); Striae I, II slightly impressed; remaining striae represented by rows of punctures; intervals flat; strial punctures small, less than 0.2 times as wide as one interval; Stria II with one basal seta, without apical seta; Stria IV with four to five setae; Striole without setae; Stria VII with several setae near apex; abdominal Sterna III-V each with uniseriate transverse row of punctures, latter not interrupted at midline; anterior femora with fine pollinose bands, other femora with pollinosity reduced or absent; hind calcar of male small, rather obtuse.

This species is broader and has a shorter pronotum than does *K. parva*, and is narrower and more cylindrical than are the remaining members of Group II. The most similar species is *K. lupata*, which has broader elytra with the humeral tubercle strongly exserted.

Range. – *K. cylindrica* is confined to the most eastern mountains of New Guinea, from Mt. Tafa to the vicinity of Wau. In addition to the type material, we have seen the following specimens: one male, 6 km W of Wau, Nami Creek, 1700 m, 10-VI-1962, coll. J. Sedlacek; one male, Mt. Missim, 1500-2000., 22-30-IV-1968, coll. J.L. Gressitt, R.C.A. Rice & J. Sedlacek; one female, Mt. Kaindi, 2250 m., 10-V-1968, coll. J.L. Gressitt, J. Sedlacek (all BPBM).

Kaveinga (sensu stricto) lupata new species
(Fig. 36-39)

Type material. – HOLOTYPE male, labelled; "New Guinea: (NE) Mt. Kaindi, 16 km SW of Wau,2300 m., 8-9-VI-1962, coll. J. Sedlacek" (BPBM). 17 PARATYPES (all BPBM); five males, same data as holotype; one female, same locality and collector as holotype, 10-I-1962, one male, two females, "N. Guinea (NE) Wau, 2400 m., 9-12-I, 1962, coll. J. Sedlacek, C. Monteith & native"; two males, "N. Guinea (NE) Wau, Morobe Dist. 2400 m., 9-12-I-1962, coll. J.H. & M. Sedlacek C. Monteith & native"; one male, "N. Guinea (NE) Wau, Morobe Dist. 1300 m., 28-I-1963, coll. J. Sedlacek"; one female, "N. Guinea (NE) Wau, Morobe Dist., 1700-1800 m., 7-X-1962, coll. J.&M. Sedlacek"; one male, "N. Guinea (NE) 6 km W of Wau, Nami, Creek, 1700 m., 10-VI-1962, coll. J. Sedlacek"; one female, same locality, collector, 12-VI-1962; one female, "N. Guinea (NE) Wau, Morobe Dist., Nami Creek, 1600–1650 m., 24-II-1963, coll. J. Sedlacek"; one male, "N. Guinea (NE), Ialibu, 2900 m., 8-14-1968, coll. Gressitt & Maa".

Description. – Length 5.0–6.2 mm. Antennal Segment I pollinose dorsally, more distal segments not pollinose; basal setae sparse on Segment VI, well developed on Segments VII-X; head slightly longer than wide; clypeus with pollinose margins, and glabrous central area; latter narrowly separated from median lobe by shallow pollinose depression in some specimens, clypeus and median lobe narrowly joined at midline in other specimens; parafrontal boss twice as long as wide, broadly separated from median lobe; median lobe broad, sides of median lobe shallowly sinuate; orbital groove slightly dilated, ended opposite middle of eye; temporal lobe oblique, slightly wider than long, its anteromedial margin oblique; the two lobes convergent posteriorly; medial angle rounded, slightly overlapped by median lobe; one temporal seta inserted in enlarged puncture; temporal lobe deeper than that of *K. cylindrica*, distinctly overhanging occiput in lateral view; distinct gular ridge lateral to each gular groove; each ridge ended posteriorly in prominent suborbital tubercle (Fig. 39); postorbital tubercle absent.

Pronotum as wide as long, widest near base, sides almost parallel except strongly convergent near anterior margin; margin not sinuate anterior to hind angle, latter rectangular; margin scarcely emarginate posteromedial to hind angle; paramedian grooves deep, entire, moderately wide, about 0.5 as wide as outer carina at middle; anterior ends of inner carinae pollinose, so that glabrous areas appear abbreviated anteriorly; posterior end of outer carina depressed, pollinose; basal knob of outer carina pollinose; marginal groove narrow; marginal setae absent from most specimens, a few specimens with one marginal seta anterior to the angular seta; precoxal

carinae not extended to anterior margin of prosternum; transverse row of two pits between precoxal carinae.

Elytra somewhat flattened, broader than in *K. cylindrica*; humeral tubercle prominently exserted (Fig. 36); elytral striae not impressed, represented only by rows of punctures; intervals flat; strial punctures small, less than 0.2 of width of one interval; Stria II with one basal seta, and in most specimens with one apical seta; in some specimens apical seta absent from Stria II, but apical seta in Stria I; Stria IV with four to five setae; Striole without a seta; Stria VII with five to ten setae near apex; abdominal sterna III-V each with uniseriate transverse row of punctures, the row not interrupted in midline; anterior femora with fine pollinose bands; remaining femora without pollinosity; hind calcar of male very small.

This species is sympatric with *K. cylindrica*, but is readily separated by the exserted humeral tubercles, the wider paramedian and marginal grooves, and the well-developed gular ridges and suborbital tubercles.

With this species we provisionally place one specimen from Mt. Missim, New Guinea, 1650 m (BPBM). It matches the description of *K. lupata* in most respects, but differs in having the suborbital tubercles almost absent; the parafrontal bosses large, quadrate, and the total length 6.8 mm. Since we have doubts about the inclusion of this species, we have not designated it as a paratype.

Kaveinga (sensu stricto) okapa new species
(Fig. 40)

Type material. – HOLOTYPE male, labelled: "New Guinea; Okapa, Kamira, Eastern Highlands, 2-9-1964, coll. R. Hornabrook (NMNZ). Seven PARATYPES (NEW GUINEA) one female, same data as holotype; one male, Okapa, 12-11-1964; one female, Okapa, Okosa, 12-1-1965; one female, Daulo Pass, Asato-Chimbu Divide, 8-4-1972 and one male, 16-9-72; one female, 18-10-72 and one male, Feb., 1971, Lufa, Mt. Michael. All specimens collected by R. Hornabrook and deposited at NMNZ.

Description. – Length 5.0–6.3 mm. Antennal Segment I pollinose dorsally, more distal segments not pollinose; basal setae sparse on Segment VI, well developed on Segments VII-X; head slightly longer than wide; clypeus with pollinose margins, glabrous central area; latter narrowly separated from median lobe by shallow pollinose depression in some specimens, clypeus and median lobe narrowly joined at midline in other specimens; parafrontal boss connected narrowly to median lobe; median lobe broad, its lateral margins nearly parallel; orbital groove slightly dilated, short, ended well anterior to posterior margin of eye; temporal lobe oblique, slightly longer than wide, its anteromedial margin oblique; lobes convergent posteriorly; median angle rounded, slightly overlapped by median lobe; one temporal seta, inserted in prominent puncture; occipital angle prominent, somewhat lobate; postorbit extensively glabrous; pollinosity not extended to eye; temporal lobe with slight overhang in lateral view; gular ridge prominent, partly to entirely pollinose; posterior end of gular ridge in form of prominent suborbital tubercle.

Pronotum varied in size and proportions, in most specimens as wide as long, greatest width at base; in few specimens slightly longer than wide, with widest point near middle, and base slightly narrowed; lateral margin not sinuate anterior to hind angles, latter rectangular; paramedian grooves deep, markedly narrowed at middle, their outer margins straight, elevated, sharply defined; their inner margins ill-defined, sloped gradually from inner carinae; pollinosity of paramedian groove reduced to narrow strip along outer margin; anterior end of inner carina pollinose, inner carina apparently abbreviated anteriorly; basal knob pollinose, depressed below level of outer carina; marginal groove fine; marginal setae absent; angular seta present; precoxal carinae ending close to anterior margin of prosternum; a transverse row of two pits between precoxal carinae.

Elytra broad, slightly flattened; humeral tubercle slightly exserted; elytral striae not at all impressed, represented only by rows of fine punctures; intervals flat; strial punctures small, less than 0.2 as wide as an interval; Stria II with basal seta and apical seta or one or both of these absent; Stria IV with one or two setae near base and one at apex, but without setae in middle third; Striole asetose; Stria VII with seven to ten setae near apex; abdominal Sterna III-V each with uninterrupted transverse row of punctures; femora with pollinose bands absent or represented by small vestiges; hind calcar of male very short, obtuse.

This species and *K. marifuanga* differ from all other members of the subgenus in having the parafrontal bosses joined to the median lobe. This species is distinguished by having large suborbital tubercles, parafrontal bosses only narrowly joined to the median lobe, and the latter, at most narrowly in contact with the clypeus. In most specimens of *K. okapa*, the pronotum is much less elongate than in *K. marifuanga*, and is not at all narrowed at the base. In a few specimens, which we provisionally interpret as variants of *K. Okapa*, the pronotum is slightly elongate and slightly narrowed at the base, approaching that of *K. marifuanga*. Possibly we are including more than one species in our concept of *K. okapa*. The point cannot be settled until many more specimens are available.

Kaveinga (sensu stricto) marifuanga new species
(Fig. 41, 42)

Type material. – HOLOTYPE male, labelled: "NEW GUINEA, Marifuanga, Asaro-Chimbu Divide, 1-6-72, coll. R. Hornabrook" (NMNZ). Three PARATYPES: one male, same data as holotype; two females, Daulo Pass, Asato-Chimbu Divide, 8-4-72 and 4-1-75, coll. R. Hornabrook (all NMNZ).

Description. – Length 5.4–7.0 mm. Antennal Segment I pollinose dorsally, more distal segments not pollinose; basal setae sparse on Segment VI, well developed on Segments VII-X; head slightly longer than wide, clypeus with pollinose anterior and lateral margins, broadly joined to median lobe posteriorly; parafrontal boss broadly fused to median lobe; median lobe broad, its lateral margins nearly parallel; orbital groove slightly dilated, short, ending anterior to middle of eye; temporal lobe oblique, slightly longer than wide, its anteromedial margin oblique, straight; temporal lobes convergent posteriorly; medial angle rounded, slightly overlapped by median lobe; one temporal seta, inserted in prominent puncture; occipital angle prominent, in form of small lobe; postorbit glabrous; temporal lobe not overhanging occiput in lateral view; gular ridge low, glabrous, its posterior end in form of small suborbital tubercle (suborbital tubercles smaller and closer together than in *K. okapa*). Pronotum distinctly longer than wide, length/greatest width averages 1.16; widest near middle, sides curved to apex, nearly straight, slightly convergent posteriorly; margin distinctly sinuate anterior to hind angles; latter rectangular; paramedian grooves shallower than in *K. okapa*, markedly narrowed at middle, their outer margins straight, elevated, sharply defined; their inner margins ill-defined, sloped gradually from inner carinae; pollinosity of paramedian groove reduced to narrow strip along outer margin; anterior end of inner carina not pollinose nor apparently abbreviated; basal knob of outer carina glabrous, appearing as continuation of outer carina; marginal groove fine; marginal setae absent from most specimens, but one present unilaterally near anterior angle on one specimen; angular seta present; prosternum with two pits in transverse row between precoxal carinae.

Elytra relatively narrow, cylindrical; humeral tubercles not exserted: elytral striae not impressed, represented by rows of punctures; intervals flat; strial punctures very small, less than 0.15 as wide as an interval; Stria I in some specimens with seta near apex, in other specimens this seta absent; Stria II without setae; Stria IV with one seta near base and two near apex; Striole without setae; Stria VII with approximately nine setae near apex; Sternites III-V each with transverse row of coarse punctures, latter broadly interrupted in midline; femora with pollinose bands absent; hind calcar obtuse, but more prominent than in *K. okapa*.

This species is similiar to *K. okapa*, but differs in having the suborbital tubercles much smaller, the clypeus broadly joined to the median lobe; the parafrontal bosses more broadly joined to the median lobe, and the transverse rows of punctures of the abdomen broadly interrupted in the midline. The pronotum is very different in shape from most specimens of *K. okapa*, but a few specimens which we interpret as variants of the latter species approach the shape seen in *K. marifuanga*.

Kaveinga (sensu stricto) occipitalis (Grouvelle 1903)
(Fig. 43)

Rhysodes occipitalis Grouvelle 1903: 105–106.

Type material. – HOLOTYPE female, labelled; "NUOVA GUINEA, Fly River, L.M. D'Albertis 1876-1877" (MNHN).

Description. – Length 7.0 mm. Basal setae sparse on Segment VI, well developed on Segments VII-X; head distinctly wider than long; clypeus with glabrous central area, narrow pollinose anterior margin and widely pollinose lateral margins, separated from median lobe by deep pollinose transverse impression; clypeus not constricted posteriorly; median lobe connected to each antennal rim by oblique, pollinose carina, but true parafrontal bosses absent; sides of median lobe shallowly sinuate; orbital groove very broadly dilated, extended beyond posterior margin of eye; temporal lobe transverse, its anterior margin rounded, its medial angle closely fitted to and overlapped by median lobe; median and temporal lobes not rugose; posterior margin of temporal lobe transverse, its most posterior point midway between midline and lateral margin of head; one temporal seta, inserted in prominent puncture; postorbit pollinose; temporal lobe without overhang in lateral view; gular ridge and suborbital tubercle absent.

Pronotum as wide as long, widest at base; sides nearly straight, slightly convergent almost to apex, where they are strongly curved medially, lateral margin not sinuate anterior to hind angle; latter rectangular; anterior margin of pronotum deeply emarginate medially; paramedian grooves deep, rather markedly narrowed at middle, width at middle about 0.5 width of outer carina; anterior end of inner carina pollinose, latter much shorter than outer one, appearing oval; posterior end of outer carina not depressed; basal knob absent; marginal groove deep, holotype with one marginal seta on left side, just anterior to angular seta, but without marginal seta on right side; angular seta present; precoxal carina not extended to anterior margin of prosternum; no pits or transverse grooves between precoxal carinae.

Elytra broad, somewhat flattened; humeral tubercle exserted; striae deep, pollinose, intervals carinate; Intervals II, III more elevated than others at base, slighty prominent, in form of slight anterior prominence; strial punctures oval, longer than wide, about

0.33 as wide as interval; Stria II with one basal and one apical seta; Stria IV with one basal and two apical setae; apical striole without setae; Stria VII with about ten setae near apex; abdominal Sterna III-V each with complete transverse sulcus; Sternum VI with complete basal transverse sulcus and group of coarse punctures near apex; femora with pollinose bands.

This is the least specialized member of Group III, the "short-faced" species. It differs from the other members of the group in having the temporal lobes transverse posteriorly. The broad head and the deep pollinose elytral striae will separate it from all other known *Kaveinga* species from New Guinea, all of which belong to Group II.

Kaveinga (sensu stricto) histrio new species
(Fig. 45-48)

Type material. – HOLOTYPE male, labelled; "Mindanao, E. Slope Mt. McKinley, 3300 ft., Davao Prov., X-1-46, H. Hoogstraal (CNHM Philippines Zoo. Exped. 1946-57)" (CNHM). Two PARATYPES, one female, same data as type; one female, same locality as type, IX-28-1946, F.G. Werner (both CNHM).

Description. – Length 5.5–7.0 mm. Antennal Segment I pollinose dorsally; Segments II-V each with narrow pollinose band; basal setae well developed on Segments VI-X; head twice as wide as long, much deeper than long; clypeus entirely pollinose, constricted at base, its sides angulate, its anterior and lateral margins raised; clypeus separated from median lobe by deep pollinose impression; anterior tentorial pits enlarged, close together; parafrontal boss absent; median lobe with lateral margins straight; median lobe sloped abruptly from postclypeal depression, markedly convex in lateral view (Fig. 46); posterior end of median lobe curved ventrally over occiput; orbital groove markedly dilated; extended beyond posterior margin of eye; two temporal setae, each inserted in prominent pit, one or both of latter confluent laterally with orbital groove in some specimens; temporal lobe much wider than long, curved, its medial margin closely fitted to median lobe but not countersunk in it or extended above it; median lobe smooth, temporal lobe with few longitudinal rugae near border with median lobe; temporal lobe markedly divergent posteriorly; posterior margin of temporal lobe oblique, sinuate, most posterior point much closer to lateral margin than to midline; postorbit pollinose; temporal lobe without overhang in lateral view; gular ridge, suborbital tubercle absent.

Pronotum slightly longer than wide; length/greatest width 1.1; widest slightly anterior to middle; sides curved; base and apex both narrowed; lateral margin shallowly sinuate anterior to hind angle, latter nearly rectangular; anterior margin of pronotum shallowly emarginate medially; paramedian grooves wide, deep, as wide at middle as are outer carinae; both inner and outer carinae pollinose and apparently abbreviated anteriorly; inner carinae more abbreviated than outer one; basal knob of outer carina glabrous, prominent, separated from rest of carina by pollinose depression; marginal groove broad, deep; one marginal seta near anterior angle (unilaterally absent in one specimen); one to two marginal setae near angular seta; angular seta present; precoxal carinae prominent, but not extended to anterior margin of prosternum; transverse groove between precoxal carinae; anterior part of prosternum and precoxal carinae pollinose; anterior part of pleuron pollinose, pollinosity extending posteriorly along notopleural suture.

Elytra narrow, cylindrical; humeral tubercle pilose at base, not exserted; striae deep, very narrowly pollinose; intervals convex but not carinate; strial punctures very large, about 0.33 as wide as an interval; Stria II with one seta at base and two near apex; Stria IV with four to six setae; striole with one seta; Stria VII with one seta at humerus and six near apex; Sternum II of abdomen with two transverse rows of punctures; Sterna III-V each with complete transverse sulcus; Sternum VI with basal sulcus which is interrupted in midline and with group of coarse punctures near apex; femora with pollinose band; hind calcar of male small, obtuse.

In this species and the next one, the head is an extraordinary, masklike structure, rising high above the pronotum, and largely hollowed posteriorly, exposing the slender pillar which supports the median lobe (Fig. 47). In dorsal view, the diverging temporal lobes suggest the head of the hammer-head shark (*Sphyrna*). The long orbital grooves, the smooth median lobe, and the abbreviated pronotal carinae provide convenient separation of this species from *K. strigiceps*.

Kaveinga (sensu stricto) strigiceps new species
(Fig. 49-51)

Type material. – HOLOTYPE male, labelled; "Buru, Station 12, 4-7 Febr. 1922, L.J. Toxopeus" (AMS).

Description. – Length 5.4 mm. Antennal Segment I pollinose dorsally; Segments II-V each with narrow pollinose band; basal setae well developed on Segments VI-X; head almost twice as wide as long, twice as deep as long; clypeus glabrous in middle, its anterior and lateral margins pollinose; clypeus constricted at base, its anterior margin curved; margins of clypeus reflexed; clypeus

separated from median lobe by deep pollinose depression; anterior tentorial pits greatly enlarged, close together; parafrontal boss absent; median lobe with lateral margins straight; median lobe sloped almost vertically from postclypeal depression, markedly convex in lateral view; posterior end of median lobe curved ventrally over occiput (Fig. 50); anterior half of median lobe longitudinally rugose, posterior half with few scattered rugae, but otherwise smooth; orbital groove dilated, not extended posterior to eye; one temporal seta far from orbital groove; temporal lobes oblique, divergent posteriorly, posterior margin of temporal lobe sinuate; temporal lobe densely, longitudinally rugose (Fig. 51); temporal lobes very convex, sloped above and partly overlapping median lobe; postorbit entirely pollinose, gular ridge, suborbital tubercle absent.

Pronotum as wide as long, nearly quadrate; margins straight and parallel except near apex, where they curve medially; lateral margin not sinuate anterior to hind angle, latter rectangular; anterior margin of pronotum shallowly emarginate medially; paramedian grooves deep, narrower than in *K. histrio*, at middle equal in width to outer carina; neither outer nor inner carina abbreviated or pollinose anteriorly; basal knob of outer carina small, depressed, pollinose; marginal groove deep, broad; marginal setae absent; angular seta present; inner carina with basal seta; precoxal carinae not extended to anterior margin of prosternum; no transverse groove or pits between precoxal carinae; anterior part of prosternum, precoxal carinae, and propleura pollinose; pollinosity of pleuron extended posteriorly along notopleural suture.

Elytra narrow, cylindrical; humeral tubercle not exserted; striae deep, narrowly pollinose; intervals convex, narrow, but not carinate; strial punctures very small, less than 0.2 of width of one interval; Stria II without setae; Stria IV with one apical seta; Striole without seta; Stria VII with few setae near apex; Sternum II of abdomen with two transverse rows of punctures; Sterna III-V each with complete transverse sulcus; Sternum VI with transverse basal sulcus interrupted at midline, and group of coarse punctures near apex; femora with pollinose bands; lateral margin of middle tibia scarcely serrulate; hind calcar of male small, acute.

The high, domed head with conspicuous rugae on both median and temporal lobes easily separate this species from all others.

SUBTRIBE CLINIDIINA

Description. – Part I, 59.
Key to Genera. – Part I, 59

Genus *Grouvellina* Bell and Bell, 1978
(Fig. 52-74)

Type species. – *Rhysodes tubericeps* Fairmaire 1868.

Description. – Antennal stylet well developed; antennal segments with both basal and apical series of setae well developed; minor setae of antennal segments forming a ventral tuft on each segment, in most species beginning on Segment V; dorsal side of antennal segments with bands or spots of pollinosity.

Eye large, deeper than long, with about 150 ommatidia; antennal lobe separated from temporal lobe by deep postantennal groove; most species with elevated glabrous parafrontal boss lateral to median lobe and anterior to postantennal groove; head extensively pilose, in most species with well-developed orbital band of pilosity in place of orbital groove; longer pilosity in frontal pit; pilosity of occipital region in form of "ruff" anterior to glabrous neck condyle; labrum with one or two pairs of setae; clypeus with one pair; two to six temporal setae; postlabials one to many pairs.

Pronotum with complete paramedian grooves; marginal groove single, complete in most species (but abbreviated posteriorly in *G. grouvellei*); prothorax with "collar" of long pilosity around the anterior margin; angular seta present; 0 to six marginal setae.

Elytral striation complete; Stria VII marginal; apical striole absent; pilosity well developed in elytral striae (in some species also invading intervals); hind wings well developed in those species checked. Abdominal sterna transversely sulcate.

Anterior tibia with cleaning organ entirely or largely distad to base of tarsus; middle of cleaning organ with short, stiff spinose setae, in form of "comb", in most species sharply contrasted with longer, flexible setae at either end of the row, in form of pair of "brushes"; in most species both proximal and distal spurs distinct, opposite the "brushes" (in a few species, proximal spur absent); distal spur apparently secondary point on preapical tooth; proximal spur inserted just distad of intermediate tooth.

Apex of middle tibia alike in both sexes, with one spur and a medial process (in some species also with a lateral process); male without middle calcar; hind tibia in female with two spurs; in male with one spur and a calcar; all legs with a complex pattern of pilose and glabrous areas.

The genus is unique among Clinidiina in possessing large eyes, functional hind wings, and complete elytral striation. *Grouvellina* is known only from Madagascar, but *Rhysodes planifrons* Fairmaire 1893, described from Mayotte, in the Comoro Islands, will probably prove to belong to the genus. We have

been unable to locate the type of this species or that of *Rhysodes canaliculatus* Castelnau 1836. The description of the latter species is consistent with membership in *Grouvellina*, but is not detailed enough to indicate to which, if any, of the species described below it applies. The size range is consistent with it being *G. hova, G. cuneata*, or *G. gigas*.

Phylogeny. – The radiation of this remarkable genus must have taken place entirely within Madagascar. Deciphering the phylogeny has proven difficult, as many of the characters occur in bewildering combinations. It is not made easier by the fact that six of the species are known from one sex only, that four species are not known from any specific locality, and that six of the remaining species are recorded from one locality each. The above figures suggest that we know only a fraction of the actual species.

We present a hypothetical phylogenetic diagram of the genus (Diagram 1). Species 1, the hypothetical common ancestor of the genus, is presumed to have had the following characteristics: antenna with tufts of minor setae on Segments V-X; antennal Segments II-X each with complete dorsal apical and basal bands of pollinosity; head slightly longer than broad; labrum with two pairs of setae; median lobe glabrous; parafrontal boss present; orbital groove represented by a complete band of pollinosity medial to the eye; all pronotal carinae extended the full length of the pronotum, and broadly glabrous; all pronotal grooves complete and deep; pronotum with several marginal setae; precoxal carina well developed; elytral intervals equal, subcarinate; Stria I with several setae near the apex; Striae II and IV with complete series of setae; metasternum coarsely punctate on disc and margins; anterior femur with a ventral tooth in both sexes; anterior tibia of male with proximal tooth (absent in female).

Of these characters, perhaps the most important are the number of setae on the labrum, the presence of the ventral femoral and proximal tibial teeth, and the precoxal carina. Four is the number of labral setae in the more primitive genera of Rhysodini, and it is closer to the number characteristics of most other Carabidae (six), therefore it is reasonable to conclude that having only two setae is a derived characteristic. Femoral and proximal tibial teeth are present in a number of otherwise very dissimilar *Grouvellina*; therefore it seems likely that they were present in the common ancestor, and have been lost independently several times. The same line of reasoning leads us to hypothesize the presence of the precoxal carina in Species I. *Grouvellina tubericeps* is the one member of this genus which has all the hypothetical ancestral characteristics.

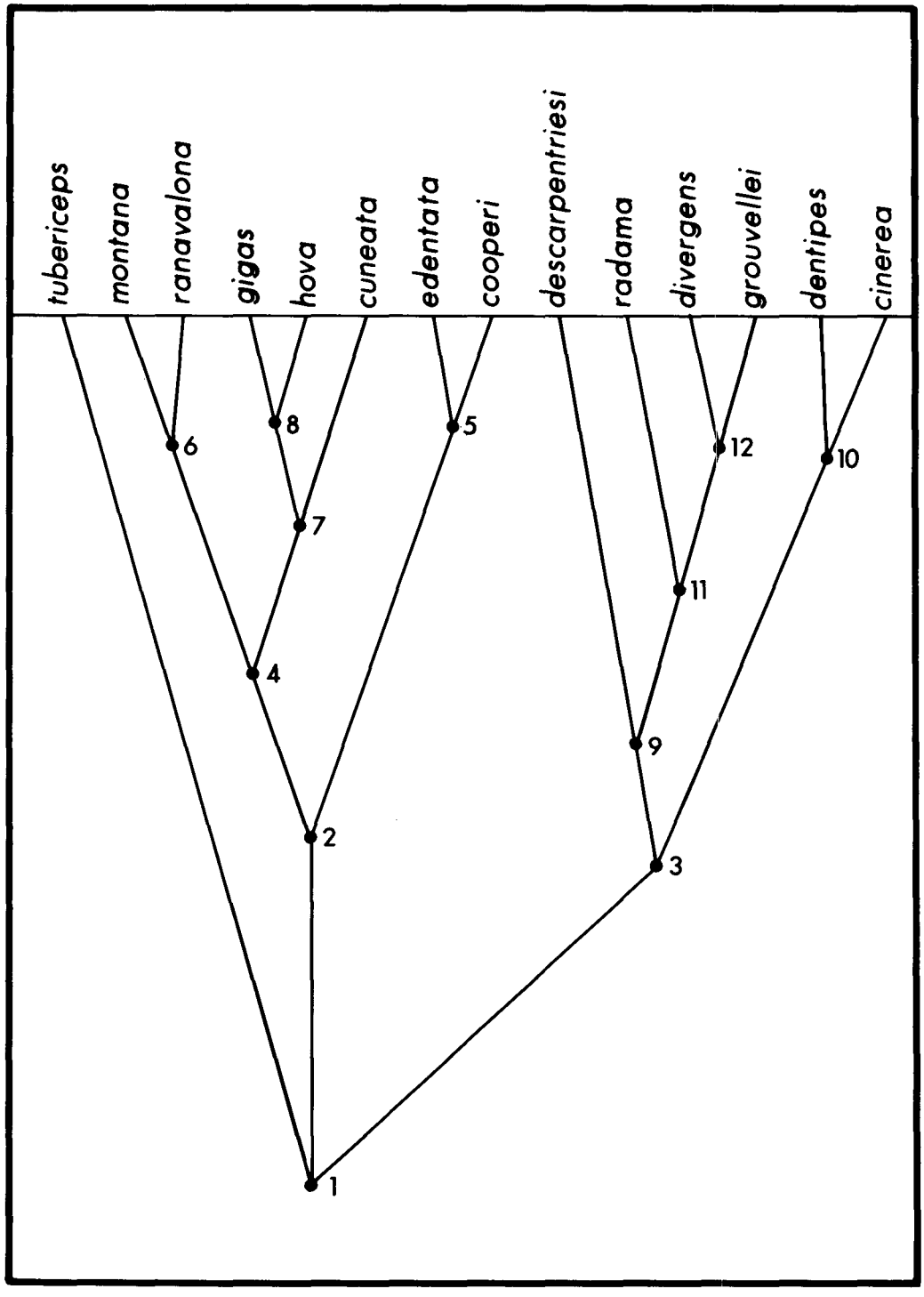
With the exception of *G. tubericeps*, all *Grouvellina* can be assigned to two major lines, descended respectively from Species 2 and 3. In Species 2, the basal bands of pollinosity were lost from antennal Segments III-X; while in Species 3, the lateral setae of the labrum were lost.

Species 2 was the ancestor of two lines, represented by Species 4 and 5. Species 4 lost the precoxal carina but was otherwise not modified. Species 5 retained the precoxal carina, but lost the femoral and proximal tibial teeth, and the basal pollinose band on Segment II of the antennae, and the anterior setae of Stria II.

Species 5 was the ancestor of *G. edentata* and *G. cooperi*. *G. edentata* lost the anterior setae from elytral Stria II, but otherwise remain unmodified. *G. cooperi* retained one anterior setae in Stria II, but had the posterior setae of that stria reduced to one, and lost the parafrontal boss and the marginal setae of the pronotum.

Species 4 gave rise to Species 6 and 7. In Species 6, the metasternal punctures were reduced in size and the anterior setae of Stria II were lost. In Species 7, the metasternal punctures remained large and the anterior setae in Stria II remained, but the head became short and broad, the body increased in size, and the intervals became more distinctly carinate.

Species 6 is the ancestor of *G. montana* and *G. ranavalona*. The former species lost the anterior part of the orbital pilose band, while the metasternal (discal) punctures disappeared entirely, the marginal



Phylogenetic Diagram I. Reconstructed Phylogeny of species of *Grouvellina*.

setae of the pronotum were reduced in number, the body size diminished, and the elytra intervals became flattened. The femoral and proximal tibial teeth were retained. In *G. ranavalona* the femoral tooth was lost, while the size remained large and the metasternal punctures remained distinct, though fine. The male of this species is unknown, but it seems likely that it will be shown to lack the proximal tibial tooth. (All of the known males of *Grouvellina* which do not have a femoral tooth lack the proximal tibial tooth as well.)

Species 7 was the ancestor of Species 8 and of *G. cuneata*. In Species 8, Stria I lost its setae, while in *G. cuneata* these setae were retained, but the anterior setae of Stria II were lost, the pronotum became strongly narrowed anteriorly, and the striae and intervals became strongly unequal.

The two descendants of Species 8 are *G. gigas* and *G. hova*. The former species remains essentially like Species 8, while the latter species lost the parafrontal boss.

Species 3 (the common ancestor to the species with two labral setae) was ancestral to Species 9 and Species 10. In Species 9, the basal pollinose bands of the outer antennal segments became broken into isolated pilose spots, and the femoral and proximal tibial teeth were lost. Species 10 retained the pollinose bands intact, and retained the femoral and proximal tibial teeth, but became highly specialized in many features, including the abbreviation of the outer pronotal carina posteriorly, the development of pollinosity on the median lobe, the loss of all but the most anterior of the pronotal marginal setae, and the loss of the parafrontal boss. In addition, the head became shortened and conspicuous tufts of pollinosity developed around each temporal seta.

Species 9 gave rise to *G. descarpentriesi* and to Species 11. The former species lost the discal punctures of the metasternum, the precoxal carina, the setae of Stria I and the setae of the anterior half of Stria II. The apical pollinose rings of the outer remained intact. Species 11 had the apical band broken into isolated pilose spots, but it retained the metasternal punctures, the precoxal carinae and the setae of Stria I and the anterior half of Stria II.

Species 11 gave rise to *G. radama* and Species 12 *G. radama* remained close to Species 11 in structure, but the median lobe became very narrow and the postlabial setae underwent multiplication. Species 12 lost the tuft of minor setae and the basal setae from antennal Segment V, while the marginal carina became abbreviated posteriorly, the precoxal carina was lost and the metasternal punctures became fine.

Species 12 gave rise to *G. divergens* and *G. grouvellei*. The former species remains close to Species 12 in structure, but has lost the marginal setae of the pronotum and the anterior setae from Stria II. *G. grouvellei* retains these setae, while it has become highly specialized in having the pollinosity greatly increased so that it covers almost the entire dorsal surface, while the pronotal carinae and elytral intervals have become much less convex.

Species 10 gave rise to *G. dentipes* and *G. cinerea*. *G. dentipes* retained the femoral and proximal tibial teeth, while *G. cinerea* lost them.

The above phylogeny is by necessity somewhat speculative, and doubtless will require some modification when more is known about *Grouvellina*. Perhaps the most questionable points are the existence of Species 6 (a common ancestor for *G. montana* and *G. ranavalona*), and the question of whether *G. radama* is really more closely related to Species 12 than is *G. descarpentriesi*.

KEY TO SPECIES

1 Outer carina of pronotum complete, glabrous, extended from anterior margin to vicinity of hind angle; marginal carina glabrous, ended distinctly anterior to hind angle..... 2

1′ Outer carina not both complete and glabrous, either abbreviated clearly anterior to hind angle or else entirely pollinose and coalescent with marginal carina posteriorly 12

2 (1) Femur of anterior leg with ventral tooth in both sexes; male with proximal tooth on anterior tibia (Fig. 74) 3

2′ Femur of anterior leg without ventral tooth; male (where known) without proximal tooth on anterior tibia 7

3 (2) Orbital groove complete, pilose, eye and temporal lobe separated; elytral intervals more or less carinate 4

3′ Orbital groove incomplete, eye in contact with glabrous area of temporal lobe; elytral intervals not carinate ..... *Grouvellina montana* new species, p. 419

4 (3) Head with large distinct parafrontal boss 5

4′ Parafrontal boss absent, entire superantennal area pollinose or pilose ..... *Grouvellina hova* new species, p. 417

5 (4) Lateral margins of pronotum markedly convergent anteriorly, width at middle less than width at base; inner striae narrower than outer ones ..... *Grouvellina cuneata* new species, p. 416

5′ Lateral margins of pronotum not markedly convergent, width at middle equal to or greater than width at base; inner and outer striae of equal width 6

6 (5′) Prosternum with short precoxal carina; body length 6.0–8.0 mm; postmentum glabrous (Fig. 60); dorsal basal pollinose bands on antennal Segments II-VIII (Fig. 59); median lobe long, narrow ..... *Grouvellina tubericeps* (Fairmaire), p. 413

6′ Precoxal carina absent; body length 8.0–10.5 mm; postmentum pollinose (Fig. 63); dorsal basal pollinose bands only on antennal Segment II (Fig. 62); median lobe short, broad, broadly rounded posteriorly ..... *Grouvellina gigas* new species, p. 413

7 (2′) Labrum with four setae 8

7′ Labrum with two setae 10

8 (7) Precoxal carina absent; elytral intervals carinate; base of elytral interval II not elevated; length 9.0 mm or more ..... *Grouvellina ranavalona* new species, p. 417

8′ Precoxal carina present; elytral intervals not carinate; base of elytral interval II elevated; length 5.0–7.0 mm 9

9 (8′) Parafrontal boss present ..... *Grouvellina edentata* new species, p. 418

9′ Parafrontal boss absent ..... *Grouvellina cooperi* new species, p. 418

10 (7′) Median lobe of head long, narrow, parallel-sided; carinae of pronotum narrow, equal to or slightly wider than pronotal grooves; precoxal carina present ..... *Grouvellina radama* new species, p. 419

10′ Median lobe of head wider; carinae of pronotum wider than pronotal grooves; precoxal carina absent 11

11 (10′) Medial angle of temporal lobe rounded; antennal stylet elongate, acute; discal metasternal punctures absent; pronotum with 4–5 marginal setae ..... *Grouvellina descarpentriesi* new species, p. 420

11′ Medial angle of temporal lobe more pointed; antennal stylet obtuse; discal metasternal punctures present; marginal setae absent ..... *Grouvellina divergens* new species, p. 421

12 (1′) Outer carina of pronotum entirely glabrous, abbreviated posteriorly; marginal groove of pronotum complete; each temporal seta concealed within dense tuft of pilosity, temporal lobe otherwise glabrous 13

12′ Outer carina completely pollinose or with small glabrous areas; outer carina not

abbreviated posteriorly, but coalescent with marginal carina, marginal groove incomplete; temporal lobe largely pilose, no tufts around setae ..... *Grouvellina grouvellei* (Fairmaire), p. 421

13 (12) Medial angle of temporal lobe more distinct; anterior femur with ventral tooth; male with proximal tooth on anterior tibia ..... *Grouvellina dentipes* new species, p. 422

13′ Medial angle of temporal lobe more rounded; anterior femur without ventral tooth; male without proximal tooth on anterior tibia ..... *Grouvellina cinerea* new species, p. 423

Grouvellina tubericeps (Fairmare, 1868)
(Fig. 58-60)

Rhysodes tubericeps Fairmaire, 1868: 782.

Type material. – HOLOTYPE male, labelled; "Madagascar" (MNHN); labelled as Fairmaire type. According to the original description, the specimen was collected by Charles Coquerel. The holotype is in poor condition with hind legs missing and perhaps some setae broken off.

Description. – Length6.0–8.0 mm. Antennal Segment XI as long as wide; apical stylet short, conical; tufts of minor setae on Segments V-X; antennal Segment I extensively pollinose on dorsal aspect; Segments II-IX each with two transverse pollinose bands; Segment X with basal band only (Fig. 59). Head slightly elongate; frontal and postantennal grooves deep, relatively wide; median lobe relatively narrow, obtusely pointed posteriorly; parafrontal bosses well developed; temporal lobe slightly longer than wide; sinuate anterior to medial angles, latter narrowly separated, obtusely pointed; two to three temporal setae; four labral setae; orbital groove complete, broadly pilose; three to four pairs of postlabial setae; mentum pollinose, postmentum contrastingly glabrous (Fig. 60).

Pronotum elongate, narrow, length/greatest width about 1.35; lateral margins nearly parallel, width at middle equal to that at base, apex only slightly narrowed; lateral margin not sinuate anterior to hind angle; outer carina narrowed and more or less bent outward at base; pronotum with about six marginal setae in most specimens (but only two in holotype); prosternum with well-developed precoxal carina extended at least halfway to anterior margin; carina bounded on either side by longitudinal impressions.

Elytral striae deep, coarsely punctate; intervals narrow, carinate; humerus prominent, quadrangular, with conspicuous patch of golden pilosity; Stria I with two setae near apex; Stria II with five setae; metasternum with many discal punctures coarser than marginal ones; margins of metasternum pilose.

Anterior femur with ventral tooth in both sexes; anterior tibia slender, with proximal tooth present in male, absent from female; cleaning organ with proximal spur small but distinct; as small triangular tooth on distal side of intermediate tooth; distal spur flattened; comb teeth short, slightly overlapping brushes. Male with hind calcar tapered, its tip truncate.

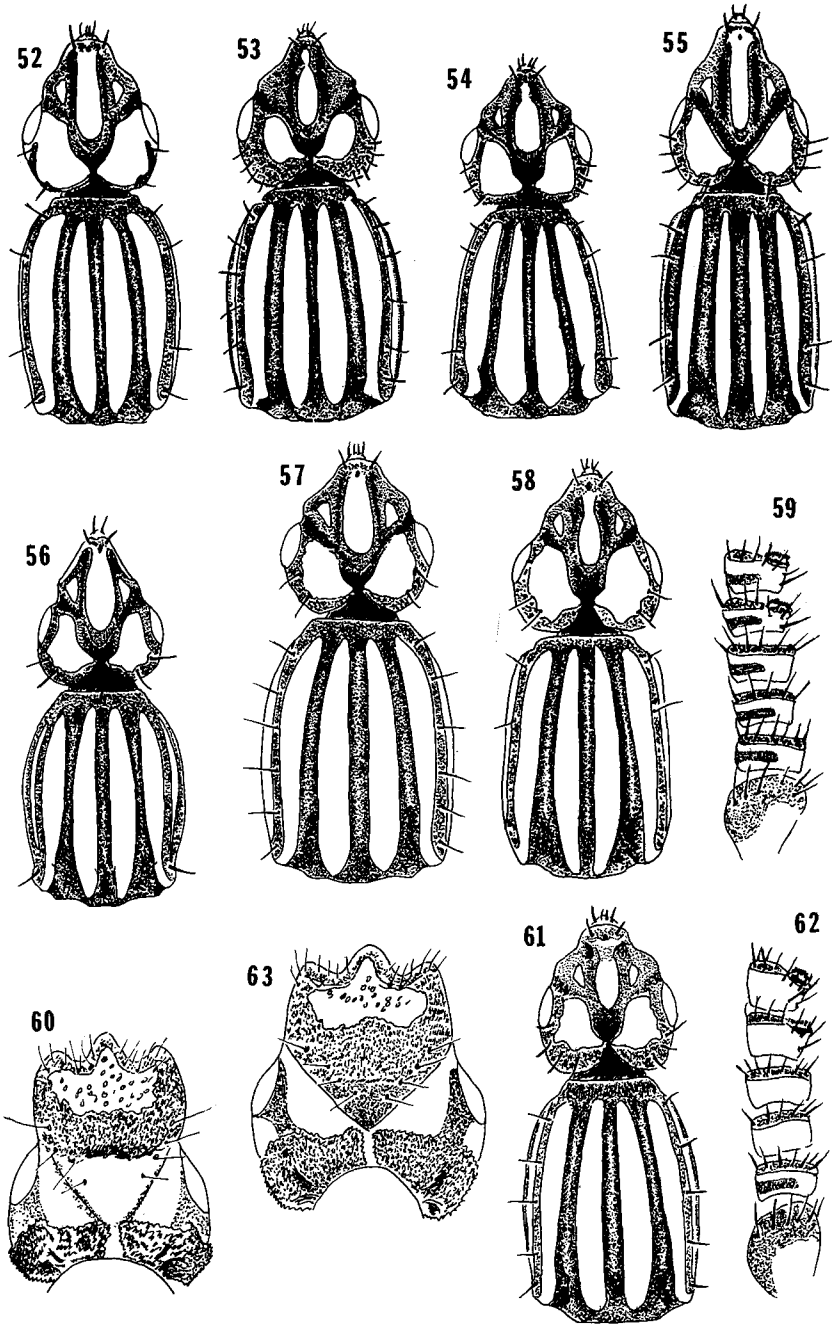
This species is similar to *G. gigas*, from which it differs in its smaller size, somewhat narrower body, and especially in having a well-developed precoxal carina.

Range. – The holotype, which is in poor condition, and without exact locality data, appears to us to be conspecific with a series of specimens from the northern tip of Madagascar, representing the following localities: Cap d'Ambre, coll. F. Schneider, one male (MNHN); Diego Suarez, collector not indicated, two females (MNHN); Mont Ambre, coll. Sicard, 1930, two males one female (MNHN).

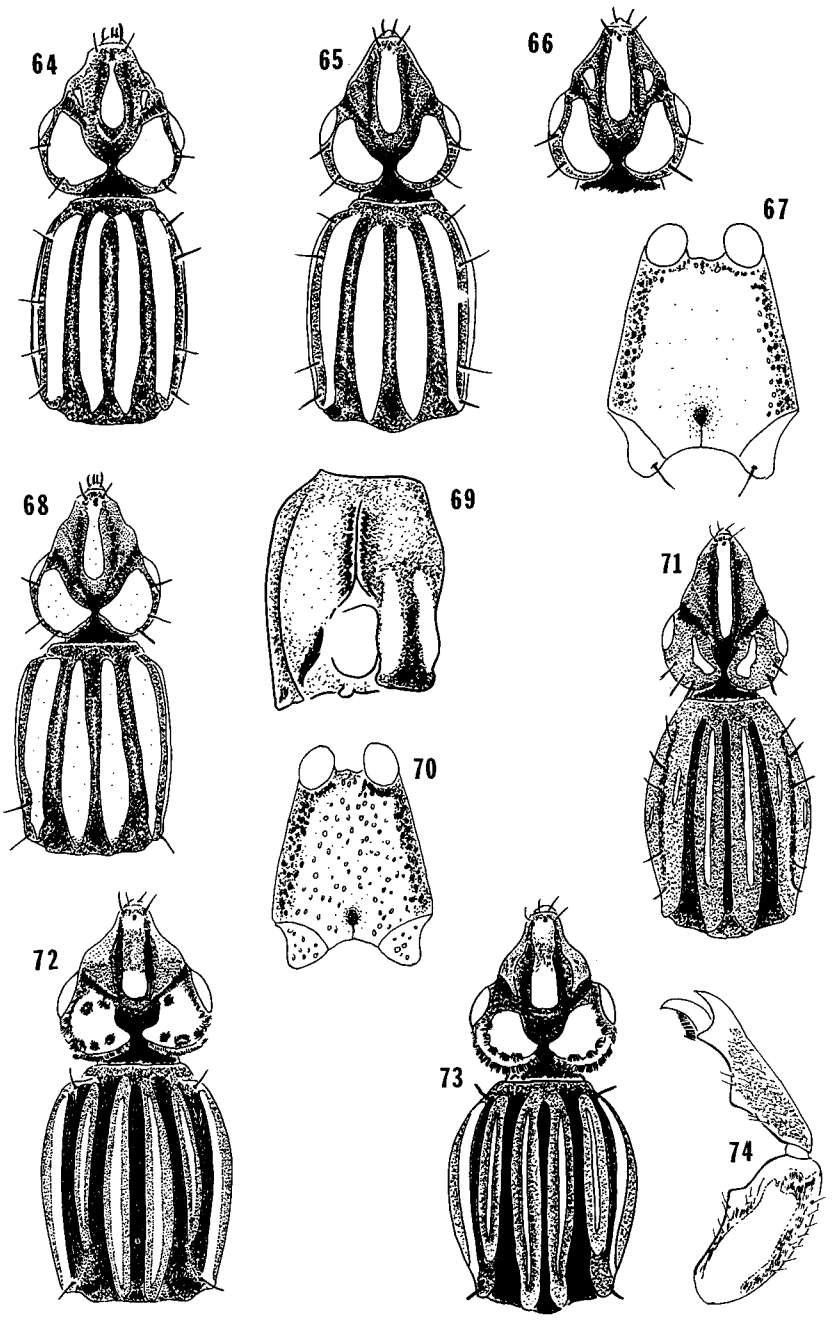
Grouvellina gigas new species
(Fig. 61-63)

Type material. – HOLOTYPE male, labelled: "MADAGASCAR, Chutes de la Mort, XI-10-1959, coll. E.S. Ross" (CAS). Thirteen PARATYPES (all from Madagascar) one female same data as type (CAS); one male, 1883, coll. Humblot, ex coll. Oberthur 1904-175 (BMNH); four males, six females, Ambodivoangy, 1959-1961, coll. J. Vadon (MRAC); one male, Madagascar Sud, 1901, coll. Alluaud (MNHN).

Description. – Length 8.0–10.5 mm, females averaging larger than males. Antennal Segment XI distinctly longer than wide; stylet prominent, conical, acute; tufts of minor hairs on Segments V-X; antennal Segment I with broad dorsal band of pollinosity; Segment II with two dorsal bands; Segments III-X with narrow apical pollinose bands, but without basal bands (Fig. 62).



Figures 52 – 63. Fig. 52-74, Genus *Grouvellina*; Fig. 52-58, Head and pronotum, dorsal aspect; Fig. 52, *G. montana* new species; Fig. 53, *G. hova* new species; Fig. 54, *G. cuneata* new species; Fig. 55, *G. radama* new species; Fig. 56, *G. divergens* new species; Fig. 57, *G. ranavalona* new species; Fig. 58-60, *G. tubericeps* (Fairmaire); Fig. 58, Head and pronotum, dorsal aspect; Fig. 59, Antennal Segments I-VI; Fig. 60, Head, ventral aspect; Fig. 61-63, *G. gigas*, new species; Fig. 61, Head and pronotum, dorsal aspect; Fig. 62, Antennal Segments I-VI; Fig. 63, Head, ventral aspect.



Figures 64 – 74. Fig. 64, Head and pronotum, dorsal aspect, *G. edentata*, new species; Fig. 65-67, *G. descarpentriesi*, new species; Fig. 65, Head and pronotum, dorsal aspect; Fig. 66, Head, dorsal aspect; Fig. 67, Metasternum, metacoxae; Fig. 68-70, *G. cooperi* new species; Fig. 68, Head and pronotum, dorsal aspect; Fig. 69, Prothorax, ventrolateral aspect; Fig. 70, Metasternum, metacoxae; Fig. 71-73, Head and pronotum, dorsal aspect; Fig. 71, *G. grouvellei* (Fairmaire); Fig. 72, *G. cinerea*, new species; Fig. 73, *G. dentipes*, new species; Fig. 74. Femur, tibia, male, *G. dentipes*, new species.

Head distinctly wider than long; labrum with four setae; frontal and postantennal grooves broad, pollinose; median lobe relatively short, broad, obtusely pointed posteriorly; frontal groove shallow, parafrontal bosses distinct; temporal lobes slightly wider than long, sinuate anterior to medial angles, latter apparently acute, because of pollinosity on the posterior surface; three to four temporal setae; orbital groove marked by broad, complete band of pollinosity; occiput and frontal pit with conspicuous reddish pilosity; three to four pairs of postlabial setae; postmentum pollinose, separating the glabrous shining genae (Fig. 63).

Pronotum elongate, length/geatest width 1.33; sides nearly parallel, widest point slightly posterior to middle; slightly narrowed at base, more distinctly at apex; lateral margin not at all sinuate anterior to hind angle; pronotal carinae convex, rather narrow; outer carina relatively broadly truncate at base, at most slightly bent outwards there; inner carina broadened or rounded at base; four to six marginal setae; precoxal carina absent.

Elytral striae deep, pollinose, coarsely punctured; intervals narrow, carinate; humerus prominent, quadrangular, with conspicuous patch of golden pilosity; base of second interval elevated; Stria I without setae; Stria II with five to seven setae; Stria IV with six to eight setae; Stria VII with four to five setae near apex; metasternum with many discal punctures, latter slightly coarser than marginals; metasternum with narrow lateral pilose strip.

Anterior femur with ventral tooth in both sexes; anterior tibia with proximal tooth in male, absent from female; cleaning organ with wide comb, strongly overlapped by brushes, comb teeth blunt; proximal spur stout, conical; distal spur small, hind calcar small, its tip blunt, spur clearly removed from calcar, small, acute.

Females of this species are among the largest of Rhysodini. *G. gigas* differs from *G. tubericeps* in its larger size and stouter form, in the absence of a precoxal carina, in the presence of the postmental pilosity and the absence of the dorsal basal pilose bands of antennal Segments III-X. It differs from *G. cuneata* in the shape of the pronotum and from *G. hova* in the presence of parafrontal bosses.

Variation. – Of the eighteen specimens we have studied, the following characters exhibit variation: shape of medial angle of temporal lobe, width of base of the inner carina, depth of the frontal grooves, extent of glabrous area of the parafrontal boss, elevation of bases of the third and fifth elytral intervals in addition to the second and degree of sinuation of the lateral margin of the humeral tubercle. However, there has been no consistent pattern of characters that would suggest another species in this group.

In addition, there is a male (MNHN) labelled: "Madagascar, Est, Presqu'Ile de Masoala, Hiaraka, XII-1968, coll. Vadon/Peyrieras" which resembles the type series except for reduction of orbital pilosity. The latter is very narrow, and is almost discontinuous anteriorly, leaving the bases of the temporal setae partly isolated in round clumps of pilosity. These, however, are in narrow contact with the pilosity of the orbital groove, and are not completely isolated as in *G. dentipes* and *G. cinerea*.

Final judgement of these aberrant forms will have to be held until there are more specimens available and better locality data recorded.

Grouvellina cuneata new species
(Fig. 54)

Type material. – HOLOTYPE male, labelled: "MADAGASCAR: Tamatave et Forêt Alahakato, 1/VII, 1888, *ex. coll.* Breuning" (MRAC).

Description. – Length 7.2 mm. Antennal Segment XI distinctly longer than wide; stylet prominent, conical, 0.33 as long as segment; tufts of minor setae on Segments V-X; Segment I with broad dorsal band of pollinosity; Segment II with two transverse bands of pollinosity; Segments III-X each with apical pollinose band, but without basal one.

Head about as wide as long; labrum with four setae; frontal and postantennal grooves broad, pollinose; median lobe short, broad, obtusely rounded posteriorly; parafrontal bosses distinct; temporal lobes slightly longer than wide, sinuate anterior to medial angles, latter narrowly obtuse and narrowly separated; three to four temporal setae; orbital groove marked by broad, complete band of pollinosity; occiput and frontal pit with reddish pilosity; four pairs of postlabial setae; postmentum and most of mentum glabrous, shining, these areas separated by narrow transverse pollinose area.

Pronotum elongate, distinctly wedge-shaped; broadest just anterior to base, sides convergent anteriorly, apex narrow; length of pronotum/greatest width 1.33; pronotal carinae rather narrow; convex; inner carina broadest at base, pointed anteriorly; marginal carina narrower than in *G. tubericeps* and *G. gigas*; outer carina obliquely truncate at base; three marginal setae; precoxal carina absent.

Elytral striae conspicuously unequal; I-V impressed; I the narrowest, others successively wider to V, latter prominent and widely pilose; Stria VI reduced to row of isolated punctures anteriorly, punctures narrowly connected in posterior half; Stria VII irregularly curved, somewhat zigzag; intervals broader and less distinctly carinate than in *G. tubericeps* and *G. gigas*; humerus prominent, subrectangular, conspicuously pilose; Stria I with one seta in apical half; Striae II with three setae in apical half; Stria IV with six to eight setae; Stria VII with about five setae in apical fifth; metasternum with many coarse distal punctures, but without lateral pilosity.

Femur of anterior leg relatively slender, with ventral tooth; male with proximal tooth on anterior tibia; hind calcar very small, obtusely pointed, in rear view, doubly curved, so that its outline resembles the toe of a boot.

The most conspicuous marks of this species are the wedge-shaped pronotum, and the conspicuously unequal elytral striae and intervals.

Grouvellina hova new species
(Fig. 53)

Type material. – HOLOTYPE male, labelled: "MADAGASCAR: Tsaramainiandro, X-1950, coll. J. Vadon" (MNHN). Three PARATYPES two males, same data as type (MNHN); one male labelled: "Madagascar" coll. Humblot 1885 (MNHN).

Description. – Length 8.7–9.0 mm (only males are known; if the females are conspicuously larger than males, as in *G. gigas*, they may be the largest member of the genus). Antennal Segment XI distinctly longer than wide, stylet conical, acute; tufts of minor setae on Segments V-X; antennal Segment I with broad dorsal band of pollinosity; Segment II with two transverse pollinose bands; Segments III-X with apical but not basal bands.

Head short, clearly wider than long; labrum with four setae; frontal, postantennal grooves broad, pollinose; median lobe short, broadly rounded posteriorly; parafrontal bosses absent, superantennal area entirely pollinose; temporal lobes transverse, wider than long, markedly sinuate anterior to medial angle, latter apparently acute, because of pollinosity on posterior surface; five to six temporal setae; orbital groove marked by very broad band of pollinosity; occiput and frontal groove with conspicuous pilosity; three pairs of postlabial setae; postmentum pollinose.

Pronotum shorter than in *G. gigas*, length/greatest width 1.25; greatest width near middle, sides curved; apex strongly narrowed, base slightly narrowed; lateral margin slightly sinuate anterior to hind angles; pronotal carinae convex, rather narrow; outer carina rather broadly, obliquely truncate at base; marginal carina narrow, nearly vertical; five to six marginal setae; precoxal carinae absent.

Elytral striae deep, coarsely punctate; intervals narrow, carinate; humerus prominent, subrectangular, conspicuously pollinose; Stria I without setae; Stria II with about ten setae; Stria IV with about nine setae; Stria VII with about five in its apical fifth; metasternum with many discal punctures which are as coarse as lateral punctures; metasternum without lateral pollinosity.

Anterior femur with ventral tooth; male with proximal tooth on anterior tibia (female unknown); cleaning organ with comb hairs in line with brush hairs, indistinctly differentiated from them and not overlapping them; both spurs of anterior tibia present, small, acute; calcar of hind leg truncate, flattened.

This very large species resembles *G. gigas*, but is more stoutly built, and is easily distinguished by complete absence of the parafrontal bosses. *G. cooperi* and most specimens of *G. descarpentriesi* also lack the bosses, but differ from *G. hova* in being much smaller, in lacking the femoral tooth, and in having the head elongate.

Grouvellina ranavalona new species
(Fig. 57)

Type material. – HOLOTYPE female, labelled: "MADAGASCAR, cn. Fairmaire" (MNHN). PARATYPE female, labelled; "MADAGASCAR 1901-267" (BMNH).

Description. – Length 9.7–10.0 mm. Antennal Segment XI longer than wide; stylet large, conical, acute; tufts of minor setae present on Segments V-X; antennal Segment I with broad dorsal band of pollinosity; Segment II with two transverse pollinose bands; Segments III-X with apical pollinose bands but without basal ones.

Head slightly wider than long; labrum with four setae; frontal and postantennal grooves broadly pollinose; median lobe short, broadly rounded posteriorly; parafrontal bosses distinct; temporal lobes slightly longer than wide; medial angles obtuse, narrow; two to three temporal setae; orbital groove marked by broad, complete band of pollinosity; occiput and frontal pit with conspicuous pollinosity; three to four pairs of postlabial setae; mentum nearly impunctate, glabrous except for narrow posterior transverse strip of pollinosity; postmentum also glabrous.

Pronotum relatively shorter than in *G. gigas*, length/greatest width 1.26: pronotum widest near middle, sides curved; apex strongly narrowed, base slightly so; margin not sinuate anterior to hind angles; pronotal carinae convex, rather narrow; outer carinae narrowed and abruptly divergent at base; five to six marginal setae; precoxal carina absent.

Elytral striae deep, coarsely punctured; intervals narrow, carinate, humeral tubercle prominent, conspicuously pilose; Stria I with one seta near apex; Stria II with four setae in apical half; Stria IV with seven to eight setae; Stria VII with about nine setae in apical fourth; metasternum with many discal punctures, latter finer than marginal ones; metasternum with some lateral pollinosity.

Anterior femur of female without ventral tooth, but with rounded swelling; male unknown.

This is a very large, broad-headed species similar to *G. gigas* and *G. hova*, but differing from both in the absence of a ventral tooth on the anterior femur.

Grouvellina edentata new species
(Fig. 64)

Type material. – HOLOTYPE male, labelled: "MADAGASCAR, 1885, coll. Humblot no. 85/6044" (MNHN). PARATYPES three males, same data (MNHN).

Description. – Length 5.0–6.0 mm. Antennal Segment XI slightly longer than wide; stylet short, conical; tufts of minor setae on Segments V-X; Segment I with broad dorsal pollinose band; Segments II-X with narrow apical bands but no basal ones.

Head slightly longer than wide; four labral setae; frontal and postantennal grooves deep; median lobe broadly rounded at apex; parafrontal bosses distinct, narrow, elongate; temporal lobes slightly longer than wide, rather shallowly sinuate anterior to medial angles; latter obtuse; two temporal setae; orbital groove marked by narrow but complete band of pollinosity; two to three pairs of postlabial setae.

Pronotum elongate, length/greatest width 1.40; widest near middle, sides slightly curved; base and apex only moderately narrowed; lateral margin not sinuate anterior to hind angle; pronotal carinae rather broad, convex; inner carina widest near middle, base and apex nearly equally tapered; outer carina obliquely truncate at base, but not divergent; three marginal setae; precoxal carina present.

Elytral striae fine, shallow, very coarsely punctured; intervals convex but not carinate; base of Interval II elevated in form of small, indistinct tooth; humeral tubercle rather small; Stria I with two to four setae in apical fifth; Stria II with two to three sete in apical fourth; Stria IV with four to six setae; Stria VII with about five setae near apex; metasternum with scattered discal punctures, latter finer than lateral ones; metasternum not pilose laterally.

Anterior femur without ventral tooth; anterior tibia without proximal tooth (male); cleaning organ with comb teeth not flattened; distal spur of front tibia large; proximal one absent; male with calcar of hind leg acuminate, with narrow base, very close to spur, latter large. Female unknown.

This is the smallest species in the genus. It has a complete, though narrow, orbital groove. It is most similar to *G. cooperi*, from which it differs in having a distinct parafrontal boss, and in having the inner pronotal carinae less narrowed anteriorly.

Grouvellina cooperi new species
(Fig. 68-70)

Type material. – HOLOTYPE female, labelled: "MADAGASCAR, coll. Rogez" (MCZ).

Description. – Length 6.9 mm. Antennal Segment XI slightly longer than wide; stylet conical, acuminate; tufts of minor setae on Segments V-X; Segments I, II broadly pollinose dorsally; Segments III-X with apical pollinose bands but no basal ones.

Head longer than wide; labrum with four setae; frontal and postantennal grooves deep; median lobe tapered anteriorly, widest near broadly rounded apex, parafrontal bosses absent, superantennal area entirely pollinose; temporal lobes distinctly longer than wide, rather shallowly sinuate anterior to medial angles; latter obtuse; three temporal setae; orbital groove marked by narrow but complete band of pollinosity; three to four pairs of postlabial setae.

Pronotum narrow, elongate, length/greatest width about 1.33; pronotum widest distinctly anterior to middle; sides curved, moderately narrowed at apex, slightly less so at base; lateral margin slightly sinuate anterior to hind angle; pronotal carinae broad, rather convex; inner carina widest in basal fourth, apex strongly tapered; outer carina with extreme base markedly narrowed, but not divergent; marginal setae 0, or one, located near angular seta; precoxal carina well developed, nearly extended to anterior margin (Fig. 69); postcoxal tooth large, blunt.

Elytral striae deep, narrow, coarsely punctate, punctures wider than striae; inner intervals nearly flat; outer ones more convex; base of Interval II in form of distinct tooth; humeral tubercle slightly prominent, pollinose; Stria I without setae; Stria II with one seta near base and another near apex; Striae IV and VII without setae; metasternum coarsely punctate, discal punctures equal in size to marginal ones; metasternum with lateral pilose strips (Fig. 70).

Anterior femur without ventral tooth; both spurs distinct on anterior tibia; anterior and middle femora and all tibiae with many more setae than in other members of genus. Male unknown.

This species is a small one with a complete, though narrow orbital groove. It differs from *G. edentata* in lacking the parafrontal boss. In the latter feature, it resembles *G. hova*, but the latter species is much larger, has carinate elytral intervals, and a ventral tooth on the anterior femur, and lacks a precoxal carina. Most specimens of *G. descarpentriesi* also lack a parafrontal boss. These can be distinguished

from *G. cooperi* by the absence of the outer labral setae and the precoxal carina.

It is a pleasure to dedicate this species to Dr. Kenneth Cooper, whose contributions to entomology have been multiple in both place and time.

Grouvellina montana new species
(Fig. 52)

Type material. – HOLOTYPE male, labelled: "MADAGASCAR; coll. C. Schauf" (MNHN), written in Grouvelle's hand "*R. montanus*, type". This name was not published. PARATYPES three females, labelled: "MADAG." (MNHN).

Description. – Length 6.2–7.0 mm. Antennal Segment XI twice as long as wide; stylet acute; tufts of minor setae on Segments V-X; Segment I with broad dorsal pollinose band; Segment II with basal and apical band, separated by narrow glabrous band; Segments III-X with apical bands but without basal ones.

Head slightly longer than wide; labrum with four setae; frontal and postantennal grooves deep; median lobe nearly parallel-sided, its apex slightly broadened and rounded; parafrontal bosses distinct, triangular; temporal lobe slightly longer than wide, medial margin shallowly sinuate anterior to obtuse medial angle; two temporal setae; orbital groove incomplete; pollinosity absent anterior to anterior temporal seta, with glabrous area of temporal lobe extended to eye; five pairs of postlabial setae in pilose transverse band which separates glabrous submentum from mentum.

Pronotum elongate, length/greatest width 1.35, widest anterior to middle, moderately narrowed both to base and apex; side not sinuate anterior to hind angle; pronotal carinae broad, flat; extreme base of outer carina narrowed and divergent at hind angle; two to three marginal setae, most anterior one near anterior angle; precoxal carina absent.

Elytral striae shallow, narrower than intervals, rather finely punctate; intervals slightly convex near base, otherwise nearly flat; Stria VI not impressed, marked only by a row of punctures; humeral tubercle narrow but prominent; Stria I with one seta near apex; Stria II with four in apical fifth; Stria IV with four to five setae; Stria VII with about six setae in apex; metasternum without discal punctures, without pollinosity except in each marginal puncture.

Anterior femur with ventral tooth; that of male large, that of female small and partly concealed by pollinosity; male with large proximal tooth on anterior tibia; female without such tooth; cleaning organ with comb comprised of short distinctly flattened teeth; proximal and distal spurs both rather large; male with acutely pointed hind calcar; female with spurs of middle and hind tibiae very unequal, anterior ones much reduced.

This is a distinctive small species with an incomplete orbital groove, a feature distinguishing it from all other species of *Grouvellina*. Absence of a precoxal carina and presence of a femoral tooth distinguish it from *G. edentata* and *G. cooperi*.

Grouvellina radama new species
(Fig. 55)

Type material. – HOLOTYPE male, labelled: "MADAGASCAR: Mahatsinjo prés Tananarive" (MNHN). Six PARATYPES one male, same data as type (MNHN); one male, labelled: "MADAGASCAR: Antsianaka, 1923, acq. Le Moult" (AMS); one female, labelled: "MADAGASCAR, forêt de Fito, *ex. coll.* Dr. Breuning" (MRAC); one male, two females, labelled: "MADAGASCAR, *ex. col.* Le Moult" (MRAC).

Description. – Length 7.5–8.9 mm. Antennal Segment XI slightly longer than wide; stylet short, conical; tufts of minor setae on Segments V-X; Segments I, II broadly pilose dorsally; Segments III, IV with broad apical pollinose bands; Segments V, VI with narrow ones; Segments VII-X each with two transverse rows of pollinose spots.

Head distinctly longer than wide, preocular portion elongate; labrum with two setae; frontal and postantennal grooves deep; median lobe very narrow, its sides parallel, its tip rounded; parafrontal bosses distinct; temporal lobe longer than wide; margin scarcely sinuate anterior to obtuse medial angle; five temporal setae; orbital groove represented by complete pollinose band; many pairs of postlabial setae, of two distinct sizes; postmental area pollinose; mentum glabrous with scattered punctures.

Pronotum elongate, length/greatest width 1.35; widest near middle, sides almost parallel, base and apex only slightly narrowed; lateral margin slightly sinuate anterior to hind angles; pronotal carinae very narrow, scarcely wider than the grooves, convex; inner carinae straight, pointed at both ends; outer carina obtuse at apex, its base narrow, and divergent; two to three marginal setae; precoxal carina fine, extended about halfway to anterior margin; prosternum with very deep medial pit; one specimen with pair of prosternal setae near anterior ends of carinae.

Elytral striae very broad, very coarsely punctured, expanded opposite base of each puncture; intervals narrow, less than half as wide as striae, scarcely carinate, expanded punctures making the intervals appear segmented, slightly zigzag; humeral tubercle small; Stria I with one seta at apex; Stria II with five to six apical setae; Stria IV with eight setae; apical tubercle with two setae; Stria VII with about six setae in apical fifth; metasternum with lateral pollinose strips and with coarse discal punctures.

Anterior femur without ventral tooth; male without proximal tooth on anterior tibia; cleaning organ with stiff comb teeth near middle gradually graded to long brush hairs on either side (not graded abruptly as in other species); distal spur well developed; proximal spur vestige at base of intermediate tooth; hind calcar rather long, its dorsal and ventral margins nearly parallel, its tip truncate.

This large species has a distinctive long, narrow, parallel-sided median lobe, duplicated only in the otherwise very different *G. grouvellei*. The pronotal carinae are narrower than in other species. The most similar species is *G. divergens*, which has a similarly elongated head, but which has a wide median lobe, and lacks the precoxal carinae.

Grouvellina descarpentriesi new species
(Fig. 65-67)

Rhysodes tubericeps auct. nec. Fairmaire. Both Grouvelle (1903) and Arrow (1942) interpreted this species as *R. tubericeps*.

Type material. – HOLOTYPE male, labelled: "MADAGASCAR, Annanarivo (Sikora)" (MNHN). 18 PARATYPES (all from Madagascar) as follows; one female, same data as type; one male, two females, Antananal; one female, Antananarivo; one male, three females (on same pin), Madagascar, Sikora; four males, one female, "Madagas" (all MNHN); one female, "Madagas". Fry Colln. 1905-100 (BMNH); one female, "Madagas". 79.18 (BMNH); one female, forêt de Fito, *ex. coll.* Dr. Breuning (MRAC); one female, "Madagas., ontv. 6 April 08, Ant. Grouvelle" (LEI).

Description. – Length 6.1–8.0 mm. Antennal Segment XI almost twice as long as wide; stylet long, acute, about 0.33 total length of segment; tufts of minor setae on Segments V-X; Segment I and II with broad dorsal pollinose band; Segments III-V with narrow apical pollinose bands; Segments VI-X with apical pollinose bands and basal transverse rows of pollinose spots.

Head longer than wide; preocular portion elongate; labrum with two setae; frontal grooves deep, rather broad, postantennal grooves deep; median lobe moderately broad, slightly broadened posteriorly, tip broadly rounded; parafrontal boss variable, in most specimens absent, in few specimens suggested by small, irregular glabrous areas; temporal lobe longer than broad; margin shallowly sinuate anterior to medial angles, latter obtusely rounded, margin not emarginate posterior to medial angle; two temporal setae; orbital groove marked by rather narrow band of pilosity; two pairs of postlabial setae; mentum with lateral margins pilose, remainder glabrous; postmentum glabrous, separated from genae and mentum by narrow pollinose band.

Pronotum elongate, narrow, length/greatest width 1.35; widest point anterior to middle, apex scarcely narrower than base; margin shallowly sinuate anterior to hind angles; pronotal carinae rather narrow, convex, only slightly broader than paramedian grooves; outer carina narrowed and abruptly divergent at base; three marginal setae, most anterior one near anterior angle; precoxal carina represented by small rudiment between two precoxal pits.

Elytral striae moderately broad, slightly wider than intervals, coarsely, closely punctate; striae dilated around each puncture, intervals of irregular width; intervals convex but not carinate; base of Interval II raised in form of small "tooth"; humeral tubercle moderately prominent; Stria I without setae; Stria II with two near apex; Stria IV with five setae; Stria VII with five setae in apical fifth; metasternum with lateral punctures but without discal ones or lateral pilosity (Fig. 67).

Anterior femur without ventral tooth; male without proximal tooth on anterior tibia; cleaning organ with central comb sharply distinct from overlapping brushes on hairs at either end; distal spur well developed; proximal spur absent; hind calcar of male very small, blunt; hind femur of male sinuate ventrally.

This is a moderate-sized species with an elongate head. It is most similar to *G. radama*, but the latter is larger, has a narrower, more elongate median lobe and much narrower pronotal carina, as well as having a well-developed precoxal carina. *G. divergens* is also similar to *G. descarpentriesi*, but differs in the shape of the medial angle of the temporal lobe, in lacking a tuft of minor setae on antennal Segment V, and in having the marginal carina of the pronotum abbreviated posteriorly.

Of the 20 specimens studied, two have a distinct parafrontal boss. They are labelled as follows; one male, "Madagascar, Centre, Pays Betsileo, Route du Sud, km. 292, 1700m., 14/15-II-1974, P. Viette et A. Peyrieras" (MNHN) (Fig. 66); one female, "Madagascar, int. austr. Hildebrandt S." (MNHB). We

have tentatively identified these as *G. descarpentriesi* based on the other species characters, but have not made them paratypes. More specimens are needed to determine whether or not this is a distinct species.

It is a pleasure to dedicate this species to Dr. A. Descarpentries of the Museum National d'Histoire Naturelle, Paris, whose generous aid during our study of the Grouvelle Collection was vital to the completion of this work.

Grouvellina divergens new species
(Fig. 56)

Type material. – HOLOTYPE male, labelled; "MADAGASCAR, Mt. d'Ambre, 1930, coll. Sicard" (MNHN). Nine PARATYPES one female, same data as type (MNHN); one female, same locality as type, Dec. 1900 (MNHN); four females, Mt. d'Ambre, no date (MNHN); one male, two females labelled: "MADAGASCAR, Diego-Suarez, 1893, coll. C. Alluaud" (MNHN).

Description. – Length 6.0–8.4 mm. Antennal Segment XI slightly longer than wide; stylet short, conical; tufts of minor setae present on Segments VI-X (absent from Segment V); basal setae absent from Segments V and VI; Segments I-II broadly pilose dorsally; Segments III-V with broad apical pollinose band; Segments VII-X each with two transverse rows of pollinose spots.

Head slightly longer than wide; preocular part narrow; slightly elongate; labrum with two setae; frontal and postantennal grooves deep; median lobe broad, dilated, its tip very broadly rounded; parafrontal bosses distinct; temporal lobe slightly longer than wide, its margin rather deeply sinuate anterior to medial angles, latter apparently acute, partly because of occipital pilosity; margin posterior to medial angles distinctly emarginate; two to three temporal setae; orbital groove represented by rather narrow band of pollinosity, its medial margin irregular; two pairs of postlabial setae; sides of mentum pilose; submentum pilose in most specimens, small glabrous median area present in others.

Pronotum moderately elongate; length/greatest width 1.31; widest anterior to middle, base moderately narrowed, apex rather markedly so; lateral margin sinuate anterior to hind angle; pronotal carinae moderately narrow, convex; outer carina narrowed and abruptly divergent at base; marginal carina abbreviated posteriorly; marginal setae absent, angular seta present; precoxal carina absent.

Elytral striae broad, slightly wider than intervals; latter convex, subcarinate; borders of intervals slightly irregular; humeral tubercle rather small, Stria I with three setae in apex; Stria II with six setae in apical half; Stria IV with six setae; Stria VII with about six in apical fifth; metasternum with discal punctures much finer than marginal ones; metasternum without lateral pollinose strips.

Anterior femur without ventral tooth; male without proximal tooth on anterior tibia; cleaning organ with comb teeth conical, not flattened, graded gradually to brush hairs on either side, rows not overlapping; both spurs of anterior tibia well developed; hind calcar small, more or less pointed, only slightly larger than spur.

This is a moderate-sized species, superficially like *G. radama* and *G. descarpentriesi*, but differing from them in the absence of minor setae from antennal Segment V. In the latter feature it resembles only *G. grouvellei*.

Grouvellina grouvellei (Fairmaire)
(Fig. 71)

Rhysodes grouvellei Fairmaire, p. 10

Type material. – LECTOTYPE (here designated) male, labelled: "MADAGASCAR" (MNHN). PARALECTOTYPE one female, labelled: "MADAGASCAR, Fry Coll. 1905-100", labelled as "cotype" (BMNH).

Description. – Length 7.0–8.8 mm. Antennal Segment XI longer than wide; stylet conical, short; tufts of minor setae on Segments VI-X (absent from Segment V); basal setae absent from Segment V; Segment I with most of dorsal surface pilose; Segment II with pollinose band; Segments III-V with narrow apical pollinose band; Segment VI with apical band and basal row of pilose spots; Segments VII-X with two rows of pilose spots.

Head distinctly longer than wide, preocular portion narrow, elongate; labrum with two setae; frontal and postantennal grooves deep; median lobe very long, narrow, its sides parallel, its tip obtusely rounded; parafrontal boss absent from lectotype but well developed in paralectotype; temporal lobe longer than broad, its medial angles obtuse; glabrous area of temporal lobe very small, less than 0.33 of total width of temporal lobe; three to four temporal setae; two to three pairs of postlabial setae; sides of mentum and entire postmentum pollinose; mentum with scattered pilose punctures.

Pronotum rather narrow, elongate, length/greatest width 1.36; widest anterior to middle; base moderately narrow, apex more strongly so; margin with long shallow sinuation anterior to hind angle; median and paramedian grooves deep, wide; marginal groove incomplete, closed both anteriorly and posteriorly, confined to middle third of pronotum; pronotal carinae extensively pollinose, inner carina with narrow glabrous space extended most of length; outer carina with traces of interrupted linear glabrous area; marginal carina with small glabrous area near middle of length; four to five marginal setae; rudimentary precoxal carina present; postcoxal tooth small.

Elytral striae shallow, with very coarse deep punctures; intervals nearly flat, almost entirely pollinose, except for narrow strip along suture and narrow, irregular discontinuous strips on Intervals II and III and on apical tubercle and traces in some of the outer intervals; some of the strial punctures also glabrous; humeral tubercle small; Stria I with two setae near apex; Striae II with about twelve setae (some displaced laterad to stria); Stria IV with about ten setae (some displaced laterad to stria); Stria VI with about twelve setae; about six setae on apical tubercle; about seven in apical fifth of Stria VII; metasternum with discal punctures finer than marginal ones; metasternum with lateral pollinose strip.

Anterior femur without ventral tooth; proximal tooth absent from anterior tibia of male; all femora unusually long and slender for genus; cleaning organ with central row of comb teeth overlapped at either end by row of slender brush hairs; distal spur well developed; proximal one absent; hind calcar slender, tapered, its tip blunt.

This species is easily recognized by the abbreviation of the marginal groove and by the extensive development of the pollinosity, which covers almost the entire dorsal surface.

Variation. – As aforementioned, the parafrontal boss is absent from the lectotype, but well developed in the paralectotype. As for *G. descarpentriesi*, two species may be represented, but more specimens will be needed to make certain. In addition to the type series, we have seen two other specimens, a male labelled: "MADAG." (MNHN), and another male, labelled: "MADACASCAR: Annanarivo (Sikora)" (MNHN). Both of these specimens lack the parafrontal boss.

Grouvellina dentipes new species
(Fig. 73, 74)

Type material. – HOLOTYPE male, labelled: "MADAGASCAR:Fizono; IX, 1959, coll. J. Vadon" (MRAC).

Description. – Length 7.8 mm. Antennal Segment XI slightly longer than wide; stylet conical, large, rather blunt; tufts of minor setae present on Segments V-X; Segment I with broad dorsal pollinose band; Segment II with partly confluent basal and apical pollinose bands; Segments III-V with both basal and apical bands; Segment VI with basal band and apical row of pilose spots; Segments VII-VIII similar, but with apical spots much reduced; Segments IX, X with basal band but no apical spots or bands.

Head wider than long; labrum with two setae; postantennal and frontal grooves deep; median lobe short, broad, parallel-sided, abruptly truncate posteriorly; anterior third of median lobe finely pollinose; parafrontal boss absent, superantennal area entirely pollinose; temporal lobe broader than long; margin deeply sinuate anterior to narrow, distinct medial angle; orbital groove represented by narrow but complete strip of pilosity; row of five prominent round tufts medial to it, each more or less concealing a temporal seta; two pairs of postlabial setae.

Pronotum very short for genus, length/widest width 1.20; pronotum widest anterior to middle, moderately narrowed to base, markedly narrowed to apex; margin distinctly sinuate anterior to hind angle; pronotal carinae convex, narrow, their margins pollinose, centers glabrous; inner carina entire; outer carina abbreviated at basal fifth of pronotum; marginal groove narrow, confluent with paramedian groove at base of outer carina; marginal carina entire, broader than outer carina; pronotum with angular seta, and one marginal on each side, near anterior angle; precoxal carina represented by small rudiment, between two precoxal pits.

Elytral striae broad, deep, coarsely punctate; intervals narrow, convex, subcarinate less than half width of striae; humeral tubercle small; Stria I with four setae in apical fifth; Stria II with two near apex; Stria IV with five; Stria VII with four in apical fifth; metasternum with discal punctures coarser than marginal ones; metasternum with lateral pilose strip; Sternite V with deep large lateral pits.

Anterior femur with large ventral tooth; male with large proximal tooth on anterior tibia (Fig. 74) (female unknown); hind calcar of male tapered, prominent, its tip truncate.

The abbreviated outer pronotal carina and the conspicuous tufts on the temporal lobe separate this species from all others excepting *G. cinerea*. From the latter it is easily distinguished by the large ventral tooth on the anterior femur.

Grouvellina cinerea new species
(Fig. 72)

Type material. – HOLOTYPE male, labelled: "MADAGASCAR: Perinet, sur Tavolo, 16-1-64, Rec. Brunck, coll. CTFT No. 111" (BMNH).

Description. – Length 9.2 mm. Antennal Segments X-XI missing from holotype; tufts of minor setae begin on Segment V; Segment I with broad band of pollinosity; Segment II with broad basal band; Segments III-V each with broad basal and apical bands, separated by narrow glabrous bands; Segment VI with basal band and trace of apical band; Segments VII-IX with basal band but without apical band or spots.

Head wider than long; labrum with two setae; postantennal and frontal grooves deep: median lobe short, broad, parallel-sided, its middle third pollinose, its tip truncate; parafrontal boss absent; superantennal area pollinose anteriorly, more pilose posteriorly; temporal lobe broader than long; margin deeply sinuate anterior to medial angle; latter blunt, broader than in *G. dentipes*; orbital groove represented by narrow strip of pollinosity, isolated tufts medial to it, one or two anterior tufts, and three to four tufts in form of transverse row posteriorly, each tuft more or less concealing a temporal seta; four pairs of postlabial setae.

Pronotum rather short, length/greatest width is 1.27; widest anterior to middle, moderately narrowed to apex and to base; margin slightly sinuate anterior to hind angle; pronotal carinae convex, narrow, glabrous at center, both inner and outer margins pollinose; inner carinae entire; outer carina abbreviated at basal fifth of pronotum; marginal groove narrow, confluent with paramedian groove at base of outer carina; marginal carina entire, broader than outer carina; pronotum with angular seta and one marginal located near anterior angle; precoxal carina represented by rudiment between two precoxal pits.

Elytral striae broad, deep, coarsely punctate; intervals narrow, convex, subcarinate, less than half width of striae; intervals distinctly unequal II, IV, V, and especially III, dilated at base; II very narrow posteriorly, its glabrous area more or less interrupted; Interval IV abbreviated posteriorly, distinctly shorter than III; humeral tubercle small; Stria I with two setae near apex; Stria II withone near apex; Stria IV with five setae; Stria VII with about five in apical fifth; metasternum with coarse discal punctures; metasternum with lateral pilose strip; Sternite V with large deep lateral pits.

Anterior femur without ventral tooth; male without proximal tooth on anterior tibia (female unknown); hind calcar of male very small, acutely pointed.

This species is similar in most respects to *G. dentipes*, but differs in the absence of the anterior femoral and proximal tibial teeth.

SUBTRIBE OMOGLYMMIINA

Description. – Part I, 66.
Key to Genera. – Part I, 66–67.

Genus *Xhosores* Bell and Bell 1978

Type species. – *Rhysodes figuratus* Germar 1840
Description. – Part I, 67. Only one species is known.

Xhosores figuratus (Germar 1840)

Rhysodes figuratus Germar 1840: 352.

Type material. – We have studied a male specimen from MNHB believed to be the type. It is labelled "CAP,43699".

Genus *Yamatosa* NEW NAME
(Fig. 75-85)

Yamatoa Bell 1977, nec Kiriakoff 1967. We are grateful to Dr. Takehiko Nakane for pointing out this synonym.

Type species. – *Rhysodes niponensis* Lewis 1888.

Description. – Antennal Segment XI with stylet minute or absent; base of antennal Segment III more or less elongate; Segments V-X wider than Segments II-IV; minor setae in form of subapical rings on Segments V-X; basal setae absent; labrum with two setae; frontal, antennal grooves narrow; orbital grooves absent; clypeal setae one pair; temporal setae absent; postlabial setae one or two pairs.

Pronotum with basal impression on each side, preceded by discal striole; basal impression with tubercle; disc of pronotum continued laterad to basal impression, in form of basilateral lobe; basal impression partly closed posteriorly by "brace" laterad to inner lobe of base; marginal groove of pronotum single, fine, in most species ended anteriorly near anterior margin of pronotum (but reduced in *Y. reitteri*); pronotal setae absent.

Elytral striae coarsely punctured; basal scarp of elytron transverse medially; humeral tubercle present; elytral setae absent from Stria II, confined to apex of Stria IV or else absent; metasternum with marginal punctures; abdominal sterna with transverse bands of punctures; lateral pits present in both sexes, in most species confined to Sternum IV, in a few species also present on Sternum V; Sternum VI without setae.

Middle and hind tibiae each with two spurs; calcar of middle leg of male acute, directed distomedially; hind calcar blunt.

The genitalia of *Y. reitteri* have been described and figured (Part I, 68–69).

Lack of paramedian grooves separates this genus from most others in Subtribe Omoglymmiina. *Shyrodes* and *Srimara* appear to be related to *Yamatosa*, or perhaps represent highly specialized offshoots of it. Both *Shyrodes* and *Srimara* have ocelliform compound eyes, and have the basal scarp of the elytron modified. In *Yamatosa* the eyes may be fully developed or reduced, but are not ocelliform, and the basal scarp is transverse. *Plesioglymmius* is another genus which does not have complete paramedian grooves, but differs from *Yamatosa* in having only one spur on each middle and hind tibia. In *Plesioglymmius*, all species except *P. jugatus* have the discal strioles dilated, and not linear.

This genus is confined to the Oriental Region, from the Himalaya to Japan, Taiwan, and Java.

Phylogeny. – With the exception of *Y. arrowi*, the species of *Yamatosa* are grouped clearly into an "Eastern Line" and a "Western Line". In the Eastern Line (*Y. niponensis, Y. longior,* and *Y. peninsularis*), the antenna has a distinct apical stylet, there is a beard of setae on the mentum of the male, and there are distinct lateral pits on abdominal Sternum IV, but not on Sternum V. In the Western Line, the antennal stylet is absent, the beard is absent, and there are lateral pits on both abdominal Sternum IV and V. *Y. boysi, Y. draco* and *Y. reitteri* belong to the Western Line, known only from the Himalaya. *Y. arrowi*, despite its being a Himalayan species, clearly belongs to the Eastern Line.

Among the species of the Eastern Line, *Y. longior* and *Y. peninsularis* are clearly closely related, both having a precoxal carina, short discal strioles, and, in the male, the anterior tibia grooved medially. In *Y. longior*, both sexes have a bearded mentum, while the female of *Y. peninsularis* is unknown. In *Y. niponensis*, the precoxal carina is absent, the discal striole is long, the beard is present in the male but absent from the female, and the anterior tibia of the male is not grooved. The relationships of *Y. arrowi* are somewhat problematical, partly because the male is unknown. The absence of a precoxal carina and the long discal striole seem to link it to *Y. niponensis*, while the presence of a beard in the female is a character shared with the two preceding species. It also differs from all other members of the genus in several characters, including large size, broad-based pronotum, dilated frontal grooves, and enlarged anterior tentorial pits.

Among the species of the Western Line, *Y. boysi* and *Y. draco* are clearly closely related to one another. Both species have reduced eyes, and probably both are flightless (*Y. boysi* has vestigial hind wings, while *Y. draco* has not yet been checked for this character). Both species have one seta each in the apex of Striae II and IV of most specimens, while such setae are not found in other species of *Yamatosa*.

Y. reitteri is a more isolated species. Unlike the two preceding species, it has full-sized eyes and hind wings. It has two specializations not seen in any other member of the genus: the marginal groove of the pronotum has been reduced to a basal remnant, while the male has lost the ventral tooth of the anterior femur.

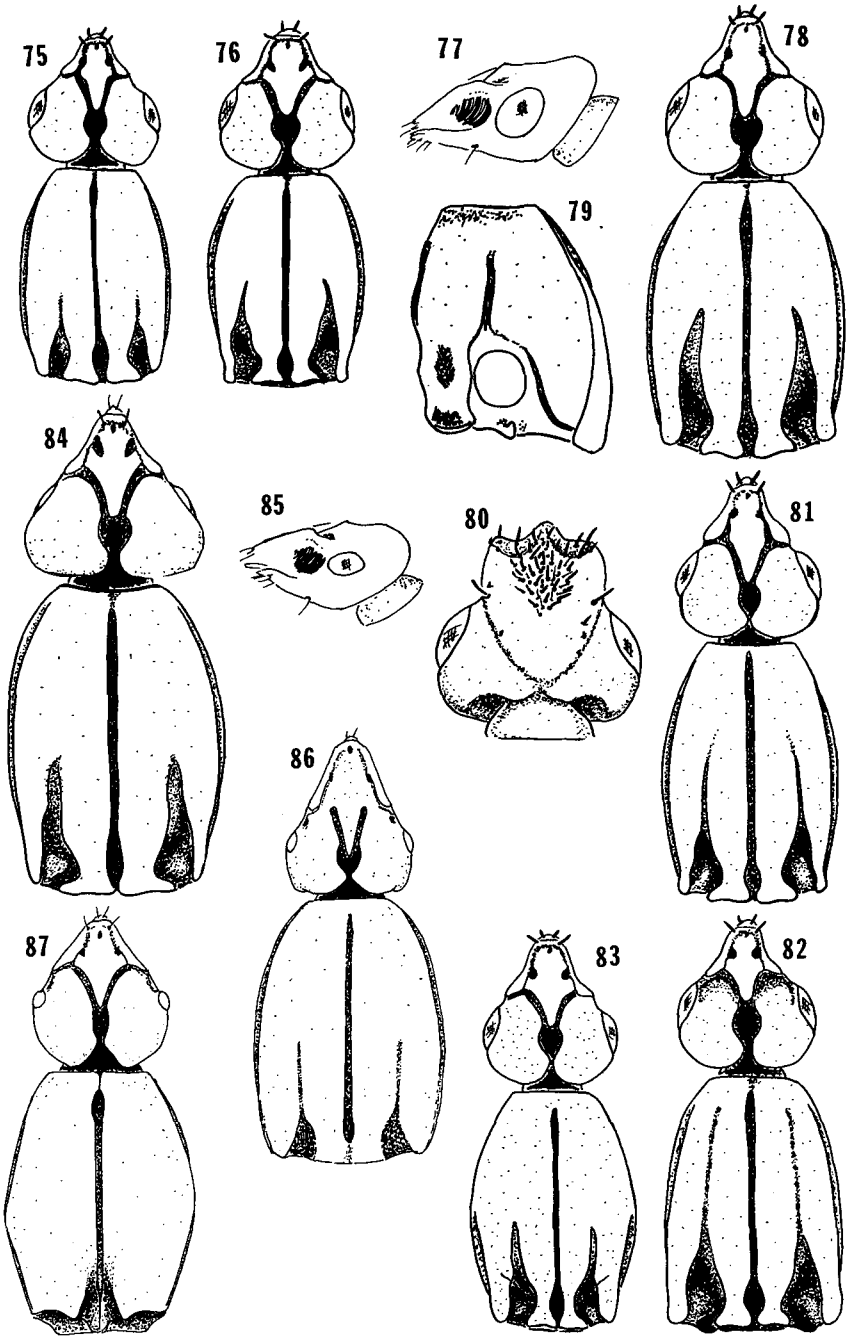
KEY TO SPECIES

1		Segment XI of antenna with distinct apical stylet; both eye and marginal groove of pronotum fully developed	2
1′		Segment XI of antenna obtuse, without apical stylet; either eye reduced or else marginal groove of pronotum reduced	5
2	(1)	Prosternum with distinct precoxal carinae; discal striole ended at or posterior to middle of pronotum	3
2′		Prosternum without precoxal carinae; discal striole ended at or anterior to apical third of pronotum	4
3	(2)	Precoxal carina extended more than 75% of distance from coxa to anterior margin of prosternum; discal striole 50% pronotal length ..... *Yamatosa longior* (Grouvelle), p.	425
3′		Precoxal carina, extended about 33% of distance from coxa to anterior margin of prosternum; discal stiole 33% pronotal length ..... *Yamatosa peninsularis* (Arrow), p.	427
4	(2′)	Frontal and antennal grooves narrow, equal in width to posterior part of clypeal grooves; posterior margins of frontal and antennal grooves sharply defined; discal striole ended at anterior third of pronotum ..... *Yamatosa niponensis* (Lewis), p.	427
4′		Frontal and antennal grooves dilated, much wider than posterior part of clypeal grooves; posterior margins of frontal and antennal grooves not sharply defined; discal striole extended nearly to anterior margin of pronotum ..... *Yamatosa arrowi* (Grouvelle), p.	428
5	(1′)	Marginal groove of pronotum absent except in basal fourth of pronotum; eyes large, much deeper than long ..... *Yamatosa reitteri* (Bell), p.	429
5′		Marginal groove of pronotum nearly complete, ended short distance from anterior margin of pronotum; eyes more or less reduced	6
6	(5′)	Head evenly rounded posteriorly, widest point just posterior to eye; eye only moderately reduced, with about 100 ommatidia, deeper than long (Fig. 77) ..... *Yamatosa draco* (Bell), p.	429
6′		Head broadened posteriorly, widest point far posterior to eye; eye markedly reduced, with about 50 ommatidia, longer than deep (Fig. 85) ..... *Yamatosa boysi* (Arrow), p.	430

Yamatosa longior (Grouvelle 1903) NEW COMBINATION
Fig. 78-80)

Rhysodes niponensis var. longior Grouvelle 1903: 107.
Yamatoa longior (Bell and Bell) 1978.

Type material. – LECTOTYPE (here designated) female, labelled: "JAVA:Tougou, 3-96, coll. J.D. Pasteur" (MNHN). Two PARALECTOTYPES: one female, same data as lectotype (MNHN); one female, same data as lectotype, except that locality is spelled "Toegoe", in Dutch orthography (LEI).



Figures 75 – 87. Fig. 75-85, Genus *Yamatosa*; Fig. 75-76, Head and pronotum, dorsal aspect; Fig. 75, *Y. peninsularis (Arrow); Fig. 76, Y. draco* Bell; Fig. 77, Head, lateral aspect, *Y. draco* Bell, Fig. 78-80, *Y. longior* (Grouvelle); Fig. 78. Head and pronotum, dorsal aspect; Fig. 79, Prothorax, ventrolateral aspect; Fig. 80. Head, ventral aspect; Fig. 81-84, Head and pronotum, dorsal aspect; Fig. 81, *Y. niponensis* (Lewis); Fig. 82, *Y. arrowi* (Grouvelle); Fig. 83, *Y. reitteri* Bell; Fig. 84, *Y. boysi* (Arrow); Fig. 85, Head, lateral aspect, *Y. boysi* (Arrow); Fig. 86,87, Head and pronotum, dorsal aspect; Fig. 86, *Shyrodes dohertyi* Grouvelle; Fig. 87. *Srimara planicollis* Bell and Bell.

Description. – Length 5.3–6.9 mm. Antennal Segment XI with apical stylet distinct; head cordate, anterior tentorial pits small, punctiform; frontal grooves narrow, well defined; eye large, deeper than long; mentum bearded in both sexes (Fig. 80); one pair of postlabial setae in most specimens.

Pronotum of medium length for the genus, length/greatest width about 1.33; base moderately narrowed; apex more strongly so; discal striole extended approximately to middle of pronotum; marginal groove complete; precoxal carina markedly developed, extended almost to anterior margin of prosternum (Fig. 79).

Strial punctures relatively fine; intervals relatively flat; Striae II, III abbreviated at base; Stria V effaced in basal sixth, only slightly impressed; Stria VI not impressed, absent in basal third, represented by row of minute punctures in apical two-thirds; Stria VII effaced in basal half, represented by minute punctures in apical half; elytral setae confined to apex of Stria VII.

Abdominal Sternum IV with very small lateral pits; Sternum V without pits; male with shallow oval median impression extended from middle of metasternum to abdominal Sternum III.

Anterior femur with ventral tooth in both sexes; anterior tibia of male with medial groove, latter bounded both anteriorly and posteriorly near base by pair of flanges; spurs of middle and hind tibiae nearly equal; hind calcar with tip just above level of spurs.

Although this species was described as a "variety" or subspecies of *Y. niponensis*, it is actually a distinct species, more like *Y. peninsularis* than like *Y. niponensis*. Contrary to Grouvelle's key, it is not more elongate than *Y. niponensis*. The complete precoxal carinae separates *Y. longior* from all other members of the genus.

Range. – Java and Sumatra. In addition to the type material, we have seen the following specimens: JAVA: one female, Kopeng, 1600 m., 14-5-1933, coll. P.H.v. Doesburg (LEI); two males, Malang (MNHN); one female, Mt. Tengge (MNHN); one male, one female, G. Papandajan, 3-1916, coll. Drescher (AMS); one male, one female, Preanger, coll. P.F. Sijthoff (LEI); SUMATRA: one male, two females, Pajakombo (MNHN).

Yamatosa peninsularis (Arrow 1942) NEW COMBINATION
(Fig. 75)

Rhysodes peninsularis Arrow 1942: 178.
Yamatoa peninsularis (Bell and Bell) 1978.

Type material. – HOLOTYPE male, labelled: "FEDERATED MALAY STATES: PAHANG: Tanak Rata, 4800 ft., Cameron's Highlands, May 28, 1931, coll. H.M. Pendlebury" (BMNH).

Description. – Length 5.2 mm. Antennal Segment XI with distinct stylet; head cordate; anterior tentorial pits small, punctiform; frontal grooves narrow, well defined; eyes large, deeper than long; mentum bearded in male, beard les extensive than in *Y. longior*; status in female unknown; one pair of postlabial setae.

Pronotum longer and narrower than in *Y. longior*, length/greatest width 1.40; base moderately narrowed; apex markedly so; discal striole short, not extending beyond basal third of pronotum; marginal groove complete; precoxal carina present, shorter than in *Y. longior*, extended less than half the distance from coxa to anterior margin of pronotum.

Strial punctures relatively fine; intervals relatively flat; Striae II, III abbreviated at base; Stria V effaced in basal sixth, only slightly impressed; Stria VI not impressed, absent in basal third, represented by row of minute punctures in apical two-thirds; Stria VII effaced in basal half, represented by minute punctures in apical half; elytral setae confined to apex of Stria VII.

Abdominal Sternum IV of male with lateral pit larger than *Y. longior* (female unknown); Sternum V without lateral pits; holotype with raised tubercle in middle of metasternum (possibly an abnormality), metasternum not as definitely impressed at middle as in *Y. longior*.

Anterior leg of male as in *Y. longior*; spurs of middle and hind tibiae nearly equal; hind calcar larger than in *Y. longior*, with upper oblique margin longer.

This species is easily identified by the half-length precoxal carina. It also differs from *Y. longior* in having a more elongate pronotum with notably small basal impressions and shorter discal strioles.

Yamatosa niponensis (Lewis 1888) NEW COMBINATION
(Fig. 81)

Rhysodes niponensis Lewis 1888: 82.
Yamatoa niponensis Bell and Bell 1978

Type material. – LECTOTYPE (here designated) male, labelled: "JAPAN: Honshu, Hakone District, coll. G. Lewis" (BMNH). Six PARALECTOTYPES: one male, two females, same data as lectotype (BMNH); one female, JAPAN: Subushri (BMNH); one male, one female (no specific locality), coll. G. Lewis, 1910-320, C.F. Baker Colln. (1927) (NMNH). The male is labelled as a "co-type".

Description. – Length 5.4–7.0 mm. Antennal Segment XI with apical stylet distinct, though small; head cordate, anterior tentorial pits small, punctiform; frontal grooves narrow, well-defined; eye large, deeper than long; mentum conspicuously punctate and bearded in male; in female beard greatly reduced to absent, punctures very fine; one pair of postlabial setae.

Pronotum moderately elongate for genus, length/greatest width about 1.40; base moderately narrowed; apex more strongly narrowed; discal striole extended 0.66 length of pronotum; marginal groove complete; precoxal carina absent; a group of many punctures anterior to each front coxa.

Strial punctures fine, intervals relatively convex; Striae II, III scarcely abbreviated at base; Stria V slightly abbreviated at base, only shallowly impressed, coarsely punctate; Stria VI not impressed, represented by row of fine punctures; Stria VII represented by minute punctures in anterior half; those of posterior half coarser; only apex of Stria VII impressed; elytral setae confined to apex of Stria VII.

Abdominal Sternum IV with lateral pits; Sternum V without pits; metasternum shallowly impressed medially in male.

Anterior femur with ventral tooth in both sexes; anterior tibia of male slightly swollen near base, with trace of groove on medial surface (much less distinct than in preceding species); spurs of middle and hind tibiae nearly equal; hind calcar of male small, forming subacute angle immediately above spurs.

This species resembles *Y. peninsularis* in form, but differs from the latter in the complete absence of a precoxal carina, and in the much less distinct medial groove on the anterior tibia.

Range. – Japan and Taiwan. A series in MNHN, labelled: "Sydney, Australia", is surely mislabelled, as the genus is otherwise unknown east of Java. In addition to the type material, we have seen the following specimens: JAPAN: (HOKKAIDO) one female, Wakoto, 5-VII-1958, coll. F. Takechi (SATO); (HONSHU) one female, Hida, VII, 1957, coll. H. Torigai (SATO); one female, Hida, Futatsuya, VI-1954, coll. H. Torigai (SATO); one female, Hida, Idani, Kawai, VII-1953, coll. H. Torigai (SATO); Ikenoshima, 900′ (Higashimata, Nikko District) (sex and number not recorded) (BMNH); two males, Tsuta-yu (Towada), VII-25-1954, coll. J. Aoki (DY); (KYUSHU) one male, one female, Mt. Homan, Fukuoka, 7-IV-1965, coll. M.T. Chuyo (MNHB); Nagasaki, Chiuzenji, Ichiuchi, Oyayama District (numbers and sexes not recorded) (BMNH); (SHIKOKU) one male, one female, Mt. Kohtsu (Tokushima), 31-X-1965, coll. M. Sakai (SATO); one female, Omogo, 10-VII-1956, coll. M. Satô (SATO). TAIWAN (FORMOSA): one male, Taiheizan, 6-V-1932, coll. L. Gressitt (CAS).

According to Lewis, this species is found under the bark of firs (*Pinus*) (now in the genus *Abies*).

Yamatosa arrowi (Grouvelle 1908) NEW COMBINATION
(Fig. 82)

Rhysodes arrowi Grouvelle 1908: 318.

Yamatoa arrowi Bell and Bell 1978.

Type material. – HOLOTYPE female, labelled: "SIKKIM" (MNHN).

Description. – Length 9.5 mm. Antennal Segment XI with distinct stubby stylet; head cordate; anterior tentorial pits large, rounded; frontal and antennal grooves dilated, their posterior margins indistinctly defined; eye large, deeper than long; mentum punctate and bearded in female (male unknown); two pairs of postlabial setae.

Pronotum moderately elongate; length/greatest width 1.38; apex markedly narrowed; base much less narrowed than in other members of the genus; discal striole 80% of length of pronotum; marginal groove complete; precoxal carina and precoxal punctures absent.

Strial punctures relatively coarse; elytral setae limited to apex of Stria VII; abdominal Sternum IV with distinct lateral pits; Sternum V without lateral pits.

Anterior femur with large acute ventral tooth in female (male unknown); spurs of middle and hind tibiae nearly equal.

Enlarged anterior tentorial pits, dilated frontal grooves, broad base of the pronotum, and very long discal strioles are diagnostic of this species, which is also much larger than other members of the genus.

Yamatosa reitteri (Bell 1977) NEW COMBINATION
(Fig. 83)

Rhysodes boysi auct., nec. Arrow
Yamatoa reitteri (Bell), 1977: 152.

Type material. – HOLOTYPE male, labelled; "INDIA, U. Gumti Val. W. Almora Dn., Apr. 19, coll. H. Gower Champion" (BMNH). 14 PARATYPES, listed in Bell (1977), 7 (BMNH), 4(MNHN), 3(BSL).

Description. – Length 6.2–7.3 mm. Antennal Segment XI obtuse, stylet absent; head cordate, sides evenly rounded; anterior tentorial pits, rounded; frontal grooves narrow, well defined; eye large, deep, with more than 150 ommatidia; mentum nearly smooth, without beard; one pair of postlabial setae.

Pronotum moderately long for the genus, length/greatest width 1.37; base moderately narrowed, apex more strongly narrowed; discal striole ending anteriorly at basal third of pronotum; marginal groove largely effaced, distinct only in basal fourth of pronotum; precoxal carina absent; precoxal punctures absent.

Elytra relatively elongate, narrow; humeral tubercle relatively prominent in form of small, laterally-directed tooth; strial punctures relatively coarse; intervals moderately convex; Striae II, III abbreviated at base; Stria V slightly impressed, its anterior end slightly posterior to humeral tubercle; Stria VI only slightly abbreviated anteriorly; elytral setae confined to apex of Stria VII; hind wings fully developed.

Male with neither metasternum nor abdomen concave; Sternite IV (both sexes), with conspicuous lateral pits, shallower in male; Sternite V with smaller, shallower lateral pits.

Anterior femur without ventral tooth in either sex; anterior tibia of male without medial groove or swelling; anterior spur conspicuously smaller than posterior one on both middle and hind tibiae; hind calcar of male in form of small acute angle immediately above level of spurs.

The male genitalia were figured in Part I, 68.

This species differs from all others in the genus in having the marginal grooves of the pronotum largely effaced.

Y. reitteri is confined to the middle and eastern Himalaya, from Kumaon District to Bhutan. It is not known from Himachal Pradesh or Kashmir. Bell (1977) gives a list of localities.

Yamatosa draco (Bell 1977) NEW COMBINATION
(Fig. 76,77)

Yamatoa draco Bell 1977: 155

Type material. – HOLOTYPE male, labelled; "BHUTAN: Tango, 12 kilometers north of Thimphu, 2500-2900 m. June 30, 1972, coll. Basel Natural History Museum Expedition" (BSL).

Description. – Length 6.7 mm. Antennal Segment XI obtuse; stylet absent; head cordate, sides evenly rounded, widest point opposite middle of temporal lobe, just posterior to eyes; anterior tentorial pits small, oblique; frontal grooves very narrow, clearly defined; eye reduced (Fig. 77), deeper than long, entirely anterior to middle of temporal lobe, with about 100 ommatidia; cornea distinctly facetted; mentum nearly smooth, without beard; one pair of postlabial setae.

Pronotum relatively short for genus, length/greatest width 1.33; base distinctly narrowed; apex more strongly narrowed; discal striole ended anteriorly at basal third of pronotum; marginal groove nearly complete, effaced only near anterior end of pronotum; precoxal carina absent; precoxal punctures absent.

Elytra relatively short, broad for genus; humeral tubercle small; strial punctures small but deep; Striae II, III slightly abbreviated at base; Stria V represented only by row of punctures in anterior half; slightly impressed in posterior half; Stria V with origin slightly posterior to humerus; Stria VI only slightly abbreviated anteriorly; Striae II and IV each with one seta near apex; several setae also in apex of Stria VII; status of hind wings not investigated.

Male with metasternum broadly concave, abdominal sterna not concave; Sternum IV with deep lateral pits; Sternum V with shallow ones; lateral pits suggested on Sternum III.

Anterior femur of male with ventral tooth (female unknown); anterior tibia of male without medial groove or swelling; spurs of middle tibiae unequal, anterior ones smaller; spurs of hind tibiae equal; calcar small, obtusely angled.

This species is closely related to the allopatric *Y. boysi*, with which it agrees in having reduced eyes, oblique anterior tentorial pits, and setae in elytral Striae II and IV. This species has the eyes much less reduced and the shape of the head less modified than in *Y. boysi*. Size and shape are similar to those of

the sympatric *Y. reitteri*, but the latter species has reduced marginal grooves on the pronotum, and eyes which are not reduced.

Yamatosa boysi (Arrow 1901) NEW COMBINATION
(Fig. 84, 85)

Rhysodes boysi Arrow 1901: 87.
Rhysodes kaschmirensis Reitter 1922: 57.
Yamatoa boysi Bell and Bell 1978.

Type material. – *R. boysi*: LECTOTYPE (here designated) female, labelled: "INDIA: 1901-58, coll. Capt. Boys" (BMNH). PARALECTOTYPE: the original description states that there were two females in the type series. We were unable to locate the second female. If it still exists, it constitutes a paralectotype.

R. kaschmirensis: A series of four specimens in Paris (MMHN) are labelled: "Kaschmir, Reitter". One of these bears a determination in the same handwriting "*R. kaschmirensis* Reitter". It is our belief that these specimens are cotypes.

Description. – Length 6.0–7.2 mm. Antennal Segment XI obtuse; stylet absent; head inflated, distinctly broader than long, widest point at basal fourth, far behind eyes; anterior tentorial pits small, oblique; frontal grooves narrow, well defined; eye markedly reduced (Fig. 85), longer than wide, rounded anteriorly, angled posteriorly, extended only 0.33 of distance from antennal base to rear of temporal lobe, only 0.25 of depth of head; eye flat, cornea not facetted; about 50 ommatidia; mentum nearly smooth, without beard; one pair of postlabial setae.

Pronotum moderately short for genus, length/greatest width about 1.38; base distinctly narrowed; apex more markedly narrowed; discal striole ended anteriorly at basal third of pronotum; marginal groove nearly complete, effaced only near anterior end of pronotum; precoxal carina absent; precoxal punctures absent.

Elytra short and broad for genus; humeral tubercle small; strial punctures coarse; Striae II, III slightly abbreviated at base; Stria V originating slightly posterior to humerus, its anterior half represented by a row of punctures, its posterior half slightly impressed; Stria VI only slightly abbreviated anteriorly; Striae II and IV each with apical seta (one or the other missing in some specimens); several setae also present in apex of Stria VII; hind wings reduced to small vestiges.

Male with metasternum broadly, shallowly concave; abdominal sterna not concave; metasternum of female evenly convex; Sternite IV with deep lateral pits; Sternite V with shallow ones.

Anterior femur of male with ventral tooth; that of female without tooth; anterior tibia of male without medial groove or swelling; spurs of middle and posterior tibiae nearly equal; hind calcar of male shaped as in *Y. draco*, but distinctly larger. The male genitalia have been figured by Saha, Mukherjee and Sengupta (1978).

Inflated, somewhat wedge-shaped head and strongly reduced eyes give this species a distinctive appearance. It is the only species of *Yamatosa* in which the sexes are known to differ in development of the femoral tooth. (In *Y. draco*, however, the female is unknown.)

Range. – As presently known, almost entirely to the west of that of *Y. reitteri*, the two species occurring together only in Kumaon. The range of *Y. boysi* extends westward along the Himalaya to the Indus River in the Pakistani part of Kashmir. We have seen specimens from the following localities: INDIA; two males, Chakrata Div. U.P., 7000 ft., I-VII-1932, coll. H.G. Champion (BMNH); four males, two females, Chapal, Himachal Pradesh, 2400-2750 m, 7-5-1977, coll. W. Wittmer, Brancucci (BSL); one male, Dudhatoli, Garhwal, 9000 ft., June 1920, coll. H.G. Champion (BMNH); one female, Gori Valley, Kumaon, no date, 7000 ft., coll. H.G. Champion (BMNH); one female, Parbatti V., Kulu, Punjab, 6000-8000 ft., no date, coll. H.G. Champion (BMNH); KASHMIR: one female, Chhangla Gali, 7000 ft. Hazara, 12-VI-1974, coll. C. Baroni Urbani (BSL); one male, three females, Gulmarg, 16-VII-31, Fletcher colln. (BMNH); one male, one female, Yusmarg, 2300-2400 m., 5-7-1976, coll. W. Wittmer (BSL).

In addition, nine other specimens which we have not seen have been reported by Saha, Mukherjee and Sengupta (1978) from Himachal Pradesh as follows: three males, four females, Bagi, 2518 m., 21-VI-1975; one male, one female, Narkanda, 2725 m., 20-VI-1975, all collected by T. Sengupta.

Genus *Shyrodes* Grouvelle 1903

Type species. – *Rhysodes dohertyi* Grouvelle 1903.
Description. – Part I, 69. Only one species is known.

Shyrodes dohertyi (Grouvelle 1903)
(Fig. 86)

Rhysodes dohertyi Grouvelle 1903: 126.
Description. – Part I, 69.
Type material. – Part I, 69.
The name of the country of origin, BURMA, was inadvertently omitted from Part I. "Ruby Mines", the type locality, refers to the vicinity of Mogok, about 140 km north of Mandalay. A Doherty specimen in the MCZ collection has additional collecting data of 5000-7000 feet.

Genus *Srimara* Bell & Bell 1978

Type species. – *Srimara planicollis* Bell & Bell 1978.
Description. – Part I, 70.
Type material. – Part I, 70. Only one species is known.

Srimara planicollis Bell & Bell 1978
(Fig. 87)

Srimara planicollis Bell & Bell 1978: 70.
Description. – Part I, 70.
Type material. – Part I, 70.

Genus *Plesioglymmius* Bell and Bell 1978
(Fig. 88-102)

Type species. – *Rhysodes elegans* Grouvelle 1903.

Description. – Segment IX of antenna varied from sharply pointed to obtuse; minor setae on Segments V-X; basal setae present or absent; antennal bases more or less displaced dorsomedially; clypeus separated from median lobe by transverse impression, latter ill-defined or very deep and distinct; or else clypeus and median lobe broadly separated by junction of antennal sclerites in midline; clypeal setae present or absent; eyes fully developed, with distinct ommatidia.

Pronotum with paramedian grooves incomplete anteriorly, in most species paramedian grooves broad, in form of paramedian grooves characteristic of *Omoglymmius* except not extended to reach anterior margin; in subgenus *Juxtaglymmius*, anterior portions of paramedian grooves in form of discal strioles as in *Yamatosa*; marginal grooves fine, complete.

Elytral setae virtually constant within genus; Stria II with one to four in apex; Stria IV with many setae in form of complete series; one seta on apical tubercle; one to three setae in apical striole; several setae in tip of Stria VII; hind wings long; middle and hind tibiae each with one spur.

The above description has been modified from the original one (Part I, 70–71) to accommodate *Plesioglymmius (Juxtaglymmius) jugatus*. The latter species has the paramedian grooves reduced to discal strioles, much as in *Yamatosa*. Nevertheless, loss of inner spurs of the middle and hind tibiae and tendency for the antennal bases to approach one another seem to indicate that *P. jugatus* is a modified

Plesioglymmius and not a relative of *Yamatosa*.

Plesioglymmius is found in two widely disjunct areas: the Greater Sunda Islands (Sumatra, Borneo, Java and Mindanao), and Latin America (Brazil, Venezuela, and perhaps Cuba). The three subgenera are clearly distinct, and there is no decisive evidence to indicate that any two of them are more closely related than either is to the third.

Although there are six distinct species, the genus is known from less than 20 specimens. This makes it excessively rare, even among Rhysodini, and suggests that it is limited to some special and inaccessible habitat.

KEY TO SUBGENERA

1 Antennal sclerites separated from one another (Fig. 88); paramedian groove not linear, extending about 90% of distance from base to apex of pronotum 2

1′ Antennal sclerites joined as median suture between clypeus and median lobe, latter thus separated (Fig. 89); paramedian groove linear, in form of discal striole, ended near middle of pronotum ..... *Juxtaglymmius* new subgenus, p. 437

2 (1) Paramedian grooves coarsely punctate, glabrous except for pollinosity in punctures; medial angles of temporal lobes distinct; median lobe of head rhomboid ..... *Ameroglymmius* new subgenus, p. 435

2′ Paramedian grooves entirely pilose, without visible punctures; medial margin of temporal lobe truncate, without distinct medial angle; median head lobe oval ..... *Plesioglymmius (sensu stricto)* Bell and Bell, p. 432

Subgenus *Plesioglymmius (sensu stricto)* Bell and Bell 1978

Type species. – *Rhysodes elegans* Grouvelle 1903

Description. – Antennal Segment XI longer than wide; stylet short; Segments I, II pollinose dorsally; Segments III-IV each with narrow subapical dorsal pollinose band; basal setae present on Segments V-X.

Clypeus concave, with pair of setae; median lobe of head oval, isolated from clypeus by deep transverse pilose impression, latter bounded anteriorly by raised, pollinose posterior margin of clypeus; antennal sclerites widely separated from one another; medial margin of temporal lobes truncate, the two temporal lobes thus separated by narrow linear space; one or more coarse punctures near medial margin of each temporal lobe; orbital groove represented by strip of pollinosity; temporal setae present or absent; postorbit evenly convex; postorbital tubercle absent; suborbital tubercles prominent, in form of posterior ends of distinct genal ridges; much of ventral surface of head, including genal ridges pilose; two to four pairs of postlabial setae.

Paramedian grooves deep, straight, about 95% as long as pronotum; both median and paramedian grooves coarsely punctate, but with punctures almost completely concealed by coarse pilosity; pleural regions impunctate.

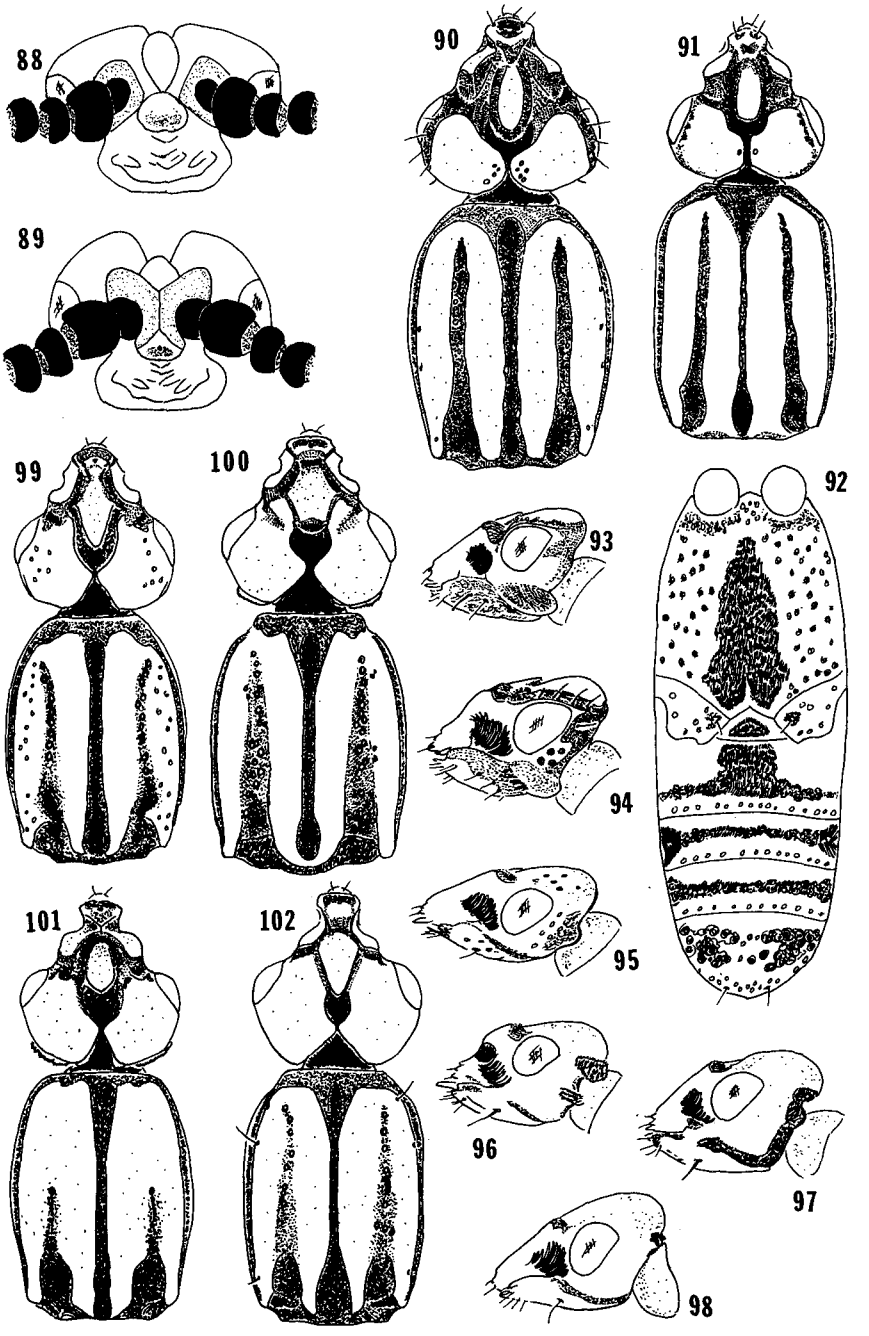
Base of elytron opposite Interval I extended anteriorly in form of angulate tooth; elytral striae deep; strial punctures coarse; apical depression of elytron including tips of Striae I, IV; medial margin of apical tubercle distinctly sinuate.

The truncate medial margin of the temporal lobe is unique to this subgenus. It also differs from other subgenera of *Plesioglymmius* in having the paramedian grooves straight, and entirely pollinose.

The subgenus *Plesioglymmius (sensu stricto)* is known from Sumatra, Borneo, and Mindanao.

KEY TO SPECIES

1 Temporal setae absent; orbital groove represented by narrow strip of pollinosity; postorbit without a seta ..... *Plesioglymmius elegans* (Grouvelle), p. 434



Figures 88 – 102. Genus *Plesioglymmius*. Fig. 88,89, Head, anterior aspect, semi-diagrammatic, antennal segments, black; antennal sclerites, stippled; Fig. 88, *P. (Plesioglymmius) silus* new species; Fig. 89, *P. (Juxtaglymmius) jugatus* new species; Fig. 90, Head and pronotum, dorsal aspect, *P. (P.) silus*, new species; Fig. 91-93, *P. (P.) elegans* (Grouvelle); Fig. 91, Head and pronotum, dorsal aspect; Fig. 92, Metasternum and abdomen, ventral aspect, male; Fig. 93, Head, male, lateral aspect; Fig. 94-98, Head lateral aspect; Fig. 94, *P. (P.) silus* new species; Fig. 95, *P. (Ameroglymmius) meridionalis* (Grouvelle); Fig. 96, *P. (J.) jugatus* new species Fig. 97, *P. (A.) reichardti* new species; Fig. 98, *P. (A.) compactus* new species; Fig. 99-102, Head and pronotum, dorsal aspect; Fig. 99, *P. (A.) meridionalis* (Grouvelle); Fig. 100, *P. (A.) reichardti* new species; Fig. 101, *P. (J.) jugatus* new species; Fig. 102, *P. (A.) compactus* new species.

1′ Four to five temporal setae present; orbital groove represented by broad strip of pollinosity; postorbit with a seta..... *Plesioglymmius silus* new species, p. 434

Plesioglymmius (sensu stricto) elegans (Grouvelle 1903) (Fig. 91-93)

Rhysodes elegans Grouvelle 1903: 117-118

Type material. – LECTOTYPE (here designated) male, labelled; "SUMATRA, Palembang" (MNHN). Three PARALECTOTYPES: two males, one female, same data as lectotype (MNHN).

Description. – Length 4.3–5.5 mm. Head slightly longer than broad; antennal stylet short, acute; clypeus less constricted posteriorly than in *P. silus*, its base only moderately raised; temporal lobe with one to two punctures near medial margin; temporal setae absent; orbital groove represented by very narrow pollinose strip, latter with small tufts of pollinosity; postorbit pollinose, impunctate; postorbital seta absent (Fig. 93); mentum entirely pollinose except anterior margin in male, pollinosity limited to medial area of mentum and genae in female; one to two pairs of postlabial setae.

Pronotum elongate, length/greatest width about 1.45; pronotum hexagonal, sides straight, nearly parallel, apex and base both abruptly narrow, each forming a distinct angle with remainder of lateral margin; median groove narrow, linear near middle; paramedian grooves relatively narrow; pronotal carinae impunctate; in male, prosternum pilose except for small area anterior to each coxa; in female, prosternum finely pollinose in anterior fourth, remainder coarsely punctate.

Each elytral stria with fine strip of pollinosity connecting punctures; metasternum of male with median pilose area extended from slightly posterior to middle coxal cavities to posterior margin; sides of metasternum coarsely punctate; in female, metasternum glabrous, median area with few scattered punctures, lateral regions coarsely punctate; pollinosity of male extended onto medial portion of hind coxae and abdominal Sterna I, II, ending abruptly at anterior transverse row of punctures on Sternum III (Fig. 92); female without pilosity on hind coxae or abdominal Sterna I, II; in both sexes, Sterna II-V each with two transverse rows of punctures, those of anterior row very coarse, surrounded by pollinosity, more or less coalescent into transverse pollinose strip; punctures of posterior row much finer, not surrounded by pollinosity; both sexes with distinct lateral pits in Sternum IV; male with ventral tooth on anterior femur; middle and hind calcars both small, acute.

Absence of temporal setae, and hexagonal form of the pronotum are among several striking differences between this species and *P. silus*.

Range. – Sumatra and Borneo. In addition to the type material, we have seen one male, labelled: "BORNEO: S. East; German Mission 59773, Fry Collection 1905. 100" (BMNH).

Plesioglymmius (sensu stricto) silus new species (Fig. 88,90,94)

Type material. – HOLOTYPE female, labelled; "PHILIPPINES: Kabasalan, Zamboanga, Mindanao, VIII-1932, coll. H.G. Muzzell" (CAS). PARATYPES two females, same data as type (CAS).

Description. – Length 6.0–6.9 mm. Head shorter and broader than in *P. elegans*, clearly broader than long; antennal stylet short, blunt; clypeus more markedly constricted at base than in *P. elegans*, its base strongly raised; temporal lobe with cluster of two to five coarse punctures near medial margin; four to five prominent temporal setae present, inserted within broad strip of pollinosity which represents orbital groove; postorbit finely pollinose, with distinct coarse punctures; postorbit with one prominent seta opposite upper fourth of eye (Fig. 94); mentum largely glabrous, contrasting with pollinose genal ridges; four pairs of postlabial setae.

Pronotum shorter than in *P. elegans*, length/greatest width is 1.36; widest point anterior to middle, sides curved; apex markedly narrowed; base moderately narrowed; median groove broader than in *P. elegans*; paramedian grooves slightly broader than in *P. elegans*; outer carina with few coarse punctures near lateral margin, and many very fine, scattered punctures; prosternum of female extensively pollinose anteriorly, pollinosity extended to coxal cavities laterally; posterior half of prosternum glabrous, coarsely punctate (male unknown).

Elytra with strial punctures not connected by pollinosity; metasternum of female entirely coarsely punctate, not pollinose (male unknown); abdominal Sterna III-V each with two transverse rows of punctures; anterior rows coarse, surrounded by pollinosity, latter more or less coalescent in form of transverse pollinose bands; posterior rows fine, without pollinosity; female with distinct lateral pits in abdominal Sternum IV (male unknown).

This species has a shorter, broader head than does *P. elegans*, and is easily recognized by the presence of temporal setae.

Subgenus *Ameroglymmius* new subgenus

Type species. – *Rhysodes meridionalis* Grouvelle 1903

Description. – Antennal Segment XI either elongated, conical or shorter, obtuse; basal setae present on Segments V-X, or limited to Segments VIII-X, or entirely absent; Segment I pollinose dorsally; remaining segments either with small pollinose spots at bases of basal setae, of else entirely without pollinosity; clypeus flat, without setae; median lobe of head rhomboidal; transverse groove between clypeus and median lobe either shallow and indefinite or deep and distinct; antennal sclerites widely separated; medial margin of temporal lobe angulate, the medial angles contiguous or narrowly separated; orbital groove and temporal setae absent; postorbital tubercle present; suborbital tubercle and genal ridges absent; lower surface of head glabrous except for gular grooves; one pair of postlabial setae.

Paramedian grooves deep, broad, gradually tapered anteriorly, extended about 95% of length of pronotum; paramedian grooves at least slightly sinuate, their anterior ends slightly divergent; paramedian grooves coarsely punctate, without pollinosity except within punctures.

Base of elytron opposite Interval I either in form of rounded prominence or else not projected; elytral striae shallow or not impressed; strial punctures coarse; no pollinosity between punctures; apical depression limited to apices of Striae I and II; apical tubercle not sinuate medially; metasternum coarsely punctate; abdominal punctures not in rows, but irregularly distributed; lateral pits on Sterum IV of female, absent from male.

The coarsely punctate paramedian grooves and the rhomboidal median lobe are diagnostic of this subgenus. It is found in eastern South America, and possibly in Cuba.

Phylogeny. – *P. meridionalis* stands apart from the other two species in having a relatively long head, lateral eyes, antennal bases far apart, and frontal grooves relatively broad. In all these features, it is the least specialized species of *Plesioglymmius*. *P. reichardti* and *P. compactus* have the head shortened, eyes directed anterolaterally, frontal grooves linear, and antennal bases relatively close together; antennal apex obtuse, and basal setae of the antenna reduced.

KEY TO SPECIES

1		Antennal Segment XI acutely pointed; frontal grooves relatively broad; outer carina of pronotum coarsely punctate ..... *Plesioglymmius meridionalis* (Grouvelle), p. 435
1′		Antennal Segment XI obtuse; frontal grooves linear; outer carina impunctate or with few small punctures 2
2	(1)	Median lobe truncate posteriorly at level of anterior margin of eye; marginal setae absent; anterior and posterior median pits of pronotum deep, expanded ..... *Plesioglymmius reichardti* new species, p. 436
2′		Median lobe obtusely pointed posteriorly at level of posterior margin of eye; marginal setae present; anterior and posterior median pits of pronotum shallow ..... *Plesioglymmius compactus* new species, p. 437

Plesioglymmius (Ameroglymmius) meridionalis (Grouvelle) NEW COMBINATION (Fig. 95, 99)

Rhysodes meridionalis Grouvelle 1903: 108–109

Type material. – LECTOTYPE (here designated) male, labelled: "Brasilia" (MNHN). PARALECTOTYPES one male, labelled: "Brazilia, co-type, Fry Coll. 1905–100" (BMNH); one female, labelled: "Rio San°, co-type, Fry. Coll. 1905-100" (BMNH).

Description. – Length 5.2–6.7 mm. Antennal Segment XI longer than wide, its apex bluntly pointed, suggesting vestigial stylet; basal setae on Segments V-X; Segment I pollinose dorsally with deeper pilose punctures; Segments II-VI with shallow pollinose punctures.

Head slightly longer than broad; eyes completely lateral; antennal sclerites relatively widely separated; transverse groove between clypeus and median lobe shallow, incompletely pollinose, in some specimens apparently interrupted in midline; median lobe small, obtuse to nearly acute; median lobe with apex opposite middle of eye; frontal grooves broad; medial angles obtuse, slightly separated; temporal lobes coarsely, sparsely, irregularly punctate; postorbit with two irregular vertical rows of coarse punctures posterior to eye, very finely pollinose posterior to the punctures; postorbital tubercle distinct, but postorbit very shallowly emarginate dorsal to it (Fig. 95); mentum coarsely punctate, pollinosity of gular grooves incomplete.

Pronotum narrow, rather elongate, widest at posterior third; sides curved, base distinctly narrowed, apex more strongly so; paramedian groove coarsely punctate; marginal groove more dilated than in related species; marginal setae absent; inner carina impunctate; outer carina coarsely, irregularly punctate; epipleura and prosternum coarsely punctate.

Basal scarp of elytron transverse except for rounded prominence opposite base of Stria I; both sexes with prominent ventral tooth on anterior femur, and obtuse one on hind femur. Male with middle calcar acute, triangular; hind calcar obtuse.

The coarsely punctate outer carinae and temporal lobes distinguish this species. It can be separated from *P. reichardti* also by the pointed median lobe and the more elongate head.

Distribution. – Southern Brazil. In addition to the type material, we have seen the following specimens: one male, one female, Cantaneira (San Paulo State), 20-II-1958, coll. K. Lenko (MZSP); one female, Nova Teutonia (Santa Catarina State), XI-1940, 300-500 m., coll. Fritz Plaumann (MZSP); one female, Brazil, Paraná, 1901-31, coll. G. Lewis (BMNH); one female, Represa do Cabeca, Corcovado (Rio, D.F.), 27-7-1967, coll. Wygodzinsky (MZSP).

Vulcano and Pereira (1975a) also list this species from Agua Funda, Alto da Serra and Paraná, Curitiba. We have not studied the specimens from these localities. Their record from Suapure, Venezuela actually pertains to *P. reichardti*. These specimens of *P. meridionalis* in the Carnegie Museum (CMP) are labelled: "Denver, Colorado, H. Klages coll." C.M. acc. 11414. According to G. Wallace, E.A. Klages, a brother of H. Klages, collected extensively in South America, and these are no doubt mislabelled Brazilian specimens.

Plesioglymmius (Ameroglymmius) reichardti new species
(Fig. 97,100)

Type material. – HOLOTYPE male, labelled: "VENEZUELA: Suapure, Caura R., Apr. 25, 1899, coll. E.A. Klages" (MZSP). PARATYPE female, labelled: "BRAZIL: Rio Madeira, Mann & Baker, W.M. Mann Coll. 1954" (MZSP).

Description. – Length 5.0–5.3 mm. Antennal Segment XI somewhat compressed, longer than wide, obtusely rounded at apex, stylet absent; basal setae absent from Segments V-VII, but present on VIII-X; antenna without pollinosity except for dorsal spot on Segment I.

Head wider than long; eyes directed slightly anteriorly and dorsally; antennal sclerites relatively narrowly separated; clypeus and median lobe separated by a deep, pollinose transverse groove; median lobe relatively short, broad, pentagonal, abruptly truncate at level of anterior margin of eye; frontal grooves linear; medial angles narrowly separated; temporal lobes apparently impunctate except at high magnification; postorbit pollinose, impunctate; postorbital tubercle distinct (Fig. 97); gular grooves occupied by broad, continuous bands of pollinosity.

Pronotum narrow, rather elongate, widest at posterior third, sides slightly curved to base, latter slightly narrowed, markedly curved to apex, latter markedly narrowed; paramedian grooves coarsely, rather densely punctate; basal impressions with rather long pilosity; marginal groove fine, shallow; marginal setae absent; both inner and outer carinae entirely impunctate; epipleura and propleuron impunctate; prosternum coarsely punctate.

Basal scarp of elytron transverse except for rounded prominence opposite Stria I; male with ventral tooth on anterior and posterior femora; female without femoral teeth; calcar of middle tibia acute; hind calcar small, narrow, its tip slightly upturned.

The markedly truncate median lobe is the recognition mark of *P. reichardti*. It also differs conspicuously from *P. meridionalis* in absence of punctures from the outer pronotal carinae and temporal lobes. This species is dedicated to the memory of Dr. Hans Reichardt, whose untimely death in

1976 was a great loss for the science of entomology. This species appears to be restricted to the Orinoco and Amazon Basins, and to be allopatric to *P. meridionalis*.

Plesioglymmius (Ameroglymmius) compactus new species
(Fig. 98,102)

Type material. – HOLOTYPE female, labelled: "CUBA" (MCZ).

Description. – Length 4.8 mm. Antennal Segment XI slightly longer than wide, cone tapered, its tip obtusely rounded, stylet absent; basal setae absent; Segment I pollinose above; remaining segments devoid of pollinosity.

Head wider than long; eyes directed slightly dorsally and anteriorly; antennal sclerites relatively close together; clypeus and median lobe separated by deep, pollinose transverse groove; clypeal setae absent; antennal sclerites relatively close together, median lobe rhomboidal, its tip obtusely pointed at level of posterior margin of eye; temporal lobes short, rather inflated; frontal grooves sublinear; medial angles obtusely rounded, contiguous; temporal lobes impunctate; postorbit glabrous, convex; postorbital tubercle minute, pollinose (Fig. 98); mentum with few median punctures; gular grooves occupied by broad, continuous bands of pollinosity.

Pronotum elongate, narrow, broadest clearly anterior to middle; sides almost straight, slightly convergent posteriorly; base and apex distinctly narrowed; paramedian grooves relatively narrowed; the punctures of each groove in form of a single irregular line; marginal groove fine, shallow; marginal setae present (some setae missing on holotype, but the punctures indicate two setae near apex and one near base on each side); both inner and outer carina impunctate; prosternum with broad, irregular band of coarse punctures on either side of midline, otherwise impunctate; proepipleura and propleuron both impunctate.

Elytral humerus narrow, triangular; basal scarp of elytron angled opposite base of Stria IV; no prominence opposite base of Stria I; striae not impressed, represented by rows of fine punctures; Striae II, III slightly abbreviated at base; female with distinct lateral pit on abdominal Sternum IV; male unknown.

This species is the only member of the genus to have marginal setae on the pronotum. The arrangement of the punctures of the paramedian groove in a single line is also unique. The holotype has the tip of one wing protruding between the elytra, as is often seen in Carabidae collected at lights. At first glance, the eyes of this species appear reduced, but this is an optical illusion caused by the shortening and inflation of the temporal lobes.

According to Dr. P.J. Darlington, Jr. (personal communication), this specimen was from the Blaisdell collection which contains many erroneous locality records. So perhaps, the specimen is not really from Cuba. If so, it would probably prove to be a South American species. Bell (1970) discussed but did not name this species.

Subgenus *Juxtaglymmius* new subgenus

Type species. – *Plesioglymmius (Juxtaglymmius) jugatus* new species

Description. – Antennal Segment XI longer than wide, acutely pointed in form of vestigial stylet or none; basal setae sparse, on Segments V-X; Segment I pollinose dorsally; Segment II with basal pollinose band, remaining segments without pollinosity; antennal sclerites meeting in contact in form of median suture, clypeus thus widely separated from median lobe; clypeus flat; clypeal setae absent; median lobe small, oval, markedly convex; medial angles of temporal lobes obtuse, narrowly separated; orbital groove and temporal setae absent; postorbital tubercle prominent, separated from temporal lobe by deep notch; suborbital tubercles, genal ridges absent; lower surface of head nearly glabrous; nearly impunctate; one pair of postlabial setae.

Paramedian groove represented by basal impression and short discal striole, latter extended approximately to middle of pronotum, and without pollinosity or punctures.

Basal scarp of elytron transverse, without prominence opposite base of Stria I; striae shallow, finely punctured; pollinosity limited to punctures; apical depression small, limited to apices of Striae I, II; apical tubercle not sinuate medially; metasternum with one median and two lateral longitudinal bands of punctures, otherwise impunctate; punctures of abdominal Sterna III-V in form of two irregular transverse rows (but less regular in arrangement than in *Plesioglymmius (sensu stricto)*): posterior row of each sternum as coarse as anterior row; female with lateral pits on Sterum IV and V, V slightly deeper; male with slight suggestion of these pits.

Male with ventral tooth on anterior femur, but without one on posterior femur; female without ventral tooth on either femur.

Only one species is known.

Plesioglymmius (Juxtaglymmius) jugatus new species
(Fig. 89,96,101)

Type material. – HOLOTYPE male, labelled: "JAVA" (MNHN). PARATYPE female, same data as type (MNHN).

Description. – Length 5.6–6.0 mm. As described for subgenus; head slightly wider than long; clypeus longer than wide, its sides parallel; eyes directed anterolaterally; temporal lobe rounded posteriorly and laterally; postorbital tubercle and posterior margin of temporal lobe pilose, notch between them glabrous (Fig. 96).

Pronotum relatively short, widest at middle, sides strongly curved to base and apex; disc of pronotum impunctate; marginal groove fine; prosternum, propleuron, and epipleura impunctate; pollinosity of prosternum limited to anterior margin and intercoxal pit.

Calcar of middle tibia small, acute; that of hind tibia broadly triangular, angle acute, well above level of tibial spur.

The tendency for the antennal bases to approach one another is seen throughout the genus. In this species it reaches its limit, with the antennal sclerites actually meeting in the midline. The bases of the antennae are separated by only slightly more than the width of one basal condyle so that it is difficult to see how they avoid interfering with one another.

This singular species has as much in common with *Ameroglymmius* of Brazil as it does with *Plesioglymmius (sensu stricto)* from nearby islands, and it may prove that the locality labels are erroneous.

Genus *Arrowina* Bell and Bell 1978
(Fig. 103-114)

Type species. – *Rhysodes taprobanae* Fairmaire 1873

Description. – Part I, 71.

Phylogeny. – With the exception of *A. taprobanae* and *A. pygmaea*, the members of this genus are all very different from one another. The most aberrant species is the Japanese *A. rostrata*, the only species which has an elongate rostrum and a femoral tooth. All the remaining species are confined to southern India and Ceylon. Although *A. anguliceps* and *A. nilgiriensis* are very different from one another, they share some common characters, such as a dilated orbital groove, that suggest that they are more closely related to one another than either is to *A. taprobanae* and *A. pygmaea*.

KEY TO SPECIES

1		Head almost twice as long as wide; anterior femur of male with ventral tooth (female unknown) ..... *Arrowina rostrata* (Lewis), p.	439
1′		Head only slightly longer than wide; anterior femur of male without ventral tooth	2
2	(1)	Orbital groove absent; lateral margin of inner pronotal carina sloped gradually into paramedian groove	3
2′		Orbital groove complete, somewhat dilated; lateral margin of inner pronotal carina vertical, sharply defined	4
3	(2)	Metasternum with punctures confined to row along each margin; length 5.0 mm or more ..... *Arrowina taprobanae* (Fairmaire), p.	439
3′		Metasternum with punctures in middle of disc as well as along margins; length 4.3 mm or less ..... *Arrowina pygmaea* new species, p.	441
4	(2′)	Eyes large, deeper than long; posteromedial margin of temporal lobe sinuate posterior to medial angles ..... *Arrowina nilgiriensis* (Arrow), p.	441

4′ Eyes reduced, longer than deep; posteromedial margin of temporal lobe not emarginate.... ..... *Arrowina anguliceps* (Arrow), p. 442

Arrowina rostrata (Lewis 1888) (Fig. 108,109)

Rhysodes rostratus Lewis 1888: 81.

Type material. – LECTOTYPE (here designated) male, labelled: "JAPAN: Oyayama, Higo District, G. Lewis, 1910-320 (Kyushu Island)" (BMNH). PARALECTOTYPE: According to the original description, there were two specimens, both males. The second specimen is not in the BMNH. If it is still extant, it is a paralectotype.

Description. – Length 5.5 mm. Antennal Segment XI short, almost spherical; stylet short, acuminate, larger than in other members of genus; head almost twice as long as wide, with rostrum distinctly elongate; postclypeal grooves sublinear; median lobe relatively broad, its posterior tip obtusely pointed, projected slightly above frontal pit; antennal groove fine, nearly linear; medial angles obtuse, distinctly separated; posteromedial margin emarginate between medial and occipital angles; orbital grooves obsolete; eye large, deeper than long; postorbital tubercle entirely absent (Fig. 109).

Pronotum narrow, elongate, length/greatest width about 1.40; widest anterior to middle; sides slightly curved, slightly convergent from widest point to base; markedly curved from widest point to apex; median groove of nearly even width, slightly expanded at posterior median pit, latter partly divided by constriction; paramedian grooves narrow, much narrower than inner carinae, and only slightly wider than median groove; lateral margin of inner carina vertical, sharply defined; marginal groove fine; prosternum and propleura impunctate.

Elytra elongate, lateral margins parallel in middle third; humeral tubercle well developed; elytral striae very shallowly impressed; strial punctures much finer than in other members of genus; elytral setae restricted to apex of Stria VII; metasternum impunctate; male with acute ventral tooth on anterior femur (female unknown); spurs of middle and hind tibiae nearly equal; calcar of hind tibia obtuse, raised slightly above level of tibial spurs.

The elongate rostrum, very narrow paramedian grooves, and absence of metasternal punctures are all diagnostic of this species.

Arrowina taprobanae (Fairmaire 1873) (Fig. 110-112)

Rhyzodes taprobanae Fairmaire 1873; 389.

Type material. – HOLOTYPE female, labelled: "CEYLON" (MNHN).

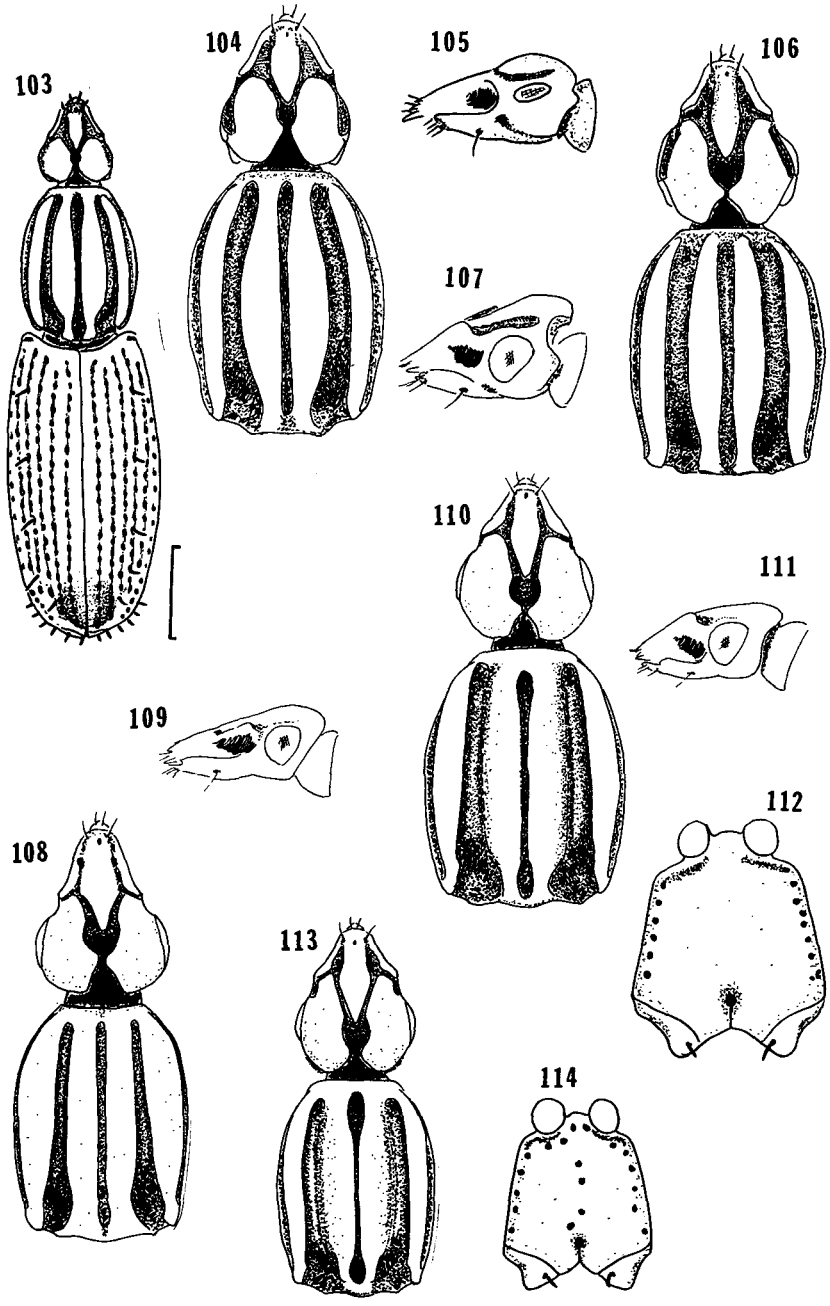
Description. – Length 5.0–6.2 mm. Antennal Segment XI slightly longer than wide; stylet very small but evident; head about 1.20 longer than wide; rostrum not elongate; postclypeal grooves dilated; median lobe otusely pointed posteriorly, its tip barely overhanging frontal pit; antennal groove narrow; medial angles nearly rectangular, almost contiguous, each angle slightly closer to occiput than to tip of median lobe; posteromedial margin very shallowly emarginate between medial and occipital angles; orbital groove absent; postorbital tubercle absent (Fig. 111).

Pronotum slightly longer than wide, length/greatest width 1.17; widest at middle, sides curved, apex markedly narrowed, base moderately so; inner carina wider than outer one; lateral margin of inner carina ill-defined, sloping gradually into paramedian groove; pronotum with one to two precoxal punctures on each side.

Elytra with lateral margins parallel in middle third; humeral tubercle well-developed, visible in dorsal view; elytral striae shallow, intervals nearly flat; strial punctures of inner striae moderate, those of outer striae coarse; basal puncture of Stria I enlarged; elytron with one seta in apex of Stria IV, one in apical striole, and several in apex of Stria VII; metasternum with row of coarse punctures along each margin, but without discal punctures (Fig. 112); female with deep lateral pits on abdominal Sternum V.

Middle and hind tibiae with spurs nearly equal, those of female much larger than those of male; ventral tooth absent from anterior femur; male with calcars well developed; hind calcar obtuse, distinctly raised above level of spurs.

This species and *A. pygmaea* differ from other members of the genus in having the lateral margin of the inner carina slope gradually into the paramedian groove. In all other species of *Arrowina*, the carina and the groove are separated by a sharply-defined, nearly vertical surface. Absence of discal punctures on the metasternum separates this species from *A. pygmaea*.



Figures 103 – 114. Genus *Arrowina*. Fig. 103-105, *A. anguliceps* (Arrow); Fig. 103, Habitus, dorsal aspect; Fig. 104, Head and pronotum, dorsal aspect; Fig. 105, Head, lateral aspect; Fig. 106,107, *A. nilgiriensis* (Arrow); Fig. 106, Head and pronotum, dorsal aspect; Fig. 107, Head, lateral aspect; Fig. 108,109, *A. rostrata* (Arrow); Fig. 108, Head and pronotum, dorsal aspect; Fig. 109, Head, lateral aspect; Fig. 110-112, *A. taprobanae* (Fairmaire); Fig. 110, Head and pronotum, dorsal aspect; Fig. 111, Head, lateral aspect; Fig. 112, Metasternum, metacoxae; Fig. 113,114, *A. pygmaea* new species; Fig. 113, Head and pronotum, dorsal aspect; Fig. 114, Metasternum, metacoxae.

Distribution. – Known with certainty only from Ceylon. Many specimens in MNHN, BMNH, AMS are labelled only with the name of the country. The only specimens we have seen with specific locality data are as follows: Three females, Dikoya, 3800-4200 feet; 6-XII-81 to 16-I-82, coll. G. Lewis (BMNH); one male, Maturata, no date, coll. Simon (MNHN); one female, Pundalaya, IV, 1888, coll. H.P. Green (BMNH). One male (probably from southern India rather than Ceylon), "Madura, Ind. Or." from Loding, 1935 (NMNH). This almost certainly means the District of Madura (also spelled "Madurai"), and not the island of the same name near Java. The location is in the Tamil Nadu State, and is well to the east of the known ranges of other south Indian *Arrowina*. A specimen in MNHN, labelled: "Sydney, Austral", surely has incorrect locality data. A record for Formosa by Miwa (1931), is probably a misidentification.

Arrowina pygmaea new species
(Fig. 113,114)

Type material. – HOLOTYPE male, labelled: "CEYLON: Dikoya, coll. G. Lewis, 1910-320 (under label, 17-12-81)" (BMNH). Three PARATYPES one male, labelled: "CEYLON, Nuwara Eliya, 6234-8000 ft., 8-11-II-82, coll. G. Lewis 1910-320" (BMNH); one female, labelled; "CEYLON, coll. G. Lewis (no date), Sharp Colln. 1905-313" (BMNH); one male labelled: "CEYLON" (MNHN).

Description. – Length 4.0–4.4 mm. Very similar to *A. taprobanae*, with appearance of dwarf form of latter, but differing in following: head and pronotum relatively longer; elytra proportionally shorter; frontal grooves narrower, more linear; median lobe of head longer, its tip acute, clearly overhanging frontal pit; median angles of temporal lobes obtuse, distinctly separated; posterolateral end of antennal groove expanded, in form of rudimentary orbital groove; pronotum narrower and more elongate, sightly more narrowed at base; hind angle more nearly rectangular; elytral striae deeper, intervals slightly convex; elytral setae more numerous; three setae in Stria IV (one at base, one in middle, one at apex); one seta at apex of Stria VI; one on apical striole; several in apex of Stria VII; metasternum with coarse marginal punctures and several coarse punctures in middle of disc (in most specimens in form of median line (Fig. 114); in one specimen limited to group near anterior margin and few scattered on disc).

The coarse discal punctures on the metasternum and the much smaller size separate this species from *A. taprobanae*.

Arrowina nilgiriensis (Arrow 1942)
(Fig. 106, 107)

Rhysodes nilgiriensis Arrow 1942: 179.

Type material. – LECTOTYPE male, labelled: "INDIA: Nilgiri Hills, coll. Andrewes" (BMNH). Three PARALECTOTYPES two females (on same pin), same data as lectotype (BMNH); one female, same data as lectotype (MNHN).

Description. – Length 5.2–6.1 mm. Antennal Segment XI as wide as long; stylet minute, blunt, scarcely evident; head 1.25 times longer than wide; rostrum not elongate; postclypeal grooves widely dilated; median lobe obtusely pointed posteriorly, overhanging frontal pit; antennal groove dilated, short; frontal pit relatively broad; medial angles of temporal lobes nearly rectangular, contiguous; medial angles much closer to occipital angles than to tip of median lobe; posteromedial margin distinctly emarginate between medial and occipital margins; margin of temporal lobe oblique between eye and occipital angle, latter prominent; orbital groove dilated, extended to posterior margin of eye; eye large, deeper than long; postorbital tubercle large, deep, separated from temporal lobe by broad emargination in lateral view (Fig. 107).

Pronotum relatively short, length/greatest width is 1.12; widest at middle; sides curved; base moderately narrowed; apex markedly narrowed; paramedian grooves broad, almost as wide as inner or outer carinae; inner carina slightly wider than outer one at middle of pronotum; both margins of inner carinae sharply defined, separated from adjacent grooves by nearly vertical surfaces; about six precoxal punctures on each side of prosternum.

Elytra moderately elongate, sides nearly parallel in middle third; humeral tubercle well developed; elytral striae distinctly impressed; intervals convex; strial punctures coarse, those of inner striae elongate, those of outer striae rounded; basal puncture of Stria I not enlarged; Stria IV with four evenly spaced setae; one seta on medial surface of apical tubercle; about seven setae in apex of Stria VII; no setae in apical striole; metasternum with coarse marginal punctures, but without discal punctures; female with distinct lateral pits in abdominal Sterna IV and V, those of Sternum V deeper than those of Sternum IV; male with vestiges of lateral pits

in IV and V.

Male without ventral tooth on anterior femur; spurs of middle and hind tibiae strikingly unequal, anterior one of each pair less than 0.5 as long as posterior one; hind calcar very obtuse, raised high above spurs, its upper margin small notch about 0.33 of distance from spurs to base of tibia.

The prominent occipital angles of the head give this species much the appearance of *Omoglymmius* subgenus *Orthoglymmius*. It differs strikingly from the latter in the presence of two tibial spurs. The narrow pronotal carinae differentiate it from all *Orthoglymmius* except from *O. carinatus* (Grouvelle) and *O. hexagonus* Grouvelle. The latter two species differ from *A. nilgiriensis* in having conspicuously unequal elytral intervals.

Range. – Southern India, apparently confined to the Cardamum Mountains which form the boundary between Kerala and Tamil Nadu States. In addition to the type series, known from the following localities: one female, Chambagaganor, Madura (MMHN); one female, Cinchana, Anamalai Hills, 1050 m., IV-1957, coll. P.S. Nathan (BPBM), one female Shimbaganor (MNHN).

Arrowina anguliceps (Arrow 1901)
(Fig. 103-105)

Rhysodes anguliceps Arrow 1901: 89.

Type material. – LECTOTYPE (here designated) male, labelled: "S. INDIA, Pascoe Coll. 93-60" (BMNH). PARALECTOTYPES: one female, same data as male (BMNH). According to the original description, there are also two specimens in the Hope Department at Oxford. If these specimens still exist, they are also paralectotypes.

Description. – Length 5.8–6.9 mm. Antennal Segment XI longer than wide; stylet minute, scarcely evident; head 1.25 times longer than wide; rostrum not elongate; postclypeal grooves broadly dilated; median lobe short, its tip anterior to eye. its apex obtuse, not overhanging frontal pit; antennal groove dilated, short; frontal pit small and narrow; medial angles much closer to tip of median lobe than to occipital angles; medial angles obtuse, distinctly separated; posteromedial margin oblique between medial and occipital angles; margin of head rounded between eye and occipital angle; orbital groove dilated, extending beyond posterior margin of eye; its medial margin indistinctly defined; eye strongly reduced, lying entirely anterior to widest part of head, cornea flat, with only traces of facetting; eye longer than deep, with about 80 ommatida; postorbital tubercle small, but more dorsal than in *A. nilgiriensis*, prominent in dorsal view (Fig. 105).

Pronotum rather elongate, length/greatest width is 1.29; widest point posterior to middle; sides markedly curved, base moderately narrowed, apex strongly narrowed; paramedian grooves broad, but somewhat narrower than outer carinae; both margins of inner carinae sharply defined, separated from adjacent grooves by nearly vertical surfaces; inner carina distinctly broader than outer carinae; marginal groove slightly dilated; about 12 precoxal punctures anterior to each coxal cavity and V-shaped line of punctures present on anterior part of prosternum.

Elytra short, oval, inflated; sides not parallel; humerous prominent, but humeral tubercle not visible in dorsal view; elytral striae slightly impressed; strial punctures very coarse, those of inner striae elongate oval, those of outer striae nearly round; punctures wider than intervals; latter convex; some punctures irregularly fused together, especially in humeral region, and near apical tubercle; basal puncture of Stria I not enlarged, but displaced laterally; Stria IV with up to four setae, when four are present they are evenly spaced, when setae are reduced, more anterior ones are missing; one seta on apical tubercle; none on apical striole; four to five in apex of Stria VII; hind wings reduced to small vestiges; metasternum with coarse marginal punctures, and with few discal ones anterior to coxae; female with shallow lateral pits in abdominal Sternum IV and deep ones in Sternum V; male with vestiges of pits in both Sterna IV and V.

Male without ventral tooth on anterior femur; all femora coarsely punctate on dorsal surface; spurs of middle and hind tibiae strikingly unequal, anterior one of each pair about 0.25 as long as posterior one; hind calcar of male obtusely rounded, its top distinctly proximad to tibiae, but not so proximad as in *A. nilgiriensis*. Penis illustrated in Part 1, 68.

This is one of the most distinctive species in the tribe. The elytra are shorter and more convex than in other Rhysodini, suggesting those of *Dyschirius* (Scaritini). The reduced eye is unique within *Arrowina*, but is similar to that of *Tangaroa pensus*.

Range. – The Cardamum Mountains of southern India. The only definite locality record is a series of 12 specimens from Dodabetta Peak, 2475 m, III-11-62, coll. E.S. Ross, D.Q. Cavagnaro (CAS).

ACKNOWLEDGEMENTS

As in the previous part of this work, we acknowledge our indebtedness to all the curators and collectors who have helped us in this study. We are especially grateful to Mr. M. Bacchus and Dr. R.B. Madge at the British Musem of Natural History, London, and Dr. A. Descarpentries, Mme. A. Bons and Dr. J.J. Menier at the Laboratoire d'Entomologie, Museum National d'Histoire Naturelle, Paris, all of whom were very helpful during our second visit to Europe in May of 1978. We are also indebted to Dr. Barry P. Moore for further information about Australian Rhysodini, and to Pére Andre Larochelle and Mr. Paul Choate for calling additional references to our attention.

As before, we are grateful to Mrs. Joyce Murray for her skillful typing of the final manuscript.

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[1]This supplements the complete list of references found in Part I.

Index to Names of Taxa

KEYS