Lech Borowiec, Jolanta Świętojańska

The Tortoise beetles of Madagascar (Coleoptera : Chrysomelidae : Cassidinae)

Part 1: Basiprionotini, Aspidimorphini and Cassidini (except the genus *Cassida*)

ABSTRACT. The first part of a taxonomic study of the Coleoptera Chrysomelidae Cassidinae of Madagascar is presented. Tribes Aspidimorphini, Basiprionotini and Cassidini (except the large and very heterogenous genus *Cassida*) are reviewed, keyed, and illustrated. The introduction treats characteristics of the subfamily Cassidinae, including general morphology, immature stages, bionomy, systematics, and zoogeography. Taxonomical part concerns keys to genera and species, descriptions, distribution notes, and examined material (including types). The first part of the monograph of Malagasy Cassidinae comprises 10 genera and 60 species. Each species is figured and its distribution in Madagascar is presented in distribution maps. Almost all species are presented on colour photos from dorsal and lateral view. Malagasy Cassidinae are highly endemic at both generic and species level – of the 10 genera reviewed 6 are endemic, and of the 59 species reviewed only three have broad distributions in both Madagascar and tropical Africa.

Key words: entomology, taxonomy, zoogeography, morphology, Coleoptera, Chrysomelidae, Cassidinae, Madagascar.

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RÉSUMÉ

Ce premier volume consacré à l'étude taxonomique des Coléoptères Chrysomelidae Cassidinae de Madagascar traite les tribus Aspidimorphini, Basiprionotini et Cassidini (sauf le grand genre très hétérogène *Cassida* L.). Ces tribus sont révisées, illustrées et des clés sont proposées. La morphologie, les stades préimaginaux, la bionomie, la systématique et la zoogéographie sont traités dans l'introduction. La partie taxonomique rassemble les clés des genres et des espèces, les descriptions et les notices relatives à la distribution et au matériel examiné, qui inclut les types. Cette première partie de la monographie des Cassides malgaches traite 10 genres et 60 espèces. Chaque espèce est illustrée et sa distribution à Madagascar est figurée sur une carte. Presque toutes les espèces sont figurées en vues dorsale et latérale sur des planches en couleurs. Les Cassidinae malgaches présentent un taux très élevé d'endémisme, tant au niveau des genres qu'à celui des espèces : sur les 10 genres traités, 6 sont endémiques et sur les 59 espèces citées, seulement trois sont communes à Madagascar et à l'Afrique tropicale.

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INTRODUCTION

The subfamily Cassidinae in the old sense, commonly named "tortoise beetles", is a part of the large family Chrysomelidae (leaf or plant beetles). They are almost worldwide in distribution, though they have a much greater diversity in the tropics, especially in tropical South America. They are scarce in temperate regions of North America and Australia and abundant in temperate Eurasia. The last printed catalogue (BOROWIEC, 1999) lists 2760 species (except the tribe Imatidiini classified traditionally within Cassidinae but recently transferred to the tribe Cephaloleiini of the subfamily Hispinae) and latest web catalogue (BOROWIEC and ŚWIĘTOJAŃSKA, 2011) lists 2982 species. The most speciose is the tribe Cassidini with 1387 species and respectively Mesomphaliini (548), Aspidimorphini (285), Notosacanthini (264), Omocerini (147), Basiprionotini (94), Physonotini (66), Dorynotini (52), Hemisphaerotini (42), Eugenysini (34), Goniocheniini (30), Spilophorini (30) and Delocraniini (3).

The subfamily was proposed by GYLLENHAL (1813) as the group Cassidites for the chrysomelid genus *Cassida*. CHAPUIS, in LACORDAIRE (1875), proposed the group Cryptostomes for Cassidinae and Hispinae and divided the cassidoid beetles into 17 groups. An Austrian entomologist, Franz SPAETH, one of the greatest specialists in the subfamily, the author of the first world catalogue of Cassidinae (SPAETH, 1914), ignored this subdivision and recognised only three unnamed tribes within the Cassidinae, but in several further papers (SPAETH, 1923, 1929, 1942) he adopted most of the tribes proposed by CHAPUIS, usually without comments. Shortly before World War II SPAETH was engaged in preparing a manuscript on the Cassidinae for publication in WYTSMAN's Genera Insectorum, with a key to all the world's species. The manuscript was completed sometime in 1942. Unfortunately, it was largery destroyed when Russian bombing damaged the printer's premises in Vienna. Only proof-copy of the first volume of the work and some sheets of the manuscript were saved. HINCKS (1952) based on this proof-copy prepared a posthumous paper with a review of the 19 tribes (in a form of an identification key) and a list of all genera proposed and authorised by SPAETH (including descriptions of several new genera and nomenclatorial changes), with designation of type species for each genus. His system of the subfamily was adopted by SEENO and WILCOX (1982) in the list of the world genera of Chrysomelidae. HINCKS, SEENO, and WILCOX overlooked the fact that MONROS and VIANA in 1947 synonomized the cassidoid tribe Himatidiini with the hispoid tribe Cephaloleiini. Most later authors commonly accepted SPAETH's system with corrections by HINCKS, SEENO, and WILCOX.

The only author who proposed a completely different system of the group was CHEN (1973). He created a new superfamily Cassidoidea with four families: Cassididae (in old sense, but with four tribes of uncertain position: Hemisphaerotini, Spilophorini, Delocraniini, and Imatidiini), Anisoderidae, Hispidae, and Callispidae. Later CHEN *et al.* (1986) included cassidoid beetles in the family Hispidae as an independent subfamily.

Recently, there has been a tendency for a reduction of traditional tribes of cassidinae. RILEY (1986) synonomized the tribe Charidotini with the Cassidini. MEDVEDEV and EROSHKINA (1988), based on larval characters and bionomics, transferred the tribe Notosacanthini from the Cassidinae to the Hispinae. BOROWIEC (1995a) in the most complete phylogenetic analysis of the subfamily proposed only 11 tribes, including Notosacanthini as a cassidoid group. He also suggested that Cassidinae are polyphyletic, that the division of the group Cryptostoma into two subfamilies: Hispinae and Cassidinae is artificial, and proposed the name cassidoid Hispinae for the tribes of SPAETH's system (except Imatidiini). This point of view was considered by REID (1995) in his classification of Chrysomelidae using cladistic methods. ŚWIĘTOJAŃSKA (2001) restored the tribe Aspidimorphini and placed it within the most specialised cassidoid beetles. Finally, STAINES (2002) proposed the name Cassidinae for all Cryptostoma members. Both Cassidinae and Hispinae were proposed by GYLLENHAL (1813) in the same paper, but Cassidinae appeared on p. 434 while Hispinae appeared on p. 448. The name would still be Cassidinae if one applied the determination of the first reviser [ICZN Article 24.2] (CHEN 1940). STAINES (2002) fused the tribe Spilophorini, classified traditionally in Cassidinae, with the tribe Oediopalpini, classified traditionally in Hispinae.

In this work, BOROWIEC's (1995 a) system was adopted with some modifications, with Aspidimorphini as independent tribe. Only the genera of Cassidinae of old sense have been included, with Notosacantha as a member of true Cassids.

Cassidinae feed on 32 plant families, but Convolvulaceae and Asteraceae are preferred. Of other families only Arecaceae, Boraginaceae, Caryophyllaceae, Chenopodiaceae, Lamiaceae, and Solanaceae offer more than 20 host plant species (JOLIVET, 1988; BOROWIEC et ŚWIĘTOJAŃSKA, 2002). Three tribes: Delocraniini, Hemisphaerotini, and Spilophorini occur on monocotyledons, other exclusively on dicotyledons. Only larvae of the tribe Notosacanthini are leaf miners, others are exophagous.

Cassidinae are one of the few groups of insects in which the females construct papery oothecae to protect their eggs. The oothecae exist in many different forms, often have a smaller or greater amount of the mother's faeces placed on top for further camouflage.

The exophagous larvae usually have a caudal appendage with a muscular attachment, located above the anus. The anus is highly muscular and telescopically protrusible. This is correlated with the ability to attach the faeces to various parts of the accumulated exuvia, or to the supra-anal processes in the first instar. Sometimes larvae have no caudal exuvia or faecal shields, occasionally they have no or strongly reduced supra-anal processes (Delocraniini and Hemisphaerotini). Exophagous larvae of Cassidinae have a very characteristic appearance, distinct from other chrysomelid beetles. The larvae always have lateral scoli arranged along the sides of the thoracic and abdominal segments. The normal arrangement for each side is three on the prothorax, three on the mesothorax, two on the metathorax, and one of each abdominal segment. They continue along the sides of the abdomen generally to the eighth segment, and the supra-anal process represents, at least in analogy, the fused process of the ninth abdominal segment. In primitive tribes

sometimes there are only one mesothoracic and one metathoracic scolus or scoli are absent. Larvae of most species are solitary, but gregarism and/or cycloalexy has been observed in several species from Central and South America, South Africa and the Oriental Region. Maternal care has been reported in some species of the tribes Eugenysini and Mesomphaliini (WINDSOR and CHOE, 1994; CHABOO, 2002).

The pupae are in some respects very similar in appearance to the larvae. They are dorsoventrally flattened, have fringing appendages around the borders and usually have the same exuvial–faecal armature with the addition of exuvia of the fifth instar. The pupae usually possess caudal furcae, which in some cases appear to be separated at their insertions. The lateral appendages of the abdomen frequently are in the form of broadly expanded plates with fringing spinules, or appear as long, sinuous spines. The appendages of the prothorax usually consist of numerous short filaments or a few longer ones, but sometimes they are entirely lacking. The meso- and metathoraces have wings substituted for the larval appendages (COX, 1996).

Larvae and pupae of Notasacanthini are distinct because of their mining mode of life. They are more similar to larvae of many members of the Hispinae rather than to members of the true Cassidinae. At least in one species of Notosacantha larvae before pupation form a different pupal mine.

Adults are exclusively exophagous. In many species, especially of the tribes Aspidimorphini, Cassidini, and Physonotini, live specimens distinctly differ in coloration from dried specimens in collections. Live specimens have distinct metallic tint of an ephemeral nature. It is a result of a combination of structural and functional effects, involving both reflection of light rays from numerous semitransparent or completely transparent layers in the cuticle, and presence of body fluid between the minute layers (ONSLOW, 1921; MASON, 1929). This fluid is lost with desiccation following death and the iridescence disappears. Some species have an ability to change the intensity of the iridescence by widening or narrowing the spaces between the layers of cuticle. Fortunately, soaking dried specimens in water or even in alcohol, the golden iridescence can be restored to a greater or lesser degree, but only to be lost again with re-desiccation. Colour photos in the monograph are based on dried specimens.

Sexual dimorphism occurs in many species, but usually is more pronounced in the more primitive groups. In the tribe Mesomphaliini the degree of sexual dimorphism is correlated with the degree of male competition in sexual behaviour. In specialized tribes sexual dimorphism is indistinct and we can identify the sex only by preparation of genitalia. But in most Cassidinae genera genitalia are not diagnostic and we don't prepare genitalia in normal practice. Thus, sex of most holotypes in Cassidinae is usually unknown.

Many species are polymorphic and produce various colour forms. In this monograph more than one photograph is presented for polymorphic species, but in extremely polymorphic species only few of the numerous colours variations are shown, especially representing extremes of variability.

ZOOGEOGRAPHICAL NOTES

Cassidinae is a worldwide group with centre of distribution in tropical South America. Of 13 traditional tribes, nine occur only in the New World, one tribe in common for both the New and Old World, and only three tribes occur only in the Old World. No Old World tribe is endemic to a particular zoogeographical region. The tribe Cassidini is widespread in all regions, including the Palaearctic, with the richest fauna in tropical Africa and Asia, and the poorest fauna in Australia. No native species occurs in New Zealand and small Pacific islands (Micronesia, Hawaiian archipelago). The tribe Aspidimorphini is the richest in genera, subgenera, and species in Africa, quite rich in Asia (with three species in the eastern Palaearctic), and poor in Australia (with a single native member in New Caledonia). The tribe Basiprionotini is the richest in the Oriental Asia, and with only few members in Africa and Madagascar. The tribe Notosacanthini is very interesting, with a number of species in insular parts of the Old World, especially Madagascar, Philippines, New Guinea, and Indonesia, less numerous in continental Africa and Asia, and only a few species in northern Australia. The last catalogue (Borowiec and Świętojańska, 1999) lists 2952 species of "true" cassids, but a number of described species in recent times suggests that the group is more diverse and comprises probably more than 3000 species.

The Malagasy fauna is quite rich in species and very distinct. From 221 hitherto described species 217 are endemic to Madagascar and neighbouring islands, and only four are common to both continental Africa and Madagascar. Of the 12 genera, six are endemic and comprise only 25 species, other endemic Malagasy species mostly belong to the large Old World genera. The two most species rich genera are: *Notosacantha* with 96 exclusively endemic species, and *Cassida* with 70 endemic species and one species common with Africa; several new species of both genera occur in collections. Revisions of these two genera will be published in second and third part of the monograph of Mdagascan tortoise beetles.

ABBREVIATIONS USED IN THE TEXT

AB:	coll. A. Bieńkowski, Moscow, Russia.
BB:	coll. B. Bordy, Le Val Saint-Eloi, France.
BMNH:	The Natural History Museum (ex British Museum, Natural History), London, United Kingdom.
CAS:	California Academy of Sciences, San Francisco, USA.
Cirad–CBGP:	Centre de coopération internationale en recherche agronomique pour le développement, UMR Centre de Biologie pour la Gestion des Populations, Montpellier, France.
DEI:	Deutsche Entomologisches Institut, Eberswalde, Germany.
DS:	coll. D. Sassi, Castelmarte, Italy.
DBET:	Department of Biodiversity and Evolutionary Taxonomy, University of Wroclaw, Wroclaw, Poland.
EGS:	coll. E. Gowing-Scopes, Halstead, United Kingdom.
ER:	coll. E. Riley, Texas University, USA.
FK:	coll. F. Kantner, Lipi, Czech Republic.
FMNH:	Field Museum of Natural History, Chicago, USA.
HNHM:	Hungarian Natural History Museum, Budapest, Hungary.
IRSN:	Institut Royal des Sciences naturelles, Bruxelles, Belgique.
ITZ:	Instituut voor Taxonomische Zoölogie, Amsterdam, The Netherlands.
LS:	coll. L. Sekerka, Department of Zoology, Faculty of Biological Sciences, University of South Bohemia, České Budějovice, Czech Republic.
LU:	Zoological Museum, Lund University, Lund, Sweden.
MCSNC:	Museo Civico di Storia Naturale, Carmagnola, Italy.
MCSNV:	Museo Civico di Soria Naturale, Verona, Italy.
MCZC:	Museum of Comparative Zoology, Cambridge, USA.
MIZPAS:	Museum and Institute of Zoology, Polish Academy of Sciences, Warszawa, Poland.
MKB:	Museum Alexander König, Bonn, Germany.
ML:	coll. M. Langer, Lichtenwalde, Germany.
MM:	Manchester Museum, Manchester, United Kingdom.
MNHN:	Muséum national d'Histoire naturelle, Paris, France.
MO:	coll. M. Ouda, Plasy, Czech Republic.
MRAC:	Musée royal d'Afrique centrale, Tervuren, Belgique.
MS:	coll. M. Snižek, České Budějovice, Czech Republic.
NMP:	Narodni Muzeum, Prague, Czech Republic.
NMW:	Naturhistorisches Museum, Vienna, Austria.
NNML:	Nationaal Natuurhistorisch Museum, Leyden, The Netherlands.
NRS:	Naturhistoriska Riksmuseet, Stockholm, Sweden.
SD:	coll. S. Doguet, Fontenay-sous-Bois, France.
SEM:	Snow Entomological Museum, Lawrence, USA.
SMF:	Senckenberg Museum, Frankfurt-am-Main, Germany.

SMNS:	Staatliches Museum für Tierkunde, Stuttgart, Germany.
SZ:	coll. S. Zoia, Milano, Italy.
UA:	coll. U. Arnold, Berlin, Germany.
UH:	coll. U. Heinig, Berlin, Germany.
ZMC:	Zoologisk Museum, Copenhagen, Denmark.
ZMHU:	Zoologisches Museum, Humboldt Universität, Berlin, Germany.
ZMUF:	Zoological Museum, Firenze University, Firenze, Italy.

Chrysomelidae Cassidinae

Cassidinae GYLLENHAL, 1813, proposed as "cassidites" group within Chrysomelidae. For many years treated as a sister group to the subfamily Hispinae GYLLENHAL, 1813. Now cassids and hispids form an unite subfamily Cassidinae GYLLENHAL, 1813, but in this volume cassids have been treated as traditional group called "tortoise beetles" and concerning only tribes of "true" cassids *sensu* BOROWIEC (1995 a).

Catalogues

GEMMINGER and HAROLD, 1876: 3823 pp. – SPAETH, 1914: 182 pp. – BOROWIEC, 1999: 476 pp. – BOROWIEC and ŚWIĘTOJAŃSKA (permanent internet catalogue: http://culex.biol.uni.wroc.pl/cassidae/katalog%20internetowy/index.htm).

Type genus

Cassida LINNAEUS, 1758.

Diagnosis

Small to moderately large chrysomelid beetles (3.0-25 mm). Body in most species stout, broad, circular in outline, only in primitive groups more or less elongate. In most species, the sides of pronotum and elytra strongly explanate, head covered by explanate margin of pronotum and not visible form above, only in primitive tribes head exposed. Body colour in primitive tribes with species of large body size (Omocerini, Mesomphaliini, Goniocheniini) usually metallic, in specialised tribes (Aspidimorphini, Cassidini) usually green in life and yellow in dried specimens, with or without dark pattern. Many species have in life metallic structural colours, but in dried specimens the irridescence disappears.

Head round, opisthognathous, mouthparts runs obliquely backwards. Clypeus usually broad and elongate, forms a plate with more or less developed frontal grooves, only in primitive tribes (Basiprionotini) clypeus short, forms a transverse ridge. Labrum transverse, often with median emargination. Structure of clypeus is one of the most important taxonomic and diagnostic characters. Mentum and maxillae uniform, maxillary palpi 4-segmented, labial palpi 3-segmented. Mandibles stout with margin usually armed by a few teeth, but in some specialised species (tribe Aspidimorphini) the mandibles have only a cutting edge, without sharp teeth.

Antennae placed on apex of head, their bases almost touching each other, 11-segmented, usually filiform, elongate, with apical segments not or only slightly wider than basal segments, but sometimes with more or less distinct club (tribe Notosacanthini).

Basal segments smooth, distal pubescent. Number of smooth basal segments, length ratio between segments 2, 3, and 4, and length/width ratio of distal segments are very important diagnostic characters.

Pronotum usually semicircular or elliptical, sometimes inversely trapezoidal, with or without basal angles, never with anterior angles, sides from broadly rounded to angulate. Structure of elytra surface varies from smooth and shiny to punctate, irregular or rugose. Surface of elytral disc only occasionally with special structures like tubercles or elongate ribs. Explanate margin of pronotum from impunctate, to as strongly punctate as disc, often its surface irregular to wrinkled. In specialised tribes explanate margin usually transparent with honeycomb structure. Venter of pronotum, along heads, in many taxa with more or less developed groove to hide basal part of antenna. In some genera (e.g. *Chiridopsis*) the groove is deep and margined externally by a sharp carina. Prosternum well developed, always forming a prosternal process, from as wide as to strongly wider than anterior coxa, usually strongly widened apically. Scutellum usually well visible, triangular or pentagonal.

Elytra usually broad, with broad explanate margin, only in primitive tribes elytra elongate with narrow margins. Explanate margin usually separated from disc by a marginal row of punctures, sometimes disappearing between irregular elytral puncturation. Disc depressed to strongly convex, in many species with more or less developed postscutellar elevation, sometimes forming a conical postscutellar tubercle, occasionally only posterior part of disc with small tubercles. Puncturation of disc from regular to completely irregular, sometimes disc with longitudinal carinae, or with irregular folds and wrinkles. Explanate margin of elytra from impunctate, to as strongly punctate as disc, often its surface irregular to rugose. In specialised tribes explanate margin usually transparent with honeycomb structure. In the tribe Notosacanthini structure of elytral surface is unique, with several costae, tubercles and large pores. Elytral epipleura well developed, their apes often pubescent.

Anterior coxal cavities closed. Anterior and mid coxa round, posterior coxa transverse. Femora always free, no femoral plates. Legs moderately stout to slim, in specialised tribes in living beetles only tarsi are visible from above, tibiae and femora are hidden by explanate margins of pronotum and elytra. Femora simple, only in a few genera with small tubercles apically. Tibiae usually simple, straight to only slightly curved, not or only shallowly emarginate apically. Tarsi 4-segmented, third segment bilobate. Fourth segment in most species not extending behind setae surrounding the third segment. In some genera fourth segment short, not extending behind anterior margin of third segment (Notosacanthini) or elongate, extending distinctly behind setae surrounding apex of third segment (some genera of Cassdini). Claws simple (Notosacanthini, Basiprionotini, Omocerini, Physonotini, many genera of Cassidini), or on internal or both internal and external margin pectinate (Aspidimorphini and some Neotropical genera of Cassidini), or with basal tooth (some genera of Cassidini, Mesomphaliini). In some genera of Cassidini claws simple but appearing appendiculate due to distally

projecting flanks of last tarsal segment. Structure of claws is very important taxonomic and diagnostic character.

Genitalia

Genitalia in Cassidinae are very uniform and usually do not offer diagnostic characters. Male genitalia are reduced to a tubular aedeagus, without lateral lobes. Internal sac unarmed or with single or few uniform sclerites. Because of their uniformity the male genitalia are not figured in this monograph. Spermatheca also uniform, in some specialised genera weakly sclerotised and difficult to precise preparation. Structure of spermatheca were used in some taxonomic papers, especially as diagnostic character in some primitive Neotropical taxa (Borowiec and Skuza, 2004), or in some groups of the genus *Cassida* (Bordy and Doguet, 1987; Borowiec and Świętojańska, 2001), but in most genera spermathecae are uniform and do not offer diagnostic characters. Thus, in this monograph spermathecae are not illustrated.

Sexual dimorphism

Usually indistinct. Males usually slightly smaller and stouter than females, only in some tribes with strong male competition (especially Mesomphaliini or Omocerini) males usually larger than females. In many specialised taxa (Aspidimorphini, some genera of Cassidini) antennae in males more or less distinctly longer than in females, especially distal segments tend to elongation. In the tribe Notosacanthini, males often have different structure of elytral tubercles than females. An unique dimorphic character was observed in some species of *Notosacantha* where females have 10–segmented antennae, while males typical 11-segmented. The structure is the result of a fusion of two distal club segments.

Systematics

The Cassidinae *sensu stricto* are divided into 13 tribes:

– Aspidimorphini of six genera distributed in tropics and subtropics of the Old World including Madagascar;

– Basiprionotini of eight genera distributed mostly in tropical Asia and few taxa in Africa and Madagascar;

– Cassidini of approximately 87 genera in all regions, 42 in the Old World and 46 in the New World (only one genus *Cassida*, common to both Old and New Worlds);

– Delocraniini with only single genus in Neotropics;

– Dorynotini of five genera in Central and South America;

– Eugenysini of three genera in Central and South America;

– Goniocheniini of five genera in Central and South America;

– Hemisphaerotini of two genera from complete New World, including North America;

– Mesomphaliini of 24 genera from Central and South America and few taxa in North America;

– Notosacanthini with only two genera, one small (*Herminella*) with two species in tropical Africa, and one very large (*Notosacantha*) in all tropical and subtropical portions of the Old World;

– Omocerini of seven genera in Central and South America;

– Physonotini of seven genera in the New World with its centre of distribution in Central America;

– Spilophorini of two genera in Central and South America (the tribe was recently fused with South American tribe Oediopalpini of hispine beetles and then comprises 3 genera).

Old World members belong to the only four tribes, but some Old World genera are the most speciose within Cassidinae (*Cassida* with 429 described species, *Notosacantha* 264 species, *Aspidimorpha* 198 species, while the most speciose New World genera include *Stolas* with 186 species, *Charidotis* 162 species, *Microctenochira* 110 species, and *Charidotella* 100 species).

Biology

Cassidinae like most of other chrysomelid beetles are phytophagous, mostly exophagous, only members of the tribe Notosacanthini are leaf miners. From 2982 described species of Cassidinae beetles, host plants are known only for approximately 450 (15.9%). The following plant families have been recorded as hosts (in brackets number of plant species attacked by beetles): Asteraceae (130), Convolvulaceae (82), Solanaceae (42), Chenopodiaceae (38), Lamiaceae (30), Boraginaceae (25), Arecaceae (22), Caryophyllaceae (22), Bignoniaceae (17), Amaranthaceae (16), Verbenaceae (11), Rosaceae (7), Acanthaceae (6), Rubiaceae (5), Rhamnaceae (4), Cucurbitaceae (2), Euphorbiaceae (2), Oleaceae (2), Ranunculaceae (2), Apocynaceae (1), Betulaceae (1), Brassicaceae (1), Discoceraceae (1), Hamamelidaceae (1), Lecythidaceae (1), Malvaceae (1), Meliaceae (1), Mimosaceae (1), Moraceae (1), Poaceae (1), Rhizophoraceae (1), Rutaceae (1), Sterculiaceae (1), and Theaceae (1). The plant families with the greatest number of beetle species include: Convolvulaceae (174), Asteraceae (75), Boraginaceae (28), Chenopodiaceae (24), Solanaceae (22), Lamiaceae (15), and Arecaceae (10). Only members of the tribes Hemisphaerotini, Delocraniini, and Spilophorini feed on monocotyledons, most species are associated with dicotyledons. Some species of Hemisphaerotini were observed as feeders of both mono- and dicotyledons but this information needs verification. Cassidinae have no economic importance, only a few species have been recorded plant pests, mostly of beets, sweet potatoes, and palms. A few species were tested as potential biological controls for some Asteraceae plants introduced from Africa to Australia, and Solanaceae plants introduced from South America to southern Africa (Siebert, 1975; Kleinjan and Scott, 1996).

Larval and pupal morphology

Immature stages in the subfamily Cassidinae are poorly known. BOROWIEC (1999) lists 2760 species in the subfamily, but various immatures were described for approximately 212 species (7.7%), especially from the Holarctic Region (BOROWIEC and ŚWIĘTOJAŃSKA, 2002, unpublished data). Most descriptions are superficial and refer to the last instar larva and pupa (ŚWIĘTOJAŃSKA, 2009).

First instar larva was described in detail firstly for one European species, *Cassida nebulosa* L., type species of the subfamily (BOROWIEC and ŚWIĘTOJAŃSKA, 2003), and first instars of few other species were described recently (ŚWIĘTOJAŃSKA, 2004, 2005a, 2005b). The first instar differs from instars 2-4 in elongate scoli of abdominal segments VII and VIII and presence on dorsal side and ventral part of abdomen cauliflower shaped sensilla in opposition to the needle shaped setae of mature instars. Head is oval, opisthognathous, with distinct endocarina but without epicranial and frontal sutures. Fronto-clypeal and clypeo-labral sutures usually present. Antennae 2-, occasionally 3-segmented. Ocelli six. No hypopharyngeal sclerite, anterior labral margin emarginate. Surface and margins of labrum with more than 8 setae, their number and position is of diagnostic value. Mandibles stout, usually palmate with 5 + 1 teeth, without penicillus, and with two mandibular setae. Maxillary palpi 2-segmented, galea and lacinia fused, postmentum with 6 setae. Thorax and abdomen without egg busters. Spiracles 9 pairs, annular and biforous. Dorsum with clubbed setae, or cauliflower-shaped sensilla, no dorsal ampullae. Abdomen without anal plate. Sides of body usually with 16 pairs of scoli, in primitive tribes two thoracic pairs of scoli reduced to small tubercles and sides of body with only 14 pairs of large scoli. Scoli of thorax and abdominal segments I–VI moderately elongate, apically with more or less elongate clubbed seta. Scoli of segments VII and VIII elongate, with or without apical clubbed setae or with single seta. Abdominal segment IX with very long pair of supra–anal processes (also called furci, caudal forks, or caudal processes), without urogomphi. Legs stout, with quite constant chaetotaxy, tibio-tarsal paronychium usually absent. Claws stout, with basal seta, usually without pulvillus.

Mature, five larval instar more diverse than first instar, usually with stouter lateral scoli, those of abdominal segments VII and VIII of similar shape than scoli of anterior abdominal segments. Two first pairs of thoracic scoli fused basally. Surface of lateral scoli usually with numerous lateral branches but in some species scoli short, and their surface without branches, or scoli appear squamose. Spiracles 9 pairs. Supra-anal processes in most species are bent dorsally and anterad and larvae carry the faecal matter along with the previous larval skins on the supra-anal processes forming faecal shield to camouflage. Faecal shield is of various shapes from triangular plate, or elongate filaments, to the structure appearing like bird nest. In some species, the shield is composed only from previous larval skins (exuviae) or larvae have no shield. Only in the tribe Notosacanthini the mature larva is completely different because of its mining life. It is elongate, with prognathous head, very short scoli, without supra-anal processes (RANE *et al.*, 2000).

Pupae of Cassidinae are quite uniform (Cox, 1996a). It is open type, variously coloured, yellow, green, brown, shiny black, often maculate. Cuticle often microspiculate. Head usually glabrous or finely setose with 2-3 setae in frons, 2-3 on vertex, 1-3 on labrum, and 1-3 on mandible. Antennal segments usually with 3 papillae. Pronotum and abdominal segments 1-5 with lateral processes (scoli), in specialised tribes also segments 6-8 with lateral scoli. Apical segment with supra-anal processes. Legs glabrous or setose. Pupa often with exuvia of last larval instar, or exuviae of all instars 1-5, sometimes with faecal mass.

Parasites, natural enemies and phoresy

Parasitic and phoretic mites associated with Cassidinae were summarised by Santiago-Blay and Fain (1994). They list 36 species of mites collected on cassids, belonging mostly to phoretic groups, including the Canestriniidae and Heterocoptidae, which represent interesting co-evolutionary examples of co-existence because many mite species are associated with a single beetle genus or species. Several new species of phoretic and parasitic Acarina associated with Cassidinae from the families Canestriniidae, Erythraeidae, and Heterocoptidae have been described recently by Haitlinger (1991, 1992, 1993 a, b, 1994, 1996, 1998 a, b, 1999 a, b, 2002). Cox (1994) lists all Hymenoptera and Diptera parasites associated with Chrysomelidae, and Cox (1996b) presents all known insect predators of Chrysomelidae but only several species were observed as parasites or predators of Cassidinae. Imagines and immature stages do not have a wide range of predators. Like many other chrysomelid beetles, Cassidinae are poisonous for most of vertebrates except some bird species. Observations of cassidines being attacked by predators include mostly predacious Heteroptera, Diptera (Asilidae), and some spiders (Aranei). Eggs were attacked by Neuroptera and Hymenoptera. Larvae of many Cassidinae have well developed defence strategies, such as cycloalexy, chemical defence mechanisms, and special structures like exuvial and faecal shields for camouflage. Such specialised behaviour suggested more wide range of predators and parasites than observed hitherto.

Key to Malagasy genera

1. Head exposed, visible from above ..... **2.**
–. Head completely hidden by pronotum ..... **4.**
2. Antennae stout, not clavate, at least apical segments with longitudinal striation. Explanate margin of pronotum very narrow, without pores. Elytral disc without transverse costae and without tubercles ..... **3.**
–. Antennae subclavate, without longitudinal striation. Explanate margin of pronotum broad, with large pores. Elytral disc often with transverse costae or/and with tubercles ..... ***Notosacantha***
3. Mouthparts partly free. Apical antennal segments cylindrical, with approximately circular cross-section. Body elongate parallelsided to elongate-oval ..... ***Androya***
–. Mouthparts hidden by prosternal collar. Apical antennal segments flattened, with elliptical cross–section. Body broadly-oval ..... ***Cassidopsis***
4. Inner margin of claws pectinate ..... **5.**
–. Inner margin of claws simple or with basal tooth ..... **7.**
5. Antennae with six basal, glabrous segments ..... **6.**
–. Antennae with only four basal glabrous segments ..... ***Mahatsinia***
6. Prosternal collar large, with angulate corners, prosternal process canaliculate longitudinally. Elytral and pronotal sculpture strong, with irregular wrinkles, often appears rugose. Elytral disc always tuberculate. Claws pectinate only on inner margin ..... ***Laccoptera***
–. Prosternal collar short, without angulate corners, prosternal process not canaliculate longitudinally. Elytral and pronotal sculpture usually faint, pronotal disc often smooth and shiny, elytral disc only occasionally appears wrinkled. Elytral disc tuberculate or not. Claws pectinate on only inner or both inner and outer margin ..... ***Aspidimorpha***
7. Antennae with at least four basal glabrous segments ..... **8.**
–. Antennae with only three basal glabrous segments, extremely long and thin, filiform ..... ***Hovacassis***
8. Prosternal collar without lateral emargination ..... **9.**
–. Prosternal collar with lateral emargination. Base of pronotum in front of humerus with deep emargination ..... ***Sphenocassis*** (part)
9. Tarsal claws with basal tooth, sometimes very small ..... **10.**
–. Tarsal claws simple ..... **11.**
10. Venter of pronotum with deep antennal groove, bordered externally by a sharp carina ..... ***Chiridopsis***
–. Venter of pronotum without antennal groove ..... ***Cassida*** (part)
11. Venter of pronotum without antennal groove ..... **14.**
–. Venter of pronotum with antennal groove ..... **12.**

12. Puncturation of elytra irregular, pronotal disc punctate ..... ***Sphenocassis*** (part)
–. Puncturation of elytra regular, pronotal disc impunctate ..... ***Chiridopsis*** (part)
13. Clypeus not elevated or only apically slightly elevated. Elytral disc immaculate or with pattern which only occasionally forms black spots on brown background ..... **14.**
–. Clypeus distinctly elevated. Elytral pattern with black spots on brown background ..... ***Andevocassis***
14. Pronotal base simple, basal corners not protruding backwards .....**15.**
–. Pronotal base bisinuate, basal corners distinctly protruding backwards .... ***Cassida*** (part)
15. Prosternal collar long, also head cavity with distinct collar. Elytra uniformly green or yellow, irregularly punctate, marginal row distinct only in anterior half of border of disc ..... ***Tegocassis***
–. Prosternal collar short, head cavity usually without collar. Elytra from uniformly green to maculate, often regularly punctate, marginal row usually distinct on whole length of border of disc ..... ***Cassida*** (part)

Tribe Basiprionotini Hincks, 1952

Genus *Androya* Spaeth, 1911

Androya Spaeth, 1911: 239 [type species: *Metriopepla rubrocostata* Fairmaire, 1898, designated by Hincks, 1952] . – Hincks, 1952: 331. – Seeno and Wilcox, 1982: 171. – Borowiec, 1994: 19; 1999: 66.

Diagnosis

Primitive cassids of hispoid appearance. Elongate oval to elongate. Explanate margin of pronotum and elytra extremely narrow. Head visible from above. Pronotum trapezoidal with shallowly emarginate anterior margin. Elytra depressed to regularly convex, regularly or irregularly punctate, sometimes with longitudinal costae. Prosternal collar large but mouthparts mostly free. The distance between antennal insertions as wide as or slightly wider than the first antennal segment. Antennae stout, apical segments dull and longitudinally punctate to striate. Claws simple.

Distribution

Endemics to Madagascar.

Key to species

1. Elytral puncturation mostly regular (fig. 1, 6) ..... **2.**
–. Elytral puncturation mostly irregular (fig. 11, 16) ..... **3.**
2. Elytra without costae (fig. 6), intervals 3 and 5 only slightly wider than the neighbouring ones. Body broad, oval, sides of elytra regularly rounded. Pronotum black, elytra brown ..... ***A. obscuricollis*** (Fairmaire)

–. Elytral intervals 3 and 5 twice wider than the neighbouring ones, convex, form longitudinal costae (fig. 1). Body narrow, almost parallelsided. Pronotum and elytra yellow to brown ..... ***A. longula*** (FAIRMAIRE)

3. Surface of pronotum impunctate (fig. 16). Elytra without distinct longitudinal costae, intervals 3 and 5 only slightly convex. Body uniformly yellow to black ..... **4.**

–. Surface of pronotum strongly punctured (fig. 11). Elytra with distinct longitudinal costae, intervals 3, 5, 7, and 9 strongly convex. Elytra metallic blue with reddish–brown costae ..... ***A. rubrocostata*** (FAIRMAIRE)

4. Pronotum with median, longitudinal impression. Puncturation of elytra finer, intervals 3 and 5 wider ..... ***A. impressicollis*** (FAIRMAIRE)

–. Pronotum without median, longitudinal impression. Puncturation of elytra coarser, intervals 3 and 5 narrower ..... ***A. tenuecostata*** (FAIRMAIRE)

Androya impressicollis (FAIRMAIRE, 1901)

Metriopepla impressicollis FAIRMAIRE, 1901b: 246. – WEISE, 1910: 504.
Androya impressicollis: SPAETH, 1911: 240; 1914: 20. – BOROWIEC, 1994: 20; 1999: 66.

TYPE MATERIAL

Holotype: « Hukuru Perru » [= causses de l'Ankara] (*H. PERRIER DE LA BÂTHIE*) [MNHN].

DESCRIPTION

Length: 7.9 mm, width: 3.9 mm, pronotum length: 1.3 mm, pronotum width: 3.3 mm. Body elongate oval.

Uniformly yellow, only the last antennal segment infuscate, and basal pronotal and elytral serrulation black.

Pronotum trapezoidal, anterior margin shallowly emarginate. Sides straight, basal margin except praescutellar lobe almost straight, strongly serrulate. Anterior corners obtuse. Disc with longitudinal medial impression, on each side with oblique furrow connected with lateral impression and irregular impression slightly behind the middle, and with two pits close to basal margin. Explanate margin very narrow, deeply impressed, forms a narrow gutter. Marginal fold of each side of pronotum broad, especially in anterior third.

Scutellum subpentagonal. Base of elytra as wide as base of pronotum. Maximum width of elytra slightly behind the middle. Basal margin strongly serrulate. Disc depressed, puncturation between intervals irregular, but each interval margined by regular row of large punctures. Space between punctures distinctly smaller than puncture diameter. Intervals 1, 3, 5, 7, 9 impunctate and slightly elevated but do not form distinct costae. Marginal row distinct. Explanate margin very narrow, forms a gutter, impunctate, glabrous, side double margined. Surface of elytra between punctures glabrous.

Head large. Clypeus extremely short, sharply margined, antennal insertions almost touching anterior margin of clypeus. Labrum very narrow, transverse. Antennae stout, in male the first antennal segment distinctly larger than in female. Length ratio of antennal segments: 100:52:72:76:80:80:84:88:88:88:140. Segment 3 distinctly wider than 2.

Prosternal collar large, without transverse sulci. Prosternal process strongly expanded apically, in the middle with distinct impression.

Legs stout, unmodified, tarsi broad, the last segment slightly longer than the third but not extending behind marginal setae. Claws simple, without micropecten.

Bionomics and host plant unknown.

DISTRIBUTION

MADAGASCAR.

REMARKS

Androya impressicollis is known from a single, not fully sclerotized and partly damaged specimen. It is very similar to *A. tenuecostata*. Both species are uniformly yellow or brown, with no metallic tint, uneven intervals do not form distinct costae, puncturation of even intervals mostly irregular. *A. impressicollis* differs in pronotal disc with median, longitudinal impression (regularly convex in *A. tenuecostata*), pronotal puncturation smaller, and uneven intervals slightly broader. Lateral margin of pronotum in anterior third is in *A. impressicollis* distinctly wider than in posterior half, while in *A. tenuecostata* this margin in the anterior third is as wide as in posterior half.

MATERIAL EXAMINED

No additional material.

Androya longula (FAIRMAIRE, 1901)

(fig. 1-5, 318, map 1)

Metriopepla longula FAIRMAIRE, 1901a: 84. – WEISE, 1910: 504.
Androya longula: SPAETH, 1911: 240; 1914: 20. – BOROWIEC, 1994: 22; 1999: 66 .

TYPE MATERIAL

11 syntypes: MADAGASCAR SUD: « Plateau de l'Androy, Rég. d'Ambovombe » [2 MNHN « *ex typis* », 8 MM, 1 LB].

DESCRIPTION

Length: 7.0-8.1 mm, width: 3.3-3.8 mm, pronotum length: 1.7-1.9 mm, pronotum width: 3.0-3.4 mm. Body elongate, parallelsided (fig. 1, 318).

Head, pronotum and elytra uniformly yellow to brown, elytral punctures usually with darker centre. Ventrites dark brown, margins of thoracic plates often darker, blackish. Antennae black with the exception of two basal segments, which are dark brown on upperside, pale brown to brown on underside.

Pronotum trapezoidal, anterior margin shallowly emarginate, anterior corners rounded. Sides in front of the middle slightly concave. Basal margin slightly bisinuate. Disc regularly convex, without median impression or carina, with deep oblique impression on sides near to base, in the middle with two small pits. Surface of disc impunctate, glabrous. Explanate margin very narrow, forms a deep gutter.

Scutellum subpentagonal. Base of elytra as wide as base of pronotum. Elytral disc regularly convex (fig. 2). Uneven intervals convex, form longitudinal costae, even intervals flat, each with two regular rows of punctures, only the last interval between two regular rows with additional irregular punctures. Marginal row distinct. Surface of disc smooth, glabrous. Explanate margin very narrow, forms a shallow gutter. Lateral margin double margined.

Head large, clypeus very short, as long as the second antennal segment (fig. 3). Antennae short, length ratio of antennal segments: 100:50:86:81:77:77:81:81:81:81:131. Segment 2 very short, segment 3 about twice longer than 2 (fig. 5).

Prosternal collar large, with sides distinctly angulate, without transverse sulci. Prosternal process moderately expanded apically (fig. 3), with shallow impression.

Legs stout, unmodified. Tarsi moderately broad, the last segment distinctly longer than the third but not extending behind marginal setae. Claws simple (fig. 4).

Bionomics and host plant unknown.

DISTRIBUTION

MADAGASCAR EST, MADAGASCAR SUD (map 1).

REMARKS

Androya longula is a unique species. It is the only species with elytra longitudinally costate and regularly punctate. Only *A. rubrocostata* has regular longitudinal costae but differs in pronotal disc strongly punctate (impunctate in *A. longula*) and elytra with metallic tint (yellow to brown in *A. longula*). *A. obscuricollis* has also regular rows of punctures but differs in broad body (elongate in *A. longula*) and elytra without costae (costate in *A. longula*).

MATERIAL EXAMINED

MADAGASCAR EST: – S. Baie d'Antongil [MNHN, 2 ex.].

MADAGASCAR SUD: – Ambovombe [LB, 1 ex.]. – Plateau de l'Androy, Rég. d'Ambovombe (*J. DECORSE*) [MNHN, 1 ex.].

Androya obscuricollis (FAIRMAIRE, 1903)

(fig. 6-10, 319, map 1)

Metriopepla obscuricollis FAIRMAIRE, 1903: 10. – XAMBEU, 1906: 151 (bionomy). – WEISE, 1910: 504.
Androya obscuricollis SPAETH, 1911: 241; 1914: 20 (as syn. and hom.). – BOROWIEC, 1994: 24; 1999: 66.

TYPE MATERIAL

Metriopepla obscuricollis FAIRMAIRE: 8 syntypes: MADAGASCAR NORD: Diégo-Suarez [= Antsiranana] [MM]. No syntype found in the MNHN.
Androya obscuricollis SPAETH: see remarks below.

DESCRIPTION

Length: 9.2-10.5 mm, width: 5.4-6.0 mm, pronotum length: 2.2-2.6 mm, pronotum width: 4.5-4.9 mm. Body elongate oval, with maximum width in the middle (fig. 6, 319).

Head, pronotum, scutellum, thorax, legs, and antennae black. Elytra brown, abdomen brown, basal sternites more or less infuscate.

Pronotum trapezoidal, anterior margin shallowly emarginate. Sides straight, anterior corners broadly rounded. Basal margin except praescutellar lobe almost straight, serrulate. Disc regularly convex, with no distinct impressions, median pits small, shallow, in some specimens hardly marked. Surface of disc smooth, glabrous. Explanate margin very narrow, in posterior half slightly broader than in anterior, gutter–like.

Scutellum almost semicircular. Elytral base as wide as pronotal base. Disc depressed (fig. 7), with 9 regular rows of punctures, only the last interval irregularly punctate. Punctures small, distance between punctures c. half puncture diameter. All intervals flat or only slightly convex, uneven intervals only slightly wider than even ones. Surface of intervals smooth, glabrous. Marginal row distinct. Explanate margin forms a gutter, narrow, about as wide as the last interval. Lateral margin double margined.

Head large. Clypeus very short, as long as length of the second antennal segment (fig. 8). Labrum very narrow, transverse. Antennae short, but longer than in other species of the genus. Length ratio of antennal segments: 100:51:96:110:96:100:103:89:89:100:134. Segment 2 very short, c. twice shorter than 3 (fig. 10).

Prosternal collar large, without transverse sulci, prosternal process strongly expanded apically, in the middle with deep pit, and often with longitudinal shallow impression (fig. 8).

Legs stout, unmodified. Tarsi broad, the last segment distinctly longer than the third, extending behind marginal setae. Claws simple (fig. 9).

Bionomics and host plant unknown.

DISTRIBUTION

MADAGASCAR NORD (map 1).

REMARKS

Androya obscuricollis is the largest species in the genus. It differs distinctly in regularly punctate elytra without longitudinal costae. It is the only species with black pronotum. At first glance it resembles *Pseudandroya livigstonei* from Africa, but *A. obscuricollis* distinctly differs in free mouth parts, and pronotal base not bisinuate.

FAIRMAIRE (1903) described *Metriopepla obscuricollis* from a series of 8 specimens collected in Diégo-Suarez [= Antsiranana]. The series was not marked with type

label. Eight years later SPAETH (1911) examined the same series of specimens but he overlooked the description of FAIRMAIRE (1903) and proposed a new species *Androya obscuricollis* (based on handwritten *obscuricollis* name on label). Thus, the name *Androya obscuricollis* SPAETH, 1911 is objective synonym and homonym of *Androya obscuricollis* (FAIRMAIRE, 1903).

MATERIAL EXAMINED

MADAGASCAR NORD : – Amber Geb [= Montagne d'Ambre] [ZMHU, 1 ex.]. – Mt. d'Ambre [MNHN, 8 ex.]. – Mt. d'Ambre (*SICARD*) [ZMHU, 1 ex.]. – Diégo-Suarez [= Antsiranana] [ZMHU, 1 ex.]. – Diégo-Suarez [= Antsiranana], Montagne d'Ambre [LB, 1 ex.]. – Madagascar, 1930 [LB, 5 ex].

Androya rubrocostata (FAIRMAIRE, 1898)

(fig. 11-15, 321, 322, map 2)

Metriopepla rubrocostata FAIRMAIRE, 1898a: 258 – WEISE, 1910: 504. – HINCKS, 1952: 331.
Androya rubrocostata: SPAETH, 1911: 240; 1914: 20. – BOROWIEC, 1994: 26; 1999: 66.

TYPE MATERIAL

3 syntypes: MADAGASCAR SUD: – « Plateau de l'Androy, Rég. d'Ambovombe » [MNHN]. – 7 syntypes: MADAGASCAR SUD: – « Plateau de l'Androy, Rég. d'Ambovombe » [MM]. – syntype: « Madagascar » [MM].

DESCRIPTION

Length: 7.0-9.2 mm, width: 3.9-4.8 mm, pronotum length: 2.0-2.4 mm, pronotum width: 3.5-4.0 mm. Body elongate-oval with maximum width slightly dorsal to the middle portion (fig. 11, 321, 322).

Head, pronotum and elytra metallic blue, except reddish margins and median longitudinal elevation of pronotum and margins and elevated intervals of elytra. In immature, not fully sclerotized specimens, metallic tint absent or indistinct. Pronotal and elytral margins, median longitudinal elevation of pronotal disc, scutellum and elytral costae reddish-brown to purple-red. Ventrites in fully sclerotized specimens dark brown to black, in immature specimens yellowish-brown. Antennae black, except brown ventral side of the first segment.

Pronotum trapezoidal, anterior margin shallowly emarginate, anterior corners rounded. Sides straight, basal margin slightly bisinuate. Disc regularly convex, with narrow, median, longitudinal elevation. Surface of disc strongly, coarsely punctured (fig. 11, 321, 322). Punctures almost touching each other and surface appears irregular. Surface of longitudinal elevation smooth, glabrous. Explanate margin extremely narrow, forms a gutter. The term *gutter* is commonly used in morphology of Cassidinae for explanate margin of elytra U-shaped in cross-section.

Scutellum subpentagonal. Base of elytra as wide as base of pronotum. Disc regularly convex (fig. 12). Uneven intervals form narrow longitudinal costae. Surface between

costae strongly, densely, irregularly punctured. Space between punctures distinctly narrower than puncture diameter. Surface of elevated intervals smooth, glabrous. Marginal row distinct. Explanate margin subhorizontal, very narrow, forms a gutter. Lateral margin double margined.

Head large (fig. 13). Clypeus very short, as long as the second antennal segment. Labrum very short, transverse. Antennae stout, length ratio of antennal segments: 100:45:48:42:45:45:63:54:66:66:112. First segment in male is distinctly larger than in female with external corner angulate. The third segment only slightly longer than the second (fig. 15).

Prosternal collar large, without transverse sulci, prosternal process strongly expanded apically, in the middle with large impression (fig. 13).

Legs stout, unmodified. Tarsi broad, the last segment longer than the third but not extending behind marginal setae. Claws simple (fig. 14). Bionomics and host plant unknown.

DISTRIBUTION

MADAGASCAR CENTRE, MADAGASCAR EST, MADAGASCAR SUD (map 2).

REMARKS

Androya rubrocostata is a unique species. It is the only species of the genus with pronotum and elytra with metallic tint and pronotal disc punctured.

MATERIAL EXAMINED

MADAGASCAR CENTRE: – Ambositra [LB, 1 ex.] . – Tananarive [= Antananarivo][LB, 1 ex.].

MADAGASCAR EST: – forêt de Fito [MRAC, 1 ex.] . – 5 km E of Moramanga, Antsahatsaka, 1000 m, 12–16. XII. 1996 (*BEDNARIK*) [LB, 1 ex.] . – Madagascar (*E. BENSCH*) [LB, 1 ex.].

MADAGASCAR SUD: – Bassin du Mandrare, 1900 [LB, 1 ex.]. – Toliara env., 23–27. XI. 1996 (*J. STOLARCZYK*) [UA, 15 ex., LB, 5 ex.]. – Pays Androy, 1900 [LB, 2 ex.]. – Plateau de l'Androy, Rég. d'Ambovombe [MNHN, 3 ex.].

Androya tenuecostata (FAIRMAIRE, 1899)

(fig. 16-20, 320, map 1)

Metriopepla tenuecostata FAIRMAIRE, 1899b: 556. – WEISE, 1910: 504.
Androya tenuecostata: SPAETH, 1911: 240; 1914: 20. – HINCKS, 1964: 242. – BOROWIEC, 1994: 28; 1999: 66.

TYPE MATERIAL

5 syntypes: MADAGASCAR OUEST: – « Suberbieville [= Maevatanana], H. Perrier » (*H. PERRIER DE LA BÂTHIE*) [4 MM; 1 LB; no syntype found in the MNHN].

DESCRIPTION

Length: 6.2-7.3 mm, width: 3.6-4.0 mm, pronotum length: 1.4-1.6 mm, pronotum width: 2.9-3.2 mm. Body elongate oval with maximum width in or slightly behind the middle (fig. 16, 320).

Body uniformly yellow to brown, only antennal segments 5-11 and basal elytral and pronotal serrulation black. Pronotum trapezoidal, anterior margin shallowly emarginate, head visible from above. Sides straight, anterior corners obtuse. Basal margin except praescutellar lobe almost straight, strongly serrulate. Disc regularly convex, without median longitudinal impression, but with deep transverse subbasal and subapical impressions. Each side of subbasal impression with small pit. Side of disc with indistinct oblique impression. Surface of disc smooth, glabrous. Explanate margin extremely narrow, forms a gutter. Lateral margin of the gutter very narrow, in anterior half as wide as in posterior.

Scutellum subpentagonal. Base of elytra as wide as base of pronotum, anterior margin strongly serrulate. Disc depressed (fig. 17), between uneven intervals irregularly punctured but each uneven interval margined by regular row of punctures. Punctures large and dense, space between punctures smaller than puncture diameter, in marginal interval punctures almost touching each other and surface appears slightly irregular. Uneven intervals impunctate and slightly elevated, as wide as or slightly wider than puncture diameter. Surface between punctures and elevated intervals smooth, glabrous. Marginal row distinct. Explanate margin subhorizontal, very narrow, about twice wider than punctures in marginal row, surface smooth and glabrous. Lateral margin double margined.

Head large. Clypeus extremely short, hardly marked, antennal insertions almost touching anterior margin of clypeus (fig. 18). Labrum very narrow, transverse. Antennae stout, in male the first antennal segment distinctly larger than in female. Length ratio of antennal segment: 100:52:72:76:80:80:84:88:88:88:140. Segment 3 distinctly longer than 2 (fig. 20).

Prosternal collar large, without transverse sulci. Prosternal process strongly expanded apically, in the middle with distinct impression (fig. 18).

Legs stout, unmodified, tarsi broad, the last segment slightly longer than the third but not extending behind marginal setae. Claws simple, without micropecten (fig. 19).

Bionomics and host plant unknown.

DISTRIBUTION

MADAGASCAR OUEST (map 1).

REMARKS

See remarks under *Androya impressicollis*.

MATERIAL EXAMINED

MADAGASCAR OUEST: – Mahajanga [= Majunga] Prov., Mahajamba riv., Ampatika env., 17-19. XI. 1995 (*I. JENIS*) [LB, 1 ex.]. – Mahajanga [= Majunga] distr., Ampatika env., 17-20. XI. 1995 (*J. STOLARCZYK*) [UA, 1 ex.].

Genus *Cassidopsis* FAIRMAIRE, 1899

Cassidopsis FAIRMAIRE, 1899b: 557 [type species: *Cassidopsis basipennis* FAIRMAIRE, 1899, by monotypy]. – HINCKS, 1952: 331. – SEENO and WILCOX, 1982: 172. – BOROWIEC, 1994: 37; 1999: 74.

DIAGNOSIS

Primitive cassids of hispoid appearance. Body stout, broadly rounded on sides. Head visible from above. Pronotum transverse with deeply emarginate anterior margin, and strongly bisinuate basal margin. Antennal insertions touching each other. Antennae stout, apical segments elongatedly punctate to striate. Elytra irregularly punctate. Mouth parts completely hidden by prosternal collar. Claws simple.

DISTRIBUTION

Endemics to Madagascar.

Key to species

1. Pronotum uniformly yellow to brown ..... 2.
–. Pronotum bicoloured, yellow and black, often with blue metallic tint. Elytron black, often with blue metallic tint, and with 6 yellow spots, occasionally elytra rusty with black suture but always without paler convex spots (fig. 324, 325) ..... ***C. perrieri*** FAIRMAIRE
2. Elytron two pale yellow convex spots. Pronotum darker than elytra (fig. 323) ..... ***C. basipennis*** FAIRMAIRE
–. Elytron with four, small black spots. Pronotum and elytra the same colour (fig. 325a) ..... ***C. borowieci*** SEKERKA

Cassidopsis basipennis FAIRMAIRE, 1899

(fig. 21-25, 323, map 3)

Cassidopsis basipennis FAIRMAIRE, 1899b: 557. – WEISE, 1910: 504. – SPAETH, 1914: 20. – HINCKS, 1964: 243. – BOROWIEC, 1994: 38; 1999: 74.

TYPE MATERIAL

5 syntypes: MADAGASCAR OUEST: – « Suberbieville » [= Maevatanana] [MM, LB]. – 1 syntype: « Suberbieville, H. Perrier » [= Maevatanana] (*H. PERRIER DE LA BÂTHIE*) [MM]. – No syntype found in the MNHN.

DESCRIPTION

Length: 6.9-7.7 mm, width: 5.8-6.3 mm, pronotum length: 2.2-2.4 mm, pronotum width: 4.5-4.8 mm. Body stout (fig. 21, 323).

Head, pronotum and scutellum brown, elytra deep yellow, each elytron with two pale yellow, convex spots – one large in the middle of basal margin, and one small slightly

behind the middle of elytron. Ventrites yellow-brown to brown. Legs yellow-brown to brown, tarsi obscure to black. Antennae black, except yellow-brown basal segment.

Pronotum broad, about twice wider than long, anterior margin deeply emarginate, basal margin serrulate and strongly bisinuate, basal corners strongly angulate. Pronotal sides in posterior half almost straight, in anterior half broadly rounded, so that its anterior corners are hardly marked. Disc regularly convex, in the middle with short, narrow median furrow, without impressions. Surface microreticulate and finely, scarcely and shallowly punctate. Distance between punctures distinctly wider than puncture diameter. Explanate margin extremely narrow, broadly marginate.

Scutellum subtriangular. Base of elytra not wider than base of pronotum, sides broadly rounded, elytra in the middle distinctly wider than pronotum. Disc regularly convex (fig. 22), irregularly punctate. Punctures moderately large, scarce, distance between punctures as wide as puncture diameter or distinctly wider. Pale yellow, convex basal spot impunctate or only with a few punctures, spot behind the middle impunctate. No marginal row. Explanate margin about as wide as 1/3-1/2 elytron width, strongly, densely punctate. Punctures about twice larger than those on elytral disc, distance between punctures distinctly narrower than puncture diameter, in some specimens puncturation appears partly rugose.

Head large. Clypeus short, triangular (fig. 23), its surface smooth, glabrous. Antennae stout, sexually dimorphic. In male first segment large, with external margin sharply carinate, in female basal segment unmodified. Five basal segments scarcely punctate and glabrous, six distal segments dull and elongatedly punctate to longitudinally striate. Length ratio of antennal segments (male): 100:25:18:20:20:22:28:23:25:25:48. Segment 3 shorter than 2 (fig. 25).

Prosternal collar large, not angulate on sides, without transverse striation or sulci. Prosternal process strongly expanded apically, with shallow impression (fig. 23).

Legs stout, unmodified. Tarsi broad, the last segment distinctly wider than the third, but not extending behind marginal setae. Claws simple (fig. 24).

Host plant and bionomics unknown.

DISTRIBUTION

MADAGASCAR NORD, MADAGASCAR OUEST (map 3).

REMARKS

A unique species, distinctly differs from both congeners in colour pattern (see key).

MATERIAL EXAMINED

MADAGASCAR NORD: – Antsiranana, Djangoa env., 13. XII. 2002 (*MRACEK*) [LB, 1 ex.].

MADAGASCAR OUEST: – Suberbieville [= Maevatanana][LB, 1 ex., MNHN, 1 ex.]. – Suberbieville [= Maevatanana] (*H. PERRIER DE LA BATHIE*) [ZMHU, 1 ex.].

Cassidopsis borowieci Sekerka, 2007
(fig. 325a, map 3)

Cassidopsis borowieci Sekerka, 2007: 473.

Type material

Holotype: Madagascar Ouest: – « Toliara Pr., Betioky, iii.1992 » [LS].

Description

Length: 5.21 mm, width: 4.11 mm, length of pronotum: 1.17 mm, width of pronotum: 3.05 mm, length/width ratio: 1.27, wide/length of pronotum ratio: 2.61. Body stout, nearly circular (fig. 325a).

Pronotum, scutellum and elytra deep yellow. each elytron with four small black spots of following configuration: one on humerus, one in the middle of elytral plate, one in the middle of slope and one on the apex of slope, the last one is the smallest. Elytral sutura with very narrow black band, disappearing on slope and do not reaching marginalia. Basal margin of elytra and pronotum black. Ventrites including legs uniformly yellow. First antenomere yellowish-brown, remaining deep black.

Pronotum broad, strongly transverse, more than twice wider than long with rounded sides, obtuse anterior angles and angulate hind angles. Disc regularly convex, smooth, shiny with hardly marked median furrow and distinct basal impression. Basal margin of pronotum serrate. nearly whole surface of disc finely, indistinctly and sparsely punctate, distance between punctures many times wider than puncture diameter. Several stronger punctures are in surroundings of median furrow. explanate margin very narrow and broadly marginate.

Scutellum triangular, smooth and shiny. Base of elytra not wider than pronotum and with large black serrulation. Humeral angles rounded, not protruding anterad. Disc regularly convex, irregularly punctate, distance between punctures slightly wider than puncture diameter. Black spots not elevated, with similar puncturation as other parts of disc. Marginal row not distinct, there is only tendency in anterior part to separate marginalia from disc by several regular punctures. explanate margin narrow, punctate and widest in the middle.

Head large, clypeus short, nearly semicircular, its surface smooth and shiny. antennae short and stout, probably sexually dimorphic as antennae in *C. basipennis* but only available specimen is a female. Segments 1-6 smooth, only scarcely punctate with several erected setae. Segment 7 intermediate, basally smooth and nearly glabrous, distally dull and longitudinally striate. Remaining segments dull, more or less haired and longitudinally striate. Length ratio of antennal segments (female): 100:31:34:28:33:37:47:41:41:42:69. Segment 3 is 1.1 times longer than second and 1.2 times longer than fourth.

Prosternal collar large, stout, smooth, shiny, not angulate on sides, strongly expanded apically and with indistinct shallow impression.

Legs stout, unmodified. tarsi broad, the last segment distinctly longer than the third and slightly reaching behind marginal setae. Claws simple.

Host plant and bionomics unknown.

DISTRIBUTION

MADAGASCAR OUEST (map 3).

REMARKS

A unique species, distinctly differs from both congeners in colour pattern (see key).

MATERIAL EXAMINED

No additional material.

Cassidopsis perrieri FAIRMAIRE, 1900

(fig. 26-30, 324, 325, map 3)

Cassidopsis Perrieri FAIRMAIRE 1900: 89. – WEISE, 1910: 504. – SPAETH, 1914: 20. – BOROWIEC, 1994: 40; 1999: 74.

TYPE MATERIAL

6 syntypes: MADAGASCAR OUEST: « Suberbieville » [= Maevatanana] [MNHN, MM, LB].

DESCRIPTION

Length: 7.1-7.7 mm, width: 5.5-5.7 mm, pronotum length: 2.0-2.1 mm, pronotum width: 4.2-4.7 mm. Body stout, but slimmer than in *C. basipennis* (fig. 26, 324, 325).

Head yellow with black vertex. Pronotum yellow with black pattern: two large triangular spots at base of each side of disc, and irregular spot in the middle of disc, sometimes divided into two smaller spots. Black pattern often with indistinct metallic blue tint. Scutellum yellow. Elytra mostly black, sometimes with indistinct blue metallic tint, except yellow explanate margin and six spots of each elytron: one large, circular in the middle of base, one elongate at humerus, one slightly transverse in front of the middle close to suture, two small, round in posterior half of disc close to suture, and one round in posterior half of disc close to lateral margin. In some specimens elytra uniformly rusty yellow only suture narrowly black (fig. 325). Ventrites yellow, legs yellow, knee and tarsi infuscate. Antennae black, except 1-4 basal segments yellowish to brown.

Pronotum broad, more than twice as wide as long. Sides rounded, or in posterior half almost straight, base bisinuate and serrulate. Anterior corners broadly rounded. Disc regularly convex, with no median furrow, without impressions. Surface finely, indistinctly punctate, distance between punctures many times wider than puncture diameter. Surface between punctures glabrous. Explanate margin very narrow, broadly marginate.

Scutellum triangular. Base of elytra not wider than base of pronotum, sides moderately rounded, in the middle elytra distinctly wider than pronotum. Disc regularly convex (fig. 27), scarcely, moderately irregularly punctate, distance between punctu-

res distinctly wider than puncture diameter. Yellow spots not elevated and punctured similarly to black pattern. No marginal row. Explanate margin narrow, not wider than 1/8 elytron width, with several punctures.

Head large, clypeus short, triangular (fig. 28), its surface smooth and glabrous. Antennae short and stout, probably similarly dimorphic to antennae of *C. basipennis,* but only females were available. Length ratio of antennal segments (female): 100:52: 48:52:52:60:68:64:72:68:120. Segment 3 slightly shorter than 2 (fig. 30).

Prosternal collar large, sides not angulate. Prosternal process moderately expanded apically, without or with indistinct impression (fig. 28).

Legs stout. Tarsi broad, the last segment distinctly longer than the third, but not extending behind marginal setae. Claws simple (fig. 29).

Host plant and bionomics unknown.

DISTRIBUTION

MADAGASCAR OUEST, MADAGASCAR EST (map 3).

REMARKS

A unique species, distinctly differs from both congeners in pronotal and elytral pattern.

MATERIAL EXAMINED

MADAGASCAR EST: – Tamatave [= Toamasina] Prov., Ambodinifody, 28. XII. 1996 (*JENIS*) [MS, 1 ex.].

Tribe Aspidimorphini CHAPUIS, 1875

Genus *Aspidimorpha* HOPE, 1840

Aspidimorpha HOPE, 1840: 158 [type species: *Cassida miliaris* FABRICIUS, 1775, by original designation]. – CHAPUIS, 1875: 407. – SEENO and WILCOX, 1982: 175. – BOROWIEC, 1992c: 123; 1994: 12; 1997: 5; 1999: 178. – ŚWIĘTOJAŃSKA, 2001: 21.

Aspidomorpha [!]: AGASSIZ, 1846: 16. – SPAETH, 1914: 67. – HINCKS, 1952: 336; 1962: 243. – GRESSITT, 1952: 460. – GRESSITT and KIMOTO, 1963: 948. – CHEN *et al.*, 1986: 578.

Afroaspidimorpha BOROWIEC, 1997: 7 [type species: *Cassida nigromaculata* HERBST, 1799, by original designation], subgenus (Africa including Madagascar).

Aspidocassis BOROWIEC, 1997: 59 [type species: *Cassida confinis* KLUG, 1835, by original designation], subgenus (Africa including Madagascar).

Dianaspis CHEN and ZIA, 1984: 80 [type species: *Aspidomorpha denticollis* SPAETH, 1932 = *Dianaspis bifoveolata* CHEN and ZIA, 1984, by monotypy]. – BOROWIEC, 1992 c: 124 (as subgenus). – ŚWIĘTOJAŃSKA, 2001: 196, subgenus (Oriental Region).

Iphinoë SPAETH, 1898b: 540 [type species: *Iphinoë ganglbaueri* SPAETH, 1898, by monotypy], homonym (preoccupied by *Iphinoë* Bate, 1856).

Megaspidomorpha SPAETH, 1943: 48, nomen nudum (type species not designated).

Megaspidomorpha HINCKS, 1952: 336 [type species: *Cassida chlorotica* OLIVIER, 1808, by monotypy]. – SEENO and WILCOX, 1982: 175. – BOROWIEC, 1997b: 78, subgenus (Africa).

Neoaspidimorpha BOROWIEC, 1992c: 126 [type species: *Aspidomorpha septemcostata* WAGENER, 1881, by monotypy], subgenus (Australia).

Semiaspidimorpha BOROWIEC, 1997: 96 [type species: *Aspidomorpha chlorina* BOHEMAN, 1854, by original designation], subgenus (Africa).

Spaethia BERG, 1899: 79 (new name for *Iphinoë* SPAETH not Bate, 1856). – SPAETH, 1914 g: 78 (as subgenus of *Aspidomorpha*). – HINCKS, 1952: 336 (as syn. of *Aspidomorpha*). – BOROWIEC, 1997: 127, subgenus (Africa including Madagascar).

Spaethiomorpha BOROWIEC, 1997: 162 [type species: *Aspidomorpha haefligeri* SPAETH, 1906, by monotypy], subgenus (Africa).

Weiseocassis SPAETH, 1932b: 3 [type species: *Aspidomorpha striata* WEISE, 1896 = *Aspidomorpha prasina* WEISE, 1899, by original designation]. – HINCKS, 1952: 337 (as subgenus). – SEENO and WILCOX, 1982: 175. – BOROWIEC, 1997: 165, subgenus (Africa).

DIAGNOSIS

Extremely heterogeneous genus. Strongly specialised beetles with body usually almost circular and very broad explanate margin of pronotum and elytra. Clypeus flat or only slightly elevated. Venter of pronotum always without antennal grooves. Prosternal process expanded apically. Antennae elongate, segment 3 usually distinctly longer than segment 2. External side of tibiae usually canaliculate only in basal and distal parts. Elytra often with conical postscutellar tubercle. Elytral puncturation usually fine, only occasionally strong, subrugose to rugose, regular to completely irregular. Claws with pecten on both sides or external pecten obsolete.

DISTRIBUTION

Tropics and subtropics of the Old World, only two species occurs in eastern part of the Palaearctic Region. Four of 9 described subgenera occurring on Madagascar, none of them endemic to the island.

Key to the subgenera

1. Tarsal claws with distinct pecten on both sides, external pecten sometimes shortened, then elytra with postscutellar tubercle. Third antennal segment usually distinctly longer than fourth. Body varies from oval to circular, elytral puncturation usually fine, if strong then often partly irregular to rugose. Elytral disc varies from regularly convex to gibbous or with postscutellar tubercle ... ***Aspidimorpha* s. str.**

–. Tarsal claws with distinct pecten only on inner side, external pecten very short or obsolete. Elytra usually regularly convex or depressed, rarely gibbous ..... **2.**

2. Elytral puncturation completely irregular ..... **3.**

–. Elytral puncturation regular. Body elongate to elongate–oval. Base of elytra equal to or only slightly wider than pronotum. Pronotal sides subangulate to almost rounded ..... ***Afroaspidimorpha***

3. Base of elytra wider than pronotum. Pronotal sides rounded. Body slightly angulate in profile. Third antennal segment usually not or only slightly longer than the fourth. Surface of elytra appears dull or rugose, explanate margin strongly punctate ..... ***Aspidocassis***

–. Base of elytra not or only slightly wider than pronotum. Pronotal sides angulate. Body regularly hemispherical. Third antennal segment elongate, always distinctly longer than the fourth. Dorsal surface shiny, explanate margin of elytra mostly impunctate ..... ***Spaethia***

Subgenus *Aspidimorpha* s. str.

The most heterogenous subgenus. Usually moderate to large species, length usually above 8 mm. Dorsal coloration variable, from uniformly yellow to variegate. Body varies from elongate oval to circular, base of elytra strongly wider than base of pronotum. Elytral disc varies from depressed to strongly convex, often with postscutellar gibbosity or tubercle. Pronotum elliptical, sides usually rounded. Puncturation of elytra usually regular, punctures fine to moderate, on slope usually smaller than in anterior part of disc, sometimes puncturation large, occasionally puncturation irregular, in extreme case surface of elytra appears rugose. Clypeus with indistinct clypeal grooves. Labrum broad, with distinct median emargination. Claws pectinate on both sides, external pecten occasionally very short. The most speciose subgenus, with 153 species from Afrotropical, Oriental, and Australopapuan regions, two species in eastern Palaearctic Region. In Madagascar 13 species, 11 endemic to the island, and two in common with tropical Africa.

Type species: *Cassida miliaris* FABRICIUS, 1775 (from Oriental and Australopapuan regions).

Key to species

1. Elytral disc unevenly convex, angulate to tuberculate in profile (fig. 38, 44, 50, 56) ..... **3.**

–. Elytral disc evenly convex, without postscutellar angulation or tubercle (fig. 32, 89) ..... **2.**

2. Explanate margin of elytra mostly black with large yellow window and sometimes yellow spot in apical half (fig. 31, 326, 327) ..... ***bertiae*** BOROWIEC

–. Explanate margin of elytra yellow with humeral and posterolateral, reddish to black spots (fig. 88, 350, 351). Generally west African species, probably introduced in Madagascar and La Réunion ..... ***quinquefasciata*** FABRICIUS

3. Elytral disc with postscutellar gibbosity but without conical postscutellar tubercle (fig. 44, 50, 74, 76) ..... **4.**

–. Elytral disc with distinct conical postscutellar tubercle (fig. 56, 62, 68, 83, 95) ..... **6.**

4. Pecten of tarsal claws longer, on inner side extending to 2/5–3/5, on outer side to 1/3 length of claw (fig. 46). Puncturation of elytral disc more dense, arranged mostly in rows. Explanate margin of elytra less declivous, with tendency to form a shallow gutter. Apex of elytral epipleura bare in both sexes ..... **5.**

–. Pecten of tarsal claws shorter, on inner side extending to 1/3, on outer side to 1/6–1/5 length of claw (fig. 52, 78). Puncturation of elytral disc sparse, rows less marked. Explanate margin of elytra more declivous, without tendency to form a gutter. Apex of elytral epipleura bare in male, pubescent in female ..... ***curtidens*** HINCKS

5. Postscutellar angulation more prominent, body in profile gibbous (fig. 50). Inner pecten of claws shorter, extending to 2/5 length of claw (fig. 52). Surface of elytral disc more irregular, with several folds ..... ***densepicta*** HINCKS

–. Postscutellar angulation less prominent. Body in profile rather angulate than gibbous (fig. 74, 76). Inner pecten of claws very long, extending to 1/2–3/5 length of claw (fig. 78). Surface of elytra more regular, without distinct folds ..... ***madagascarica*** BOHEMAN

6. Explanate margin of elytra at least with humeral spots. Body less regularly circular, base of elytra usually wider than base of pronotum (fig. 37, 55, 61, 82, 94) ..... **7.**

–. Explanate margin of elytra without spots. Base of elytra as wide as base of pronotum, body outline regularly circular (fig. 67, 342) ..... ***illustris*** HINCKS

7. Small species, length below 10.7 mm ..... **8.**

–. Larger species, length above 11 mm ..... **11.**

8. Surface of elytra regular, does not appear rugose ..... **9.**

–. Surface of elytra irregular, appears rugose (fig. 329, 330) ..... ***corrugata*** BOROWIEC

9. Smaller, length below 9 mm ..... **10.**

–. Larger, length above 9.5 mm ..... ***extumida*** SPAETH

10. Slimmer, Le/Wi ratio 1.13–1.18. Elytral pattern paler, yellowish to reddish–brown. Posterolateral spot often obsolete (fig. 358, 359) ..... ***vernicata*** FAIRMAIRE

–. Stouter, length/width ratio equal to 1.04. Elytral pattern darker brown, posterolateral spot always present (fig. 340). This species is known only from holotype specimen ..... ***fampanamboensis*** BOROWIEC

11. Surface of elytra without purple elongate spots, more irregular, appears subrugose to rugose (fig. 348, 356) ..... **12.**

–. Surface of elytra with purple elongate spots, more regular, does not appear subrugose or rugose (fig. 353, 354) ..... ***rubroornata*** BOROWIEC

12. Base of elytra as wide as base of pronotum, body outline regularly circular. Surface of elytral disc more distinctly rugose (fig. 348). Body length usually above 13.8 mm ..... ***pontifex*** BOHEMAN

–. Base of elytra slightly wider than base of pronotum, body outline not regularly circular. Surface of elytral disc less distinctly rugose (fig. 356). Body length usually below 13.8 mm ..... ***undulatipennis*** SPAETH

Aspidimorpha (*Aspidimorpha*) *bertiae* BOROWIEC, 1997
(fig. 31-36, 326-328, map 4)

Aspidimorpha (s. str.) *bertiae* BOROWIEC, 1997: 215; 1999: 180.

TYPE MATERIAL

Holotype [MNHN] and 6 paratypes [4 MNHN, 2 LB]: MADAGASCAR OUEST: – « Soalala » (*H. PERRIER DE LA BÂTHIE*). – 2 paratypes: « Soalala » [DBET]. – paratype: MADAGASCAR OUEST: env. de Marovoay, 1911 [DBET].

DESCRIPTION

Length: male: 10.7-11.3 mm, female: 11.4-13.3 mm, width: male: 9.8-10.0 mm, female: 9.5-11.7 mm, length of pronotum: male: 3.4-3.5 mm, female: 3.3-4.1 mm, width of pronotum: male: 6.9-7.2 mm, female: 7.0-8.4 mm, maximum width of explanate margin of elytra: male: 2.2-2.5 mm, female: 2.3-2.7 mm, width of elytral disc: male: 5.1-5.5 mm, female: 5.6-6.7 mm, length/width ratio: male: 1.09-1.13, female: 1.14-1.20, maximum width of elytra/width of pronotum ratio: male: 1.39-1.42, female: 1.32-1.39; width/length of pronotum ratio: male: 2.03-2.06, female: 2.05-2.17. Body short-oval to almost circular (fig. 31, 326, 327).

Pronotum uniformly yellow to rusty yellow. Elytral disc in yellow to rusty yellow with black basal margin and two to three marginal intervals. The margin along sides of disc in the middle extend to fifth or sixth marginal row. Suture usually yellow or only apex brown to blackish. Punctures and principal impression often marked with brown to black. Explanate margin mostly black with large, yellow transparent spot and usually small yellow spot before apex. Clypeus yellow. Ventrites mostly yellow, pro-, meso- and metasternum except side often partly brown to black. Abdomen always yellow. Legs, including coxae, uniformly yellow. Antennae mostly yellow, two last antennal segments black except yellow ventral side of apex of the last segment.

Pronotum narrowly elliptical to semicircular, with maximum width at base, hind angles subangulate, form blunt angle about 90°-100°. Disc moderately convex, smooth, shiny. Explanate margin distinctly bordered from disc, almost horizontal, smooth, shiny.

Scutellum triangular, without or with transverse sulcus or impression. Base of elytra serrulate, slightly to moderately wider than base of pronotum, elytral margins simple. Disc regularly convex with indistinct postscutellar impressions (fig. 32, 328), principal impression small to moderate, no lateral impressions, surface of lateral part of disc slightly irregular. Puncturation of disc regular, on fourth interval sometimes additional irregular punctures. Punctures moderate, on slope slightly smaller than in anterior half of disc, in sutural half of disc at most two times smaller than in dark parts of sides of disc. Scutellar row with 4-6 punctures. Punctures in rows moderately dense to dense, disposed mostly regularly, distance between punctures in groups twice to thrice than puncture diameter, on slope punctures sparsely than in anterior part of disc. Marginal row shallow, its punctures distinctly larger than in submarginal row. Intervals flat, in sutural half of disc five to six times wider than rows, on sides approximately

three times wider than rows, their surface mostly smooth, slightly dull to shiny, with small microreticulation. Explanate margin very broad, moderately declivous, without tendency to form a shallow gutter, impunctate, on pale parts smooth and shiny, on black parts often with irregular transverse wrinkles, sometimes completely smooth. Apex of elytral epipleura bare in male, densely pubescent in female.

Head moderately broad, clypeus 1.65-1.75 times wider than long (fig. 33), glabrous, slightly elevated before antennal insertions, without or with shallow median impression. Labrum emarginate to 1/4-1/3 length. Antennae moderately elongate, extending to 1/5 length of metasternum, length ratio of antennal segments: 100:43:106:86:80:57:71: 69:63:68:114 (fig. 36).

Claws pectinate on both sides, inner pecten with five long teeth extending to 2/5–1/2 length of claw (fig. 34). Outer pecten with three short teeth (the most internal tooth sometimes obsolete), only extending to 1/6–1/5 length of claw (fig. 35).

Sexual dimorphism distinct. Males slightly stouter than females, with bare apex of elytral epipleura (pubescent in female).

DISTRIBUTION

MADAGASCAR OUEST (map 4).

REMARKS

A. bertiae differs from all other Malagasy members of the nominotypical subgenus in mostly black explanate margin of elytra with only yellow transparent spot. At first glance, it is most similar to the typical form of west and central African *A. bimaculata*. *A. bertiae* is slightly smaller with less distinct sexual dimorphism, especially females are apex of elytra evenly rounded like the male, while in *A. bimaculata* female apex of elytra is subacuminate. Puncturation of elytra is in *A. bertiae* distinctly larger and more impressed than in *A. bimaculata* and surface of elytra appears slightly irregular. In *A. bimaculata* the explanate margin of elytra generally has single large, yellow transparent spot on each side and more rarely the margin apex with a yellow spot, while in *A. bertiae* apical spots are common. Further, in *A. bertiae* the suture is mostly yellow, while in *A. bimaculata* its posterior half is black.

MATERIAL EXAMINED

No additional material.

Aspidimorpha (*Aspidimorpha*) *corrugata* BOROWIEC, 1997

(fig. 37-42, 329-331, map 4)

Aspidimorpha (s. str.) *corrugata* BOROWIEC, 1997: 237; 1999: 182.

TYPE MATERIAL

Holotype and paratype female: MADAGASCAR OUEST: – « Suberbieville » [= Maevatanana] [DBET].

DESCRIPTION

Male unknown, all measurements concerning only female. Length: 9.0-10.6 mm, width: 8.6-9.7 mm, length of pronotum: 2.9-3.1 mm, width of pronotum: 6.1-6.7 mm, maximum width of explanate margin of elytra: 2.1-2.4 mm, width of elytral disc: 4.3-5.0 mm, length/width ratio: 1.05-1.09, maximum width of elytra/width of pronotum ratio: 1.41-1.45; width/length of pronotum ratio: 2.10-2.16. Body almost circular (fig. 37, 329, 330).

Pronotum uniformly yellow to argillaceous. Disc of elytra uniformly yellow to argillaceous, or mostly brown with yellow scutellar area and lateral folds and paler brown tops of elytral rugosities. Punctures only slightly darker marked than surface of disc. Explanate margin yellow with argillaceous to brown, narrow to moderate humeral and posterolateral spots, without sutural spot s. In pale specimens spots not extending margin of elytra. Margins of explanate margin of elytra darker yellow than ventral part of the explanate margin. Scutellum yellow to argillaceous. Ventrites uniformly yellow. Antennae yellow, two last segments black, except yellow underside of the apex of last segment, and yellow base of segment 10. Legs including coxae yellow.

Pronotum semicircular, with maximum width towards base. Disc slightly convex, smooth, shiny, with very small microreticulation. Explanate margin distinctly bordered from disc, especially on sides, subhorizontal, smooth, and shiny.

Scutellum triangular, impunctate, without transverse sulcus, not impressed in the middle. Base of elytra serrulate, slightly wider than base of pronotum, humeri narrowly rounded, elytral margins not marginate. Disc unevenly convex, with large, conical postscutellar tubercle, top of the tubercle slightly obtuse, profile deeply concave behind the top of convexity, discal surface without impressions (fig. 38, 331). Puncturation of disc moderate, completely irregular, on slope slightly smaller than in anterior half of disc, in sutural half of disc only slightly smaller than in lateral part of disc. Scutellar row with 4-6 punctures. Punctures moderately dense to dense, partly group together, distance between punctures or group of punctures from twice narrower to twice larger than puncture diameter. Punctures deeply impressed. Punctures in marginal row deep, only twice larger than punctures in central rows. Interspaces irregular, form irregular folds and wrinkles, surface of disc appears strongly rugose. Lateral fold of marginal interval absent or very small. Explanate margin broad, subhorizontal, with tendency to form a shallow gutter, its surface irregular, on posterolateral spot and behind the spot with deep transverse grooves. Elytral epipleura pubescent in female (male unknown).

Head moderately broad, clypeus 1.4-1.5 times wider than long, glabrous to slightly dull, slightly elevated before antennal insertions, shallowly impressed in the middle. Labrum emarginate to 1/5 length (fig. 39). Antennae moderately elongate, extending mid coxa, length ratio of antennal segments: 100:51:134:83:69:34:66:62:62:59:100 (fig. 42).

Claws pectinate on both sides, inner pecten short, with four teeth extending to 1/4-1/3 length of claw (fig. 40), outer pecten with two teeth, only slightly extending behind margin of claw (fig. 41).

Male unknown.

DISTRIBUTION
MADAGASCAR OUEST (map 4).

REMARKS
This species belongs to the African *A. intricata* group, the only member of the group occurring in Madagascar. It distinctly differs from African representatives of the group in that the elytra base is distinctly wider than pronotum base.

MATERIAL EXAMINED
No additional material.

Aspidimorpha (*Aspidimorpha*) *curtidens* HINCKS, 1964
(fig. 43-48, 332-334, map 4)

Aspidomorpha curtidens HINCKS, 1964: 248.
Aspidimorpha (s. str.) *curtidens* BOROWIEC, 1997: 240; 1999: 182.

TYPE MATERIAL
Holotype [MNHN] and paratype [MM]: MADAGASCAR OUEST: « Ampijoroa, Tsaramandroso ».

DESCRIPTION
Length: male: 8.6 mm, female: 9.2-10.8 mm, width: male: 7.8 mm, female: 8.1-9.0 mm, length of pronotum: male: 2.9 mm, female: 3.2-3.3 mm, width of pronotum: male: 6.0 mm, female: 6.5-6.9 mm, maximum width of explanate margin of elytra: male: 2.0 mm, female: 2.0-2.1 mm, width of elytral disc: male: 4.2 mm, female: 4.5-5.3 mm, length/width ratio: male: 1.10, female: 1.14-1.20, maximum width of elytra/width of pronotum ratio: male: 1.30, female: 1.25-1.30; width/length of pronotum ratio: male: 2.07, female: 2.03-2.09. Body almost circular (fig. 43, 332, 333).

Pronotum uniformly yellow to rusty yellow. Elytral disc uniformly rusty yellow, only in the darkest specimens brown with slightly paler, yellowish, anterior third of suture, scutellar area and lateral fold. Punctures usually with darker brown centre. Explanate margin yellow, with moderately broad, rusty brown to brown humeral and posterolateral spots, without sutural spot. Humeral spot is not widened posterad and posterolateral spot not widened anterad. Margins of explanate margin usually slightly darker yellow than ventral half of the explanate margin. In the darkest specimen explanate margin completely brown with moderate yellow "window". Clypeus yellow. Thorax, except yellow lateral plates, black. Abdomen in pale specimens yellow, in the darkest mostly black with yellow sides and apex.

Pronotum almost semicircular, with maximum width at base, hind angles subangulate, form blunt angle about 90-95°. Disc moderately convex, smooth, shiny, with very small microeticulaton. Explanate margin distinctly bordered from disc, almost horizontal, in anterior part with tendency to form a shallow gutter, smooth, shiny.

Scutellum triangular, without or with transverse sulcus or impression. Base of elytra serrulate, slightly to moderately wider than base of pronotum, elytral margins simple. Disc distinctly angulate in profile (fig. 44, 334). Discal surface usually with large but shallow principal impression, without lateral impressions, surface of disc appears slightly irregular. Puncturation of disc regular, punctures moderate, on slope only slightly smaller than in anterior half of disc, in sutural half of disc only slightly smaller than in lateral part of disc. Scutellar row with 4-5 punctures. Punctures in rows sparse, disposed mostly regular, distance between punctures two to five (partly more, up to eight) times wider than puncture diameter. Rows slightly impressed. Marginal row deep, its punctures c. thrice larger than in submarginal row. Intervals flat, in sutural half of disc five to six times wider than rows, on sides twice to thrice wider than rows, their surface mostly smooth, shiny, with very small microreticulation. Lateral fold of explanate margin low usually broad. Explanate margin broad, moderately declivous, has no tendency to form a shallow gutter, impunctate, smooth to slightly irregular, especially in the darkest specimens, shiny. Elytral epipleura bare in male, pubescent in female.

Head broad, clypeus 1.6 times wider than long, glabrous, slightly elevated before antennal insertions, without or with shallow median impression. Labrum emarginate to 1/4–1/3 length (fig. 45). Antennae moderately elongate, extending to 1/4 length of metasternum, length ratio of antennal segments: 100:47:110:77:73:50:73:65:70:67:123 (fig. 48).

Claws pectinate on both sides, inner pecten with three short teeth extending to 1/5-1/3 length of claw (fig. 46). Outer pecten with two teeth, extending to 1/6–1/5 length of claw (fig. 47).

Sexual dimorphism distinct. Males slightly stouter than females with bare apex of elytral epipleura (pubescent in female).

DISTRIBUTION

MADAGASCAR OUEST, MADAGASCAR CENTRE (map 4).

REMARKS

This species belongs to the *A. dissentanea* species group, which comprises seven species, two exclusively from Madagascar, one wide spread in both Madagascar and Africa, and four restricted to Africa. They are very difficult to identify, but Malagasy species are rather distinct. *A. curtidens* differs from both other Madagascan members by short pecten of tarsal claws, extending at most to 1/3 length of claw (in *densepicta* and *madagascarica* at least to 2/5 length of claw) and in sparse elytral puncturation. Explanate margin of elytra is in *A. curtidens* more declivous than in other members of the genus occuring on Madagascar, without tendency to form a shallow gutter (in *densepicta* and *madagascarica*, especially in large males, explanate margin of elytra is almost horizontal with tendency to form a shallow gutter). Distinct sexual dimorphism in *A. curtidens*, with females having a pubescent apex of elytral epipleura, while in *densepicta* and *madagascarica* elytral epipleura are bare in both sexes. *A. densepicta* differs also in postscutellar gibbosity with obtuse top, while in *A. curtidens* it is dist-

inctly angulate. African species *A. dissentanea* and *A. infuscata* are also similar to *A. curtidens* but their females have bare apex of elytral epipleura.

MATERIAL EXAMINED

MADAGASCAR CENTRE: – Ambohimanga, 20 km au N de Tananarive [= Antananarivo], XII. 1955 (*R. VIEU*) [LB, 3 ex.]. – Madagascar, Ambohimanga [LB, 2 ex.].

Aspidimorpha (*Aspidimorpha*) *densepicta* HINCKS, 1964

(fig. 49-54, 335-337, map 5)

Aspidomorpha densepicta HINCKS, 1964: 247.
Aspidimorpha (s. str.) *densepicta*: BOROWIEC, 1997: 248; 1999: 182.

TYPE MATERIAL

Holotype: MADAGASCAR OUEST: « Morondava, forêt sud de Befasy, I. 1956, R. PAULIAN » [MNHN]. – paratype: « Station Agric. Bas Mangoky », Tanandava (*A. ROBINSON*) [MM].

DESCRIPTION

Length: male: 10.0-11.5 mm, female: 10.4-11.2 mm, width: male: 9.2-10.5 mm, female: 9.0-9.8 mm, length of pronotum: male: 3.3-3.5 mm, female: 3.4-3.6 mm, width of pronotum: male: 7.0-7.6 mm, female: 6.7-7.4 mm, maximum width of explanate margin of elytra: male: 2.4-2.6 mm, female: 2.1-2.5 mm, width of elytral disc: male: 4.8-5.5 mm, female: 4.9-5.5 mm, length/width ratio: male: 1.09-1.10, female: 1.14-1.16, maximum width of elytra/width of pronotum ratio: male: 1.31-1.38, female: 1.32-1.34; width/length of pronotum ratio: male: 2.12-2.17, female: 1.97-2.06. Body almost circular (fig. 49, 335, 336).

Pronotum uniformly yellow. Elytral disc uniformly rusty brown, or on sides and apex brown with yellow scutellar and sutural area, or mostly brown with yellow postscutellar area and few yellow spots along suture. Explanate margin yellow, always with broad, rusty brown to brown humeral and posterolateral spots, and usually with sutural spot, which in extremely pale specimens is reduced to sutural margin. Humeral spot is often widened posterad but posterolateral spot is not or only slightly widened anterad. Margins of explanate margin usually slightly darker yellow than ventral half of the explanate margin. Clypeus yellow, basal corners often infuscate. Ventrites vary from almost uniformly yellow, with only slightly infuscate central part of metasternum, to thorax mostly black except lateral plates. Abdomen yellow. Legs, including coxae, uniformly yellow. Antennae mostly yellow, two last antennal segments black except yellow ventral side of apex of the last segment.

Pronotum almost semicircular, with maximum width at base, hind angles subangulate, form blunt angle about 90-95°. Disc moderately convex, smooth, shiny, with very small microreticulation. Explanate margin distinctly bordered from disc, almost horizontal, in anterior part with tendency to form a shallow gutter, smooth, shiny.

Scutellum triangular, without transverse sulcus or impression. Base of elytra serrulate, slightly to moderately wider than base of pronotum, elytral margins simple. Disc distinctly gibbous in profile, the top of gibbosity obtuse (fig. 50, 337). Discal surface usually with small but deep principal impression, without lateral impressions, surface of disc appears more or less irregular. Puncturation of disc mostly regular, but rows often interrupted by folds, punctures fine to moderate, on slope slightly smaller than in anterior half of disc, in sutural half of disc two to three times smaller than in lateral part of disc. Scutellar row with 4-8 punctures. Punctures in rows moderately dense to dense, disposed partly irregular, group 2-5 together, distance between punctures in groups c. as wide as to thrice wider than puncture diameter, between groups three to five times wider than puncture diameter. Rows slightly impressed. Marginal row deep, its punctures c. twice larger than in submarginal row. Intervals flat, in sutural half of disc five to six times wider than rows, on sides c. twice to thrice wider than rows, their surface mostly smooth, shiny, with very small microreticulation. Lateral fold of explanate margin low but usually broad. Explanate margin broad, moderately declivous to almost horizontal, especially in large males, margins often has tendency to form a shallow gutter, impunctate, smooth to slightly irregular, especially on black spots, shiny. Elytral epipleura bare in both sexes.

Head moderately broad, clypeus 1.4-1.5 times wider than long, glabrous, slightly elevated before antennal insertions, without or with shallow median impression. Labrum emarginate to 1/5-1/4 length (fig. 51). Antennae moderately elongate, extending to 1/4 length of metasternum, length ratio of antennal segments: 100:38:100:66:65:47:65:5 6:59:56:112 (fig. 54).

Claws pectinate on both sides, inner pecten with three to four moderate to long teeth extending to 1/3-2/5 length of claw (fig. 52). Outer pecten with two teeth, extending to 1/5-1/4 length of claw (fig. 53).

Sexual dimorphism indistinct. Males slightly stouter than females.

Distribution

Madagascar Ouest, Madagascar Est (map 5).

Remarks

Aspidimorpha densepicta is a third member of the *A. dissentanea* group from Madagascar. Like *A. curtidens*, it is endemic to the island, while *A. madagascarica* is common in both Africa and Madagascar. It differs from *A. curtidens* in postscutellar angulation more obtuse and explanate margin of elytra less declivous with tendency to form a shallow gutter. The surface of elytra is in *A. densepicta* distinctly irregular, with several low folds, while in *A. curtidens* the surface is almost regular. *A. madagascarica* is the most similar but it has elytral profile more angulate (in *densepicta* postscutellar angulation is high but obtuse, thus disc is rather gibbous than angulate). The surface of elytra in *A. madagascarica* varies from almost regular to distinctly irregular but folds of disc are usually smaller and thinner than in *A. densepicta.*

MATERIAL EXAMINED

MADAGASCAR OUEST: – Ankarafantsika n. Marovoay, 1. XII. 1959 [LB, 2ex.].
MADAGASCAR EST: – route d'Anosibe, XI-XII. 1960 [LB, 1 ex.].

Aspidimorpha (*Aspidimorpha*) *extumida* SPAETH, 1915

(fig. 55-60, 338, 339, map 5)

Aspidomorpha extumida SPAETH, 1915. – HINCKS, 1964: 247.
Aspidimorpha (s. str.) *extumida*: BOROWIEC, 1997: 287; 1999: 185.

TYPE MATERIAL

Syntype: MADAGASCAR EST: « S. de la baie d'Antongil, coll. Donckier » [MM]. – syntype: « Madagascar, Fénérive (*E. PERROT*) » [MM].

DESCRIPTION

Female unknown, all measurements concerning male. Length: 10.0-11.1 mm, width: 9.4-10.3 mm, length of pronotum: 3.3-3.4 mm, width of pronotum: 7.1-7.4 mm, maximum width of explanate margin of elytra: 2.6 mm, width of elytral disc: 4.4-4.7 mm, length/width: 1.06-1.08, maximum width of elytra/width of pronotum ratio: 1.32-1.39, width/length of pronotum ratio: 2.15-2.18. Body almost circular (fig. 55, 338).

Pronotum uniformly argillaceous. Elytral disc argillaceous to brown, punctures with darker centre and/or areole. Explanate margin yellow, with broad, brown humeral and posterolateral spots. Humeral spot sometimes slightly widened posterad. Edge of explanate margin darker yellow than central part of the explanate margin. Clypeus and ventrites uniformly yellow. Antennae yellow with two last segment black, except ventral side of apex of the last segment, apex of segment 9 sometimes infuscate to black. Legs uniformly yellow.

Pronotum elliptical to semicircular, with maximum width almost at base, hind angles form an angle of 85-90°. Disc moderately convex, smooth, glabrous, with very small microreticulation. Explanate margin indistinctly bordered from disc, subhorizontal, in anterior part with tendency to form a gutter, its surface smooth, shiny.

Scutellum triangular, impunctate, without transverse sulcus, not impressed in the middle. Base of elytra serrulate, moderately to distinctly wider than base of pronotum, humeri broadly rounded, elytral margins simple. Disc unevenly convex, with very large, conical postscutellar tubercle, top of the tubercle sharp, profile behind the tubercle deeply concave (fig. 56, 339). Discal surface completely regular, with deep principal impression and well marked postscutellar impressions. Puncturation of disc in sutural rows and on slope fine, in impressions and on sides moderate to large, rows not impressed, punctures on slope distinctly smaller and sparser than in anterior half of disc, in sutural half of disc four to five times smaller than in lateral part of disc. Scutellar row with 5-7 punctures. Punctures in rows sparse to moderately dense, disposed mostly regularly, partly group 2-4 together, distance between punctures in anterior part of sutural rows and on sides as wide as to twice wider than puncture diameter, on slope

two to four times wider than puncture diameter. Punctures in marginal row very large, three to four times larger than punctures in central rows. Intervals flat, in sutural half of disc three to five times, in lateral half as wide as to twice wider than rows, their surface smooth and glabrous. Lateral fold of marginal interval low and narrow to moderately broad. Explanate margin extremely broad, almost horizontal but without tendency to form a gutter, impunctate, its surface smooth and glabrous. Apex of elytral epipleura pubescent in both sexes.

Head moderately broad, clypeus 1.5-1.6 times wider than long, glabrous, slightly elevated before antennal insertions, usually shallowly impressed in the middle. Labrum emarginate to 1/5-1/4 length (fig. 57). Length ratio of antennal segments: 100:40:125:75:75:54:65:55:58:55:100 (fig. 60).

Prosternal collar short, prosternal process strongly expanded apically, not impressed in the middle, pubescent, surface of apex smooth and glabrous (fig. 57).

Claws pectinate on both sides, inner pecten short, with four teeth extending to c. 1/5 length of claw (fig. 58), outer pecten with two teeth, extending to 1/7-1/6 length of claw (fig. 59).

Sexual dimorphism indistinct. Males stouter and more rounded than female.

DISTRIBUTION

MADAGASCAR EST (map 5).

REMARKS

This species belongs to the *A. pontifex* group which comprises only five large Madagascan species. *A. extumida* is the smallest species of the group. *A. illustris* differs in immaculate explanate margin of elytra and base of elytra as wide as base of pronotum while in *A. extumida* base of elytra is distinctly wider than base of pronotum. *A. pontifex* and *A. undulatipennis* are distinctly larger (length above 11 mm, while in *A. extumida* below 10.7 mm) with more irregular elytral surface. *A. rubroornata* differs in length above 11 mm and elytral disc purple red with yellow relief.

MATERIAL EXAMINED

MADAGASCAR EST: – Madagascar [LB, 2 ex., MNHN, 1 ex., ZMHU, 2 ex.]. – Madagascar, Baie d'Antongil, 1889 (*A. MOCQUERYS*) [MNHN, 1 ex.].

Aspidimorpha (*Aspidimorpha*) *fampanamboensis* BOROWIEC, 1997

(fig. 61-66, 340, 341, map 5)

Aspidimorpha (*Aspidimorpha*) *fampanamboensis* BOROWIEC, 1997: 289; 1999: 185.

TYPE MATERIAL

Holotype: MADAGASCAR EST: « Fampanambo, I. 1991, native collector » (N.-O. Maroantsetra) [DBET].

DESCRIPTION

Female unknown, all measurements concerning male. Length: 8.2 mm, width: 7.9 mm, length of pronotum: 2.8 mm, width of pronotum: 4.7 mm, maximum width of explanate margin of elytra: 2.2 mm, width of elytral disc: 3.5 mm, length/width ratio: 1.04, maximum width of elytra/width of pronotum ratio: 1.68, width/length of pronotum ratio: 1.68. Body almost circular (fig. 61, 340).

Pronotum uniformly yellow. Elytral disc reddish-argillaceous with brown elongate spot behind humeral, punctures in impressions of basal part of disc with brownish areole, explanate margin yellow with broad, reddish-brown humeral and posterolateral spots, no sutural spot. Scutellum argillaceous. Ventrites uniformly yellow. Antennae yellow, two last segments, except ventral part of apex of last segment, black. Legs uniformly yellow.

Pronotum broadly elliptical, with maximum width almost at base, sides rounded. Disc slightly convex, smooth, shiny, microreticulaton hardly visible. Explanate margin indistinctly bordered from disc, subhorizontal, in anterior part with tendency to form a gutter, its surface smooth, shiny.

Scutellum triangular, impunctate, without transverse sulcus or impression. Base of elytra serrulate, distinctly wider than base of pronotum, humeri rounded, elytral margins simple. Disc with large, sharp, conical postscutellar tubercle, profile behind tubercle concave (fig. 62, 341). Principal impression small but very deep, scutellar and posterolateral impressions very shallow. Puncturation of disc very fine to fine, regular, on slope distinctly smaller than in anterior half of disc, in sutural half of disc c. twice smaller than in lateral part of disc. Scutellar row with 2-4 punctures. Punctures in rows moderately dense, disposed mostly regularly, distance between punctures behind tubercle two to five, on sides as wide as to twice wider than puncture diameter. Rows not impressed, surface of disc regular. Punctures in marginal row deep, c. four times larger than punctures in central rows. Intervals flat, in sutural half four to five, in lateral half 1.5-2.0 times wider than rows, their surface smooth, shiny, with very small microreticulation. Explanate margin very broad, subhorizontal, with tendency to form a shallow gutter, impunctate, its surface smooth and shiny. Elytral epipleura in male bare.

Head moderately broad, clypeus c. 1.3 times wider than long, glabrous, slightly elevated before antennal insertions, without median impression. Labrum emarginate to 1/5 length (fig. 63). Antennae moderately elongate, extending 1/3 length of metasternum, length ratio of antennal segments: 100:47:132:95:79:53:74:68:63:61:102 (fig. 66).

Prosternal collar very short, prosternal process strongly expanded apically, not impressed in the middle (fig. 63).

Claws pectinate on both sides, inner pecten moderately long, with three teeth, first extending 1/3 length of claw, two internal gradually shorter (fig. 64). Outer pecten with two teeth, c. twice shorter than in inner pecten (fig. 65).

Female unknown.

DISTRIBUTION

MADAGASCAR SAMBIRANO, MADAGASCAR EST (map 5).

REMARKS

Aspidimorpha fampanamboensis and *A. vernicata* are the only Malagasy members of *A. mutata* group widely spread in tropical Africa. *A. fampanamboensis* is stouter (length/width ratio 1.04, in *A. vernicata* 1.13-1.18) and darker brown coloured.

MATERIAL EXAMINED

MADAGASCAR SAMBIRANO: – Nosy-Be Res., 5-9. XII. 2001 [LB, 1 ex.].

Aspidimorpha (*Aspidimorpha*) *illustris* HINCKS, 1964

(fig. 67-72, 342, 343, map 6)

Aspidomorpha illustris HINCKS, 1964: 245.
Aspidimorpha (s. str.) *illustris*: BOROWIEC, 1997: 329; 1999: 188.

TYPE MATERIAL

Holotype [MNHN] and paratype [MM]: MADAGASCAR OUEST: « Lambomakandro, Tuléar » [= Toliara] (*R. CATALA*). – S.-P. d'Ankazoabo, Herea.

DESCRIPTION

Male unknown, all measurements concerning female. Length: 12.6-12.9 mm, width: 11.2-11.8 mm, length of pronotum: 4.0 mm, width of pronotum: 8.6-8.7 mm, maximum width of explanate margin of elytra: 3.0 mm, width of elytral disc: 5.8-6.0 mm, Length/width ratio: 1.09-1.13, maximum width of elytra/width of pronotum ratio: 1.30-1.36, width/length of pronotum ratio: 2.15-2.18. Body almost circular with no emargination between base of pronotum and base of elytra (fig. 67, 342).

Pronotum and elytra uniformly yellow, punctures without darker centre, margin of explanate margin darker yellow than central part of the explanate margin. Clypeus and ventrites uniformly yellow. Antennae in both examined specimens broken from sixth segment (based on description yellow with only last segment infuscate). Legs uniformly yellow.

Pronotum narrowly elliptical, with maximum width almost at base, hind angles form an angle of 90°. Disc moderately convex, smooth, with mirror brilliance, with very small microreticulaton. Explanate margin distinctly bordered from disc, subhorizontal, in anterior part with tendency to form a gutter, its surface smooth, shiny.

Scutellum triangular, impunctate, without transverse sulcus, not impressed in the middle. Base of elytra serrulate, as wide as base of pronotum, humeri rounded, elytral margins slightly marginate. Disc unevenly convex, with large, conical postscutellar tubercle, top of the tubercle sharp, profile behind the tubercle distinctly concave (fig. 68, 343). Discal surface with deep principal impression, distinct scutellar impressions, without posterolateral impression, surface of lateral part of disc almost regular. Punctuation of disc fine to moderate, rows not impressed, punctures on slope slightly sparser and smaller than in anterior half of disc, in sutural half of disc c. twice smaller than in lateral part of disc. Scutellar row with 5-7 punctures. Punctures in rows sparse to

moderately dense, disposed mostly regularly, distance between punctures two to four times wider than puncture diameter, in sutural row slightly denser. Punctures in marginal row distinctly larger than punctures in submarginal rows. Intervals flat, in sutural half of disc four to five times, in lateral half twice to thrice wider than rows, their surface smooth, with mirror brilliance. Lateral fold of marginal interval broad and moderately convex. Explanate margin very broad, almost horizontal with tendency to form a gutter, impunctate, its surface smooth and glabrous. Apex of elytral epipleura in female pubescent, hairs dense and long, apical margin of elytra with several erected hairs.

Head moderately broad, clypeus 1.4-1.5 times wider than long, glabrous, slightly elevated before antennal insertions, usually shallowly impressed in the middle. Labrum very shallowly and broadly emarginate (fig. 69). Length ratio of five basal antennal segments: 100:45:172:86:68 (fig. 72, remainder segments broken in both known specimens).

Prosternal collar short, prosternal process strongly expanded apically, deeply impressed in the middle, pubescent, surface of apex smooth and glabrous (fig. 69).

Claws pectinate on both sides, inner pecten moderately long, with three teeth extending to 1/4-1/3 length of claw (fig. 70), outer pecten with three teeth, extending to 1/4 length of claw (fig. 71).

Male unknown.

DISTRIBUTION

MADAGASCAR OUEST (map 6).

REMARKS

A member of the *A. pontifex* group from Madagascar. It is well characterized by immaculate explanate margin of elytra while in other species of the group elytral marginalia are maculate.

MATERIAL EXAMINED

No additional material.

Aspidimorpha (*Aspidimorpha*) *madagascarica* BOHEMAN, 1854

(fig. 73-81, 344-347, map 7)

Aspidomorpha madagascarica BOHEMAN, 1854: 275; 1856: 109; 1862: 263. – GEMMINGER and HAROLD, 1876: 3649. – WAGENER, 1880: 161. – XAMBEU, 1906: 148. – SPAETH, 1909 d: 282; 1912b: 507; 1916b: 41; 1935a: 172. – WEISE, 1910: 446. – HINCKS, 1964: 246. – SHAW, 1972: 63. – BOROWIEC, 1985b: 233; 1986a: 797.

Aspidomorpha (*Aspidomorpha*) *madagascarica*: SPAETH, 1914: 76.

Aspidimorpha madagascarica: BOROWIEC, 1995b: 370.

Aspidimorpha (s. str.) *madagascarica*: BOROWIEC, 1997: 379; 1999: 191.

Aspidomorpha madagascarica fugax SPAETH, 1915: 128.

TYPE MATERIAL

Aspidimorpha madagascarica BOHEMAN: lectotype: « Madag., "M. Gall." » [NRS], designated by BOROWIEC (1997).

Aspidimorpha madagascarica fugax SPAETH: syntype: MADAGASCAR CENTRE: « Ambositra » [MM]. – syntype: MADAGASCAR EST: « S. de la baie d'Antongil » [MM]. – 2 syntypes: « Maroantsetra Madagascar» [ZMHU].

DESCRIPTION

Length: male: 8.2-10.9 mm, female: 9.0-10.7 mm, width: male: 6.8-9.3 mm, female: 6.9-8.3 mm, length of pronotum: male: 2.4-3.2 mm, female: 2.5-3.2 mm, width of pronotum: male: 5.3-7.1 mm, female: 5.6-6.8 mm, maximum width of explanate margin of elytra: male: 1.4-2.2 mm, female: 1.4-1.9 mm, width of elytral disc: male: 3.8-4.9 mm, female: 4.1-5.1 mm; length/width ratio: male: 1.16-1.25, female: 1.20-1.30, maximum width of elytra/width of pronotum ratio: male: 1.21-1.33, female: 1.23-1.28, width/length of pronotum ratio: male: 2.00-2.22, female: 2.10-2.24. Body short–oval to almost circular (fig. 73, 75, 81, 344, 346, 347).

Very variable species. Pronotum uniformly yellow. Elytral disc in the palest specimens yellow to argillaceous, punctures usually with darker, argillaceous to reddish brown centre. Often disc with reddish-brown, brown to blackish marble pattern. In extreme dark specimens disc dark brown to black with few yellow spots: behind scutellum, on humerus, on lateral fold and in the middle of second interval. All intermediate specimens have been observed. Explanate margin yellow, always with humeral and posterolateral spots, and usually with sutural spot which in extremely pale specimens is reduced to sutural margin. These spots vary from narrow to very broad, argillaceous to black, humeral spot is often widened posterad and posterolateral spot widened anterad but never connected. Margins of explanate margin usually slightly darker yellow than ventral half of the explanate margin. Clypeus yellow, basal corners often infuscate, Ventrites vary from uniformly yellow (rare), to mostly black (also rare), usually pro-, meso- and metasternum mostly black except lateral plates. Abdomen usually mostly yellow, sternites only with two brown to black spots. Legs, including coxae, uniformly yellow. Antennae mostly yellow, two last antennal segments black except yellow ventral side of apex of the last segment.

Pronotum semicircular, with maximum width at base, hind angles subangulate, form blunt angle about 90-95°. Disc moderately convex, smooth, shiny, with very small microeticulaton. Explanate margin distinctly bordered from disc, almost horizontal, in anterior part with tendency to form a shallow gutter, smooth, shiny.

Scutellum triangular, without transverse sulcus or impression. Base of elytra serrulate, slightly to moderately wider than base of pronotum, elytral margins simple. Disc more or lest angulate in profile, the profile behind the top of gibbosity straight to slightly concave (fig. 74, 76, 345). Discal surface usually with small but deep principal impression, without lateral impressions, surface of lateral part of disc usually slightly irregular, in some specimens whole disc surface slightly irregular. Small specimens, especially from Madagascar (= ab. *fugax*), have disc surface usually regular, or only on sides slightly irregular. Puncturation of disc mostly regular, punctures fine to moderate,

on slope slightly smaller than in anterior half of disc, in sutural half of disc two to three times smaller than in lateral part of disc. Scutellar row with 4-8 punctures. Punctures in rows moderately dense to dense, disposed partly irregular, group 2-5 together, distance between punctures in groups c. as wide as to thrice wider than puncture diameter, between groups three to five times wider than puncture diameter. Rows not or slightly impressed. Marginal row deep, its punctures c. twice larger than in submarginal row. Intervals flat, in sutural half of disc five to six times wider than rows, on sides c. twice to thrice wider than rows, their surface mostly smooth, shiny, with very small microreticulation. Lateral fold of explanate margin low but usually broad. Explanate margin broad, moderately declivous to almost horizontal, especially in large males, margins often has tendency to form a shallow gutter, impunctate, smooth to slightly irregular, especially on black spots, shiny. Elytral epipleura bare in both sexes.

Head broad, clypeus 1.7-1.8 times wider than long, glabrous, slightly elevated before antennal insertions, without or with shallow median impression. Labrum emarginate to 1/5-1/4 length (fig. 77). Antennae moderately elongate, extending to 1/4 length of metasternum, length ratio of antennal segments: 100:45:120:75:70:52:62:50:60:55:100 (fig. 80).

Claws pectinate on both sides, inner pecten with four to five very long teeth extending to 1/2-3/5 length of claw (fig. 78). Outer pecten with three teeth, extending to 1/4-1/3 length of claw (fig. 79).

Sexual dimorphism indistinct to moderate. Males slightly to moderately stouter than females. In small specimens dimorphism less distinct than in large forms.

DISTRIBUTION

Wide spread in Central, East and Southern Africa, also across MADAGASCAR and COMORES (map 7).

REMARKS

This species is a member of the *A. dissentanea* group, the only common in both Madagascar and tropical Africa. It differs from exclusively Malagasy members of the group – *A. curtidens* and *A. densepicta* in very long inner pecten of claws extending to 1/2-3/5 length of claw (at most 2/5 length of claw in both relatives).

In Madagascar occur two distinct forms of *A. madagascarica*. First, larger and very variable coloured is identical with populations from continental Africa. Second form, smaller and slimmer, and usually uniformly coloured was described by SPAETH (1915) as *A. madagascarica* ssp. *fugax*. The form is known only from Madagascar but in several places, intermediate specimens were observed which suggested possible hybridization within both forms. May be smaller form is native for Madagascar and typical large form was introduced to Madagascar from Africa (*A. madagascarica* is one of the most common and wide spread species in continental Africa). Relationships bewteen both form need biological and genetic studies with cross breeding experiences.

MATERIAL EXAMINED

MADAGASCAR NORD: – Andasibe, 31. X. 1987 (*H. SCHÜLE*) [SMNS, 1 ex.]. – Cap d'Ambre [ZMHU, 1 ex.]; Cap Diego, 1916 (*FRIEDERICHS*) [ZMHU, 1 ex.]. – Diégo-Suarez [= Antsiranana], Montagne d'Ambre [SD, 4 ex.]. – Fampanambo, I. 1961, III. 1961 [MRAC, 3 ex.] . – Vohemar (*J. VADON*) [IRSN, 2 ex.].

MADAGASCAR SAMBIRANO: – Antseranana [= Antsiranana] distr., Sambirana riv., Marovato vill., 5-12. XII. 2001 (*J. HORAK*) [MS, 1 ex.]. – Nossi-Bé [HNHM, 4 ex.].

MADAGASCAR OUEST: – Analalava, [FMNH, 1 ex.]; Ankarafantsika, Forest Res. near Marovoay, 1. XII. 1950 (*E. S. ROSS*) [CAS, 1 ex.]. – Beraphia Is. (Nosy Beraphia), 1934 [MKB, 3 ex.] . – Maevatanana [IRSN, 56 ex.]. – Majunga [= Mahajanga] (*J. FORAIN*) [HNHM, 2 ex.]. – Sakaraha, 5. II. 1964 (*R. VIEU*) [BB, 1 ex.].

MADAGASCAR CENTRE: – Tananarive [= Antananarivo] [IRSN, 4 ex, FMNH, 8 ex., LU, 2 ex., SD, 1 ex., EGS, 1 ex.]. – Tananarive [= Antananarivo], X. 1949 [CAS, 1 ex.]. – Tananarive [= Antananarivo], 1300 m, 28. I. 1972 (*L. & R. BLOMMERS*) [ITZ, 1 ex.]. – Tananarive [= Antananarivo], 19. XI. 1961 [MRAC, 2 ex.]. – Tananarive [= Antananarivo], XII. 1989 (*C. RAHARIMINA*) [ZMUF, 1 ex.]. – Ambositra [IRSN, 8 ex., HNHM, 1 ex.]. – Antananarivo, 3. I. 1987 (*F. FARACI*) [MCSNV, 1 ex.]. – Antananarivo, Fischerhaus, 1258 m, 1. VIII. 2004, W. Suppantschitsch [UH, 1 ex.]. – Anjozorobe, X-XI. 1936, III. 1937 (*R. VIEU*) [BB, 3 ex.]. – Fianarantsoa [HNHM, 38 ex.]. – Fianarantsoa, Ranomafana, 1-6. II. 1995 (*J. MORAVEC*) [MS, 1 ex.]. – Imerina [HNHM, 2 ex.]. – Ivohibe (*SIRGUÉY*) [IRSN, 1 ex]. – La Mandraka, I-II. 1960 [MRAC, 1 ex.]. – Mandritsara [IRSN, 1 ex.]. – Miarinarivo [IRSN, 1 ex.].

MADAGASCAR EST: Ambatondrazaka, [HNHM, 5 ex.]. – Ambodivoahangy, X. 1961 (*J. VADON*) [MRAC, 1 ex]. – Route d'Anosibe [MRAC, 4 ex.]. – Forêt de Fito [MRAC, 5 ex.]. – Forêt de Fito VI-VII. 1897 [MKB, 9 ex]. – Fort-Dauphin [= Tolanaro] [HNHM, 3 ex.]. – Lac Alaotra, 27. III. 1962 [MRAC, 2 ex.]. – Lac Alaotra, Didy [IRSN, 1 ex.] . – Mananara, X. 1963 (*J. DUBOIS*) [MRAC, 1 ex.]. –Mananjary (*VOELTZKOW*) [ZMHU, 1 ex.]. – Maroantsetra [HNHM, 1 ex.], 1962 (*J. VADON*) [MRAC, 1 ex.], II. 1919 (*E. LE MOULT*) [IRSN, 8 ex.]. – Moramanga, XII. 1959 (*R. VIEU*) [BB, 2 ex.]. – Perinet, prov. Moramanga, 17. I. 1938 (*B. KRECZMER*) [MIZPAS, 1 ex.]. – Ranomafana Nat. Park, 5. V. 1991 (*J. RAFIDISON*) [ZMUH, 1 ex.]. – Sandrangato, 28. I. 1960 [MRAC, 1 ex.]. – Sihanaka (*E. LE MOULT*) [IRSN, 3 ex.]. – Tamatave [= Toamasina], Fanandrana, 5. II. 1972 (*L. BLOMMERS*) [ITZ, 1 ex.]. – Tamatave [= Toamasina] [ZMHU, 1 ex.]. – Tamatave [= Toamasina] et forêt Alahakato, I-VII. 1888 [MRAC, 8 ex.]. – Tampina (*M. LAVAUDEN*) [AB, 3 ex.].

MADAGASCAR SUD: – Tuléar [= Toliara], 14. I. 1971 (*L. BLOMMERS*) [ITZ, 1 ex.]. – "Akarami", XII. 1889 [MCZC, 1 ex.]. – Lembalemba, Andjafy Mount., 18. I. 1996, 1 (*L. MISKO*) [MO, 1 ex.].

Aspidimorpha (*Aspidimorpha*) *pontifex* BOHEMAN, 1854

(fig. 82-87, 348, 349, map 6)

Aspidomorpha Pontifex BOHEMAN, 1854: 286; 1856: 110; 1862: 247. – GEMMINGER and HAROLD, 1876: 3650. – WEISE, 1910: 504. – HINCKS, 1964: 247.

Aspidomorpha (*Aspidomorpha*) *pontifex*: SPAETH, 1914: 77.
Aspidimorpha (*Aspidomorpha*) *pontifex*: BOROWIEC, 1997: 458; 1999: 196.
Aspidomorpha rotunda FAIRMAIRE, 1897: 202; 1904: 270. – WEISE, 1910c: 479 (as synonym of *A. pontifex*).
Aspidomorpha roturica [*sic!*]: XAMBEU, 1906: 148 (biology).

TYPE MATERIAL

Aspidimorpha pontifex BOHEMAN: lectotype: « Pontifex Boh., Madagascar, Goudot, 14307" » [ZMHU], designated by BOROWIEC (1999). – paralectotype: MADAGASCAR NORD:« Diégo-Suarez [= Antsiranana], coll. Donckier" » [MM].

Aspidimorpha rotunda FAIRMAIRE: syntype: « Diégo-Suarez » [= Antsiranana] [MM]; syntype: « Suberbieville [= Maevatanana] rotunda Fairm. *det.* » [MM]. – syntype: « Madag. Fairm. *det.* » [MM]. – syntype: « Madagascar A. rotunda Type Donk. » [MM].

DESCRIPTION

Length: male: 13.4-15.1 mm, female: 15.5 mm, width: male: 13.2-14.7 mm, female: 14.3 mm, length of pronotum: male: 4.5-5.0 mm, female: 4.4 mm, width of pronotum: male: 10.0-11.5 mm, female: 10.2 mm, maximum width of explanate margin of elytra: male: 3.6-4.3 mm, female: 3.5 mm, width of elytral disc: male: 6.0-6.6 mm, female: 7.2 mm, length/width ratio: male: 1.01-1.03, female: 1.08, maximum width of elytra/width of pronotum ratio: male: 1.28-1.32, female: 1.40; width/length of pronotum ratio: male: 2.22-2.36, female: 2.32. Body almost circular (fig. 82, 348).

Pronotum uniformly yellow. Elytral disc yellow, in male punctures with darker, red centre or areole, sometimes areolae partly coalescent and disc mostly reddish–brown, in extreme case whole disc reddish-brown. Explanate margin yellow, with moderately broad to broad, reddish brown to brown humeral and posterolateral spots. Humeral spot sometimes widened posterad and posterolateral spot widened anterad. Margin of explanate margin darker yellow than central part of the explanate margin. Clypeus and ventrites uniformly yellow. Antennae yellow with two last segments black, except ventral side of apex of the last segment. Legs uniformly yellow.

Pronotum narrowly elliptical, with maximum width almost at base, hind angles form an angle of 80-85°. Disc moderately convex, smooth, glabrous, with very small microreticulaton. Explanate margin indistinctly bordered from disc, subhorizontal, in anterior part with tendency to form a gutter, its surface smooth, shiny.

Scutellum triangular, impunctate, without transverse sulcus, not impressed in the middle. Base of elytra serrulate, as wide as or only slightly wider than base of pronotum, humeri rounded, elytral margins simple to slightly marginate. Disc unevenly convex, with very large, conical postscutellar tubercle, top of the tubercle sharp, profile behind the tubercle deeply concave (fig. 83, 349). Discal surface completely irregular with numerous irregular folds, appears rugose, with distinct principal impression. Punctuation of disc moderate to large, rows in male impressed, in female in sutural rows slightly impressed, on sides not impressed, punctures on slope c. twice smaller than in anterior half of disc, in sutural half of disc c. twice to thrice smaller than in lateral

part of disc. Scutellar row with 5-7 punctures. Punctures in rows moderately dense to dense, disposed in male mostly irregularly, group 2-5 together, groups separated by folds, in female punctures disposed mostly regularly but subsutural interval in the middle with several additional, irregular punctures, distance between punctures in groups as wide as to twice wider than puncture diameter. Punctures in marginal row only slightly larger than punctures in submarginal rows. Intervals in male more or less convex, in female partly flat, in sutural half of disc three to five times, in lateral half as wide as rows, their surface smooth, slightly dull. Lateral fold of marginal interval broad and strongly convex. Explanate margin extremely broad, almost horizontal with tendency to form a gutter, impunctate, its surface smooth, less glabrous than pronotum. Apex of elytral epipleura pubescent in both sexes, in female hairs dense and long, in male more sparsely.

Head moderately broad, clypeus 1.4-1.5 times wider than long, glabrous, slightly elevated before antennal insertions, usually shallowly impressed in the middle. Labrum emarginate to 1/6-1/4 length (fig. 84). Length ratio of antennal segments: 100:36:152:80:70:60:74:60:66:64:112 (fig. 87).

Prosternal collar short, prosternal process strongly expanded apically, not impressed in the middle, pubescent, surface of apex smooth and glabrous (fig. 84).

Claws pectinate on both sides, inner pecten extremely short, with four teeth only slightly extending behind margin of claw (fig. 85), outer pecten with two teeth, slightly extending behind the margin of claw (fig. 86).

Sexual dimorphism indistinct. Male stouter and more rounded, with slightly more horizontal explanate margin of elytra.

DISTRIBUTION

MADAGASCAR NORD, MADAGASCAR CENTRE, MADAGASCAR EST, MADAGASCAR SUD (map 6).

REMARKS

This species is a member of the *A. pontifex* group distributed only in Madagascar. It is the largest species of the group, only *A. rubroornata* has a similar size but both species distinctly differ in elytral coloration and sculpture. *A. pontifex* has elytral disc redish-brown, with surface mostly irregular and appears rugose, while in *A. rubroornata* elytral disc is mostly purple-reddish with yellow relief. *A. pontifex* is also well characterized by base of elytra as wide as base of pronotum thus body outline is regularly circular, while in other species of the group base of elytra is more or less wider than base of pronotum.

MATERIAL EXAMINED

MADAGASCAR NORD: – Amber Geb. [ZMHU, 2 ex.]; Diégo-Suarez [= Antsiranana] [MNHN, 1 ex., ZMHU, 1 ex.]. – Mt. d'Ambre [MNHN, 1 ex.].

MADAGASCAR CENTRE: – Bekily, Rég. Sud de l'Île (*A. SEYRIG*) [MNHN, 1 ex.]. Madagascar (*PERRIER*) [MNHN, 1 ex.].

MADAGASCAR EST: – Ambohitsitondroina, I. 1950, Michel [MNHN, 1 ex.]. – Antalaha, VII. 1935, J. Vadon [MNHN, 1 ex.]. – Antalaha, Ampotakamanitra, XII. 1951 (*J. VADON*) [MNHN, 1 ex.]. – Fampanambo, I. 1961 [LB, 1 ex.]. – Tamatave [= Toamasina] [LB, 1 ex., ZMHU, 1 ex.].

MADAGASCAR SUD: – Madagascar, Sud de l'Île, 1 ex. (MRAC). – "Monzemangu" [MNHN, 1 ex.].

Aspidimorpha (*Aspidimorpha*) *quinquefasciata* (FABRICIUS, 1801)

(fig. 88-93, 350-352, map 6)

Cassida quinquefasciata FABRICIUS, 1801: 401. – SCHÖNHERR, 1817: 223. – KLUG, 1835: 47. – ZIMSEN, 1964: 91.

Aspidomorpha quinquefasciata: BOHEMAN, 1854: 250; 1856: 105; 1862: 256. – GEMMINGER and HAROLD, 1876: 3650. – HAROLD, 1879: 215. – MAULIK, 1916: 585 (misidentification). – HINCKS, 1964: 245. – BOROWIEC, 1985b: 234.

Aspidomorpha (*Aspidomorpha*) *quinquefasciata*: SPAETH, 1914: 77.

Aspidimorpha (s. str.) *quinquefasciata*: BOROWIEC, 1997: 481; 1999d: 198.

Cassida pectoralis OLIVIER, 1808: 960. – BOHEMAN, 1856: 105 (as possible syn. of *quinquefasciata*).

Aspidomorpha principalis SPAETH, 1932c: 8. – BOROWIEC, 1997: 481 (as syn. of *A. quinquefasciata*).

Aspidomorpha senegalensis Dej.: GEMMINGER and HAROLD, 1876: 3650 (nomen nudum).

TYPE MATERIAL

Aspidimorpha quinquefasciata FABRICIUS: holotype: « Guinea » [ZMC].

Aspidimorpha principalis SPAETH: 5 syntypes: « Poca, Ins. Henrique, 200-300 m, II. 1901, L. Fea » [MM].

Aspidimorpha pectoralis OLIVIER: type lost.

DESCRIPTION

Length: male: 7.1-9.9 mm, female: 8.2-10.2 mm, width: male: 5.8-7.8 mm, female: 6.1-8.0 mm, length of pronotum: male: 2.3-3.0 mm, female: 2.7-3.3 mm, width of pronotum: male: 4.7-6.1 mm, female: 5.2-6.5 mm, maximum width of explanate margin of elytra: male and female: 1.2-1.8 mm, width of elytral disc: male: 3.3-4.6 mm, female: 3.9-4.8 mm, length/width ratio: male: 1.14-1.27, female: 1.24-1.38, maximum width of elytra/width of pronotum ratio: male: 1.22-1.35, female: 1.18-1.34; width/length of pronotum ratio: male: 1.89-2.08, female: 1.91-1.97. Body short-oval to oval (fig. 88, 350, 351).

Pronotum uniformly yellow. Elytra yellow with variable pattern, punctures usually with darker centre. Disc with reddish-brown, brown to black pattern in form of irregular spots of various shape and size along suture and irregular spots along each side of disc, the spots on sides often partly or mostly coalescent and form irregular bands, in extreme dark form almost whole disc is brown to black except small yellow spots close to scutellar corners and in the middle of first elytral interval, all intermediate forms have been observed. Explanate margin with moderately broad to broad reddish–brown to black humeral, posterolateral and sutural spots, occasionally humeral spots is vi-

sible only on underside of explanate margin. Humeral spot not widened posterad. In population from Principe Is. (= *A. principalis* sp.) humeral spot is reduced to short diagonal spot on underside of explanate margin and posterolateral spot is reduced to small spot close to margin of explanate margin. Margin of explanate margin of elytra usually slightly darker yellow than ventral part of the explanate margin. Clypeus yellow, never infuscate basally. Ventrites vary from uniformly yellow to partly black, usually only prosternum and central part of metasternum black, abdomen usually completely yellow, occasionally sternites infuscate in the middle. Legs yellow, including coxae. Antennae mostly yellow, two last antennal segments black except yellow ventral side of apex of the last segment black, segment 10 sometimes paler, brown.

Pronotum semicircular, with maximum width at base, hind angles subangulate, form blunt angle about 90°. Disc moderately convex, smooth, shiny, with very small microeticulaton. Explanate margin distinctly bordered from disc, almost horizontal in anterior part with tendency to form a shallow gutter, smooth, shiny.

Scutellum triangular, without transverse sulcus or impression. Base of elytra serrulate, slightly to moderately wider than base of pronotum, elytral margins simple. Disc regularly convex with top of convexity in postscutellar point (fig. 89, 352), without or with small and shallow principal impression, without lateral impressions, surface of lateral part of disc regular to slightly irregular. Puncturation of disc mostly regular, punctures very fine to fine, on slope not or only slightly smaller than in anterior half of disc, in sutural half of disc c. twice smaller than in lateral part of disc. Scutellar row with 3-6 punctures. Punctures in rows moderately dense to dense, disposed mostly regularly, only partly group 2-4 together, distance between punctures in this group c. as wide as to twice wider than puncture diameter, between groups three to seven times wider than puncture diameter. Marginal row deep, its punctures c. twice larger than in submarginal row. Intervals flat, in sutural half of disc five to six times wider than rows, on sides only twice wider than rows, their surface mostly smooth, shiny, with very small microreticulation. Lateral fold of marginal interval low but broad. Explanate margin broad, subhorizontal, usually without tendency to form a shallow gutter, impunctate, smooth and shiny. Elytral epipleura bare in both sexes.

Head moderately broad, clypeus 1.6-1.7 times wider than long, glabrous, slightly elevated before antennal insertions, without or with shallow median impression. Labrum emarginate to 1/5-1/4 length (fig. 90). Antennae moderately elongate, extending to 1/3 length of metasternum, length ratio of antennal segments: 100:45:127:65:67:45:65: 57:63:57:115 (fig. 93).

Claws pectinate on both sides, inner pecten with four long teeth extending to half length of claw (fig. 91). Outer pecten with two to three short teeth, extending to 1/4-1/3 length of claw (fig. 92).

Sexual dimorphism indistinct. Males slightly stouter than females.

HOST PLANT

Convolvulaceae: *Merremia hederacea*, *Ipomoea eriocarpa* (BOROWIEC, 1999).

DISTRIBUTION

Most records from West Africa. East to NE of the République démocratique du Congo. Records from SE République démocratique du Congo, Zambia, Madagascar and La Réunion based probably on introduced specimens (map 6). Recently introduced to the New Caledonia (unpublished data).

REMARKS

Aspidimorpha quinquefasciata belongs to the *A. cincta* group, which includes five species, mostly from tropical Africa. The species was probably introduced to La Réunion and then to Madagascar. It distinctly differs from other Malagasy species of the nominotypical subgenus in depressed elytra with no postscutellar elevation of tubercle. Only *A. bertiae* has also regularly convex elytral disc without tubercles but it belongs to different group of species and has distinct body shape and colouration (see fig. 326, 327, 350, 351).

MATERIAL EXAMINED

MADAGASCAR NORD: – Madagascar, Amber Geb. [ZMHU, 1 ex.].

MADAGASCAR EST: – Ambodivoahangy, VII. 1961 (*J. VADON*) [MRAC, 1 ex.]. – Madagascar [ZMHU, 4 ex.].

MADAGASCAR: Madagascar, Staud. [ZMHU, 1 ex.], Madagascar [ZMHU, 3 ex].

LA RÉUNION: – Bassin Plat, 28. V. 1986, 1 (*S. QUILICI*) [Cirad-CBGP]. – La Réunion [IRSN, 6 ex.]. – St Louis, IV. 1933 (*J. & S. LIGNON*) [BB, 1 ex.]. – Zenta, 1903 (*R. V. SKERL*) [NMW, 1 ex.].

Aspidimorpha (*Aspidimorpha*) *rubroornata* BOROWIEC, 1997

(fig. 94-99, 353-355, map 8)

Aspidimorpha (s. str.) *rubroornata* BOROWIEC, 1997: 490; 1999: 198.

TYPE MATERIAL

Holotype and 2 paratypes: « MADAGASCAR EST, Fampanambo, I. 1961 » (N.-W. of Maroantsetra) [DBET].

DESCRIPTION

Length: male: 13.0 mm, female:15.4 mm, width: male: 12.4 mm, female: 14.0-14.2 mm, length of pronotum: male: 4.1 mm, female: 4.3-4.5 mm, width of pronotum: male: 9.4 mm, female: 9.8-10.1 mm, maximum width of explanate margin of elytra: male: 3.5 mm, female: 3.8 mm, width of elytral disc: male: 6.0 mm, female: 7.0 mm, length/width ratio: male: 1.05, female: 1.08-1.10, maximum width of elytra/width of pronotum ratio: male: 1.32, female: 1.39-1.45; width/length of pronotum ratio: male: 2.29, female: 2.24-2.28. Body almost circular (fig. 94, 353, 354).

Pronotum uniformly yellow. Elytral disc mostly reddish to reddish brown, with yellow, irregular and slightly convex band along the middle and yellow marginal interval

from lateral fold the apex of elytron. In the darkest specimens reddish occupies almost whole disc with yellow only spots on base sides of tubercle and narrow, irregular line along the posterior half of the middle and yellow apical third of marginal interval. Explanate margin yellow, on underside with moderately broad to broad, reddish brown to blackish humeral and posterolateral spots. Humeral spot sometimes widened posterad and posterolateral spot widened anterad. In dried specimens surface of explanate margin is often not transparent and spots are not visible from above. Edge of explanate margin darker yellow than central part of the explanate margin. Clypeus and ventrites uniformly yellow. Antennae yellow with two last segments black, except ventral side of apex of the last segment. Legs uniformly yellow.

Pronotum narrowly elliptical, with maximum width almost at base, hind angles form an angle of 80-85°. Disc moderately convex, smooth, glabrous, with very small microreticulaton. Explanate margin indistinctly bordered from disc, subhorizontal, in anterior part with tendency to form a gutter, its surface smooth, shiny.

Scutellum triangular, impunctate, without transverse sulcus, not or slightly impressed in the middle. Base of elytra serrulate, moderately wider than base of pronotum, humeri rounded, elytral margins simple. Disc unevenly convex, with very large, conical postscutellar tubercle, top of the tubercle sharp, profile behind the tubercle deeply concave (fig. 95, 355). Discal surface appears slightly irregular, yellow spots slightly more convex than reddish ground colour, intervals with few folds, but never appear rugose like in related species, principal impression absent or shallow. Puncturation of disc moderate, mostly regular, only in posterior half of two sutural rows sometimes partly irregular, rows more or less impressed, punctures on slope c. twice smaller than in anterior half of disc, in sutural half of disc c. twice to thrice smaller than in lateral part of disc. Scutellar row with 6-8 punctures. Punctures in rows moderately dense to dense, disposed mostly regularly, but sometimes folds separated groups of 2-5 punctures together, distance between punctures in groups as wide as to twice wider than puncture diameter. Punctures in marginal row distinctly larger than punctures in submarginal rows, especially punctures at base of humeral callus very large and deep. Intervals in sutural half of disc slightly convex, three to four times wider than rows, in lateral part of disc mostly flat, as wide as to slightly wider than rows. Lateral fold of marginal interval broad and strongly convex. Explanate margin extremely broad, almost horizontal without tendency to form a gutter, impunctate, its surface smooth and glabrous. Apex of elytral epipleura pubescent in both sexes, in female hairs dense and long, in male more sparsely.

Head moderately broad, clypeus 1.5-1.6 times wider than long, glabrous, slightly elevated before antennal insertions, usually shallowly impressed in the middle. Labrum emarginate to 1/6-1/5 length (fig. 96). Length ratio of antennal segments: 100:35:125:70:68:50:80:63:75:70:105 (fig. 99).

Claws pectinate on both sides, but both pectens extremely short, the shortest in the genus *Aspidimorpha*, inner pecten with four teeth (fig. 97), outer pecten with two teeth (fig. 98), not extending behind the margin of claw.

Sexual dimorphism indistinct. Male stouter and more rounded, with slightly more horizontal explanate margin of elytra.

DISTRIBUTION
MADAGASCAR EST (map 8).

REMARKS
This species belongs to *A. pontifex* group. The coloration of elytral disc is in *A. rubroornata* unique. With *A. pontifex*, it is one of the largest members of the nomino-typical subgenus. *A. pontifex* differs with unicolours elytral disc and more irregular, rugose elytral puncturation. Pecten of tarsal claw is in *A. rubroornata* the shortest in the genus *Aspidimorpha*, teeth of the pecten not extending behind the margin of claw and at first glance claws appear simple

MATERIAL EXAMINED
MADAGASCAR CENTRE: – La Mandraka [LB, 1 ex.]. – Madagascar [LB, 1 ex.].

Aspidimorpha (*Aspidimorpha*) *undulatipennis* SPAETH, 1911
(fig. 100-105, 356, 357, map 8)

Aspidomorpha undulatipennis SPAETH, 1911: 264. – HINCKS, 1964: 246.
Aspidomorpha (*Aspidomorpha*) *undulatipennis*: SPAETH, 1914: 78.
Aspidimorpha (*Aspidomorpha*) *undulatipennis*: BOROWIEC, 1997: 577; 1999: 203.

TYPE MATERIAL
6 syntypes: MADAGASCAR NORD: « Diégo-Suarez [= Antsiranana], coll. Donckier » [5 MM, 1 NRS]. – syntype: « Diégo-Suarez » [= Antsiranana] [ZMHU]. – syntype: « Madagascar, Junod » [MRAC]. – syntype: « Madagascar » [MNHN]. – syntype: « Madagascar, 1902 » [MM].

DESCRIPTION
Length: male: 13.7-13.8 mm, female: 11.6 mm, width: male: 12.8-12.9 mm, female: 10.8 mm, length of pronotum: male: 4.0-4.1 mm, female: 3.4 mm, width of pronotum: male: 9.1-9.4 mm, female: 7.4 mm, maximum width of explanate margin of elytra: male: 3.1-3.2 mm, female: 2.7 mm, width of elytral disc: male: 6.4-6.5 mm, female: 5.5 mm, length/width ratio: male: 1.06-1.08, female: 1.07, maximum width of elytra/width of pronotum ratio: male: 1.37-1.41, female: 1.46; width/length of pronotum ratio: male: 2.28-2.29, female: 2.18. Body almost circular (fig. 100, 356, 357).

Pronotum uniformly yellow, disc darker, argillaceous. Elytral disc uniformly argillaceous to brown. Explanate margin yellow, with broad, brown humeral and posterolateral spots. Humeral spot widened posterad. Margin of explanate margin darker yellow than central part of the explanate margin. Clypeus yellow to mostly black, in extreme case only postantennal area yellow. Ventrites uniformly yellow or pro-, meso- and metathorax black except yellow sides and lateral plates. Antennae yellow with two last segment black, except ventral side of apex of the last segment. Legs uniformly yellow.

Pronotum narrowly elliptical, with maximum width almost at base, hind angles form an angle of 85-90°. Disc moderately convex, smooth, glabrous, with very small microreticulaton. Explanate margin indistinctly to distinctly bordered from disc, subhorizontal, in anterior part with tendency to form a gutter, its surface smooth, shiny.

Scutellum triangular, impunctate, without transverse sulcus, not impressed in the middle. Base of elytra serrulate, distinctly wider than base of pronotum, humeri rounded, elytral margins simple to slightly marginate. Disc unevenly convex, with very large, conical postscutellar tubercle, top of the tubercle slightly obtuse, profile behind the tubercle deeply concave (fig. 101, 357). Discal surface completely irregular with numerous irregular folds, appears more or less rugose, principal impression vanished within folds. Puncturation of disc fine to moderate, rows slightly impressed, punctures on slope c. twice smaller than in anterior half of disc, in sutural half of disc c. twice to thrice smaller than in lateral part of disc. Scutellar row with 5-7 punctures. Punctures in rows moderately dense to dense, disposed partly irregularly, group 2-6 together, groups separated by folds, distance between punctures in groups twice to thrice wider than puncture diameter, only in sutural row slightly denser. Punctures in marginal row c. twice larger than punctures in submarginal rows. Intervals slightly convex, in sutural half of disc three to five times, in lateral half of disc c. twice wider than rows, their surface smooth, slightly dull. Lateral fold of marginal interval narrow and moderately convex. Explanate margin extremely broad, almost horizontal with tendency to form a gutter, especially in males, impunctate, its surface slightly irregular, less glabrous than pronotum. Apex of elytral epipleura unpubescent in male, sparsely pubescent in female.

Head moderately broad, clypeus 1.5-1.6 times wider than long, glabrous, slightly elevated before antennal insertions, usually shallowly impressed in the middle. Labrum emarginate to 1/4 length (fig. 102). Length ratio of antennal segments: 100:45:125:75: 73:52:72:60:62:56:100 (fig. 105).

Claws pectinate on both sides, inner pecten short, with four to five teeth extending to 1/6-1/5 length of claw (fig. 103), in female pecten hardly marked, outer pecten with two teeth, in male only slightly extending behind the margin of claw (fig. 104), in female almost visible.

Sexual dimorphism distinct. Males stouter and more rounded, with explanate margin of elytra more gutter-like, and unpubescent apex of elytral epipleura. In female pecten on tarsal claws very short, on inner side of claw hardly marked, on outer side almost obsolete.

DISTRIBUTION

MADAGASCAR NORD (map 8).

REMARKS

This species is a member of the *A. pontifex* group occurring only in Madagascar. The large body and wrinkled elytral disc place this species close only to *A. pontifex* and *A. rubroornata*. The latter species distinctly differs in yellow elytral relief on purple red groundcolour (in *A. undulatipennis* elytral disc uniformly argillaceous to brown).

A. pontifex is larger, with length usually above 13.8 mm (in female often above 14.5 mm) and elytral surface with mostly irregular rows of punctures, appearing rugose (in *A. undulatipennis* wrinkled but not rugose). Base of elytra is in *A. undulatipennis* slightly wider than base of pronotum with well marked cleft between pronotum and elytra, while in *A. pontifex* base of elytra is as wide as base of pronotum thus body outline is regularly circular.

MATERIAL EXAMINED

MADAGASCAR NORD: Diégo-Suarez [= Antsiranana], II. 1893 (*CH. ALLUAUD*) [MNHN, 1 ex.]. – Mt. d'Ambre, Janvier [MNHN, 1 ex.], Février [MNHN, 1 ex.], Avril [MNHN, 1 ex.]. – Madagascar, 1902 [LB, 1 ex.].

MADAGASCAR OUEST: HINCKS (1964) mentions two specimens: S.-P. d'Antsalova, forêt de l'Antsingy, VII. 1949, 1 ex. (*R. PAULIAN*) et Antsingy de Bekopaka, forêt, VII. 1949, 1 ex. (*R. PAULIAN*).

Aspidimorpha (*Aspidimorpha*) *vernicata* FAIRMAIRE, 1901

(fig. 106-111, 358-360, map 8)

Aspidomorpha vernicata FAIRMAIRE, 1901b: 246. – WEISE, 1910: 480. – SPAETH, 1932c: 4; 1934b: 385. – HINCKS, 1964: 247.
Aspidomorpha (*Aspidomorpha*) *vernicata*: SPAETH, 1914: 78.
Aspidimorpha (*Aspidomorpha*) *vernicata*: BOROWIEC, 1997: 580; 1999: 203.
Aspidomorpha Nickerli SPAETH, 1905: 114. – BOROWIEC, 1997: 580 (as synonym of *A. nickerli*).
Aspidomorpha (*Aspidomorpha*) *vernicata* var. *Nickerli*: SPAETH, 1914: 78.
Aspidomorpha Nickerli var. *scitula* SPAETH, 1905: 114; 1914: 78. – WEISE, 1910: 504 (as syn. of *vernicata*).

TYPE MATERIAL

Aspidomorpha vernicata FAIRMAIRE: 2 syntypes: « Madagascar » [MNHN].

Aspidomorpha nickerli SPAETH: syntype: MADAGASCAR NORD: « Cap d'Ambre, Madagascar ex coll. D. Schneider » [ZMHU]. – syntype « Diégo-Suarez » [= Antsiranana] [MM]. – 2 syntypes: « Madagascar, Nickerl » [MM].

Aspidimorpha nickerli var. scitula SPAETH: holotype: « Madagascar, 1902 » [MM].

DESCRIPTION

Length: male and female: 7.1-8.7 mm, width: male and female: 6.2-7.4 mm, length of pronotum: male and female: 2.2-2.8 mm, width of pronotum: male and female: 4.6-5.6 mm, maximum width of explanate margin of elytra: male and female: 1.6-1.9 mm, width of elytral disc: male and female: 2.9-3.5 mm, length/width ratio: male and female: 1.13-1.18, maximum width of elytra/width of pronotum ratio: male and female: 1.30-1.39, width/length of pronotum ratio: male and female: 1.96-2.13. Body almost circular (fig. 106, 358, 359)

Pronotum uniformly yellow. Elytra yellow with reddish-brown humeral and posterolateral spots, posterolateral spot often obsolete (= ab. *nickerli*), occasionally humeral

spot is shortened extending only half width of explanate margin of elytra. Punctures of elytral disc often marked with brown. Often disc yellowish-brown with darker brown band along sides. Scutellum yellow. Ventrites uniformly yellow. Antennae yellow, two last segments, except ventral part of apex of last segment, black, sometimes base of segment 10 yellow.

Pronotum broadly elliptical, with maximum width in 3/5 length, sides angulate. Disc slightly convex, smooth, shiny, with very small microreticulaton. Explanate margin indistinctly bordered from disc, flat, smooth, shiny.

Scutellum triangular, impunctate, without transverse sulcus, sometimes impressed in the middle. Base of elytra serrulate, distinctly wider than base of pronotum, humeri rounded, elytral margins simple. Disc with large, sharp, conical postscutellar tubercle (fig. 107, 360). Principal impression small but distinct, no posterolateral impression. Puncturation of disc fine, regular, on slope distinctly smaller than in anterior half of disc, sometimes hardly marked, in sutural half of disc smaller than in lateral part of disc. Scutellar row with 4-5 punctures. Punctures in rows moderately dense, disposed irregularly, partly group 2-4 together, distance between punctures or group of punctures two to four times larger than puncture diameter. Rows not impressed, surface of disc regular. Punctures in marginal row deep, approximately three to four times larger than punctures in central rows. Intervals flat, in sutural half four to five, in lateral half 1.5-2.0 times wider than rows, their surface smooth, shiny, with very small microreticulation. Explanate margin very broad, subhorizontal, forms a shallow gutter, impunctate, its surface smooth and shiny. Elytral epipleura bare in both sexes.

Head moderately broad, clypeus c. 1.1-1.2 times wider than long, glabrous, slightly elevated before antennal insertions, without median impression. Labrum emarginate to 1/4 length (fig. 108). Antennae moderately elongate, extending 1/3 length of metasternum, length ratio of antennal segments: 100:48:128:76:72:48:68:60:64:60:100 (fig. 111).

Prosternal collar very short, prosternal process strongly expanded apically, shallowly impressed in the middle (fig. 108).

Claws pectinate on both sides, inner pecten moderately long, with three teeth, first extending 1/3 length of claw, two internal gradually shorter (fig. 109). Outer pecten with two teeth, c. twice shorter than in inner pecten (fig. 110).

Sexual dimorphism indistinct. Male slightly stouter with last antennal segment slightly longer than in female.

DISTRIBUTION

MADAGASCAR NORD, MADAGASCAR EST (map 8).

REMARKS

This species belongs to the *A. mutata* species group, which comprises 12 African and two Malagasy species. *A. fampanamboensis* the second Malagasy species of the group is distinctly stouter (length/width ratio 1.04, in *A. vernicata* 1.13-1.18) and darker brown coloured. *A. vernicata* forms a common colour aberration with reduced

posterolateral spot on explanate margin of elytra while in *A. fampanamboensis* both humeral and posterolateral spots are always present.

MATERIAL EXAMINED

MADAGASCAR NORD: – Diégo-Suarez [= Antsiranana], [LB, 1 ex.]. – Diégo-Suarez [= Antsiranana], 1893 (*CH. ALLUAUD*) [MNHN, 3 ex.]. – Madagascar, Vohemar [IRSN, 1 ex.]. – Mt. d'Ambre, Janvier [MNHN, 2 ex.], Avril [MNHN, 3 x.], Décembre [MNHN, 2 ex.]. – Nosy-Be Isl., 5-7. XII. 2001 (*I. PLJUSHTCH*) [MS, 1 ex.].

MADAGASCAR EST: – Ambodivohangy, XII. 1944, [MNHN, 4 ex.] (*J. VADON*). – Antakotako, X. 1935 [MNHN, 4 ex.]. – Antalaha, III. 1935 [MNHN, 3 ex.] (*J. VADON*). – Fampanambo, I. 1961 [LB, 1 ex., MRAC, 2 ex.] (*J. VADON*). – Fianarantsoa Prov., Ranomafana, 28. 1.-6. II. 1995 (*I. JENIS*) [MS, 1 ex.]. – Forêt de Fito, VI.-VII. 1897 [MKB, 2 ex.]. – Maroantsetra [HNHM, 1 ex., LB, 1 ex.]. – Maroantsetra, II. 1919 (*E. LE MOULT*) [IRSN, 3 ex.]. – Maroantsetra, XI. 1934 (*J. VADON*) [MNHN, 1 ex.]. – Maroantsetra, IX. 1935 (*J. VADON*) [MNHN, 6 ex.]. – Tamatave [= Toamasina] et forêt "Alahakato", I.-VII. 1888 [LB, 1 ex. ; MRAC, 3 ex.].

Subgenus *Afroaspidimorpha* BOROWIEC, 1997

Small species, length always below 8 mm. Body elongate-oval to oval, base of elytra not or slightly wider than base of pronotum. Elytral disc depressed or regularly convex, always without postscutellar gibbosity or tubercle. Pronotum elliptical, sides angulate to rounded. Puncturation of elytra regular, punctures large on whole row length. Clypeus with distinct clypeal grooves. Labrum broad, with distinct median emargination. Claws with obsolete outer pecten. 12 species, mostly from Africa, only two on Madagascar.

Type species: *Cassida nigromaculata* HERBST, 1799. Gender: feminine.

Key to species

1. Pecten of tarsal claws longer, extending to 1/4 length of claw (fig. 121). Clypeus slightly convex with fine clypeal lines distinct only in basal half of clypeal plate. ..... ***polyspila*** SPAETH

–. Pecten of tarsal claws extremely short, only slightly extending behind margin of the claw (fig. 115). Clypeus flat with clypeal lines distinct on whole length of clypeal plate..... ***fallaciosa*** (FAIRMAIRE)

Aspidimorpha (*Afroaspidimorpha*) *fallaciosa* (FAIRMAIRE, 1904)
(fig. 112-117, 361, 362, map 9)

Cassida fallaciosa FAIRMAIRE, 1904: 274. – WEISE, 1910: 505.
Cassida (*Cassida*) *fallaciosa*: SPAETH, 1914: 115.

Aspidomorpha fallaciosa: HINCKS, 1964: 248.
Aspidimorpha (*Afroaspidimorpha*) *fallaciosa*: BOROWIEC, 1997: 20; 1999: 204.

TYPE MATERIAL

Syntype: MADAGASCAR SUD : « Plateau de l'Androy, Reg. d'Ambovombe » [MNHN]. – syntype: « Madagascar » [MNHN].

DESCRIPTION

Length: male 6.0-6.9 mm, female 7.9 mm, width: male 4.9-5.5 mm, female 6.3 mm, length of pronotum: male 2.1-2.3 mm, female 2.8 mm, width of pronotum: male 4.1-4.6 mm, female 5.2 mm, maximum width of explanate margin of elytra: 1.4 mm, width of elytral disc: 6.2 mm, length/width ratio: male 1.22-1.28, female 1.25, maximum width of elytra/width of pronotum ratio: 1.21, width/length of pronotum ratio: male 1.91-2.00, female 1.86. Body short-oval (fig. 112, 361).

Pronotum uniformly argillaceous. Scutellum argillaceous. Elytral disc argillaceous, each puncture with broad, black, partly coalescent areola. Explanate margin uniformly argillaceous. Ventrites, including head uniformly argillaceous. Legs argillaceous, femora often with narrow, brownish ring. Antennae uniformly yellow, only last segment on dorsal side slightly infuscate.

Pronotum subelliptical, with maximum width at base, sides strongly angulate. Disc moderately convex, with small microeticulaton and fine pricks, smooth and glabrous. Explanate margin indistinctly bordered from disc, flat, smooth and glabrous.

Scutellum triangular, with transverse sulcus. Base of elytra smooth, as wide as base of pronotum, elytral margins simple, humeral angles rounded. Disc regularly convex (fig. 113, 362), without impressions. Puncturation of disc regular, moderate, punctures in sutural half of disc approximately twice smaller than on sides of disc and slope. Scutellar row with 6-8 punctures. Rows only on sides slightly impressed. Punctures in rows mostly moderately dense, but partly sparse, not group together, disc distance between punctures vary from as wide as to five times wider than puncture diameter, on sides and in sutural row slightly denser than in other parts of disc. Punctures in marginal row distinctly larger than punctures in central rows. Intervals mostly flat, only in females on slope slightly convex, in sutural half of disc four to five times wider than rows, in lateral part of disc 1.5-2.0 times wider than rows, their surface smooth and glabrous. Explanate margin moderate, in anterior half strongly in posterior half moderately declivous, its surface smooth and glabrous. Apex of elytral epipleura with sparse hairs.

Head moderately broad, clypeus c. 1.6 times wider than long, flat, only anterior margin slightly convex, with distinct clypeal lines on whole length of clypeus, surface of clypeus with few punctures, glabrous. Labrum broad, emarginate to 1/4 length (fig. 114). Antennae moderately elongate, extending to mid coxa, length ratio of antennal segments: 100:47:88:76:74:65:71:60:65:63:112 (fig. 117).

Prosternal collar moderate, prosternal process strongly expanded apically, not impressed in the middle (fig. 114).

Claws pectinate on inner side only (fig. 115), outer side micropectinate (fig. 116), pecten with four extremely short teeth only slightly extending behind the margin of claw.

DISTRIBUTION

MADAGASCAR SUD (map 9).

REMARKS

With *A. polyspila*, this species forms a distinct group of species distributed only in Madagascar. *A. fallaciosa* differs in black areola around punctures of elytral disc (brown in *polyspila*) and in extremely short pecten of tarsal claws only slightly extending behind margin of the claw (in *polyspila* extending to 1/4 length of claw). See also remarks under *A. polyspila*.

MATERIAL EXAMINED

MADAGASCAR OUEST: – dct. Majunga [= Mahajanga], forêt de l'Ankarafantsika, 120 m, XII. 1959 (*E. RAHARIZONINA*) [LB, 1 ex.].

MADAGASCAR SUD: – Plateau de l'Androy, Reg. d'Ambovombe [LB, 4 ex., MNHN, 2 ex.].

Aspidimorpha (*Afroaspidimorpha*) *polyspila* SPAETH, 1911

(fig. 118-123, 363, 364, map 9)

Aspidomorpha polyspila SPAETH, 1911: 264, 1932c: 5. – HINCKS, 1964: 248 (as syn. of *fallaciosa* Frm.).
Aspidomorpha (*Aspidomorpha*) *polyspila*: SPAETH, 1914: 77.
Aspidimorpha (*Afroaspidimorpha*) *polyspila*: BOROWIEC, 1997: 46; 1999: 205 (as bona species).

TYPE MATERIAL

2 syntypes: MADAGASCAR SUD: « Plateau de l'Androy, Rég. d'Ambovombe, coll. Donckier » [1 MM, 1 NRS]. – syntype: « Ambowana » [ZMHU]. – 4 syntypes: « Ambovombe » [3 MM, 1 LB]. – 3 syntypes « Madagascar » [2 MM, 1 ZMHU].

DESCRIPTION

Length: male: 6.8-7.5 mm, female: 6.5-7.8-7.7 mm, width: male: 5.1-5.9 mm, female: 5.2-5.5 mm, length of pronotum: male: 2.4-2.5 mm, female: 2.3-2.4 mm, width of pronotum: male: 4.4-5.0 mm, female: 4.4-4.6 mm, maximum width of explanate margin of elytra: male: 1.0-1.3 mm, female: 1.0-1.2 mm, width of elytral disc: male: 3.8-4.3 mm, female: 3.6-3.8 mm, length/width ratio: male: 1.24-1.26, female: 1.26-1.35, maximum width of elytra/width of pronotum ratio: male: 1.16-1.17, female: 1.15-1.18, width/length of pronotum ratio: male: 1.92-2.00, female: 1.81-1.93. Body short-oval (fig. 118, 363).

Pronotum uniformly argillaceous. Scutellum argillaceous. Elytral disc argillaceous, each puncture with broad, brown areole, sometimes areolae of neighbouring punctures

coalescent and form irregular brown spots. Explanate margin uniformly argillaceous or with small brownish posterolateral spot, often not extending margin of elytra. Ventrites, including head uniformly argillaceous. Legs argillaceous, femora often with narrow, brownish ring. Antennae yellow, three to five apical segments infuscate, occasionally all segments yellow.

Pronotum subelliptical, with maximum width at base, sides strongly angulate. Disc moderately convex, with small microeticulaton and fine pricks, smooth and glabrous. Explanate margin indistinctly bordered from disc, flat, smooth and glabrous.

Scutellum triangular, not or shallowly impressed in the middle, microreticulate, without punctures. Base of elytra smooth, as wide as base of pronotum, elytral margins simple, humeral angles rounded. Disc slightly depressed, in female more than in male (fig. 119, 364). Puncturation of disc regular, moderate, punctures in sutural half of disc approximately twice smaller than on sides of disc and slope. Scutellar row with 7-9 punctures. Rows in anterior part of disc not impressed, on slope in males not in females slightly impressed. Punctures in rows mostly moderately dense, but partly sparse, not group together, disc distance between punctures in vary form as wide as to 5 times wider than puncture diameter, on sides and in sutural row slightly denser than in other parts of disc. Punctures in marginal row distinctly larger than punctures in central rows. Intervals mostly flat, only in females on slope slightly convex, in sutural half of disc 4-5 times wider than rows, in lateral part of disc 1.5-2.0 times wider than rows, their surface smooth and glabrous. Explanate margin moderate, in male in anterior half strongly in posterior half moderately declivous, in female in anterior part moderately declivous in posterior part subhorizontal, its surface smooth and glabrous. Apex of elytral epipleura in both sexes with sparse hairs.

Head moderately broad, clypeus broad, c. 1.5 times wider than long, slightly convex, with fine clypeal lines distinct only in basal half of clypeus, surface of clypeus smooth and glabrous. Labrum broad, emarginate to 1/5 length (fig. 120). Antennae moderately elongate, extending to mid coxa, length ratio of antennal segments: 100:60:87:73:77: 67:63:60:67:63:102 (fig. 123).

Prosternal collar moderate, prosternal process strongly expanded apically, usually not impressed in the middle (fig. 120).

Claws pectinate on inner side only (fig. 121), outer side without pecten or micropectinate (fig. 122), pecten with four short teeth extending to 1/4 length of claw.

Sexual dimorphism more distinct than in related species. Males smaller and stouter than females, more convex in profile, with less impressed elytral rows and more declivous explanate margin of elytra.

DISTRIBUTION

MADAGASCAR CENTRE, OUEST, SUD (map 9).

REMARKS

A. polyspila with *A. fallaciosa* form a Malagasy species group with strongly angulate pronotal sides and elytral punctures with dark, brown or black, areolae. *A. polyspila* and *A. fallaciosa* are very similar, the latter species is slightly smaller with black areolae

around puncture of disc (brown in *fallaciosa*), clypeus flat with distinct clypeal lines on whole length (in *polyspila* clypeus is slightly convex with fine clypeal lines, distinct only in basal half of clypeal plate). Pecten of tarsal claws is in *A. fallaciosa* extremely short, extending only slightly behind margin of the claw, while in *A. polyspila* it is distinctly longer, extending c. to 1/4 length of claw.

MATERIAL EXAMINED

MADAGASCAR CENTRE: Ambositra, VI [IRSN, 1 ex.]. – Tananarive [= Antananarivo] [LB, 1 ex.].

MADAGASCAR OUEST: Lambomakandro, (route de) Tuléar [= Toliara] [MNHN, 3 ex.]. – Majunga [= Mahajanga], Ankarafantsika, 120 m, XII. 1959 [LB, 1 ex.]. – Morondava, forêt sud de Befasy, I. 1956, R. PAULIAN [LB, 1 ex., MM, 1 ex.]. – Sakaraha, Lambomakandro, III. 1956 [MM, 1 ex.]. – Tuléar [= Toliara]–Sakaraha, Zombitsy, 630 m [LB, 1 ex.].

MADAGASCAR SUD: Ambovombe [LB, 1 ex., ZMHU, 1 ex.]. – Plateau de l'Androy [ZMHU, 1 ex.]. – Madagascar [IRSN, 4 ex.]. – Madagascar, Mai (*E. LE MOULT*) [MNHN, 4 ex.]. – Madagascar, Juin (*E. LE MOULT*) [MNHN, 2 ex.]. – Tongobory, 12. IV. 1953 [ER, 1 ex., MM, 2 ex].

Subgenus *Aspidocassis* BOROWIEC, 1997

Small species, length always below 8 mm. Pronotum and elytra always uniformly yellow to green. Body oval to almost circular, base of elytra strongly wider than base of pronotum. Elytral disc unevenly convex, but without postscutellar gibbosity or tubercle. Pronotum elliptical, sides more or less rounded. Puncturation of elytra completely irregular, surface of elytra usually appears more or less irregular. Clypeus with distinct clypeal grooves. Labrum broad, with distinct median emargination. Claws with obsolete outer pecten. Four species, two from Africa and two from Madagascar.

Type species: *Cassida confinis* KLUG, 1839.

Key to species

1. Larger, length 5.7-6.8 mm. Pecten of tarsal claws longer, extending to 1/4-1/3 length of claw (fig. 127) ..... ***apicalis*** (KLUG)

–. Smaller, length 4.4-4.9 mm. Pecten of tarsal claws extremely short, not or only slightly extending behind margin of the claw (fig. 133) ..... ***tanolaensis*** BOROWIEC

Aspidimorpha (*Aspidocassis*) *apicalis* (KLUG, 1833)

(fig. 124-129, 365, 366, map 10)

Cassida apicalis KLUG, 1833: 122. – BOHEMAN, 1854: 257. – XAMBEU, 1906: 144.

Aspidomorpha apicalis: Boheman, 1854: 257; 1856: 106; 1862: 258. – Weise, 1896: 19; 1910: 441, 446. – Paulian, 1961: 182. – Spaeth, 1932b: 5. – Hincks, 1964: 249. – Borowiec, 1985b: 225.
Aspidomorpha (*Aspidomorpha*) *apicalis*: Spaeth, 1914: 72.
Aspidimorpha (*Aspidocassis*) *apicalis*: Borowiec, 1997: 60; 1999: 206.
Cassida decolorata Boheman, 1856: 144; 1862: 347. – Gemminger and Harold, 1876: 3653. – Weise, 1896 c: 19 (as synonym of *apicalis*).
Aspidomorpha lutea Fairmaire, 1896: 223. – Weise, 1910: 504. – Spaeth, 1914: 73 (as synonym of *apicalis*).
Cassida dorsomicans Fairmaire, 1904: 273. – Weise, 1910: 505. – Borowiec, 1997: 60 (as synonym of *A. apicalis*).
Cassida (*Cassida*) *dorsomicans*: Spaeth, 1914: 115.

Type material

Casida apicalis Klug: holotype: « Madagascar » [ZMHU].

Cassida decolorata Boheman: syntype: « Anjouana, Sommer » [NRS].

Aspidomorpha lutea Fairmaire: ? [MNHN].

Cassida dorsomicans Fairmaire: holotype: « Cassida dorsomicans Madag. » « Muséum Paris, Madagascar, coll. Léon Fairmaire 1906 » [MNHN].

Description

Length: male and female: 5.7-6.8 mm, width: male and female: 4.7-5.7 mm, length of pronotum: male and female: 1.7-2.1 mm, width of pronotum: male and female: 3.5-4.1 mm, maximum width of explanate margin of elytra: male and female: 0.9-1.3 mm, width of elytral disc: male and female: 3.4-4.0 mm, length/width ratio: male and female: 1.13-1.24, maximum width of elytra/width of pronotum ratio: male and female: 1.30-1.42, width/length of pronotum ratio: male and female: 1.86-2.10. Body subpentagonal (fig. 124, 365).

Pronotum and elytra uniformly green to yellow. Ventrites uniformly yellow. Antennae yellow with usually two last segments black, sometimes base of segment 10 yellow, occasionally apex of segment 9 infuscate.

Pronotum broad, elliptical, with maximum width in the middle, sides rounded. Disc slightly convex, microreticulate, dull, often with small irregular folds. Explanate margin broad, hardly bordered from disc, flat, its surface slightly irregular, dull.

Scutellum triangular, impunctate, without transverse sulcus. Base of elytra smooth, or slightly serrulate, distinctly wider than pronotum, elytral margins simple, humeri subangulate. Disc strongly convex, slightly angulate in profile (fig. 125, 366), with no distinct impressions. Puncturation of disc moderately large, completely irregular, only in sutural part and in the middle of side punctures have tendency to form more or less regular rows, submarginal and marginal rows regular. On slope punctures only slightly smaller than in anterior half of disc. Punctures dense, distance between punctures 0.5-1.2 times larger than puncture diameter, in specimens from Seychelles punctures are extremely dense, almost touching each other, especially in posterolateral part of disc. Sutural area margined by more or less regular and slightly impressed row of punctures, sometimes are marked more convex intervals 3 and 5. Punctures in marginal row large and deep, c. thrice larger than punctures in central part of elytron. Surface between punctures, with distinct microreticulation, dull, usually does not appear rugose, only

in specimens with extremely dense puncturation appears irregular to slightly rugose. Explanate margin broad, moderately declivous, completely irregularly punctured, punctured as large as those of marginal row, surface between punctures, flat, microreticulate, dull but not irregular or rugose. Elytral epipleura bare in both sexes.

Head broad, clypeus c. twice wider than long, glabrous, moderately elevated before antennal insertions, without or with shallow median impression, with deep clypeal sulci. Labrum emarginate to 1/5 length (fig. 126). Antennae moderately elongate, extending to the middle of metasternum, length ratio of antennal segments: 100:50:100:80:80: 65:75:70:75:70:130 (fig. 129).

Prosternal collar moderate, prosternal process strongly expanded apically, in the middle with deep impression (fig. 126).

Claws pectinate on inner side only, pecten moderate, with four teeth, on fore and mid leg extending 1/3 (fig. 127), on hind leg 1/4 length of claw. Outer side of claw micropectinate (fig. 128).

Sexual dimorphism indistinct. Male slightly stouter with slightly longer last antennal segment.

DISTRIBUTION

MADAGASCAR Nord, MADAGASCAR OUEST, MADAGASCAR CENTRE, MADAGASCAR EST, MADAGASCAR SUD (map 10), COMORES, MAURITIUS, LA RÉUNION.

REMARKS

All species of the subgenus *Aspidocassis* are similar and especially *A. apicalis* and *A. confinis* from Africa are difficult to distinguish. In many old publications both taxa were treated as synonyms or geographical races. *A. confinis* is generally larger with distinctly longer pecten of tarsal claw extending to 2/5–1/2 length of claw (1/4-1/3 in *apicalis*). Both species are separated geographically, *A. apicalis* is distributed only in Madagascar and adjacent islands, *A. confinis* only in continental Africa. *A. tanolaensis*, the only congeners distributed also in Madagascar differs in very small body size and extremely short pecten of tarsal claws, only slightly extending behind margin of the claw.

MATERIAL EXAMINED

COMORES: – Anjouan, X. 1903 (*A. VOELTZKOW*) [ZMHU, 2 ex.]. – Johanna [= Anjouan] (*CLAVAREAU*) [MRAC, 1 ex.]. – Moheli, IX. 1903 (*A. VOELTZKOW*) [ZMHU, 1 ex.]. – "Morotzo", 300 m, 8-10. VII. 1903 (*A. VOELTZKOW*) [ZMHU, 1 ex.].

MAURITIUS: – Savanne distr., Bel Ombre, 17. VI. 2003 (*M. LANGER*) [ML, 2 ex.].

SEYCHELLES: – Mahé, Glacis village, 18-31. I. 1976 (*M. & T. SIMON-THOMAS*) [ITZ, LB, 15 ex.].

MADAGASCAR NORD: – Amber Geb. [ZMHU, 10 ex.]. – Amber Geb. (*H. ROLLE*) [IRSN, 3 ex.]. – Cap d'Ambre [ZMHU, 1 ex.]. – Cap Diego, Diégo-Suarez [= Antsiranana], *FRIEDERICHS* [ZMHU, 2 ex.]. – Vohemar, V. 1912 [IRSN, 1 ex.].

MADAGASCAR OUEST: – Maevatanana [IRSN, 9 ex.].

MADAGASCAR CENTRE: – Ambalavao, 488 km of Tananarive [= Antananarivo], 14. XI. 1938 (*H.J. LAM & A. D. MEEUSE*) [NNML, 1 ex.]. – Anjozorobe, X-XI. 1936, III. 1937 (*R. VIEU*) [BB, 9 ex.]. – Antsirabe, Lac Androikiba, 8. IV. 1973 [ITZ, 1 ex.]. – Fianarantsoa [HNHM, 13 ex.]. – Fianarantsoa, V. 1904, (*VOELTZKOW*) [ZMHU, 1 ex.]. – Imerina [HNHM, 1 ex.]. – Manjakandriana, Ambatomena, 1400 m, 2. XII. 1971 (*L. BLOMMERS*) [ITZ, 1 ex.]. – Tananarive [= Antananarivo] [FMNH, 7 ex., IRSN, 1 ex.].

MADAGASCAR EST: – Ambatondrazaka [HNHM, 2 ex.]. – Baie d'Antongil [SD, 2 ex.]. – Bezanozano [ITZ, 1 ex.]. – Fampanambo, XII. 1960, II. 1961 (*J. VADON*) [MRAC, 2 ex.]. – Forêt de Fito [LB, 4 ex., MRAC, 8 ex.]. – Forêt de Fito VI–VII. 1897 [MKB, 33 ex.]. – Mananajary (*A. VOELTZKOW*) [ZMHU, 2 ex.]. – Maroantsetra, II. 1919 (*E. LE MOULT*) [IRSN, 5 ex.]. – Moramanga [SD, 1 ex.]; Moramanga, 22-29. II. 1995 (*J. MORAVEC*) [MS, 1 ex.]. – Périnet, prov. Moramanga, 1. II. 1938 (*B. KRECZMER*) [MIZPAS, 1 ex.]. – Tampina, côte Est, forêt de Tampina (*M. LAVAUDEN*) [AB, 1 ex.]. – Tamatave [= Toamasina] [ZMHU, 4 ex.]. – Tamatave [= Toamasina], 3. I. 1987 (*F. FARACI*) [MCSNV, 1 ex.]. – Tamatave [= Toamasina] et forêt "Alahakato", I-VIII. 1888 [MRAC, 1 ex.]. – Tamatave [= Toamasina] distr., Moramanga env., 13-17. XII. 1995, 25-27. XI. 1995 (*J. STOLARCZYK*) [MS, 1 ex., UA, 1 ex.].

MADAGASCAR SUD: – Région de l'Androy, Ambovombe [SD, 1 ex.]. – Madagascar [IRSN, 7 ex., NRS, 4 ex.].

Aspidimorpha (*Aspidocassis*) *tanolaensis* BOROWIEC, 1997

(fig. 130-135, 367, 368, map 11)

Aspidimorpha (*Aspidocassis*) *tanolaensis* BOROWIEC, 1997: 76; 1999 d: 207.

TYPE MATERIAL

Holotype and two paratypes: MADAGASCAR EST: « Ambohimitombo forest, Tanola [= Tanala], I. 1895 » [DBET]; paratype: « Forêt de Fito » [MRAC].

DESCRIPTION

Length: male and female: 4.6-4.9 mm, width: male and female: 3.8-4.0 mm, length of pronotum: male and female: 1.7 mm, width of pronotum: male and female: 2.8-3.0 mm, maximum width of explanate margin of elytra: male and female: 0.9-1.0 mm, width of elytral disc: male and female: 1.9-3.2 mm, length/width ratio: male and female: 1.21-1.30, maximum width of elytra/width of pronotum ratio: male and female: 1.33-1.39, width/length of pronotum ratio: male and female: 1.64-1.76. Body subpentagonal, slimmer than in *A. apicalis* (fig. 130, 367).

Pronotum and elytra uniformly yellow. Ventrites uniformly yellow. Antennae yellow with usually four last segments infuscate to black, sometimes only two last segment black and segments 8+9 slightly infuscate, occasionally also apex of segment 7 infuscate.

Pronotum broad, elliptical, with maximum width in the middle, sides rounded. Disc slightly convex, microreticulate, dull, surface on sides of disc slightly irregular.

Explanate margin broad, hardly bordered from disc, flat, its surface slightly irregular, dull.

Scutellum triangular, impunctate, without transverse sulcus. Base of elytra smooth, distinctly wider than pronotum, elytral margins simple, humeri subangulate. Disc convex, slightly angulate in profile, with maximum convexity in postscutellar point (fig. 131, 368), without impressions. Puncturation of disc moderately large, completely irregular, only submarginal and marginal rows regular, on slope only slightly smaller than in anterior half of disc. Punctures dense, distance between punctures c. as wide as puncture diameter. Sutural area margined by more or less regular and slightly impressed row of punctures. Sometimes along disc one or two narrow elevations. Punctures in marginal row large ad deep, c. twice larger than punctures in central part of elytron. Surface between punctures flat or slightly convex, with distinct microreticulation, does not appear rugose. Explanate margin broad, moderately declivous, completely irregularly punctured, punctured slightly larger than those of disc, especially along marginal row, surface between punctures flat, microreticulate, does not appear rugose. Elytral epipleura bare in both sexes.

Head broad, clypeus 1.9 times wider than long, glabrous, moderately elevated before antennal insertions, without median impression, with distinct clypeal grooves. Labrum emarginate to 1/6 length (fig. 132). Antennae moderately elongate, extending to the middle of metasternum, length ratio of antennal segments: 100:45:80:60:45:55: 50:55:50:60:115 (fig. 135).

Prosternal collar moderate, prosternal process strongly expanded apically, in the middle with deep impression (fig. 132).

Claws pectinate on inner side only, pecten extremely short, with three teeth not or only slightly reaching behind margin of claw (fig. 133). Outer side of claw micropectinate (fig. 134).

Sexual dimorphism indistinct. Male slightly stouter with slightly longer last antennal segment.

DISTRIBUTION

MADAGASCAR Est (map 11).

REMARKS

This species is the smallest member of the subgenus *Aspidocassis*. Body shape is similar to *A. apicalis* but the latter species distinctly differs in pecten of tarsal claws extending to 1/4+1/3 length of claw, while in *A. tanolaensis* the pecten is extremely short, not or only slightly extending behind margin of the claw.

MATERIAL EXAMINED

No additional material.

Subgenus *Spaethia* BERG, 1899

Small to moderate species, length always below 11 mm. Pronotum and elytra always uniformly yellow to green. Body oval to almost circular, base of elytra not or only slightly wider than base of pronotum. Elytral disc more or less convex, often gibbous. Pronotum elliptical, sides narrowly angulate. Puncturation of elytra usually regular, sometimes irregular, punctures disposed on whole surface of disc. Clypeus with indistinct to moderate clypeal grooves. Labrum broad, with distinct median emargination. Claws with obsolete outer pecten. 11 species, mostly from Africa, only one species in Madagascar.

Type species: *Iphinoe ganglbaueri* SPAETH, 1898.

Aspidimorpha (*Spaethia*) *cepaecolor* (FAIRMAIRE, 1898)
(fig. 136-141, 369, 370, map 11)

Cassida cepaecolor FAIRMAIRE, 1898c: 498. – WEISE, 1910: 505.
Spaethia cepaecolor: SPAETH, 1902b: 454.
Aspidomorpha (*Spaethia*) *cepaecolor*: SPAETH, 1914: 79; 1915 d: 154, 1924: 295; 1932c: 5.
Aspidomorpha cepaecolor: HINCKS, 1964: 249.
Aspidimorpha (*Spaethia*) *cepaecolor*: BOROWIEC, 1997: 132; 1999: 209.

TYPE MATERIAL

Syntype: « Madag. Perrier » [MNHN]. – 2 syntypes: MADAGASCAR OUEST: « Suberberville cotype » [= Maevatanana] [MM].

DESCRIPTION

Length: male and female: 8.7-9.6 mm, width: male and female: 8.05-8.25 mm, length of pronotum: male and female: 3.1-3.45 mm, width of pronotum: male and female: 5.95-6.3 mm, maximum width of explanate margin of elytra: male and female: 1.9-2.0 mm, width of elytral disc: male and female: 5.5-6.1 mm, length/width ratio: male and female: 1.08-1.17, maximum width of elytra/width of pronotum ratio: male and female: 1.31-1.35, width/length of pronotum ratio: male and female: 1.81-1.92. Body almost hemispherical (fig. 136, 369).

Pronotum and elytra uniformly yellow or green. Ventrites uniformly yellow. Antennae yellow, usually last segment infuscate to black, except ventral side of apex.

Pronotum very broad, narrowly elliptical, with maximum width in the middle, sides angulate. Disc only slightly convex, microreticulate with sparse, fine pricks, glabrous. Explanate margin indistinctly bordered from disc, flat, microreticulate glabrous.

Scutellum triangular, impunctate, without transverse sulcus. Base of elytra smooth, as wide as pronotum, elytral margins simple, humeri rounded. Disc regularly convex in profile with no postscutellar tubercle (fig. 137, 370), without postscutellar, principal and posterolateral impressions. Puncturation of disc moderate, completely irregular, punctures on slope only slightly smaller than in anterior half of disc. Punctures moderately dense, distance between punctures 0.8-2.5 times larger than puncture diameter. Space between punctures flat, marginal interval complete, with no rugosities. Punc-

tures in marginal row large and dense, c. twice larger than punctures in submarginal part of disc. Surface between punctures microreticulate but shiny. Explanate margin very broad, strongly declivous, mostly impunctate, smooth and shiny, in humeral part and along marginal row with shallow, large punctures. Elytral epipleura bare in both sexes (in immature specimens external margin of apical part of epipleuron is sparsely pubescent, but in dried specimens hairs are broken and invisible).

Head very broad, gena distinct, clypeus 2.3-2.4 times wider than long, glabrous, slightly convex before antennal insertions, without median impression, with deep clypeal lines. Labrum emarginate to 1/7 length (fig. 138). Antennae moderately elongate, extending half length of metasternum, length ratio of antennal segments: 100:40:104:88:86:68:80:68:78:80:116 (fig. 141).

Prosternal collar moderate, prosternal process strongly expanded apically, shallowly impressed in the middle (fig. 138).

Claws pectinate only on inner side, outer margin minutely serrate (fig. 140). Inner pecten moderate, with four teeth, extending 1/4-1/3 length of claw (fig. 139).

Sexual dimorphism indistinct. Male slightly stouter, with last antennal segment slightly longer than in female.

DISTRIBUTION

MADAGASCAR OUEST (map 11).

REMARKS

This species is unique within the subgenus, it is the only member with body almost hemispherical and completely irregular elytral puncturation.

MATERIAL EXAMINED

MADAGASCAR OUEST: – Suberbieville [= Maevatanana] [MNHN, 1 ex.]. Madagascar [LB, 3 ex.].

Genus *Laccoptera* BOHEMAN, 1855

Laccoptera BOHEMAN, 1855: 55 [type species: *Laccoptera excavata* BOHEMAN, 1855, designated by MAULIK, 1919]. – CHAPUIS, 1875: 408. – SPAETH, 1914: 82. – HINCKS, 1952: 337; 1964: 249. – GRESSITT, 1952: 470. – GRESSITT and KIMOTO, 1963: 955. – SEENO and WILCOX, 1982: 176. – CHEN *et al.*, 1986: 572. – BOROWIEC, 1992: 158; 1994: 11, 129; 1999: 216. – ŚWIĘTOJAŃSKA, 2001: 203.

Patrisma FAIRMAIRE, 1891: 272 [type species: *Laccoptera murrayi* BOHEMAN, 1862 = *Patrisma pyramidalis* FAIRMAIRE, 1891, by monotypy]. – SEENO and WILCOX, 1982: 176. – BOROWIEC, 1994: 263, subgenus (Afrotropical).

Sindia WEISE, 1897: 105 [type species: *Cassida sulcata* OLIVIER, 1808 = *Cassida clathrata* FABRICIUS, 1798 *nec* LINNAEUS, 1758, by monotypy]. – SPAETH, 1914: 81 (as genus); GRESSITT, 1952: 468. – HINCKS, 1952: 337 (as genus). – GRESSITT and KIMOTO, 1963: 954. – SEENO and WILCOX, 1982: 175 (as genus). – CHEN *et al.*, 1986: 567. – ŚWIĘTOJAŃSKA, 2001: 267 (as subgenus), subgenus (Oriental).

Asphalesia WEISE, 1899: 246 [type species: *Asphalesia confragosa* WEISE, 1899, designated by SPAETH, 1914]. – SPAETH, 1914: 82 (as subgenus of *Patrisma* FAIRMAIRE, 1891). – HINCKS, 1952: 337 (as subgenus of *Laccoptera*). – SEENO and WILCOX, 1982: 176. – BOROWIEC, 1994: 131, subgenus (Madagascar).

Orphnoda WEISE, 1899: 247 [type species: *Laccoptera cancellata* BOHEMAN, 1855, designated by HINCKS, 1952). – SPAETH, 1914: 84. – SEENO and WILCOX, 1982: 176. – BOROWIEC, 1994: 171, subgenus (Afrotropical).

Orphnodella SPAETH, 1902c: 20 [type species: *Cassida abyssinica* BOHEMAN, 1856, designated by HINCKS, 1952]. – SPAETH, 1914: 84. – SEENO and WILCOX, 1982: 176. – BOROWIEC, 1994: 178. – ŚWIĘTOJAŃSKA, 2001: 261, subgenus (Afrotropical and India).

Sindiola SPAETH, 1903: 111 [type species: *Sindiola* (*Aspidomorpha*) *parallelipennis* SPAETH, 1903, by monotypy]; 1914: 81 (as genus). – GRESSITT, 1952: 469. – HINCKS, 1952: 337 (as genus). – GRESSITT and KIMOTO, 1963: 955. – SEENO and WILCOX, 1982: 175 (as genus). – CHEN *et al.*, 1986: 568. – ŚWIĘTOJAŃSKA, 2001c: 272 (as subgenus), subgenus (Oriental).

Parorphnoda SPAETH, 1932 [*Parophnoda* in original description, error typogr., type species: *Laccoptera excavata* BOHEMAN, 1855, by original designation]. – HINCKS, 1952: 337 (as objective synonym of *Laccoptera* BOHEMAN, 1855). – SEENO and WILCOX, 1982: 176.

Orphnodina SPAETH, 1932: 229 [type species: *Orphnoda distans* SPAETH, 1902, designated by HINCKS, 1952]. – HINCKS, 1952: 337 (as subgenus). – SEENO and WILCOX, 1982: 176. – BOROWIEC, 1994: 255, subgenus (Afrotropical).

Indocassis SPAETH in HINCKS, 1952: 345 [type species: *Cassida foveolata* BOHEMAN, 1856, by monotypy]. – SEENO and WILCOX, 1982: 176. – BOROWIEC, 1992: 158 (as synonym of *Orphnodella* SPAETH, 1902).

Laccopteroidea SPAETH in HINCKS, 1952: 345 [type species: *Cassida tredecim-punctata* FABRICIUS, 1801, by monotypy]. – SEENO and WILCOX, 1982: 176. – ŚWIĘTOJAŃSKA, 2001: 205, subgenus (Oriental).

Eulaccoptera HINCKS, 1952: 337 [nom. nov. for *Laccoptera* s. str. *sensu* SPAETH, 1932 nec BOHEMAN, 1855, type species: *Cassida corrugata* SAHLBERG, 1823, by monotypy]. – SEENO and WILCOX, 1982: 176. – BOROWIEC, 1992: 158 (as synonym of *Orphnodella* SPAETH, 1902).

Sindiolina ŚWIĘTOJAŃSKA, 2001: 294 [type species: *Cassida sedecimmaculata* BOHEMAN, 1856, by monotypy], subgenus (Oriental).

DIAGNOSIS

Moderately large to large cassids, with body subtriangular, or subpentagonal, or parallelsided, usually uniformly yellowish-brown to brown coloured. Elytra with strong sculpture, pronotal disc usually with folds or wrinkles. Clypeus distinctly elevated. Antennae with six basal glabrous segments. Prosternal collar large, usually with angulate sides. Claws in all African and Malagasy subgenera with pecten only on inner margin, outer margin micropectinate.

DISTRIBUTION

Tropics and subtropics of the Old World. In Madagascar, only members of the endemic subgenus *Asphalesia* WEISE, 1899.

Subgenus *Asphalesia* WEISE, 1899

Body subpentagonal. Pronotal disc rugose. Elytral disc with distinct postscutellar tubercle. Prosternal collar strongly angulate on sides. Antennal segment 3 not or only slightly longer than segment 4.

DISTRIBUTION: Madagascar.

Key to species

1. Large species, body length above 9.5 mm. Postscutellar tubercle large, conical (fig. 143, 148, 153, 163, 168) ..... **2.**
–. Smaller species, body length below 8.5 mm. Postscutellar tubercle smaller, obtuse (fig. 158) ..... ***regularis*** FAIRMAIRE
2. Anterior margin of each elytron forms a soft angle, humeral angles moderately protruding anterad (fig. 142, 147). Last five antennal segments infuscate (fig. 146, 151) ..... **3.**
–. Anterior margin of each elytron forms a strong angle, humeral angles strongly protruding anterad (fig. 152, 157). Last four antennal segments infuscate to black, or whole antennae testaceous (fig. 156, 166, 171) ..... **4.**
3. Prosternal process canaliculate only in basal 2/3 length (fig. 149). Pronotal tubercles lower with rugosities. Elytra uniformly pale reddish, folds sometimes paler yellowish-red (fig. 374) ..... ***pallicolor*** (FAIRMAIRE)
–. Prosternal process deeply canaliculate on whole length (fig. 144). Pronotal tubercles high, tops without rugosities. Elytra of mixed reddish and black (fig. 373) ..... ***confragosa*** (WEISE)
4. Antennae unicoloured or last three or four segments infuscate (fig. 166, 171) .... **5.**
–. Antennae with basal seven segments yellow and four distal segments black, segment 8 sometimes brown or black with yellowish base (fig. 156) .... ***perrieri*** FAIRMAIRE
5. Larger, body length above 11 mm. Explanate margin of elytra with black posterolateral spot (fig. 378) ..... ***spectrum*** BOHEMAN
–. Smaller, length below 11 mm. Explanate margin of elytra without posterolateral spot (fig. 379) ..... ***undulata*** (SPAETH)

Laccoptera (*Asphalesia*) *confragosa* (WEISE, 1899)

(fig. 142-146, 373, map 12)

Asphalesia confragosa WEISE, 1899: 247. – SPAETH, 1919: 190.
Laccoptera confragosa: WEISE, 1910: 504. – HINCKS, 1964: 250.
Patrisma (*Asphalesia*) *confragosa*: SPAETH, 1914: 82.
Laccoptera (*Asphalesia*) *confragosa*: SPAETH, 1932c: 228. – BOROWIEC, 1994: 132; 1999: 217.

TYPE MATERIAL

Holotype: « Madagascar » [ZMHU].

DESCRIPTION

Length: 10.9-11.55 mm, width: 8.7-9.2 mm, length/width ratio: 1.25-1.26, pronotum length: 3.5-3.8 mm, pronotum width: 6.25-6.6 mm, width/length ratio of pronotum: 1.74-1.79. Body short-oval, regularly rounded on sides (fig. 142, 373).

Pronotum yellowish-red, disc with blackish pattern of blurred borders. Scutellum reddish-brown. Elytral disc mostly blackish, costae and folds reddish. Explanate margin yellowish-brown, in the middle with paler yellow window, transverse large folds darker brown coloured. Ventrites mostly yellowish-brown, metasternum and sternites mostly infuscate. Legs yellowish, fore and mid femora in 1/3 length, hind femur in half-length with brown spot.

Pronotum elliptical, about 1.8 times wider than long, maximum width in the middle, posterior corners straight. Pronotal disc strongly convex, with lower anterior half, and higher basal half, only on sides with a few wrinkles, basal part with two large, obtuse tubercles. At base of tubercle, laterally, shallow impression, posteriorly deep pit, behind pits sinuate sulcus. Anterior part of disc without rugosities, with a few larger punctures and short sulci. Explanate margin indistinctly bordered from disc, moderately broad, subhorizontal, with honeycomb structure, surface with irregular wrinkles, appears rugose. Rugosities indistinctly microreticulate, glabrous.

Scutellum triangular, distinctly elevated in the middle. Base of elytra distinctly: wider than base of pronotum, anterior margin forms a soft angle, humeri moderately protruding anterad. Disc strongly convex, with large, conical postscutellar tubercle (fig. 143), and high, sharp costae and folds. Postscutellar impressions margined by sharp costa, divided into two parts by oblique costa. Third interval irregular, sharp, fifth interval obsolete. Humeral costa extremely high and sharp. Puncturation large, on sides of disc tends to form regular rows, interrupted by elytral sculpture. Marginal row distinct, interrupted by five large, transverse folds, behind the first fold deep cavity. Explanate margin of elytra slightly narrower than half width of each elytron, moderately declivous, with honeycomb structure, humeral angles rounded. Surface irregular, with irregular wrinkles, rugose, microreticulate but glabrous, lateral margination fine, simple. Apex of elytral epipleura with scarce, erected hairs.

Clypeus about 2.3 times wider than long, strongly elevated, anterior margin rounded (fig. 144), slightly impressed in the middle, surface without impression, flat, microreticulate with a few punctures. Labrum with extremely small median emargination. Antennal cavities slightly separated. Antennae moderately long, extending to apex of prosternum. Length ratio of antennal segments (female): 100:37:67:65:62:45:50:45: 50:50: 100. Segment 3 about 1.8 times longer than 2 (fig. 146).

Prosternal collar extremely large, with transverse sulci, sides form a right angle. Prosternal process moderately broad, moderately expanded apically, with deep longitudinal canaliculation on whole length, including apex (fig. 144).

Legs moderately slim, tarsi broad, the last segment about as long as the third. Inner margin of claws with large pecten, extending to almost half-length of claw (fig. 145), outer margin micropectinate.

Host plant and bionomics unknown.

DISTRIBUTION

MADAGASCAR Ouest (map 12).

Remarks

With *L. pallicolor*, it belongs to the group of species with elytral sides regularly rounded and anterior margin of elytron forming a soft angle. It differs from *L. pallicolor* in partly black elytral disc (uniformly reddish in *L. pallicolor*), and prosternal process canaliculate on whole length (in *L. pallicolor* canaliculate in basal 2/3 length). Pronotal tubercles and elytral carinae and folds in *L. confragosa* are distinctly higher and sharper than in *L. pallicolor*, especially humeral costa in *L. pallicolor* is low and obtuse. *L. confragosa* differs distinctly from all large species of the subgenus in very large pecten of claws, only small *L. regularis* has a similar claw pecten.

Material examined

Madagascar Ouest: – Tuléar [= Toliara]-Sakaraha, forêt du Zombitsy, 630 m, XII. 1959 [LB, 1 ex.].

Madagascar [MM, 1 ex., LB, 1 ex.].

Laccoptera (*Asphalesia*) *pallicolor* (Fairmaire, 1901)

(fig. 147-151, 374, map 12)

Cassida pallicolor Fairmaire, 1901b: 247. – Weise, 1910: 505.
Patrisma (*Asphalesia*) *pallicolor*: Spaeth, 1914: 82; 1915: 154.
Asphalesia pallicolor: Spaeth, 1919: 190.
Laccoptera (*Asphalesia*) *pallicolor*: Spaeth, 1932: 228. – Borowiec, 1994: 135; 1999: 218 .
Laccoptera pallicolor: Hincks, 1964: 250.

Type material

One syntype: « Hukuru Perr. » [= causses de l'Ankara] (*Perrier de la Bâthie*) [MNHN]. Note: the authors found in Paris Museum only one specimen of *Laccoptera pallicolor* in the Léon Fairmaire collection. they are not sure that the description is based on a single specimen or not. If yes, then the specimen should be designed as holotype.

Description

Length: 12.5-12.7 mm, width: 10.0-10.8 mm, length/width ratio: 1.18-1.25, pronotum length: 3.9-4.2 mm, pronotum width: 7.2-7.8 mm, width/length ratio of pronotum: 1.85-1.86. Body short-oval, regularly rounded on sides, with no angle in 2/3 length of elytra (fig. 147, 374).

Pronotum and elytra uniformly reddish, elytral costae sometimes paler, yellowish. Ventrites uniformly yellowish-red. Legs yellowish. Seven basal antennal segments yellowish, remainder brown to black, segment 8 sometimes slightly paler than segments 9-11.

Pronotum elliptical, about 1.8 times wider than long, with maximum width in the middle, posterior corners obtuse. Disc strongly convex, divided in the middle by an arched sulcus into two parts: anterior, less rugose, and posterior, strongly rugose, with

several irregular folds and two obtuse tubercles. Surface microreticulate but glabrous. Explanate margin indistinctly bordered from disc, broad, with honeycomb structure, with large transverse folds, surface microreticulate, glabrous.

Scutellum triangular, with several small punctures, without tubercles or folds. Base of elytra distinctly wider than pronotum. Anterior margin crenulate, forms a soft angle, humeral angles moderately protruding anterad. Disc strongly convex, with large, conical postscutellar tubercle (fig. 148). Outline behind top of the tubercle slightly concave. Whole disc with obtuse folds and rugosities; Postscutellar impressions margined laterally by obtuse carina. Third interval irregular, forms longitudinal carina, also fifth interval in the middle forms an irregular carina. Humeral carina large but obtuse. Punctures large, but vanishing between folds, on sides of disc tend to form regular rows. Marginal row distinct, interrupted by large, transverse folds. Explanate margin slightly wider than 1/3 width of each elytron, moderately declivous, with honeycomb structure, lateral margination fine, simple. Surface with irregular folds and tubercles, appears rugose, microreticulate, glabrous. Apex of elytral epipleura with scarce, erected hairs.

Clypeus about 2.2 times wider than long (fig. 149), strongly elevated, anterior margin subangulate, surface in the middle with distinct impression, microreticulate, with a few small punctures, glabrous. Labrum emarginate to 1/5 length. Antennal insertions separated Antennae moderately long, extending to 1/5 length of metasternum, in males slightly longer than in females. Length ratio of antennal segments: 100:38:88:70:70: 62:57:50:50:55:105. Segment 3 about 2.3 times longer than 2 (fig. 151).

Prosternal collar very large, with transverse sulci, on sides forms a right angle. Prosternal process moderately broad, strongly expanded apically, in basal 2/3 length deeply canaliculate longitudinally; its apex flat, without rugosities (fig. 149).

Legs moderately slim, tarsi broad, the last segment about as long as the third. Inner margin of claws with very short pecten, about as long as 1/6 length of claw (fig. 150), outer margin micropectinate.

DISTRIBUTION

MADAGASCAR NORD, MADAGASCAR OUEST, MADAGASCAR EST (map 12).

REMARKS

With *L. confragosa*, it forms a group of species with body regularly rounded on sides, elytral outline with no angle in 2/3 length, and anterior margin of elytra forming a soft angle. *L. confragosa* differs in bicoloured elytra, reddish and black, and pronotal disc with large tubercles. In *L. pallicolor* elytral rugosities are broader and more obtuse than in other large species of *Asphalesia.*

MATERIAL EXAMINED

MADAGASCAR NORD: – Diégo-Suarez [= Antsiranana] [LB, 3 ex.; NMP, 1 ex.].

MADAGASCAR OUEST: – Morondava prov., Kirindi [= Kirindy] Nat. Res., 6. XII. 1995 (*J. STOLARCZYK*) [UA, 1 ex.]. – Morondava prov., Kirindi [= Kirindy] Nat. Res., 7. XII. 1995 (*I. JENIS*) [LB, 1 ex.; MS, 1 ex.].

MADAGASCAR Est: – Tamatave [= Toamasina] [MM, 1 ex.].
MADAGASCAR [MM, 1 ex.].

Laccoptera (Asphalesia) perrieri FAIRMAIRE, 1898
(fig. 152-156, 376, 377, map 13)

Laccoptera Perrieri FAIRMAIRE, 1898b: 429. – WEISE, 1910: 504. – HINCKS, 1964: 250.
Patrisma (Asphalesia) Perrieri: SPAETH, 1914: 82.
Asphalesia Perrieri: SPAETH, 1919: 191.
Laccoptera (Asphalesia) perrieri: SPAETH, 1932: 228. – BOROWIEC, 1994: 137; 1999: 218

TYPE MATERIAL
Syntype: « Madag. Perrier » (*PERRIER DE LA BÂTHIE*) [MNHN].

DESCRIPTION
Length: 10.1-10.8 mm, width: 8.6-9.2 mm, length/width ratio: 1.17, pronotum length: 3.3-3.5 mm, pronotum width: 5.8-6.3 mm, width/length ratio of pronotum: 1.76-1.80. Body subpentagonal, elytral outline to 2/3 length almost straight, in apical 1/3 length strongly converging posterad (fig. 152, 376, 377).

Pronotum yellowish to reddish, rarely unicoloured, usually disc with black pattern. Elytral disc yellowish to reddish, uniform, or surface mostly blackish and costae and tubercles mostly yellowish to reddish. Explanate margin yellowish to reddish, rarely uniform, usually with broad, black posterolateral spot, and more or less distinct brownish or deeper red humeral spot. The border between dark and pale pattern is often indistinct, blurred. Ventrites and legs uniformly yellow. Seven basal antennal segments yellow, remainder black, segment 8 sometimes slightly paler than segments 9-11.

Pronotum elliptical, about 1.8 times wider than long, with maximum width in the middle, posterior corners straight. Disc strongly convex, divided into lower anterior part and higher basal part, with irregular wrinkles. Basal part with two large, angulate tubercles, top of the tubercle without rugosities, smooth, glabrous. Sides of disc less rugose than central area. Explanate margin distinctly bordered from disc, moderately broad, subhorizontal, with honeycomb structure, surface with irregular wrinkles and tubercles, microreticulate, glabrous.

Scutellum triangular, often with longitudinal elevation in the middle, apex with transverse sulci. Base of elytra distinctly wider than pronotum, anterior margin forms a strong angle, humeral angles strongly protruding anterad. Disc strongly convex, with large, conical postscutellar tubercle (fig. 153). Outline of disc behind top of tubercle deeply concave. Whole disc with sharp carinae and folds. Postscutellar impressions margined by sharp carina, and divided into two parts by oblique carina. Third interval irregular, forms a sharp, longitudinal carina, fifth interval obsolete. Sides of disc with transverse folds, humeral carina sharp. Puncturation large, on sides of disc with tendency to form regular rows, but punctures vanish between folds and tubercles. Surface microreticulate, on dark area slightly dull, pale area and costae glabrous. Marginal row distinct, interrupted by five sharp transverse folds, behind the first fold deep cavity.

Explanate margin broad, about as wide as half width of each elytron, moderately declivous, with honeycomb structure, humeral angles rounded, lateral margination faint, simple. Surface with irregular wrinkles, rugose, microreticulate but glabrous. Apex of elytral epipleura with scarce, erected hairs.

Clypeus about 1.7 times wider than long, strongly elevated, deeply impressed in the middle, apex with distinct impression, anterior margin rounded (fig. 154). Surface microreticulate, with a few small punctures, glabrous. Sides of clypeus coarsely, strongly punctate, appear rugose. Labrum not emarginate, or with very fine, hardly visible emargination. Antennal insertions almost in contact. Antennae long, extending to the middle of metasternum. Length ratio of antennal segments (male): 100:40:82:77:77: 68:68:63:65:71:122. Segment 3 about twice longer than 2 (fig. 156). Antennae in male slightly longer than in female, the last segment in male not depressed, without long erected hairs on ventral side.

Prosternal collar very large, with transverse sulci, sides form almost right angle. Prosternal process moderately broad, strongly expanded apically, in basal 2/3 length distinctly longitudinally canaliculate, apex convex, without rugosities (fig. 154).

Legs moderately slim, tarsi broad, the last segment slightly longer than the third. Inner margin of claws with very short pecten, not longer than 1/5 length of claw (fig. 155), outer margin micropectinate.

Host plant and bionomics unknown.

DISTRIBUTION

MADAGASCAR NORD, MADAGASCAR OUEST, MADAGASCAR EST (map 13).

REMARKS

With *L. spectrum* and *L. undulata*, it forms a group of species with elytral outline in anterior 2/3 length almost straight and strongly convergent posterad, and anterior margin of elytron forming a strong angle. It differs in four distal antennal segments black (unicoloured antennae or only infuscate distally in *L. spectrum* and *L. undulata*). Antennae in the male in *L. perrieri* are distinctly shorter than in *L. spectrum* and *L. undulata,* especially the last segment in both those species is long, depressed, with dense, long hairs on ventral side.

MATERIAL EXAMINED

MADAGASCAR NORD: – Amber Geb. [LB, 1 ex.]; Diégo-Suarez [= Antsiranana], 1 [MM, 1 ex., LB, 1 ex.]. – Montagne des Français, I. 1916 [LB, 1 ex.].

MADAGASCAR OUEST: – Suberbieville [= Maevatanana] [LB, 1 ex., MM, 1 ex.]. – Ampijoroa, Ankarafantsika, 1957 [LB, 1 ex.].

MADAGASCAR EST: – Tamatave [= Toamasina] [MM, 1 ex.].

MADAGASCAR [NMP, 1 ex., LB, 2 ex.].

Laccoptera (Asphalesia) regularis FAIRMAIRE, 1898
(fig. 157-161, 375, map 12)

Laccoptera regularis FAIRMAIRE, 1898: 429. – WEISE, 1910: 505. – HINCKS, 1964: 249, 250.
Laccoptera (Laccoptera) regularis: SPAETH, 1914: 83.
Laccoptera (Asphalesia) regularis: SPAETH, 1932: 228. – BOROWIEC, 1994: 140; 1999: 218.

TYPE MATERIAL

Syntype: « Madag. Perrier » (*PERRIER DE LA BÂTHIE*) [MNHN].

DESCRIPTION

Length: 7.1-8.2 mm, width: 5.3-6.0 mm, length/width ratio: 1.34-1.37, pronotum length: 2.5-2.8 mm, pronotum width: 4.3-4.8 mm, width/length ratio of pronotum: 1.71-1.72. Body subpentagonal, with rounded sides (fig. 157, 375).

Pronotum and elytra uniformly brown, sides of disc sometimes darker brown to blackish. Ventrites uniformly yellowish. Legs yellowish. Basal six antennal segments yellow, remainder infuscate to black.

Pronotum almost semicircular, about 1.7 times wider than long, with maximum width slightly in front of the base. Posterior corners straight. Disc strongly convex, with more or less regular longitudinal and oblique wrinkles, appears rugose. Part above head distinctly bordered from posterior part by transverse sulcus. Top of disc without tubercles or with two larger and more convex folds homologous to tubercles of other species of the genus. Each side of disc with deep oblique sulcus. Explanate margin indistinctly bordered from disc, broad, with honeycomb structure, its surface with irregular wrinkles, appears rugose.

Scutellum triangular, without tubercles or folds. Base of elytra distinctly wider than base of pronotum, humeral angles broadly rounded. Anterior margin crenulate, forms a soft angle, humeral angles moderately protruding anterad. Disc strongly convex with obtuse postscutellar tubercle (fig. 158). Outline behind top of the tubercle almost straight to slightly concave. Postscutellar impressions margined by a sharp carina, in the middle with a sharp oblique carina. Third interval completely irregular, sharply carinate, sides of disc with three sharp, transverse costae, and several small wrinkles and tubercles. Humeral costa low, obtuse. Puncturation within closed areas margined by costae irregular, large, distance between punctures about as wide as puncture diameter. On sides of disc punctures arranged in short regular rows interrupted or disordered by elytral sculpture. Surface microreticulate, dull, only costae slightly glabrous. Marginal row distinct, interrupted by 5 large transverse folds. Explanate margin slightly narrower than half width of each elytron, moderately declivous, with honeycomb structure, lateral margination faint, simple. Surface coarsely, shallowly punctate and with irregular wrinkles, appears rugose. Apex of elytral epipleura with scarce, erected hairs.

Clypeus about twice wider than long, strongly elevated. in the middle with large and deep impression (fig. 159), surface microreticulate, impunctate or with a few small punctures, glabrous. Labrum emarginate to 1/5-1 /4 length. Antennal insertions separated. Antennae in the male long, extending to the first abdominal sternite, in the female

shorter, extending to the middle of metasternum. Length ratio of antennal segments (male): 100:52:100:96:84:84:96:88:84:88:172. Segment 3 about twice longer than 2 (fig. 161). Last segment in male slightly depressed, and on ventral side with long hairs.

Prosternal collar very large, with transverse sulci, on sides broadly angulate. Prosternal process moderately broad, strongly expanded apically, in basal 2/3 length deeply canaliculate longitudinally (fig. 159), apex rugose.

Legs moderately slim, tarsi broad, the last segment as long as the third, not extending behind marginal setae. Inner margin of claws with pecten of teeth of equal length, extending to 1/4-1/3 length of claw (fig. 160), outer margin micropectinate.

Bionomics and host plant unknown.

DISTRIBUTION

MADAGASCAR NORD, SAMBIRANO, OUEST (map 12).

REMARKS

It is a unique species. It differs from all other species of the subgenus in small body size, length below 8.5 mm (other species longer than 9.5 mm), smaller postscutellar tubercle (in other species it is large, conical), pronotal disc without distinct tubercles (tuberculate in other species). At first glance *L. regularis* is more similar to African species of the subgenus *Orphnodella,* especially to *L. corrugata* group, but they differ in rather subtriangular body and very low postscutellar elevation, not forming a distinct tubercle.

MATERIAL EXAMINED

MADAGASCAR NORD: – Antsiranana, Djangoa env., 13. XII. 2002 (*M. MRACEK*) [MS, 1 ex.]

MADAGASCAR SAMBIRANO: – Sambirano [LB, 1 ex.].

MADAGASCAR OUEST: – Ampijoroa, Ankarafantsika, I. 1957 (*mission P. GRIVEAUD, IRSM*) [LB, 1 ex.]; Ampijoroa, Tsaramandrosa [MM, 1 ex.]. – Suberbieville [= Maevatanana] [MM, 1 ex.; NMP, 1 ex.].

Laccoptera (*Asphalesia*) *spectrum* BOHEMAN, 1855

(fig. 162-166, 378, map 13)

Laccoptera Spectrum BOHEMAN, 1855: 63; 1856: 154; 1862: 384. – GEMMINGER and HAROLD, 1876: 3662. – WEISE, 1910: 505. – HINCKS, 1964: 250.
Patrisma (*Asphalesia*) *spectrum:* SPAETH, 1914: 82.
Asphalesia spectrum: WEISE, 1899a: 247. – SPAETH, 1919: 190.
Laccoptera (*Asphalesia*) *spectrum:* SPAETH, 1932: 228. – BOROWIEC, 1994: 143; 1999: 218.
Asphalesia Weisei Brancsik, 1910: 187. – SPAETH, 1919: 188 (as syn. of *spectrum*).

TYPE MATERIAL

Laccoptera spectrum BOHEMAN: type lost.

Asphalesia weisei Brancsik: syntype: « Madagascar » [MM].

DESCRIPTION

Length: 12.5-13.5 mm, width: 11.0-12.0 mm, length/width ratio: 1.13-1.14, pronotum length: 3.9 mm, pronotum width: 7.2-7.5 mm, width/length ratio of pronotum: 1.89-1.92. Body subpentagonal, in apical 1/3 length strongly converging posterad (fig. 162, 378).

Pronotum yellowish to reddish. Elytral disc reddish, in posterior third with indistinct blackish transverse band. Explanate margin yellowish to reddish, with broad, black posterolateral spot, and deeper red humeral spot. The border between dark and pale pattern is indistinct, blurred. Ventrites and legs uniformly yellow. Seven basal antennal segments yellow, remainder brownish.

Pronotum elliptical, about 1.8 times wider than long, with maximum width in the middle, posterior corners straight. Disc strongly convex, divided into lower anterior part, and higher basal part, with irregular wrinkles. Basal part with two large, angulate tubercles, top of the tubercle without rugosities, smooth, glabrous. Sides of disc less rugose than central area. Explanate margin distinctly bordered from disc, moderately broad, subhorizontal, with honeycomb structure, surface with irregular wrinkles and tubercles, microreticulate, glabrous.

Scutellum triangular, often with longitudinal elevation in the middle, apex with transverse sulci. Base of elytra distinctly wider than pronotum, anterior margin forms a strong angle, humeral angles strongly protruding anterad. Disc strongly convex, with large, conical postscutellar tubercle (fig. 163). Outline of disc behind top of tubercle deeply concave. Whole disc with sharp carinae and folds. Postscutellar impressions margined by sharp carina, and divided into two parts by oblique carina. Third interval irregular, forms a sharp, longitudinal carina, fifth interval obsolete. Sides of disc with transverse folds, humeral carina sharp. Puncturation large, on sides of disc with tendency to form regular rows, but punctures vanish between folds and tubercles. Surface microreticulate, on dark area slightly dull, pale area and costae glabrous. Marginal row distinct, interrupted by five sharp transverse folds, behind the first fold deep cavity. Explanate margin broad, about as wide as half width of each elytron, moderately declivous, with honeycomb structure, humeral angles rounded, lateral margination faint, simple. Surface with irregular wrinkles, rugose, microreticulate but glabrous. Apex of elytral epipleura with scarce, erected hairs.

Clypeus about 1.7 times wider than long (fig. 164), strongly elevated, deeply impressed in the middle, apex with longitudinal impression, anterior margin rounded. Surface microreticulate, with a few small punctures, glabrous. Sides of clypeus coarsely, strongly punctate, appear rugose. Labrum not emarginate, or with very fine, hardly visible emargination. Antennal insertions almost in contact. Antennae long, extending to the posterior margin of metasternum. Length ratio of antennal segments (male): 100:40:82:82:82:72:72:72:69:75:135. Segment 3 about twice longer than 2 (fig. 166). Antennae in male slightly longer than in female, the last segment in the male depressed, without long erected hairs on ventral side.

Prosternal collar very large, with transverse sulci, sides form almost right angle. Prosternal process moderately broad, strongly expanded apically, in basal 2/3 length distinctly longitudinally canaliculate, apex convex, without rugosities (fig. 164).

Legs moderately slim, tarsi broad, the last segment slightly longer than the third. Inner margin of claws with very short pecten, not longer than 1/6 length of claw (fig. 165), outer margin micropectinate.

Host plant and bionomics unknown.

DISTRIBUTION

MADAGASCAR OUEST (map 13).

MATERIAL EXAMINED

MADAGASCAR OUEST: – Miandrivazo, 1942 (*J. HERIMANN*) [MM, 1 ex.].
MADAGASCAR [MM, 1 ex.].

REMARKS

This species is very similar to *L. perrieri* and *L. undulata*, especially in distinctly subpentagonal body outline. *L. perrieri* differs in black last four antennal segments (brownish in *L. spectrum*), and *L. undulata* differs in smaller body and elytra without black pattern.

Laccoptera (*Asphalesia*) *undulata* (SPAETH, 1919)

(fig. 167-171, 379, map 13)

Asphalesia undulata SPAETH, 1919: 191.
Laccoptera (*Asphalesia*) *undulata*: SPAETH, 1932: 228. – BOROWIEC, 1994: 145; 1999: 218.
Laccoptera undulata: HINCKS, 1964: 250.

TYPE MATERIAL

Lectotype [MM] and three paralectotypes [MM, LB]: MADAGASCAR SUD: « Ambovombe, Plateau de l'Androy, coll. Donckier ». – Paralectotype: MADAGASCAR OUEST: « Maevatanana, l, coll. Donckier » [MM], designated by BOROWIEC (1994).

DESCRIPTION

Length: 9.8-10.2 mm, width: 8.3-8.9 mm, length/width ratio: 1.15-1.18, pronotum length: 3.0-3.4 mm, pronotum width: 5.9-6.3 mm, width/length ratio of pronotum: 1.85-1.97. Body subpentagonal, elytral outline in anterior 2/3 length almost straight, in apicall/3 length converging posterad (fig. 167, 379).

Pronotum brown. Elytral disc brown with paler costae, explanate margin brown with yellowish brown median window and slightly paler brown apices. Ventrites testaceous, legs testaceous, fore and mid femora in 1/3 length, hind femur in half length with brown spot. Antennae uniformly testaceous, or last four segments slightly infuscate. Pronotum elliptical, about 1.9 times longer than wide, with maximum width in the middle, posterior corners rounded. Disc strongly convex, sides and higher posterior part with irregular wrinkles, anterior part without distinct rugosities. Basal part with two low, obtuse tubercles. Surface microreticulate and dull. Explanate margin indistinctly

bordered from disc, subhorizontal, with honeycomb structure, with irregular folds, appears rugose. Surface microreticulate, dull.

Scutellum triangular with small rugosities. Base of elytra distinctly wider than pronotum, anterior margin of elytron forms a strong angle, humeral angles strongly protruding anterad. Disc strongly convex with large, conical postscutellar tubercle (fig. 168). Outline behind top of the tubercle deeply concave. Surface with irregular folds and costae. Postscutellar impressions margined by obtuse costae, divided in two parts by oblique costa. Third interval forms irregular costa only in anterior 2/3 length, in apical 1/3 length obsolete, fifth interval obsolete, humeral costa low and obtuse. Punctures large, on sides of disc with tendency to form regular rows interrupted by transverse folds. Marginal row distinct, interrupted by six transverse folds, cavity behind the first fold moderately deep. Surface of disc microreticulate, dull, only costae slightly glabrous. Explanate margin slightly wider than half width of each elytron, moderately declivous, with honeycomb structure, humeral angles broadly rounded. Outline irregular, broadly crenulate, lateral margin fine, simple. Surface with irregular folds, along margin row of extremely large punctures, microreticulate, dull.

Clypeus about twice wider than long, strongly elevated, only slightly impressed in the middle, anterior margin subangulate to rounded (fig. 169). Labrum with very small median emargination. Antennal cavities separated. Antennae long, extending to half length of metasternum. Length ratio of antennal segments: 100:44:76:71:60 : 53:63:63:58:58:100. Segment 3 about 1.7 times longer than 2 (fig. 171).

Prosternal collar very large, with transverse sulci, sides form a right angle. Prosternal process moderately broad, strongly expanded apically, in basal 2/3 length canaliculate, apex slightly convex, without rugosities (fig. 169).

Legs moderately slim, tarsi broad, the last segment about as long as the third. Inner margin of claws with very short pecten, only slightly extending behind ventral margin of claw (fig. 170), outer margin micropectinate.

Host plant and bionomics unknown.

DISTRIBUTION

MADAGASCAR OUEST, MADAGASCAR EST, MADAGASCAR SUD (map 13).

REMARKS

This species belongs to the group of large species with anterior margin of elytron forming a strong angle, and elytral outline in anterior 2/3 length almost straight and strongly converging posterad. It differs from *L. perrieri* in antennae unicoloured or only slightly infuscate distally (with the last four segments black in *L. perrieri*). *L. spectrum* is most similar but differs in variegate elytral pattern (almost unicoloured elytra in *L. undulata*). *L. undulata* has dorsal surface dull, while both *L. spectrum* and *L. perrieri* are glabrous. Elytral rugosities in *L. undulata* are slightly lower and more obtuse than in *L. spectrum* and *L. perrieri.*

MATERIAL EXAMINED

MADAGASCAR EST: – Fort Dauphin [= Tolanaro], 12. V. 1974 [ER, 1 ex.].

Genus *Mahatsinia* Spaeth, 1919

Mahatsinia Spaeth, 1919: 191 [type species: *Laccoptera nodulosa* Weise, 1910, by monotypy]. – Hincks, 1952: 337. – Seeno and Wilcox, 1982: 175. – Borowiec, 1994: 10, 117; 1999: 226.

Diagnosis

Small cassids with subcircular body. Pronotum and elytra strongly sculptured. Antennae with only four basal glabrous segments. Clypeus flat. Both inner and outer margin of claws with short pecten.

Distribution

Endemic to Madagascar.

Mahatsinia nodulosa (Weise, 1910)

(fig. 172-176, 371, 372, map 11)

Laccoptera nodulosa Weise, 1910: 480, 504.
Laccoptera (*Laccoptera*) *nodulosa*: Spaeth, 1914: 83.
Mahatsinia nodulosa: Spaeth, 1919: 191; 1934: 292. – Borowiec, 1985b: 239; 1994: 117; 1999d: 226.

Type material

3 syntypes: « Madagascar inter. austr. Hildebrandt » [ZMHU].

Description

Length: 5.3-5.5 mm, width: 4.7-4.8 mm, length/width ratio: 1.13-1.15, pronotum length: 1.9 mm, pronotum width: 3.3-3.5 mm, width/length ratio of pronotum: 1.74-1.84. Body subcircular to subpentagonal (fig. 172, 371).

Pronotum yellow, disc black, only lateral elevations partly or completely yellow. Elytral disc black, with yellow elevations: one small at base, an irregularly X-shaped postscutellar elevation, two behind the middle, a lateral elevation of marginal interval, and sometimes few small elevations between postscutellar elevation and posterior elevations. Explanate margin yellow with broad black humeral and posterolateral spot, external part of anterior margin broadly yellow. Clypeus yellow. Thorax mostly black, usually apex of mesosternum and anterior part of metasternum yellow to infuscate; abdomen yellow. Legs and antennae yellow, the last antennal segment usually infuscate.

Pronotum broad, about 1.8 times wider than long, elliptical, with broadly rounded sides, no posterior corners. Maximum width of pronotum in the middle. Disc moderately elevated, glabrous, with strong longitudinal striation, especially in basal half. Part above head distinctly lower than basal part. On each side of disc oval elevation, depressed at top, bordered from explanate margin and the other side of disc by deep sulcus. Surface of the elevation not striated. Explanate margin very broad, distinctly bordered from disc, subhorizontal, does not form a gutter, with honeycomb structure, its surface microreticulate, with wrinkles and granules, appears irregular but glabrous.

Scutellum triangular. Base of elytra distinctly wider than pronotum (fig. 172). Anterior margin distinctly bisinuate, crenulate, humeri strongly protruding anterad. Disc strongly convex (fig. 173, 372), with low X-shaped postscutellar elevation, distinctly elevated third interval, elevated median part of fifth interval, and transverse fold behind the middle of disc between rows 4 and 7; also two lateral intervals with large transverse fold. Praescutellar impressions with distinctly elevated margins. Puncturation of elytra large, dense, regular, but rows partly interrupted and disturbed by elytral sculpture. Punctures in rows almost touching each other. Intervals except elevated interval 3 and partly 5 very narrow, distinctly narrower than rows, surface appears irregular to partly rugose. Marginal row distinct. Explanate margin very broad, about as wide as half width of each disc, with honeycomb structure, humeral angles subangulate. Surface strongly, shallowly punctate, with irregular wrinkles, appears irregular to partly rugose. Lateral margination extremely fine.

Clypeus flat, about as long as wide, with deep clypeal grooves converging in sharp angle (fig. 174). Surface microreticulate, with a few large punctures, glabrous. Labrum narrow, emarginate to 1/4 length. Antennal insertions touching each other. Antennae long, extending to 2/3 length of metasternum. Length ratio of antennal, segments: 100:56:60:60:65:56:60:60:60:65:130. Segment 3 slightly longer than 2 (fig. 176).

Prosternal collar moderately large, with sides not angulate. Prosternal process broad, moderately expanded apically, its surface punctured and with irregular wrinkles, appears rugose (fig. 174).

Legs slim, tarsi moderately broad, the last segment as long as the third. Claws on both inner and outer margin with very short pecten, only slightly extending behind ventral margin of claw (fig. 175).

Host plant and bionomics unknown.

DISTRIBUTION

MADAGASCAR CENTRE, MADAGASCAR EST (map 11).

REMARKS

It is a unique species within the Afrotropical Aspidimorphini. It differs distinctly from all species of the tribe in only four basal, glabrous antennal segments. At first glance, it resembles members of the genus *Laccoptera,* especially in strongly sculptured pronotum and elytra, but species of the genus *Laccoptera* differ in larger prosternal collar with angulate sides, and more or less elevated clypeus. Species of the genus *Laccoptera* are larger, always above 5.5 mm. Some Malagasy species of the genus *Cassida* look very similar to *Mahatsinia nodulosa* especially *C. rimosa* (BOHEMAN, 1854) is extremely similar but differs in claws without pecten. The similarity suggests social mimicry, a phenomenon observed in African and Neotropical Casidinae.

MATERIAL EXAMINED

MADAGASCAR CENTRE: – Antananarivo Prov., Ankazobe, Manankazo env., 26–29. XI. 2002 (*MRACEK & JENIS*) [FK, 1 ex., MS, 2 ex.]. – Mahatsinjo near Tananarive [=

Antananarivo] [LB, 1 ex., MM, 5 ex.]. – Tananarive [= Antananarivo] [MM, 1 ex., MNHN, 1 ex.].

MADAGASCAR EST: – Beforona [MNHN, 3 ex.]. – Forêt Tanala [SD, 1 ex.]. – Maorantsetra [MNHN, 1 ex.]. – Périnet, prov. Moramanga, 19. I. 1938 (*B. KRECZMER*) [MIZPAS, 1 ex.]. – Périnet, 24. vii. 1991, (*R. SCIAKY*) [SZ, 1 ex.]. – Toamasina distr., Antsahatsaka, 9-11. XII. 1997 (*J. STOLARCZYK*) [MS, 1 ex.].

MADAGASCAR [DEI, 2 ex.].

Tribe Cassidini GYLLENHAL, 1813

Genus *Andevocassis* SPAETH, 1924

Andevocassis SPAETH, 1924: 310 (type species: *Cassida picta* SPAETH, 1905 = *Cassida nigroguttata* FAIRMAIRE, 1904, by monotypy). – HINCKS, 1952: 338. – SEENO and WILCOX, 1982: 177. – BOROWIEC, 1994a: 18; 1999: 233; 2002: 54.

DIAGNOSIS

Moderately large cassids, body length 5-7.2 mm. Body regularly oval. Pronotum semicircular, with maximum width at base. Pronotal disc distinctly separated from explanate margin, smooth, shiny. Explanate margin broad, smooth, shiny. Elytral base only slightly wider than pronotum. Elytral disc slightly depressed. Puncturation of disc regular, surface of disc often without special sculpture, intervals distinctly wider than rows. Marginal row distinct. Explanate margin of elytra broad, smooth and shiny. Clypeus short, triangular, convex, with deep transverse frontoclypeal sulcus. Venter of pronotum without antennal grooves. Prosternal collar long, with subangulate sides. Head cavity on sides margined by sharp carina. Antennae moderately long, third segment longer than the second, segments 8-10 not longer than wide. Last segment of tarsi as long as third, bilobate segment. Claws simple.

Andevocassis at first glance is very similar to African *Aethiopocassis*, especially body coloration with black and reddish-brown pattern is similar to many species of African genus; however both genera differs in pronotum structure. In *Andevocassis* pronotum is regularly semicircular with bisinuate base and maximum width at base, while in *Aethiopocassis* pronotum is elliptical or transversely trapezoidal, with base not bisinuate, and maximum width in or before the middle.

DISTRIBUTION

Only one species, endemic to Madagascar.

Andevocassis picta (SPAETH, 1905)
(fig. 177-181, 382, 383, map 14)

Cassida nigroguttata FAIRMAIRE, 1904: 275. – WEISE, 1910c: 480, not *C. nigroguttata* GORHAM, 1885.
Cassida nigropunctata [sic]: SPAETH, 1924: 310.

Cassida picta SPAETH, 1905: 104; 1915d: 154. – WEISE, 1910: 480 (as syn. of *nigroguttata*).
Cassida (Cassida) picta: SPAETH, 1914: 116.
Andevocassis picta: SPAETH, 1924: 310. – BOROWIEC, 1999: 233.

TYPE MATERIAL

Aspidomorpha nigroguttata FAIRMAIRE: syntype: « Madagascar » [MNHN].

Aspidomorpha picta SPAETH: syntype: MADAGASCAR NORD: « Diégo-Suarez [= Antsiranana], coll. Donckier » [MM]. – 2 syntypes: « Madagascar, Nickerl » [1 MM, 1 NMP].

DESCRIPTION

Length: 5.1-7.2 mm, width: 4.1-5.7 mm, length of pronotum: 1.8-2.5 mm, width of pronotum: 3.2-4.45 mm, length/width ratio: 1.24-1.31, width/length of pronotum ratio: 1.75-2.0. Body short oval, male slightly stouter than female (fig. 177, 382).

Pronotum yellowish-brown to reddish brown. Pronotal disc with four black spots, two large at base close to scutellum, and two small on anterolateral lobes. Elytral disc yellowish-brown to reddish brown with black spots: two small, round at base close to anterior corners of scutellum, two large, round in humeral impressions, large, elongate behind scutellum, sometimes divided into two smaller spots, four, round in posterior half of disc close to suture, two large, elongate in posthumeral area, and two close to base of posterolateral spots of explanate margin of elytra. These spots vary in size but always present. Explanate margin yellowish-brown to reddish brown with large humeral and posterolateral spots, and narrow sutural spot. Clypeus, ventrites, and legs uniformly yellowish brown, in some specimens apex of tibiae and tarsi more or less infuscate to black. Antennal segments 1-5 yellow, segments 6-11 vary in colour; usually segments 10-11 black, segments 6 and 7 more or less infuscate, and segments 8 and 9 yellow. Sometimes segment 9 partly black, segments 6 and 7 yellow, but usually darker yellow than segments 8 and 9. In extreme cases only two last segments black, or segments 6-11 completely black.

Pronotum semicircular, with maximum width at base, base on sides emarginate, basal corners well marked, distinctly protruding posterad, form a distinct denticle. Disc moderately convex, distinctly separated from explanate margin. Surface of disc smooth and shiny. Explanate margin narrow, but well marked, tends to form a gutter, especially in anterolateral parts. Its surface impunctate, smooth and shiny.

Scutellum large, triangular, without transverse sulcus or impression. Base of elytra only slightly wider than pronotum, humeri slightly protruding anterad, rounded. Basal margin of each disc distinctly bisinuate, strongly crenulate, especially in praehumeral emargination. Disc regularly, evenly convex, with top of convexity in middle (fig. 178, 383), without impressions, only 3rd and 4th rows of punctures in position of principal impression slightly more impressed than in other part of disc. Puncturation completely regular, with scutellar row of several punctures, rows of punctures slightly impressed. Puncturation in rows moderately coarse to coarse, dense, distance between punctures from slightly narrower to twice wider than puncture diameter. Marginal row distinct, its punctures distinctly coarser than on disc. Intervals flat to slightly elevated, mostly twice

to thrice wider than rows, but in some specimens in posterolateral part of disc up to four times wider than rows. Marginal interval distinct on whole its length, broad. Surface of disc from slightly dull to shiny. Explanate margin narrow, moderately deflexed, in the widest part c. as wide as 1/3 width of each disc of elytron, in apical part as wide as three marginal intervals together; lateral margin simple but distinctly marginate, especially in anterior half of its length. Surface of explanate margin impunctate, smooth, from slightly opaque to shiny. Surface appears regular. Apex of elytral epipleura bare.

Clypeus very broad, 1.8-1.9 times as wide as long, forming elevated triangular plate with angulate apex. Lateral sulci invisible. Surface of clypeal triangle slightly impressed, with several moderately coarse punctures, appears slightly irregular. Labrum distinctly emarginate to 1/4 length (fig. 179). Antennae slim, length ratio of antennal segments: 100:32:48:48:46:46:40:40:48:52:108. Segment 3 c. 1.5 times as long as 2 and c. as long as segment 4 (fig. 181).

Prosternal collar very long, longer than length of first antennal segment, without lateral emargination. Venter of pronotum without antennal grooves, but head cavity bordered laterally by a sharp carina. Prosternal process between coxae broad, wider than coxa, very strongly expanded apically, in middle shallowly impressed, apex with several coarse punctures. Surface of mid part of prosternal process shiny, apical part appears more or less irregular.

Legs slim, covered by very sparse, adherent setae. Claws large, simple (fig. 180).

DISTRIBUTION

MADAGASCAR NORD, MADAGASCAR CENTRE (map 14).

REMARKS

A very distinct species with no other relatives in Madagascar.

MATERIAL EXAMINED

MADAGASCAR NORD: – Diégo-Suarez [= Antsiranana] [NMP, 3 ex.]. – Diégo-Suarez [= Antsiranana], 1893(*CH. ALLUAUD*) [MNHN, 7 ex.]. – Mt. d'Ambre, I, II, X, XII [MNHN, 11 ex.].

MADAGASCAR CENTRE: – Ankazobe, Ambohitantely, Tampoketsa, 1600 m, 27. XII. 1956 (*P. GRIVEAUD*) [MNHN, 1 ex.]. – Antananarivo Prov., Manankazo env., 26-29. XI. 2002 (*MRACEK*) [FK, 1 ex.]. – La Mandraka, Manjakandriana, 30. X. 1956 (*P. GRIVEAUD*) [MNHN, 1 ex.].

MADAGASCAR [BMNH, 1 ex.].

Genus: *Chiridopsis* SPAETH, 1922

Chiridopsis SPAETH, 1922: 1003 (type species: *Coptocycla nigrosepta* FAIRMAIRE, 1891, designated by BOROWIEC, 1999: 296). – BOROWIEC, 1994a: 16; 1999: 296; 2005: 384.

Chiridopsis SPAETH, 1924: 337 (type species: *Coptocycla aubei* BOHEMAN, 1855, by original designation). – GRESSITT, 1952: 482. – HINCKS, 1952: 340. – GRESSITT and KIMOTO, 1963: 962. – SEENO and WILCOX, 1982: 177. – CHEN *et al.*, 1986: 555, hom. and syn. (see note below).
Chirida CHAPUIS, 1875: 405. – SPAETH, 1914: 123, part (Old World species).

DIAGNOSIS

Small to moderately large cassids, body length 4-8 mm. Body regularly convex, from almost hemispherical to slightly cylindrical. Pronotum elliptical, with rounded sides and maximum width c. in middle. Pronotal disc distinctly separated from explanate margin, usually smooth and glabrous. Explanate margin broad, transparent, smooth and glabrous. Elytral base distinctly wider than pronotum. Elytral disc regularly convex. Puncturation of disc usually regular, only occasionally punctures have tendency to form irregular rows. Marginal row distinct. Explanate margin of elytra broad, declivous, usually smooth and glabrous, occasionally shallowly punctate, transparent. Clypeus flat to convex, without or with fine clypeal lines. Venter of pronotum with deep antennal grooves, separated laterally by sharp carina but prosternal collar without lateral emargination. Antennae usually slim, third segment distinctly longer than the second, segments 8-10 usually slightly longer than wide. Last segment of tarsi as long as third, bilobate segment. Claws usually with distinct basal tooth.

Distinct genus, well characterised by venter of pronotum with deep antennal grooves separated laterally by sharp carina but prosternal collar without lateral emargination. Only *Psalidoma* sp. has the same characters but differs in large body, with length above 8.5 mm, not transparent marginalia and irregularly punctured elytra without marginal row.

Formally, the genus *Chiridopsis* was described by SPAETH in 1924, with designation of *Coptocycla aubei* BOHEMAN, 1855 as type species. However, SPAETH in 1922 cited the name *Chiridopsis* as a binom with two species: *Chiridopsis nigrosepta* (FAIRMAIRE, 1891) and *Ch. rothschildi* SPAETH, 1922. According to the International Code on Zoological Nomenclature the name *Chiridopsis* SPAETH, 1922 is available (because was cited with available species name), with type species *Coptocycla nigrosepta* FAIRMAIRE, 1891, designated by BOROWIEC (1999). Thus, the name *Chiridopsis* SPAETH, 1924 is a junior homonym and synonym.

DISTRIBUTION

Old World tropics and subtropics, 66 species in Afrotropical and Oriental Regions, 9 recorded from Madagascar.

Key to species

1. Elytral disc black (fig. 389, 400) ..... **2.**
–. Elytral disc yellow (fig. 402), or yellow with red to brown stripes (fig. 403), or black with yellow spots (fig. 384, 386, 390, 394, 396) ..... **4.**
2. Explanate margin of elytra mostly or completely yellow ..... **3.**
–. Explanate margin of elytra brownish–black, only extreme margin yellowish ..... ***limbella*** (FAIRMAIRE)

3. Large, length 6.0-6.3 mm ..... ***marginepunctata*** BOROWIEC, black form
–. Small, length 4.5-5.55 mm ..... ***leopardina*** (BOHEMAN), black form
4. Elytral disc black with yellow spots (fig. 384, 386, 390, 396), sometimes spots large then black background forms reticulation (fig. 394), pronotal disc with black, yellow spotted figure or completely black ..... **5.**
–. Elytral disc yellow (fig. 402), or yellow with dark punctures along sides, or yellow with red to brown stripe along suture and along sides of disc (fig. 403), pronotal disc yellow or with 3–4 short, brown stripes basally ..... ***trizonata*** (FAIRMAIRE)
5. Yellow spots on elytra irregular, partly coalescent, form irregular yellow patches or stripes (fig. 384, 396, 397). Black margin of disc usually straight or very shallowly emarginate in the middle ..... **6.**
–. Yellow spots on elytra mostly regular round, separate, at most two adjoining spots partly coalescent (fig. 386, 388, 390, 392, 394). Black margin of disc in the middle usually deeply emarginate by yellow lateral fold ..... **7.**
6. Pronotal disc uniformly black, anterior margin of black trilobate (fig. 384). Marginal interval of disc mostly black, only in front of humerus and on apex of disc yellow (fig. 385) ..... ***atricollis*** BOROWIEC
–. Pronotal disc on black figure with two large and one yellow spot, anterior margin of black multisinuate (fig. 396, 397). Marginal interval of disc mostly or completely yellow (fig. 398) ..... ***maculata*** BOROWIEC
7. Explanate margin of elytra steeply declivous, strongly narrowed posterad, on apex width of marginalia 3-4 times narrower than in the middle. Black reticulation on disc broad, in several places wider than half width of large yellow spots (fig. 386, 388, 390, 392) ..... **8.**
–. Explanate margin of elytra moderately declivous, in external third subhorizontal, moderately narrowed posterad, on apex width of marginalia only twice narrower than in the middle. Black reticulation on disc narrow, always narrower than half width of large yellow spots (fig. 394) ..... ***nigroreticulata*** BOROWIEC
8. Surface of explanate margin of elytra impunctate, smooth, regular. Only last antennal segment partly infuscate or antennae uniformly yellow ..... **9.**
–. Surface of explanate margin of elytra shallowly punctate, appears slightly irregular. Two last antennal segments infuscate ..... **10.**
9. Anterior margin of pronotum only slightly convex, maximum width of pronotum distinctly before its mid length. Humerus with one large and one small yellow spot, thus elytra with 10 yellow spots (fig. 392). Larger, length 5.9-6.5 mm .... ***nickerli*** (SPAETH)
–. Anterior margin of pronotum only distinctly convex, maximum width of pronotum in or only slightly before its mid length. Humerus only with one large yellow spot, thus elytra with 9 yellow spots (fig. 390). Smaller, length 4.7-5.7 mm .... ***levis*** BOROWIEC
10. Large, length 6.0-6.3 mm ..... ***marginepunctata*** BOROWIEC, maculate form
–. Small, length 4.4-5.55 mm ..... ***leopardina*** (BOHEMAN), maculate form

Chiridopsis atricollis Borowiec, 2005
(fig. 182-186, 384, 385, map 15)

Chiridopsis atricollis Borowiec, 2005: 385.

Type material

Holotype: « Madagascar Nord: Ambohitra [= Montagne d'Ambre] env., 25. XII. 2002, lgt. Mráček » (LB).

Description

Length: 5.05 mm, width: 4.25 mm, width of pronotum: 3.2 mm, length of pronotum: 1.9 mm, length/width ratio: 1.19, pronotal width/length ratio: 1.68. Body almost circular (fig. 182, 384).

Pronotal disc mostly black, anterior margin of black spot trilobate. Explanate margin of pronotum yellow. Scutellum black. Disc of elytra mostly black, except yellow pattern which forms irregular large spots in anterior 1/3 of disc as in fig. 182, 384, and two large and two small, circular spots in and behind the middle but apical fourth of disc completely black. Marginal interval mostly black, only area in front of humerus and apex yellow. Explanate margin of elytra yellow, only its anterior margin in the middle narrowly black. Ventrites uniformly yellow. Antennal segments 1-9 yellow, two apical segments black.

Pronotum not as regularly ellipsoidal as in most other species, with maximum width slightly behind the middle and slightly angulate basal corners hidden under anterior margin of elytra. Elytral disc regularly convex, without impressions, yellow spots slightly elevated (fig. 183, 385). Explanate margin of elytra strongly declivous, but extreme lateral margin slightly more distinctly explanate than in *Ch. leopardina* (Boh.). Surface of explanate margin very shallowly punctate, appears almost smooth.

Clypeus with very faint clypeal lines, visible only in basal half of clypeal plate (fig. 184). Central part of clypeus flat, without median groove, shiny but with microreticulation and few small punctures. Antennae stout, length ratio of antennal segments: 100:42:62:66:58:38:58:50:50:50:96, segment 3 approximately 1.5 times longer than segment 2 (fig. 186).

Claws with large basal tooth (fig. 185).

Distribution

Madagascar Nord (map 15).

Remarks

It is well characterised by its dorsal pattern. Almost completely black pronotal disc have only black forms of *Ch. leopardina* (Boh.) and *Ch. marginepunctata* Bor. but they distinctly differ in uniformly black elytral disc while *Ch. atricollis* Bor. has elytral disc with yellow pattern. Yellow pattern with partly joined spots has *Ch. maculata* Bor. but it differs in pronotal disc with yellow pattern, and presence of yellow pattern in

apical fourth of elytral disc broadly joined with yellow marginal interval while in *Ch. atricollis* BOR. apical fourth of elytral disc is completely black.

MATERIAL EXAMINED

No additional material.

Chiridopsis leopardina (BOHEMAN, 1855)

(fig. 187-191, 386-389, map 16)

Coptocycla leopardina BOHEMAN, 1855: 255, 1856: 175, 1862: 434. – GEMMINGER and HAROLD, 1876: 3671. – XAMBEU, 1906: 149 (biology).
Chirida leopardina: SPAETH, 1911: 276.
Chiridopsis leopardina: BOROWIEC, 1985b: 242; 1999: 300; 2005: 385.
Coptocycla hyalocincta FAIRMAIRE, 1901b: 247. – BOROWIEC, 1999: 300 (as syn.).
Chirida hyalocincta: WEISE, 1910: 483. – SPAETH, 1914: 126.

TYPE MATERIAL

Chiridopsis leopardina BOHEMAN: lectotype: « Madag. Melly, Type » [NRS]. – Paralectotype: « Madag. Dupont » [NRS]. – Paralectotype: « Madag. Reiche » [NRS]. – Paralectotype: « Madag. M. Gall. » [NRS], designated by BOROWIEC (1999).

Chiridopsis hyalocincta FAIRMAIRE: holotype: « Madag. Suberbieville [= Maevatanana] » [MNHN].

DESCRIPTION

Length: 4.4-5.55 mm, width: 3.65-4.45 mm, width of pronotum: 2.65-3.35 mm, length of pronotum: 1.7-1.95 mm, length/width ratio: 1.16-1.29, pronotal width/length ratio: 1.55-1.72. Body in male subcircular, in female short-oval (fig. 187, 386, 388, 389).

Forms two aberrations. In maculate form pronotum yellow, disc with black pattern as in fig. 386, 388. Scutellum yellow or yellow with black margins. Elytral disc black, except partly yellow marginal interval, in most specimens with more or less regular, circular 24 yellow spots. In some aberrations the smallest spots absent, or two to three central spots coalescent (fig. 388) then number of spots decreases to 18-22. Margin of black slightly irregular, in humeral part usually not reaching behind submarginal row, behind lateral fold reaching slightly behind submarginal row but yellow marginal interval never completely interrupted by black spot. In black form whole pronotal and elytral disc black, usually including marginal interval disc but sometimes lateral fold yellow (fig. 389). Ventrites in both forms uniformly yellow. Antennal segments 1-9 yellow, two last segments infuscate to black.

Pronotum regularly ellipsoidal with maximum width approximately in the middle, no basal corners. Elytral disc moderately, regularly convex, without impressions, yellow spots slightly elevated (fig. 188, 387). In the black form parts of disc homologous to yellow spots also slightly convex. Explanate margin of elytra strongly declivous, extre-

me lateral margin as distinctly marked as in *Ch. leopardina* BOH. Surface of explanate margin distinctly punctate, looks irregular.

Clypeus with faint clypeal lines, visible only in basal 3/4 length of clypeal plate. Central part of clypeus slightly convex, without median groove, shiny but with microreticulation and few small punctures (fig. 189). Antennae slim, length ratio of antennal segments: 100:43:75:68:61:50:50:54:54:57:107, segment 3 approximately 1.7 times longer than segment 2 (fig. 191).

Claws with large basal tooth (fig. 190).

DISTRIBUTION

Whole MADAGASCAR (map 16) and COMORES.

REMARKS

This species belongs to the group of species with regular pattern of elytral disc composed of 18-24 circular yellow spots. *Ch. nigroreticulata* BOROWIEC is the most distinct, differs in broad, subhorizontal explanate margin of elytra, the largest yellow, elytral spots thus black background forms thin black reticulation. *Ch. nickerli* (SPAETH) differs in distinctly larger size (length 5.9-6.5 mm), smooth surface of explanate margin of elytra, and different pronotal shape with only softly convex anterior margin of pronotum and maximum width of pronotum in anterior third while in *Ch. leopardina* (BOHEMAN) body length is always below 5.6 mm, surface of explanate margin of elytra is shallowly but distinctly punctate, and anterior margin of pronotum is regularly, distinctly convex and maximum width of pronotum in or slightly before its mid length. *Ch. levis* BOR. differs in smooth surface of explanate margin of elytra and antennae uniformly yellow or only last segment infuscate apically (in *Ch. leopardina* (BOH.) two apical segments are infuscate to black). In *Ch. leopardina* (BOH.) on humeral part of elytral disc usually occur one large and one small yellow spots, while in *Ch. levis* BOR. on humerus occurs only one large spot. *Ch. marginepunctata* BOR. is the most similar and differs only in distinctly larger size (length 6.0-6.3 mm) and slightly coarser and deeper punctate explanate margin of elytra. The black form of *Ch. leopardina* (BOH.) is also very similar to the black form of *Ch. marginepunctata* BOR. but it differs, like the maculate form, in distinctly larger size and slightly coarser and deeper punctate explanate margin of elytra.

Coptocycla hyalocincta FRM. is only colour aberration of *Ch. leopardina* (BOH.) with uniformly black elytral disc; it has slightly elevated parts of elytra homologous to yellow spots of nominotypical form.

MATERIAL EXAMINED

COMORES: – Anjouan, Nioumakéle (*DESRUISSEAUX*) [IRSN, 1 ex]. – Anjouan Ouani, Mutsamuda, 27. X. 1983 (*I. JANSSENS*) [MRAC, 1 ex.]. – Mayotte, 1884 (*L. HUMBOLDT*) [MNHN, 1 ex.]. – Mohéli Miringoni, 5-7. XI. 1983, 9. XI. 1983 (*R. JOCQUÉ*) [MRAC, 2 ex.].

MADAGASCAR NORD: – Amber Gebirge [ZMHU, 3 ex.] (*H. ROLLE*). – Mt. d'Ambre, III, V, XI [MNHN, 2 ex.]. – Diégo-Suarez [= Antsiranana] (*JUNOD*) [MRAC, 1 ex.,

SG, 6 ex.]. – Diégo-Suarez [= Antsiranana] 1893 (*Ch. Alluaud*) [MNHN, 22 ex.]. – Vohemar, V. 1912 [IRSN, 1 ex.].

Madagascar Sambirano: – Ambanja, Bas Sambirano, 29. VI. 1948 [MNHN, 1 ex.]. – Nossi-Bé, 28. XI. 1895 [ZMHU, 1 ex.].

Madagascar Ouest: – Ambivy, Majunga [= Mahajanga], vall. Kamoro, V. 1964 (*G. Schmitz*) [MRAC, 1 ex.]. – Ampijoroa, Andranofasika [MNHN, 1 ex.]. – Ampijoroa, Tsaramandroso [MNHN, 1 ex.]. – Maevatanana [IRSN, 1 ex., MNHN, 12 ex.]. – Marovoay, 1911 (*J. Descarpentries*) [MNHN, 1 ex.]. – Morondava, sud. de Befasy, I. 1956 (*R. Paulian*) [MNHN, 1 ex.]. – Morondava, Kirindi [= Kirindy] Nat. res., 7. XII. 1995 (*I. Jenis*) [MS, 1 ex.]. – Nosy Komba, 900 m, V. 1956 [MNHN, 1 ex.]. – Sambirano, Nosy-Be, forêt de Sokobe [= Lokobe] (*A. Robinson*) [MNHN, 1 ex.].

Madagascar Centre: – massif de l'Analavelona, 1320 m [MNHN, 4 ex.]. – La Mandraka, I-II. 1960 [MRAC, 1 ex.]. – Mahatsinjo [MNHN, 1 ex.]; Mahatsinjo (*E. Le Moult*) [IRSN, 1 ex.]. – Mandritsara, XII. 1937 (*J. Vadon*) [MRAC, 1 ex.]. – Tananarive [= Antananarivo] [IRSN, 1 ex.].

Madagascar Est: – Ambodivoahangy, VII. 1949, Michel [MNHN, 3 ex.], I. 1960, X. 1961 (*J. Vadon*) [LB, 2 ex., MRAC, 5 ex.]. – Ambodivoangy, Maroantsetra, 15. II. 1949 [MNHN, 1 ex.]. – Moramanga, Amparafara, XII. 1937 (*J. Vadon*) [MRAC, 1 ex.]. – Ampasimbe [MNHN, 1 ex.]. – Andranofotsy, 12. II. 1937 (*J. Vadon*) [MRAC, 3 ex.]. – Ankalampona, Navana-Maroantsetra, 130 m, 21. III. 1958 (*P. Gireault*) [MNHN, 1 ex.]. – Antakotako, 5. II. 1937, 7. I. 1938 (*J. Vadon*) [MRAC, 8 ex.]. – Antakotako, Maroantsetra, V. 1949 (*Michel*) [MNHN, 2 ex.]. – Antalaha, XII. 1938 (*J. Vadon*) [MRAC, 1 ex.]. – Antalaha, II. 1945 (*Abadie*) [MNHN, 1 ex]. – Pays Antsihanaka [IRSN, 1 ex.]. – Fampanambo, I. 1959, II. 1960, XII. 1960 (*J. Vadon*) [MRAC, 3 ex.]. – Fampanambo, Maroantsetra, 25 m, III. 1958 (*R. Paulian*) [MNHN, 6 ex.]. – Fenerive, Soanierana, 1905 (*A. Mathiaux*) [MNHN, 5 ex.]. – Fianarantsoa env., S Ranomafana, 900 m, 5-16. I. 2001 (*S. Murzin*) [LB, 1 ex.]. – Forêt de Fito [MRAC, 1 ex.], VI-VII. 1897 [MKB, 142 ex.]. – Fort-Dauphin [= Tolanaro], 1900 (*Ch. Alluaud*) [MNHN, 1 ex.]. – Ivontaka, Maroantsetra, 8 m, III. 1958 (*P. Soga & E. Raharizonina*) [MNHN, 1 ex.]. – Manambato, sur l'Anove (*A. Robinson*) [MNHN, 1 ex.]. – Maroantsetra, XI. 1934, III. 1935, X. 1935, II. 1936, XI. 1938, [MNHN, 10 ex.]. – Maroantsetra, II. 1919 (*E. Le Moult*) [IRSN, 2 ex.]. – Maroantsetra, Fampanambo, VII [MNHN, 5 ex.] (*R. Paulian*); Moramanga, Abadie [MNHN, 1 ex.]; Nandihizina, 10. XII. 1938 (*J. Vadon*) [MRAC, 1 ex.]. – Périnet, prov. Moramanga, 1. II. 1938 (*B. Kreczmer*) [MIZPAS, 1 ex.]. – Ranomafana, Tamatave (*Rogez*) [MNHN, 1 ex.]. – IV. 1941, Sambava, massif du Marojejy, 1700 m, I. 1960 (*P. Soga*) [MNHN, 9 ex.]. – Tamatave [= Toamasina] [MNHN, 1 ex., ZMHU, 1 ex.]. – Tamatave [= Toamasina] (*H. Rolle*) [IRSN, 1 ex.]. – Tamatave [= Toamasina] et forêt Alahakato, I-VII. 1888 (*Perrot frères*) [LB, 1 ex., MRAC, 2 ex.]. – Tamatave [= Toamasina], Ankadirano, route de Fenerive, VII. 1958 (*Randinby*) [MNHN, 1 ex.].

Madagascar Sud: – Pays Androy, 1900 (*Ch. Alluaud*) [MNHN, 1 ex.]. – "Anlaloka", II. 1945 (*Abadie*) [MNHN, 1 ex.]. – "Abessinière", "Nassi Berg", 28. XI. 1995 [ZMHU, 1 ex.]. – "Fizono", IX. 1959 (*J. Vadon*) [MRAC, 1 ex.].

Madagascar [MCZC, MNHN, NRS, 18 ex.]. – Madagascar (*J. Goudot*) [ZMHU, 4 ex.]. – Madagascar, Heyne [ZMHU, 6 ex.]. – Madagascar (*E. Le Moult*) [IRSN, 1

ex.]. – Madagascar int. austr. (*J.M. Hildebrandt*) [ZMHU, 1 ex.]. – NW Madagascar (*J.M. Hildebrandt*) [ZMHU, 1 ex.]. – Madagascar (*Abadie*) [MNHN, 1 ex.].

Chiridopsis levis Borowiec, 2005
(fig. 192-196, 390, 391, map 15)

Chiridopsis levis Borowiec, 2005: 387.

Type material

Holotype: Madagascar Ouest: « Madagascar, Morondava distr., Kirindy res., 6. XII. 1995, J. Stolarczyk leg. » [DBET]. – 4 paratypes: Madagascar Nord : « Madagascar, Territoire de Diégo-Suarez [= Antsiranana] » [DBET]. – Paratype: « Madagascar » [DBET].

Description

Length: 4.7-5.7 mm, width: 4.2-5.0 mm, width of pronotum: 3.05-3.4 mm, length of pronotum: 1.8-2.2 mm, length/width ratio: 1.12-1.24, pronotal width/length ratio: 1.56-1.69. Body almost circular (fig. 192, 390).

Pronotum yellow, disc with black pattern as in fig. 192, 390. Scutellum yellow. Elytral disc black, except yellow marginal interval, with 18 more or less round yellow spots. Margin of black irregular, especially behind half length of elytra black margin reaching behind submarginal row then yellow marginal interval interrupted by black spot. Ventrites uniformly yellow. Antennae almost uniformly yellow, only last segment partly or completely infuscate.

Pronotum regularly ellipsoidal with maximum width approximately in the middle. Elytral disc strongly, regularly convex, without impressions, yellow spots slightly elevated (fig. 193, 391). Explanate margin of elytra strongly declivous, extreme lateral margin hardly marked as in *Ch. nickerli* (Sp.), distinctly less marked than in *Ch. leopardina* (Boh.). Surface of explanate margin completely smooth, as in *Ch. nickerli* (Sp.).

Clypeus with very faint clypeal lines, visible only in basal 2/3 length of clypeal plate. Central part of clypeus flat, without median groove, shiny but with microreticulation and few small punctures (fig. 194). Antennae slim, length ratio of antennal segments: 100:45:65:80:70:60:63:56:56:56:105, segment 3 approximately 1.4 times longer than segment 2 (fig. 196).

Claws with large basal tooth (fig. 195).

Distribution

Madagascar Nord, Madagascar Ouest (map 15).

Remarks

This species belongs to the group of species with regular pattern of elytral disc composed of 18-24 circular yellow spots. *Ch. nigroreticulata* Bor. is the most distinct, differs in broad, subhorizontal explanate margin of elytra, the largest yellow elytral

spots, thus black background forms thin black reticulation. *Ch. leopardina* (BOH.) and *Ch. marginepunctata* BOR. differ in punctate surface of explanate margin of elytra and two apical antennal segments infuscate to black (only last segment infuscate in *Ch. levis* BOR.). *Ch. nickerli* (SP.) is the most similar but differs in larger size (length 5.9-6.5 mm) and in anterior margin of pronotum softly convex with maximum width of pronotum distinctly in anterior third.

MATERIAL EXAMINED

No additional material.

Chiridopsis limbella (FAIRMAIRE, 1899)

Cassida limbella FAIRMAIRE, 1899a: 507.
Cassida (*Cassida*) *limbella*: SPAETH, 1914: 116.
Chiridopsis limbella: BOROWIEC, 1999: 300; 2005: 388.
Chiridopsis vitreicollis SPAETH, 1936a: 109. – BOROWIEC, 1999: 300 (as syn.).

TYPE MATERIAL

Chiridopsis limbella FAIRMAIRE: holotype: « Madag. Perr. » (*PERRIER DE LA BÂTHIE*) « Madagascar coll. Léon FAIRMAIRE, 1906 » [MNHN].

Chiridopsis vitreicollis SPAETH: holotype: « Madagascar, E. Witte » [MM].

DESCRIPTION

Length: 4.2 mm, width: 3.2 mm, width of pronotum: 2.6 mm, length of pronotum: 1.5 mm, length/width ratio: 1.31, pronotal width/length ratio: 1.73. Body short-oval, slimmer than in black form of *Ch. leopardina* (BOH.), similar in shape to body of *Ch. trizonata* (FRM).

Pronotal and elytral disc black. Explanate margin of pronotum in basal half brownish-black except yellowish extreme margin, in anterior half yellow. Explanate margin of elytra brownish-black, only extreme margin yellowish. Ventrites yellowish-brown, only central plate of clypeus brownish. Basal three antennal segments yellow but antennae in studied specimens broken from fourth segment.

Pronotum regularly ellipsoidal with maximum width approximately in the middle. Elytral disc regularly convex, without impressions or elevated parts. Explanate margin of elytra strongly declivous, in the widest part as wide as two marginal intervals together. Surface of explanate margin smooth.

Clypeus with distinct and impressed clypeal lines, clypeal plate slightly convex, in apical half with median groove, shiny but with distinct microreticulation and with 8 punctures. Clypeus with faint but distinct clypeal lines. Central part of clypeus flat, without median groove, shiny but with microreticulation and few small punctures. Antennae stout, length ratio of antennal segments: 100:46:60:64:56:42:48:42:44:44:96, segment 3 approximately 1.3 times longer than segment 2.

Claws with small basal tooth.

DISTRIBUTION
MADAGASCAR.

REMARKS
A very distinct species, the only Malagasy member with dorsum mostly black or dark brown, except yellow anterior part of explanate margin of pronotum and narrowly yellow extreme margin of explanate margin of elytra. Black forms of *Ch. leopardina* (BOHEMAN) and *Ch. marginepunctata* BOROWIEC have pronotal and elytral disc almost completely black but they differ in explanate margin of both pronotum and elytra yellow. *Ch. leopardina* (BOH.) is stouter, more circular in outline, the slimmest females have length/width ratio at most 1.29. The darkest form of *Ch. leopardina* (BOH.) has humeral part of explanate margin infuscate but central and posterior part of the margin is always yellowish. *Ch. marginepunctata* BOR. has similar body shape but differs in larger body (length 6.0-6.3 mm) and distinctly punctate explanate margin of elytra. In black forms of *Ch. leopardina* (BOH.) and *Ch. marginepunctata* BOR. parts of elytral disc homologous with yellow-spotted form are slightly elevated while in *Ch. limbella* (FAIRMAIRE) elytral surface has no elevated parts.

MATERIAL EXAMINED
MADAGASCAR: "Maoranhohe" [MNHN, 1 ex].

Chiridopsis maculata BOROWIEC, 2005
(fig. 197-201, 396-398, map 15)

Chiridopsis maculata BOROWIEC, 2005: 388.

TYPE MATERIAL
Holotype: MADAGASCAR OUEST: « Madagascar, Morondava, forêt au sud de Befasy, I. 1956 » [DBET]. – Paratype MADAGASCAR SUD: « Madagascar, Ambovombe, 5. XII. 1931 » [DBET]. – Paratype MADAGASCAR CENTRE: « Madagascar, Tan., Manjakatompo, 5. I. 1958 » [DBET].

DESCRIPTION
Length: 4.4-4.55 mm, width: 3.3-3.5 mm, width of pronotum: 2.65-2.8 mm, length of pronotum: 1.7-1.75 mm, length/width ratio: 1.26-1.34, pronotal width/length ratio: 1.51-1.60. Body short-oval (fig. 197, 396, 397), slimmer than in *Ch. leopardina* (BOH.), similar in shape to body of *Ch. trizonata* (FRM.).

Pronotum yellow, disc with black pattern as in fig. 197, 396, 397. Scutellum from completely yellow to yellow with black margins. Elytral disc black, except yellow marginal interval, with irregular yellow spots, partly coalescent and sometimes forming more or less distinct longitudinal band along first interval, suture black. Yellow spots on apex of disc always partly coalescent with yellow marginal interval. Margin of black from completely regular to slightly irregular, not or only behind lateral fold reaching

slightly behind submarginal row but yellow marginal never interrupted by black spot. Ventrites uniformly yellow. Antennal segments 1-9 yellow, two last segments infuscate to black. Pronotum regularly ellipsoidal with maximum width approximately in the middle, no basal corners. Elytral disc moderately, regularly convex, without impressions, yellow spots slightly elevated (fig. 198, 398). Explanate margin of elytra strongly declivous, extreme lateral margin as marked as in *Ch. leopardina* (Boh.). Surface of explanate margin shallowly punctate, looks slightly irregular.

Clypeus with very faint clypeal lines, visible in 2/3-3/4 length of clypeal plate. Central part of clypeus flat, without median groove, shiny but with microreticulation and few small punctures (fig. 199). Antennae slim, length ratio of antennal segments: 100:38:64:62:54:42:54:46:50:50:98, segment 3 approximately 1.7 times longer than segment 2 (fig. 201).

Claws with large basal tooth (fig. 200).

Distribution

Madagascar Ouest, Madagascar Centre, Madagascar Sud (map 15).

Remarks

With *Ch. atricollis* Bor. it forms a small group of species with elytral pattern composed of large, partly coalescent irregular spots. *Ch atricollis* Bor. differs in pronotal disc uniformly black (with yellow pattern in *Ch. maculata* Bor.), and yellow pattern of elytral disc occupying only anterior 2/3 of disc with apex of disc completely black, while in *Ch. maculata* Bor. yellow pattern occurs also in apical fourth of elytral disc and sutural apical spot is broadly joined with yellow marginal interval.

Material examined

No additional material.

Chiridopsis marginepunctata Borowiec, 2005

(fig. 202-206, 399-401, map 17)

Chiridopsis marginepunctata Borowiec, 2005: 390.

Type material

Holotype: Madagascar Est: « Madagascar, Tamatave [= Toamasina], forêt "Alahakato", VII. 1888 » [DBET]. – paratype « the same data » [DBET]. – paratype, black aberration: Madagascar Nord: « Madagascar, Mt. d'Ambre, Novembre » [DBET].

Description

Length: 6.0-6.3 mm, width: 5.0-5.35 mm, width of pronotum: 3.5-3.8 mm, length of pronotum: 2.15-2.3 mm, length/width ratio: 1.16-1.23, pronotal width/length ratio: 1.63-1.68. Body in male subcircular, in female short-oval (fig. 202, 399, 400).

Forms two aberrations. In the maculate form pronotum yellow, disc with black pattern as in fig. 202. Scutellum yellow with black margins. Elytral disc black, except partly yellow marginal interval, with more or less regular, circular 20 yellow spots (fig. 202, 399). Margin of black irregular, in humeral part and behind lateral fold reaching behind submarginal row and yellow marginal partly or completely interrupted by black spot. In the black form whole pronotal and elytral disc black, including marginal interval disc (fig. 400). Ventrites in both forms uniformly yellow. Antennal segments 1-9 yellow, two last segments infuscate to black.

Pronotum regularly ellipsoidal with maximum width approximately in the middle, no basal corners. Elytral disc moderately, regularly convex, without impressions, yellow spots slightly elevated (fig. 203, 401). In the black form parts of disc homologous to yellow spots also slightly convex. Explanate margin of elytra strongly declivous, extreme lateral margin as distinctly marked as in *Ch. leopardina* (Boh.). Surface of explanate margin distinctly punctate, looks irregular.

Clypeus with faint clypeal lines, visible only in basal 3/4 length of clypeal plate. Central part of clypeus slightly convex, without median groove, shiny but with microreticulation and few small punctures (fig. 204). Antennae slim, length ratio of antennal segments: 100:38:73:58:56:46:50:50:52:54:88, segment 3 approximately 1.9 times longer than segment 2 (fig. 206).

Claws with large basal tooth (fig. 205).

Distribution

Madagascar Nord, Madagascar Est (map 17).

Remarks

This species belongs to the group of species with regular pattern of elytral disc composed of 18-24 circular yellow spots. *Ch. nigroreticulata* Bor. is the most distinct, differs in broad, subhorizontal explanate margin of elytra, the largest yellow, elytral spots thus black background forms thin black reticulation. *Ch. nickerli* (Sp.) differs in smooth surface of explanate margin of elytra, and different pronotal shape with only softly convex anterior margin of pronotum and maximum width of pronotum in anterior third while in *Ch. marginepunctata* Bor. surface of explanate margin of elytra is distinctly punctate, and anterior margin of pronotum regularly, distinctly convex and maximum width of pronotum in or slightly before its mid length. *Ch. levis* Bor. differs in smooth surface of explanate margin of elytra and antennae uniformly yellow or only last segment infuscate apically (in *Ch. marginepunctata* Bor. two apical segments are infuscate to black). *Ch. leopardina* (Boh.) is the most similar and differs only in distinctly smaller size and slightly finer and shallower punctate explanate margin of elytra. Black forms of *Ch. marginepunctata* Bor. are also very similar to black forms of *Ch. leopardina* (Boh.) but they differ, like the maculate form, in distinctly smaller size and slightly finer and shallower punctate explanate margin of elytra.

Material examined

No additional material.

Chiridopsis nickerli (Spaeth, 1911)
(fig. 207-211, 392, 393, map 17)

Chirida Nickerli Spaeth, 1911: 276; 1914: 126.
Chiridopsis nickerli: Borowiec, 1999: 300; 2005: 390.

Type material

2 syntypes: « Madagascar, Nickerl » [MM]. – 3 syntypes « Madagascar, 1902, Nickerl » [NMP].

Description

Length: 5.9-6.5 mm, width: 5.4-5.6 mm, width of pronotum: 3.7-3.9 mm, length of pronotum: 2.25-2.35 mm, length/width ratio: 1.09-1.16, pronotal width/length ratio: 1.64-1.70. Body almost circular (fig. 207, 392).

Pronotum yellow, disc with black pattern as in fig. 207. Scutellum yellow with black margins, or black with yellow centre. Elytral disc black, except partly yellow marginal interval, with more or less regular, circular 20 yellow spots, humeral spot usually very small (fig. 207, 392). Margin of black irregular, in humeral part, behind lateral fold, and in apical part reaching behind submarginal row and yellow marginal usually thrice interrupted by black spot. Ventrites uniformly yellow. Antennae yellow, or last segments infuscate.

Pronotum not regularly ellipsoidal, anterior margin feebly convex thus maximum width of pronotum distinctly before the middle of disc. Elytral disc strongly, regularly convex, without impressions, yellow spots slightly elevated (fig. 208, 393). Explanate margin of elytra strongly declivous, extreme lateral margin hardly marked. Surface of explanate margin smooth, looks completely regular.

Clypeus with faint clypeal lines, visible in basal 3/4 length of clypeal plate. Central part of clypeus flat, without median groove, shiny but with microreticulation and few small punctures (fig. 209). Antennae slim, length ratio of antennal segments: 100:32:62:77:68:48:64:55:58:56:100, segment 3 approximately 1.9 times longer than segment 2 (fig. 211).

Claws with large basal tooth (fig. 210).

Distribution

Madagascar Ouest, Madagascar Centre, Madagascar Est (map 17).

Remarks

This species belongs to the group of species with regular pattern of elytral disc composed of 18-24 circular yellow spots. *Ch. nigroreticulata* Bor. is the most distinct, differs in broad, subhorizontal explanate margin of elytra, the largest yellow, elytral spots thus black background forms thin black reticulation. *Ch. leopardina* (Boh.) and *Ch. marginepunctata* Bor. differ in punctate surface of explanate margin of elytra and two apical antennal segments infuscate to black [only last segment infuscate in *Ch. nickerli* (Sp.)]. *Ch. levis* Bor. is the most similar but differs in smaller size (length 4.7-5.7 mm) and anterior margin of pronotum regularly, distinctly convex and ma-

ximum width of pronotum in or slightly before its mid length, while in *Ch. nickerli* (Sp.) anterior margin of pronotum is softly convex and maximum width of pronotum distinctly in anterior third.

Material examined

Madagascar Ouest: – Ampijoroa, Ankarafantsika, I. 1957 (*P. Griveaud*) [MNHN, 1 ex.]. – Ampijoroa, Tsaramandrozo (*P. Griveaud*) [MNHN, 4 ex.].

Madagascar Centre: – Massif de l'Analavelona, 1320 m , IX. 1955 (*A. Robinson*) [MNHN, 1 ex.].

Madagascar Est: – Tamatave [= Toamasina] [LB, 1 ex.]. – Tamatave [= Toamasina] et forêts d'Alahakato, VII. 1888 (*Perrot frères*) [LB 1 ex.]. – "Andirorante" [LB, 1 ex.].

Chiridopsis nigroreticulata Borowiec, 2005

(fig. 212-216, 394, 395, map 17)

Chiridopsis nigroreticulata Borowiec, 2005: 391.

Type material

Holotype: Madagascar Est: « Madagascar, Fampanambo, XII. 1960 » [DBET].

Description

Length: 6.6 mm, width: 6.1 mm, width of pronotum: 3.9 mm, length of pronotum: 2.45 mm, length/width ratio: 1.08, pronotal width/length ratio: 1.59. Body almost regularly circular (fig. 212, 394).

Pronotum yellow, disc with black pattern as in fig. 212. Scutellum yellow with black margins. Elytral disc black, with completely yellow marginal interval, with more or less regular, circular 26 yellow spots (fig. 212, 394). Yellow spots large, the largest in comparison with other maculate Malagasy species, occupy more surface of disc than black background thus black forms thin reticulation. Margin of black mostly regular, not reaching behind submarginal row. Ventrites uniformly yellow. Antennae uniformly yellow.

Pronotum almost regularly ellipsoidal with maximum width slightly before the middle, no basal corners. Elytral disc moderately, regularly convex, distinctly impressed behind third spot in oblique humeral line (fig. 213, 395). Explanate margin of elytra moderately declivous, less declivous in comparison with other Malagasy species, external third subhorizontal. Surface of explanate margin smooth, looks regular.

Clypeus with faint clypeal lines, visible in basal 3/4 length of clypeal plate. Central part of clypeus flat, without median groove, shiny but with microreticulation and few small punctures (fig. 214). Antennae slim, length ratio of antennal segments: 100:45:55:72:72:50:62:48:60:60:105, segment 3 only 1.2 times longer than segment 2 (fig. 216).

Claws with very small basal tooth, look almost simple (fig. 215).

DISTRIBUTION

MADAGASCAR EST, MADAGASCAR CENTRE (map 17).

REMARKS

This species belongs to the group of species with regular pattern of elytral disc composed of 18-24 circular yellow spots. It differs from all species of the group in broad, moderately declivous, in external 1/3 width almost subhorizontal explanate margin of elytra. *Ch. nigroreticulata* BOR. has elytral yellow spots largest within the group and the black background reduced to thin reticulation.

MATERIAL EXAMINED

MADAGASCAR CENTRE : – Massif de l'Analavelona, 1320 m, IX. 1955 (*A. ROBINSON*) [MNHN, 1 ex.].

Chiridopsis trizonata (FAIRMAIRE, 1904)

(fig. 217-221, 402-404, map 18)

Coptocycla trizonata FAIRMAIRE, 1904: 276. – SPAETH, 1914: 130.
Chiridopsis trizonata: BOROWIEC, 1994b: 157; 1999: 304; 2005: 391.
Chiridopsis cupula SPAETH, 1926f: 91. – BOROWIEC, 1994b: 157 (as syn.).

TYPE MATERIAL

Coptocycla trizonata FAIRMAIRE: syntype « Madagascar, 1906 » « Coll Léon FAIRMAIRE » « cotype » [MNHN]; syntype MADAGASCAR OUEST: « Soalala Perr. » [MNHN].

Chiridopsis cupula SPAETH: « Malacca» [MM].

DESCRIPTION

Length: 3.8-4.75 mm, width: 2.9-3.55 mm, width of pronotum: 2.4-2.75 mm, length of pronotum: 1.6-1.75 mm, length/width ratio: 1.31-1.34, pronotal width/length ratio: 1.50-1.62. Body short oval, with almost parallel sides (fig. 217, 402, 403).

Very distinct species. Dorsal pattern variable. In the palest form pronotum and elytra uniformly yellow, sometimes only pronotal disc in the middle of basal part with double short stripe and on sides with c-shaped spot then punctures in humeral area of elytral disc with brown or reddish centre (fig. 402). In maculate form pronotal disc at base with large double stripe in the middle and large c-shaped spots on sides, suture broadly red with irregular lateral, brown margins, and broad band along sides of disc, reddish ventrally, brown to black laterally (fig. 403). In intermediate forms sutural and lateral bands reduced to a narrow reddish band. Ventrites usually yellow, but in maculate form sometimes mid parts of thorax and abdomen, and femora in the middle brownish. Antennal segments 1-6 yellow, segments 7-11 more or less infuscate.

Pronotum almost regularly ellipsoidal with maximum width slightly before the middle, no basal corners. Elytral disc moderately, regularly convex, without impressions (fig. 218, 404). Explanate margin of elytra strongly declivous, extreme lateral margin

as distinctly marked as in *Ch. leopardina*. Surface of explanate margin shallowly punctate, looks slightly regular.

Clypeus with faint but distinct clypeal lines. Central part of clypeus flat, without median groove, shiny but with microreticulation and few small punctures (fig. 219). Antennae stout, length ratio of antennal segments: 100:46:60:62:54:40:46:40:42:42:96, segment 3 approximately 1.3 times longer than segment 2 (fig. 221).

Claws with small basal tooth (fig. 220).

DISTRIBUTION

MADAGASCAR OUEST, MADAGASCAR SUD (map 18).

REMARKS

A very distinct species. Its elytral coloration is unique, no other species has elytral disc uniformly yellow or with longitudinal stripes. *Ch. trizonata* (FRM.) and *Ch. maculata* BOR. are the slimmest species of Malagasy *Chiridopsis*, with sides of elytra only slightly convex. *Ch. maculata* BOR. distinctly differs in elytral pattern forming irregular yellow spots on black background. Maculate forms of *Ch. trizonata* (FRM.) have ventrites partly brown while in other Malagasy species ventrites are uniformly yellow.

Ch. cupula SP. was described from "Malacca", probably based on mislabelled specimens. We examined types of both *Coptocycla trizonata* FRM. and *Chiridopsis. cupula* SP. and, without doubts, both are conspecific. Except type of *Ch. cupula*, we have not located any museum specimen of the species from the Oriental region.

MATERIAL EXAMINED

MADAGASCAR OUEST: – Maevatanana [LB, 2 ex.]. – env. de Marovoay, 1911 (*J. DESCARPENTRIES*) [MNHN, 1 ex.]. – Morondava, Kirindi [= Kirindy] Nat. res., 7. XII. 1995 (*I. JENIS*) [MS, 1 ex.].

MADAGASCAR SUD: – Prov. Tuléar [= Toliara], Beza Mahafaly Res., 23°42'S, 44°42'E, 16. XI. 1984, 19. XI. 1984, Malaise trap (*R. W. BROOKS*) [SEM, 2 ex.].

MADAGASCAR [LB, 1 ex.].

Genus: *Hovacassis* SPAETH, 1952

Hovacassis SPAETH in HINCKS, 1952: 347 (type species: *Coptocycla discolor* BOHEMAN, 1855, by monotypy). – HINCKS, 1952: 340. – SEENO and WILCOX, 1982: 178. – BOROWIEC, 1994: 12; 1999: 307.

DIAGNOSIS

Moderately large cassids, body length 7-11 mm. Body subtriangular to almost circular. Pronotum elliptical, with rounded sides and maximum width slightly to distinctly before middle. Pronotal disc distinctly separated from explanate margin by sharp sulcus, smooth and shiny. Explanate margin broad, transparent, smooth and shiny to slightly granulate. Elytral base strongly wider than pronotum. Elytral disc always with conical postscutellar tubercle. Puncturation of disc usually regular, but rows usually

broken by elytral relief. Marginal row distinct. Explanate margin of elytra very broad, moderately deflexed, punctate or granulate, transparent. Clypeus flat, with narrow, fine clypeal lines. Venter of pronotum without antennal grooves, prosternal collar without lateral emargination. Prosternal process very broad, only slightly expanded apically. Antennae extremely slim and long, third segment distinctly longer than the second, segments 8-10 usually slightly longer than wide. Last segment of tarsi slightly longer than third, bilobate segment. Claws simple.

A very distinct genus, well characterised by extremely elongate, slim, filiform antennae, with only three basal, glabrous segments. Similar antennae have only Oriental genera *Thlaspidula* Sp. and *Thlaspidosoma* Sp., and Neotropical *Ischnocodia* Sp., but in both Oriental genera four to five basal segments are glabrous. *Ischnocodia* has only three basal glabrous segments, but differs in very narrow clypeus, and elytra regularly convex without postscutellar elevation.

Distribution

Eight species, restricted to Madagascar.

Key to species

1. Elytral disc with red pattern, forming spots or bands (fig. 407, 411, 413, 415) ..... **4.**

–. Elytral disc with brown or black pattern, without red spots or bands, or elytra uniformly yellow to brown (fig. 405, 409, 417, 418) ..... **2.**

2. Elytral disc without black reticulation, at most with few blacks bands or lines ..... **3.**

–. Elytral disc with black reticulation as in fig. 233 ..... ***flavonigra*** Borowiec

3. Only last antennal segment infuscate to black. Pronotum broader, Wp/Lp 1.75-1.79 ..... ***pulchra*** (Spaeth)

–. Six last antennal segments infuscate to black. Pronotum narrower, Wp/Lp 1.66-1.69 ..... ***brunneofasciata*** Borowiec

4. Elytral disc without black pattern, or it occurs only in suture (fig. 411, 415) .... **5.**

–. Elytral disc with distinct black pattern, also in mid part of disc and on its sides (fig. 407, 413) ..... **6.**

5. Pronotum without black pattern, elytral suture not black. Only last antennal segment black ..... ***murzini*** Borowiec

–. Pronotum with black pattern as in fig. 258, 415, elytral suture partly black. At least six last antennal segments infuscate to black ..... ***rubrovittata*** Borowiec

6. Anterior (humeral) red spot not surrounding anterior yellow spot, its posterior margin extending at most to 4th row of punctures (fig. 227, 253). Larger species, length above 7.3 mm ..... **7.**

–. Anterior (humeral) red spot surrounding anterior yellow spot, its posterior margin extending to first row of punctures (fig. 238). Small species, length below 7.0 mm ..... ***formosa*** Borowiec

7. Only last antennal segment infuscate to black. No yellow spot between posterior red spot and suture (fig. 253). Larger species, length 9.5-9.9 mm ..... ***rubromaculata*** BOROWIEC

–. Four to seven apical antennal segments infuscate to black. A yellow spot between posterior red spot and suture (fig. 227). Smaller species, length 7.4-9.2 mm ..... ***discolor*** (BOHEMAN)

Hovacassis brunneofasciata BOROWIEC, 2002
(fig. 222-226, 405, 406, map 18)

Hovacassis brunneofasciata BOROWIEC, 2002: 98.

TYPE MATERIAL

Holotype: MADAGASCAR NORD: « Nd. Madagascar, Amber Gebirge » [= Montagne d'Ambre] [DBET]. – paratype: « Madagascar, Vohemar » [DBET].

DESCRIPTION

Length: 8.1-8.7 mm, width: 7.4-7.8 mm, length of pronotum: 2.9-3.0 mm, width of pronotum: 4.95-5.1 mm, length/width ratio: 1.09-1.12, width/length of pronotum ratio: 1.70-1.71. Body almost circular (fig. 222, 405).

Pronotum yellow, disc with brown pattern as in fig. 222, 405. Scutellum yellow. Elytral disc yellow, with brown pattern forming band along suture and irregular band along sides of disc except marginal interval and lateral fold; the pattern is formed by a coalescent brown areolae around each elytral puncture. The area between brown suture and brown lateral bands composed with yellow relief, very sparsely punctate but punctures also have brownish areola. Explanate margin of elytra yellow. Head, ventrites and legs yellow. Five basal antennal segments yellow, remainder gradually infuscate, last three segments almost or completely black.

Pronotum elliptical, with maximum width slightly in front of the middle, anterior margin moderately rounded, sides narrowly rounded. Disc moderately convex, its surface smooth and shiny. Explanate margin on sides shallowly impressed, separated from sides of disc by distinct sulcus, its surface with very shallow, small puncturation, appears only slightly irregular, shiny.

Scutellum triangular, as long as wide. Base of elytra much wider than base of pronotum, humeri strongly produced anterad, margin of elytra behind humerus shallowly emarginate, humeri appears acute, sides of elytra regularly rounded. Disc with large, conical postscutellar tubercle, profile behind the top of angulation deeply concave (fig. 223, 406). Postscutellar impressions deep, no other impressions. Puncturation of disc coarse, on brown parts of disc very dense, punctures almost touching each other, on yellow parts of disc punctures very sparse, thus elytra only on sides appear partly regularly punctate. Marginal row distinct with large and deep punctures. Intervals marked only on sides of disc but very narrow, linear. Surface of elytral disc shiny. Explanate margin broad, in the widest part as wide as 3/4 width of each disc of elytron,

shallowly and densely punctate, its surface appears irregular. Apex of elytral epipleura with sparse erect hairs.

Clypeus only slightly wider than long, flat, impunctate, shiny, clypeal lines fine, converging in arch. Labrum emarginate to 1/4 length (fig. 224). Antennae filiform, length ratio of antennal segments: 100:44:50:89:77:72:72:72:69:69:116. Segment 3 only slightly longer than segment 2, segment 4 c. 1.8 times as long as segment 3 (fig. 226).

Prosternal collar prominent, as long as length of 2nd antennal segment, prosternal process moderately expanded apically (fig. 224), its sides slightly convex, surface mostly smooth, impunctate only apex appears slightly irregular.

Last segment of tarsi slightly extending behind the penultimate segment. Claws large, simple, micropectinate (fig. 225).

DISTRIBUTION

MADAGASCAR NORD (map 18).

REMARKS

Elytra lacking red spots or bands near this species to *H. flavonigra* BOR. and *H. pulchra* SP. The first species distinctly differs in black reticulate elytral disc. *H. pulchra* at first glance is very similar, especially specimens with brown pattern, but differs in only last antennal segment infuscate to black, while in *H. brunneofasciata* six distal segments are infuscate to black. Pronotum in *H. brunneofasciata* is slimmer (width/length ratio 1.66-1.69, in *pulchra* 1.75-1.79) with anterior margin slightly more convex than in *H. pulchra*.

MATERIAL EXAMINED

No additional material.

Hovacassis discolor (BOHEMAN, 1855)

(fig. 227-232, 407, 408, map 19)

Coptocycla discolor BOHEMAN, 1855: 412; 1856: 192; 1862: 465. – GEMMINGER and HAROLD, 1876: 3668 – WEISE, 1910: 441. – SPAETH, 1914: 130.

Hovacassis discolor: SPAETH *in* HINCKS, 1952: 347. – BOROWIEC, 1985b: 241; 1999: 307; 2002: 101.

Coptocycla tricolorata FAIRMAIRE, 1897: 203. – WEISE, 1910: 442 (as syn. of *discolor*).

Coptocycla Fairmairei SPAETH, 1899: 221 (new name for *Coptocycla tricolorata* FAIRMAIRE, 1897 not CHAMPION, 1894).

TYPE MATERIAL

Coptocycla discolor BOHEMAN: lectotype: « Madag., Do Breme » [NRS]. – paralectotype: « Madag., M. Berl. » [NRS]. – 3 paralectotypes: « discolor Bhm. Madagasc. Goudot, 29595 » [ZMHU]. Designated by BOROWIEC (1999).

Coptocycla tricolorata FAIRMAIRE: 2 syntypes: « Madagascar, H. Perrot » [MNHN, MM].

DESCRIPTION

Length: 6.4-9.2 mm, width: 6.0-8.8 mm, length of pronotum: 2.1-3.2 mm, width of pronotum: 3.9-5.5 mm, length/width: 1.05-1.15, width/length of pronotum ratio: 1.68-1.98. Body almost circular (fig. 227, 407).

Pronotum yellow, disc usually with black pattern as in fig. 227, 407, the black line forming a pattern can be increase or reduce, in extreme case pronotum uniformly yellow. Scutellum usually black, or apex with small yellow spot, specimens with immaculate pronotum have scutellum uniformly yellow. Elytral disc with yellow, red and black pattern. Yellow are: marginal and partly submarginal interval including lateral fold, spots close to anterior corners of scutellum, very small elongate spots behind scutellum, large spots at each side of postscutellar angulation, two small, almost round spots in the centre of disc, sometimes reduced, two pairs of moderately large, almost round spots slightly behind half length of disc, close to suture, and yellow is extreme apex of disc. Yellow spots are usually separated by black reticulation, but in specimens with partly reduced black pattern yellow spots partly coalesce, form more or less elongate large spots. Red are spots in humeral and posterolateral part of disc. Anterior margin of humeral spot is reaching anterior margin of disc, and posterior margin extending to 5th row of punctures; the spot is never divided by a black line. Posterolateral red spot is divided from humeral spot by more or less broad black line. Black runs along submarginal interval, along suture, and surrounding each yellow and red spot. Sometimes the black reticulation partly reduced, especially along external border of humeral red spot, and between anterior and central yellow spots. Explanate margin of elytra uniformly yellow. Head, ventrites and legs yellow. Antennae with yellow only three basal segments, distal segments partly infuscate to black, usually 4 to 6 distal segment completely black, and segments 4-7 more or less infuscate, occasionally in females only last antennal segment infuscate.

Pronotum almost regularly elliptical, with maximum width c. in the middle, anterior margin regularly rounded, sides broadly rounded. Disc only slightly convex, its surface smooth and shiny. Explanate margin very broad, not or on sides shallowly impressed, separated from sides of disc by distinct sulcus, smooth and shiny.

Scutellum triangular, slightly longer than wide, with distinct transverse sulcus. Base of elytra much wider than base of pronotum, humeri strongly produced anterad, slightly angulate, sides of elytra regularly rounded. Disc with moderately large obtuse postscutellar tubercle, profile behind the top of tubercle concave (fig. 228, 408). Postscutellar impressions moderately deep, no other impressions. Yellow spots of disc slightly convex, form a relief. Puncturation of disc moderately coarse and mostly dense, appears mostly regular (fig. 232) but yellow spots impunctate or only sparsely punctate; red spots with regular puncturation, black reticulation regularly punctate, like red parts of disc. Marginal row distinct, its punctures coarse and deep, only slightly coarser than in submarginal rows. Surface of elytral disc usually shiny, but often on yellow parts shiny, on black and reddish parts slightly opaque. Explanate margin very broad, in the widest part almost as wide as width of elytron, its surface with very shallow, irregular puncturation appears less irregular than in related species. Apex of elytral epipleura with sparse erect hairs.

Clypeus elongate, c. as wide as long, flat, impunctate, shiny, clypeal lines distinct, converging in angle. Labrum emarginate to 1/5 length (fig. 229). Antennae filiform, length ratio of antennal segments: 100:53:66:110:120:90:100:96:93:93:136. Segment 3 c. 1.2 time as long as segment 2, segment 4 c. 1.7 times as long as segment 3 (fig. 231).

Prosternal collar moderately long, slightly shorter than length of second antennal segment. Prosternal process broad (fig. 229), only slightly expanded apically, its sides slightly convex, surface mostly smooth, impunctate only apex appears slightly longitudinally striate.

Last segment of tarsi slightly extending behind the penultimate segment. Claws large, simple, micropectinate (fig. 230).

DISTRIBUTION

MADAGASCAR CENTRE, MADAGASCAR EST, MADAGASCAR SUD (map 19).

REMARKS

The most common and wide spread species of the genus. With *H. formosa* and *H. rubromaculata*, it forms a group of species with distinct variegate pattern of red, black and yellow spots and bands. *H. formosa* has the largest red humeral spots, surrounding anterior yellow spots, and with its posterior margin extending up to elytral suture, while in *H. rubromaculata* and *H. discolor* posterior margin of humeral red spots extending at most to 4th row of punctures. In *H. discolor* humeral red spot is simple, while in *H. rubromaculata* it is divided into narrow black line into two spots. In *H. discolor* on slope between posterior red spot and suture there is a yellow spot, while in *H. rubromaculata* slope is lacking yellow spot. In *H. discolor* at least four (usually six to seven) distal antennal segments are infuscate, while in *H. rubromaculata* only last antennal segment is infuscate to black.

MATERIAL EXAMINED

MADAGASCAR CENTRE: – Mahatsinjo (*E. LE MOULT*) [IRSN, LB, 7 ex.].

MADAGASCAR EST: – Maroantsetra, Beanana, VI. 1945 (*MICHEL*) [MNHN, 1 ex.]. – Bezanonano [ITZ, 1 ex.]. – Fénérive (*E. PERROT*) [ZMHU, 2 ex.]. – Forêt de Fito [LB, 1 ex., MRAC, 2 ex.]. – Forêt de Fito, VI-VII. 1897 [MKB, 3 ex.] – Maroantsetra, II. 1919 [IRSN, 4 ex.]. – Maroantsetra, XII. 1934, I. 1935 (*J. VADON*) [MNHN, 7 ex.]. – Maroantsetra, Sahantaha, XI. 1938 (*J. VADON*) [MNHN, 1 ex.]. – Moramanga prov., Périnet, 1. II. 1938 (*B. KRECZMER*) [LB, 1 ex.].

MADAGASCAR SUD: – Beloha [MNHN, 1 ex.].

Madagascar, int. austr. (*HILDEBRANDT*) [ZMHU, 1 ex.]. – Sahana Forest, IX. 1904 [LB, 1 ex.]. – Madagascar [MNHN, 1 ex.]. – Madagascar (*OBERTHÜR*) [MNHN, 1 ex.]. – Madagascar, 1889 (*DUVIVIER*) [IRSN, 1 ex.]. – Madagascar, 1890 [MNHN, 1 ex.]. – Madagascar (*F. SIKORA*) [IRSN, 1 ex.]. – Madagascar, I. 1890 [MNHN, 1 ex.].

Hovacassis flavonigra Borowiec, 2002
(fig. 233-237, 409, 410, map 18)

Hovacassis flavonigra Borowiec, 2002: 104.

Type material

Holotype: Madagascar Est: « Antalaha 2.45 Abadie *Hovacassis flavonigra* Hincks type » [MNHN]. – Paratype: « Reg. Maroantsetra, Andranofotsy, XII. 1936 » [DBET]. – Paratype: « Reg. Maroantsetra, Sahantaha, XI. 1938 » [DBET].

Description

Length: 7.7-8.0 mm, width: 6.9-7.6 mm, length of pronotum: 2.6-2.8 mm, width of pronotum: 4.3-4.8 mm, length/width ratio: 1.05-1.12, width/length of pronotum ratio: 1.65-1.71. Body almost circular (fig. 233, 409).

Pronotum yellow, disc with black pattern as in fig. 233, 409. Scutellum black with small yellow spot apically. Elytral disc yellow, with black reticulation as in fig. 233, 409. Lines of the reticulation can be increase or reduce, thus yellow spots surrounded by black also vary in size. Black line between the largest central spots sometimes completely reduced. Explanate margin of elytra yellow, only anterior and sutural margins black. Head, ventrites and legs yellow. Seven basal antennal segments yellow, remainder gradually infuscate, last two segments often almost black.

Pronotum elliptical, with maximum width in or slightly in front of the middle, anterior margin regularly rounded, sides broadly rounded. Disc moderately convex, its surface smooth and shiny. Explanate margin on sides not or shallowly impressed, separated from sides of disc by distinct sulcus, smooth and shiny.

Scutellum triangular, slightly longer than wide, with transverse sulcus. Base of elytra much wider than base of pronotum, humeri moderately produced anterad, subangulate, sides of elytra regularly rounded. Disc with low and obtuse postscutellar angulation, profile behind the top of angulation only slightly concave (fig. 234, 410). Postscutellar impressions moderately deep, no other impressions. Yellow spots of disc slightly convex, form a relief. Puncturation of disc moderately coarse, but mostly sparse. Yellow spots impunctate or with only a few punctures, and in specimens with narrow black reticulation disc appears sparsely irregularly punctate. In specimens with broad black reticulation black parts regularly punctate, two submarginal rows always regular. Marginal row distinct, its punctures large and deep. Intervals mostly reduced by yellow relief, only on black part of disc intervals partly visible, as wide as or slightly narrower than rows. Surface of elytral disc shiny. Explanate margin very broad, in the widest part almost as wide as width of elytron, its surface very shallowly, densely punctate but appears only slightly irregular and shiny. Apex of elytral epipleura with sparse erect hairs, sometimes appears bare.

Clypeus elongate, slightly longer than wide, flat, only apex with shallow impression, impunctate, shiny, clypeal lines fine, converging in angle. Labrum emarginate to 1/5 length (fig. 235). Antennae filiform, length ratio of antennal segments: 100:35:50:80:

70:72:67:70:70:75:130. Segment 3 c. 1.4 times as long as segment 2, ands segment 4 c. 1.6 time as long as segment 3 (fig. 237).

Prosternal collar short, prosternal process moderately expanded apically (fig. 235), its sides slightly convex, surface mostly smooth, impunctate only apex sometimes appears slightly irregular.

Last segment of tarsi slightly extending behind the penultimate segment. Claws large, simple (fig. 236).

DISTRIBUTION

MADAGASCAR EST (map 18).

REMARKS

This species belongs to the group of species without red elytral pattern. Its elytral pattern forming black reticulation is unique.

MATERIAL EXAMINED

MADAGASCAR EST: – Masoala, Tampolo, 15.43' S 49.57' E, 20. X.-6. XI. 2001, Mission Radeau des Cimes (*G. CURLETTI*) [MCSNC, 1 ex.].

Hovacassis formosa BOROWIEC, 2002

(fig. 238-242, map 19)

Hovacassis formosa BOROWIEC, 2002: 106.

TYPE MATERIAL

Holotype: MADAGASCAR SAMBIRANO: « Mt Tsaratanana, 2000 m, X.- 49 RP, Inst. Scient. Madagascar » « lisière supérieure de la forêt à mousses" "*Hovacassis formosa* HINCKS type » (*R. PAULIAN*) [MNHN].

DESCRIPTION

Length: 6.95 mm, width: 6.2 mm, length of pronotum: 2.2 mm, width of pronotum: 4.15 mm, length/width ratio: 1.12, width/length of pronotum ratio: 1.89. Body almost circular (fig. 238).

Pronotum yellow, disc with black pattern as in fig. 238. Scutellum yellow with black margins. Elytral disc with yellow, red and black pattern. Yellow are: small elongate spot behind scutellum, large round spot at each side of postscutellar angulation, almost round spot slightly behind half length of disc, close to suture, slightly elongate spot on slope, close to suture, lateral parts of humerus, lateral fold and extreme apex of disc, sometimes also small spot in the middle of sides of disc. Red are: large, half-moon spot in anterior half of disc, reaching its anterior margin to base of disc and posterior margin to suture, and moderately large, irregular spot in anterior part of slope. Black forms irregular reticulation between pale spots. Explanate margin of elytra yellow, only

anterior and sutural margins black. Head, ventrites and legs yellow. Six basal antennal segments yellow, remainder gradually infuscate, last two segments almost black.

Pronotum elliptical, with maximum width slightly in front of the middle, anterior margin softly rounded, sides narrowly rounded. Disc moderately convex, its surface smooth and shiny. Explanate margin on sides shallowly impressed, separated from sides of disc by distinct sulcus, smooth and shiny.

Scutellum triangular, slightly longer than wide. Base of elytra much wider than base of pronotum, humeri moderately produced anterad, slightly angulate but not acute, sides of elytra regularly rounded. Disc with low postscutellar angulation, profile behind the top of angulation almost straight (fig. 239). Postscutellar impressions deep, no other impressions. Yellow spots of disc slightly convex, form a relief. Puncturation of disc large, but mostly sparse, appears mostly irregular. Yellow spots impunctate, red spots with several irregular punctures, black reticulation with punctures mostly at borders of black and pale, only sutural and two submarginal rows partly regular. Marginal row distinct, its punctures large and deep. Surface of elytral disc less shiny than surface of pronotum. Explanate margin very broad, in the widest part almost as wide as width of elytron, its surface smooth and shiny. Apex of elytral epipleura with sparse erect hairs.

Clypeus moderately broad, c. 1.3 times wider than long, flat, only apex with shallow impression, impunctate, shiny, clypeal lines fine, converging in angle. Labrum shallowly emarginate (fig. 240). Antennae filiform, segments 9 and 10 many times longer than wide, length ratio of antennal segments: 100:44:47:71:100:71:88:82:88:94:165. Segment 2 and 3 almost equal length, segment 4 c. 1.5 times as long as segment 3 (fig. 242).

Prosternal collar short, prosternal process moderately expanded apically, its sides slightly convex, surface mostly smooth, impunctate only apex appears slightly irregular (fig. 240).

Last segment of tarsi slightly extending behind the penultimate segment. Claws large, simple, micropectinate (fig. 241).

DISTRIBUTION

MADAGASCAR SAMBIRANO (map 19).

REMARKS

With *H. discolor* and *H. rubromaculata*, it forms a group of species with distinct variegate pattern of red, black and yellow spots and bands. *H. formosa* is well distinguished from both congeners in the largest red humeral spots, surrounding anterior yellow spots, and with its posterior margin extending up to elytral suture, while in *H. rubromaculata* and *H. discolor* posterior margin of humeral red spots extending at most to 4th row of punctures. *H. formosa* is the smallest species of the group, with length below 7 mm, while in both relatives it exceeding 7.3 mm, up to 9.9 mm.

MATERIAL EXAMINED

No additional material.

Hovacassis murzini Borowiec, 2002
(fig. 243-247, 411, 412, map 19)

Hovacassis murzini Borowiec, 2002: 109.

Type material

Holotype: Madagascar Centre: « env. Fianarantsoa, S. Ranomafana, 900 m., 5-16. I. 2001, S. Murzin » [DBET].

Description

Length: 8.1 mm, width: 7.35 mm, length of pronotum: 2.7 mm, width of pronotum: 4.8 mm, length/width ratio: 1.10, width/length of pronotum ratio: 1.78. Body almost circular (fig. 243, 411).

Pronotum yellow, disc with two pale reddish crescent-shaped spots. Scutellum yellow. Elytral disc yellow, with pale red pattern forming narrow band along suture, narrow ring around disc, except yellow marginal interval and lateral fold, and band across disc slightly behind middle. The band along suture is after the postscutellar elevation broken by yellow relief. Yellow transverse spot between reddish transverse band and apical part of reddish ring also forms a relief. Explanate margin of elytra uniformly yellow. Head, ventrites and legs yellow. Antennae yellow, only last segment mostly black.

Pronotum elliptical, with maximum width slightly in front of the middle, anterior margin softly rounded, sides broadly rounded. Disc moderately convex, its surface smooth and slightly opaque. Explanate margin on sides flat, separated from sides of disc by distinct sulcus, its surface impunctate, slightly opaque.

Scutellum triangular, distinctly longer than wide, with transverse sulci. Base of elytra much wider than base of pronotum, humeri strongly produced anterad, margin of elytra behind humerus not emarginate, humeri subangulate. Disc with moderately large, conical postscutellar tubercle, profile behind the top of angulation concave (fig. 244, 412). Postscutellar impressions deep, no other impressions. Puncturation of disc coarse, on reddish parts of disc very dense, punctures almost touching each other, on yellow parts of disc punctures very sparse. Punctures tend to form more or less regular rows, but in posterolateral parts of disc punctures are so dense that puncturation appears irregular. Marginal row distinct, its punctures large and deep. Intervals marked mostly on sides of disc but very narrow, linear, only three sutural intervals in posterior third of disc wider than rows. Surface of elytral disc mostly shiny, only red band in posterolateral part of disc partly opaque. Explanate margin broad, in the widest part as wide as 3/4 width of each disc of elytron, shallowly and densely punctate, its surface appears slightly irregular. Apex of elytral epipleura with sparse erect hairs.

Clypeus as long as wide, flat, with few small punctures, slightly opaque, clypeal lines fine but distinct, converging in arch. Labrum emarginate to1/5 length (fig. 245). Antennae filiform, length ratio of antennal segments: 100:43:45:88:80:70:70:70:70: 75:165. Segment 2 and 3 almost equal length, segment 4 almost twice as long as segment 3 (fig. 247).

Prosternal collar prominent, as long as length of 2nd antennal segment, prosternal process moderately expanded apically (fig. 245), its sides slightly convex, surface mostly smooth, impunctate, only apex appears distinctly irregular.

Last segment of tarsi slightly extending behind the penultimate segment. Claws large, simple, micropectinate (fig. 246).

DISTRIBUTION

MADAGASCAR CENTRE (map 19).

REMARKS

This species belongs to the group of species with reddish elytral pattern. As in *H. rubrovittata* the pattern forms only bands, elytral disc lacking red spots, and the pattern is not as intensively red as in species of *H. discolor* group. *H. murzini* distinctly differs from *H. rubrovittata* in pronotum without black pattern, and elytra completely without black (in *H. rubrovittata* elytral suture is partly narrowly black). In *H. murzini*, only last antennal segment is infuscate, while in *H. rubrovittata* at least six distal segments are infuscate to black.

MATERIAL EXAMINED

No additional material.

Hovacassis pulchra (SPAETH, 1915)

(fig. 248-252, 417-419, map 20)

Coptocycla pulchra SPAETH, 1914: 130 (nomen nudum).
Coptocycla pulchra SPAETH, 1915d: 151.
Hovacassis pulchra: BOROWIEC, 1999: 307; 2002: 111.

TYPE MATERIAL

2 syntypes: MADAGASCAR NORD: « Diégo-Suarez, Donckier » [= Antsiranana], [1 MM, 1 NMP]. – Syntype: « N. Madag., Vohemar » [MM].

DESCRIPTION

Length: 8.7-8.8 mm, width: 8.3-8.4 mm, length of pronotum: 2.8-2.9 mm, width of pronotum: 5.2 mm, length/width ratio: 1.04-1.06, width/length of pronotum ratio: 1.79-1.86. Body almost circular (fig. 248, 417, 418).

Coloration variable. Pale form has pronotum uniformly yellow. In intermediate specimens pronotum yellow, disc with more or less visible M-shaped brown figure. In the darkest form pronotum yellow, disc with black pattern as in fig. 248. Elytral disc in pale form uniformly yellow (fig. 417), in darker forms with a pattern, varying from pale brown to black (fig. 418). The pattern forms a ring surrounding disc (but marginal interval always yellow), and at least band along anterior third of suture, sometimes whole suture dark coloured. In the darkest form elytral punctures surrounded by a brownish

areola. Explanate margin of elytra in all forms uniformly yellow. Head, ventrites and legs yellow. Antennae yellow, only last segment partly infuscate to black.

Pronotum elliptical, with maximum width slightly in front of the middle, anterior margin softly rounded, sides narrowly rounded. Disc moderately convex, its surface from slightly opaque to shiny. Explanate margin on sides not or shallowly impressed, separated from sides of disc by distinct sulcus, its surface finely granulate, appears slightly irregular and opaque.

Scutellum triangular, slightly longer than wide, with transverse sulcus and few small punctures. Base of elytra much wider than base of pronotum, humeri strongly produced anterad, elytral margin behind humeral angle more or less emarginate, thus humeri appear from angulate to almost acute, sides of elytra regularly rounded. Disc with large postscutellar, conical tubercle, profile behind the top of angulation concave (fig. 249, 419). Postscutellar impressions deep, no other impressions. Puncturation of disc coarse and dense, appears mostly regular, but some convex, of various size interspaces disturbed the regularity. Rows more or less impressed. Punctures in lateral rows dense, with distance between punctures mostly narrower than punctures diameter, punctures along middle of elytra sparser than in lateral rows, divided by partly convex interspaces as wide as to thrice wider than punctures diameter. Marginal row distinct, its punctures coarse and deep. Intervals narrow, on sides of disc narrower than rows, in central and sutural part of disc mostly as wide as rows. Surface of elytral disc mostly shiny or only on sides slightly opaque. Explanate margin very broad, in the widest part only slightly narrower than width of each elytron, its surface finely shallowly punctate and granulate, appears irregular. Apex of elytral epipleura with sparse erect hairs.

Clypeus moderately broad, c. 1.2 times as wide as long, flat, impunctate, shiny, clypeal lines fine, converging in angle. Labrum shallowly emarginate to 1/5 length (fig. 250). Antennae filiform, length ratio of antennal segments: 100:44:56:106:84:78:78: 78:80:78:106. Segment 3 c. 1.3 times as long as segment 2, and segment 4 c. 1.9 times as long as segment 3 (fig. 252).

Prosternal collar short, prosternal process moderately expanded apically (fig. 250), its sides slightly convex, surface mostly smooth, impunctate only apex appears slightly irregular.

Last segment of tarsi slightly extending behind the penultimate segment. Claws large, simple, micropectinate (fig. 251).

Distribution

Madagascar Nord, Madagascar Est (map 20).

Remarks

Elytra lacking red spots or bands near this species to *H. flavonigra* and *H. brunneofasciata*. The first species distinctly differs in black reticulate elytral disc. *H. brunneofasciata* at first glance is very similar to specimens with brown pattern, but differs in possessing six distal antennal segments infuscate to black, while in *H. pulchra* only last segment is infuscate to black. Pronotum in *H. brunneofasciata* is slimmer (Wp/Lp 1.66-1.69, in *pulchra* 1.75-1.79) with anterior margin slightly more convex than in

H. pulchra. *H. pulchra* is the only member of the genus forming aberrations with no dorsal pattern, uniformly yellowish to yellowish–brown.

MATERIAL EXAMINED

MADAGASCAR NORD: – Mt. d'Ambre [LB, 1 ex.].

MADAGASCAR EST: – Tamatave [= Toamasina] et forêts d'Alahakato, 1. VII. 1988 [LB, 1 ex.].

Hovacassis rubromaculata BOROWIEC, 2002
(fig. 253-257, 413, 414)

Hovacassis rubromaculata BOROWIEC, 2002: 114.

TYPE MATERIAL

Holotype: MADAGASCAR EST: « Madagascar, Forêt d'Antsianaka, 1994 » [DBET]. – Paratype: MADAGASCAR CENTRE: « Madagascar, Tsitondroina, IV. 52 » [DS].

DESCRIPTION

Length: 9.5-9.9 mm, width: 8.9-9.0 mm, length of pronotum: 3.2-3.3 mm, width of pronotum: 5.7-5.8 mm, length/width ratio: 1.07-1.10, width/length of pronotum ratio: 1.73-1.81. Body almost circular (fig. 253, 413).

Pronotum yellow, disc with black pattern as in fig. 253, 413. Scutellum black, apex with small yellow spot. Elytral disc with yellow, red and black pattern. Yellow are: marginal interval including lateral fold, very small elongate spots behind scutellum, large round spot at each side of postscutellar angulation, two small, almost round spots slightly behind half length of disc, close to suture, and extreme apex of disc. Red are large, half-moon spots in anterior half of disc, reaching its anterior margin to base of disc and posterior margin to 5th row of punctures; the spot is divided by a narrow oblique black line, running from yellow lateral spot of postscutellar tubercle to humeral impression, into two spots; red are also very large, two spots in posterior parts of disc. Black runs along submarginal interval, along suture, and surrounding each yellow and red spots. Explanate margin of elytra uniformly yellow. Head, ventrites and legs yellow. Antennae mostly yellow, only last segment partly infuscate to black.

Pronotum slightly reversely trapezoidal, with maximum width distinctly in front of the middle, anterior margin softly rounded, sides narrowly rounded. Disc only slightly convex, its surface smooth and slightly opaque. Explanate margin very broad, not or on sides shallowly impressed, separated from sides of disc by distinct sulcus, smooth and slightly opaque.

Scutellum triangular, slightly longer than wide, with distinct transverse sulcus. Base of elytra much wider than base of pronotum, humeri strongly produced anterad, almost up to anterior margin of pronotum, slightly angulate, sides of elytra regularly rounded. Disc with conical postscutellar tubercle, profile behind the top of tubercle distinctly concave (fig. 254, 414). Postscutellar impressions deep, no other impressions.

Yellow spots of disc slightly convex, form a relief. Puncturation of disc coarse and mostly dense, appears mostly regular. Yellow spots impunctate, red spots with regular puncturation, black reticulation regularly punctate, like red parts of disc. Marginal row distinct, its punctures coarse and deep, only slightly coarser than in submarginal rows. Surface of elytral disc on yellow parts shiny, on black and reddish parts slightly opaque. Explanate margin very broad, in the widest part almost as wide as width of elytron, its surface with dense but shallow, irregular puncturation. Apex of elytral epipleura with sparse erect hairs.

Clypeus elongate, c. as wide as long, flat, only apex with small angulation, impunctate, shiny, clypeal lines distinct, converging in angle. Labrum emarginate to 1/4 length (fig. 255). Antennae filiform, length ratio of antennal segments: 100:50:57:103: 93:89:88:92:86:89:157. Segment 2 only slightly shorter than segment 3, segment 4 c. 1.8 times as long as segment 3 (fig. 257).

Prosternal collar moderately long, slightly shorter than length of second antennal segment. Prosternal process broad, only slightly expanded apically (fig. 255), its sides slightly convex, surface mostly smooth, impunctate only apex appears slightly longitudinally striate.

Last segment of tarsi slightly extending behind the penultimate segment. Claws large, simple, micropectinate (fig. 256).

DISTRIBUTION

MADAGASCAR CENTRE, MADAGASCAR EST.

REMARKS

With *H. discolor* and *H. formosa* it forms a group of species with distinct variegate pattern of red, black and yellow spots and bands. *H. formosa* has the largest red humeral spots, surrounding anterior yellow spots, and with its posterior margin extending up to elytral suture, while in *H. rubromaculata* and *H. discolor* posterior margin of humeral red spots extending at most to 4th row of punctures. In *H. discolor* humeral red spot is simple, while in *H. rubromaculata* it is divided by narrow black line into two separate spots. In *H. discolor* between posterior red spot and suture there is a yellow spot, while in *H. rubromaculata* slope is lacking yellow spots. In *H. discolor* at least four (usually six to seven) distal antennal segments are infuscate, while in *H. rubromaculata* only last antennal segment is infuscate to black.

MATERIAL EXAMINED

No additional material.

Hovacassis rubrovittata BOROWIEC, 2002

(fig. 258-262, 415, 416, map 20)

Hovacassis rubrovittata BOROWIEC, 2002: 117.

TYPE MATERIAL

Holotype: MADAGASCAR EST: « Madagascar, Fampanambo, II. 1961 » (*J. VADON*) [DBET]. – Paratype: « Madagascar, Maroantsetra, XII. 1994 » [DBET]. – Paratype: MADAGASCAR CENTRE: « Madagascar, Tsitondroina, IV. 52 » (Ambalavao) [DS].

DESCRIPTION

Length: 8.0-10.3 mm, width: 7.4-9.6 mm, length of pronotum: 2.8-3.5 mm, width of pronotum: 4.8-6.2 mm, length/width ratio: 1.07-1.11, width/length of pronotum ratio: 1.71-1.77. Body almost circular, but sides more converging posterad than in other species (fig. 258, 415).

Pronotum yellow, disc with black pattern as in fig. 258, 415; basal branches of black figure sometimes reduced. Basal margin of pronotum and basal margin of elytral disc black. Scutellum yellow with or without black margins. Elytral suture at least partly black; in holotype anterior part of suture is completely black, including broad spot on anterior slope of postscutellar tubercle, posterior part of suture is mostly black except short yellow distance between posterior margin of postscutellar tubercle and transverse reddish band; in paratype from Maroantsetra whole suture is narrowly black, spot on anterior slope of postscutellar tubercle extending only to first row of punctures; in paratype from Tsitindrona black on suture is reduced to the spot on anterior slope of postscutellar tubercle and posterior half of suture. In all forms explanate margin of elytra with narrow, black sutural spot. Elytral disc with reddish pattern of broad ring around disc, except yellow marginal interval and lateral fold; in holotype also occurs narrow reddish band across disc, slightly behind middle of elytra. Yellow spots closed by a reddish pattern not forming a relief. Explanate margin of elytra yellow. Head, ventrites and legs yellow. Three to five basal antennal segments yellow, remainder six to eight segments black, sometimes segments 4 and 5 only slightly infuscate.

Pronotum elliptical, with maximum width in front of the middle, anterior margin softly rounded, sides narrowly rounded. Disc moderately convex, its surface smooth and shiny. Explanate margin on sides shallowly impressed, separated from sides of disc by distinct sulcus, extremely shallowly punctate, only in lateral light surface appears slightly irregular but shiny.

Scutellum triangular, slightly longer than wide, with or without transverse sulci. Base of elytra much wider than base of pronotum, humeri distinctly produced anterad. Margin of elytra behind humerus not emarginate, humeri angulate, sides of elytra regularly rounded. Disc with large conical postscutellar angulation, profile behind the top of angulation concave (fig. 259, 416). Postscutellar impressions deep, no other impressions. Puncturation of disc moderately coarse, appears mostly irregular, yellow parts of disc only slightly sparser punctate than lateral parts of disc. Punctures in rows mostly dense, on sides of disc distance between punctures from slightly narrower to slightly wider than puncture diameter, on yellow parts of disc punctures slightly sparser than on sides of disc with interspaces from as wide as to thrice wider than puncture diameter. Marginal row distinct, its punctures large and deep. Intervals mostly well marked, on yellow parts of disc c. 1.5 times as wide as rows, on sides of disc as wide as or slightly narrower than rows. Surface of elytral disc mostly shiny. Explanate margin very broad,

in the widest part almost as wide as width of elytron, its surface very shallowly punctate, appears slightly irregular. Apex of elytral epipleura with sparse erect hairs.

Clypeus elongate, slightly longer than wide, flat, impunctate, shiny, clypeal lines fine but distinct, converging in arch. Gena elongate, as long as half width of eye. Labrum shallowly emarginate to 1/5 its length (fig. 260). Antennae filiform, length ratio of antennal segments: 100:33:66:122:100:100:100:100:93:94:133. Segment 3 twice longer than segment 2, segment 4 c. 1.8 times as long as segment 3 (fig. 262).

Prosternal collar moderately elongate, slightly shorter than length of 3rd antennal segment. Prosternal process broad, moderately expanded apically (fig. 260), its sides distinctly convex, surface mostly smooth, impunctate only apex appears slightly irregular.

Legs slim, last segment of tarsi slightly extending behind the penultimate segment. Claws large, simple, micropectinate (fig. 261).

DISTRIBUTION

MADAGASCAR CENTRE, MADAGASCAR EST (map 20).

REMARKS

This species belongs to the group of species with reddish elytral pattern. As in *H. murzini* the pattern forms only bands, but is more intensively red than in *H. murzini*, however it is not as intensively as in species of *H. discolor* group. *H. murzini* distinctly differs from *H. rubrovittata* in immaculate pronotum, and elytra completely without black (in *H. rubrovittata* elytral suture is partly narrowly black). In *H. murzini*, only last antennal segment is infuscate, while in *H. rubrovittata* at least six distal segments are infuscate to black.

MATERIAL EXAMINED

No additional material.

Genus *Sphenocassis* SPAETH, 1911

Sphenocassis SPAETH, 1911: 261 (type species: *Laccoptera humerosa* FAIRMAIRE, 1898, by monotypy); 1914 g: 85. – HINCKS, 1952: 338. – SEENO and WILCOX, 1982: 176. – BOROWIEC, 1994: 13, 17; 1999: 317.

Torbinia SPAETH, 1911: 262 (type species: *Torbinia incisicollis* SPAETH, 1911, by monotypy); 1914: 85. – HINCKS, 1952: 338 (as subgenus) . – SEENO and WILCOX, 1982: 176 (as subgenus) . – BOROWIEC, 1999: 317 (as syn.).

DIAGNOSIS

Small to moderately large cassids, body length 5.5-8.5 mm. Body oval to subtriangular, elytra covered by very short, erect setae. Pronotum elliptical to reversely trapezoidal, with narrowly rounded to angulate sides, with maximum width in or before middle. Base of pronotum before each humerus in most species with deep emargination. Pronotal disc indistinctly separated from explanate margin, coarsely punctate, often rugose. Explanate margin deflexed, coarsely punctate, not transparent. Elytral base only slightly

to moderately wider than pronotum. Elytral disc form regularly convex to angulate in profile. Puncturation completely irregular. Marginal row, if present, distinct only in anterior third of elytra. Explanate margin of elytra from narrow to moderately broad, strongly deflexed, irregularly punctate. Humeral angles strongly protruding anterad. Clypeus broad, with shallow lateral grooves. Venter of pronotum in larger species with distinct antennal grooves, in smaller species they are indistinct or obsolete. Prosternal process canaliculate along middle, moderately expanded apically. Antennae stout to moderately elongate, third segment usually slightly longer than second, segments 8–10 from slightly wider than long to slightly longer than wide. Last segment of tarsi slightly longer than third, bilobate segment. Claws simple.

It is close to *Cassida* L., especially to irregularly punctate species from South Africa. Large species of *Sphenocassis* distinctly differ from *Cassida* in base of pronotum before humerus with deep emargination and presence of deep antennal grooves. Small species, without pronotal emargination and without antennal grooves, are very similar to members of *Cassida litigiosa* group from South Africa (see colour photos in Borowiec and Świętojańska, 2002). At first glance, members of *Sphenocassis* differ in setose elytra and rugose punctate pronotal disc. Also prosternal collar is in members of *Sphenocassis* distinctly longer than in members of *Cassida*. Spaeth (1911) described two closely related genera *Sphenocassis* and *Torbinia*, but Hincks (1952) had placed *Torbinia* Spaeth within subgenus of *Sphenocassis* Spaeth. In our opinion type species of both names represent only specialised lines within the simple, heterogenous genus, characterised by distinct evolutionary trend from the most plesiomorphic *S. punctatissima* to the most apomorphic *S. humerosa*. Thus, in the world catalogue of Cassidinae (Borowiec 1999) *Torbinia* was synonymized with *Sphenocassis* because it is intermediate between moderately specialised *S. imerina* and highly specialised *S. humerosa*.

Distribution

Eight species, only in Madagascar.

Key to species

1. Elytra with deep postscutellar impressions separated by distinct, sharp or obtuse, elevation. Pronotal emargination very deep. Body brown ..... **2.**

–. Elytra without or with shallow postscutellar impressions, not separated by sharp elevation. Pronotal emargination moderately deep, or shallow, or obsolete. Body green (yellow in dried specimens) ..... **3.**

2. Elytral disc more angulate in profile (fig. 270). Postscutellar impressions deeper, separated by sharp elevation, from the elevation runs posterad more or less developed longitudinal costa, thus in postscutellar elevation there is a distinct H–shaped sculpture. Puncturation of elytra dense, on slope and on sides of disc appears rugose. Body stouter, length/width ratio below 1.35 ..... ***humerosa*** (Fairmaire)

–. Elytral disc less angulate in profile (fig. 289). Postscutellar impressions shallower, separated by distinct elevation but without additional costa, thus in postscutellar

elevation there is an arch-shaped sculpture. Puncturation of elytra sparser, at least on sides of disc does not appear rugose. Body slimmer, length/width ratio above 1.40 ..... ***incisicollis*** (SPAETH)

3. Basal pronotal impressions distinct ..... **4.**

–. Basal pronotal impressions very shallow, barely visible, or completely obsolete ..... **7.**

4. Larger, length above 6.5 mm ..... **5.**

–. Smaller, length 4.5 mm ..... ***rotundella*** BOROWIEC

5. Elytral disc with well marked postscutellar and principal impressions, also sides shallowly impressed. Puncturation of disc denser, surface of disc appears slightly irregular to slightly rugose. Antennal grooves deeper, separated externally by carina ..... **6.**

–. Elytral disc without or with only barely marked postscutellar and lateral impressions. Puncturation of disc sparser, surface at least on top of disc does not appear irregular. Antennal grooves less evident, separated externally by obtuse fold ..... ***anosibensis*** BOROWIEC

6. Basal part of pronotal disc rugoso-striate. Postscutellar impressions deeper, their borders higher elevated, elytral disc more angulate in profile. Pronotum very broad, width/length ratio 1.69-1.81 ..... ***imerina*** (SPAETH)

–. Basal part of pronotal disc densely punctate, but only few punctures tend to coalescent and form longitudinal striation. Postscutellar impressions shallow, their borders lower elevated, elytral disc less angulate in profile. Pronotum less transverse, width/length ratio 1.60–1.62 ..... ***impressipennis*** BOROWIEC

7. Larger, length 7.8 mm. Pronotum very broad, width/length ratio 1.65. Body stouter, length/width ratio 1.47, more converging posterad. Basal pronotal emargination very shallow but visible ..... ***praerupta*** (SPAETH)

–. Smaller, length below 7.3 mm. Pronotum moderately broad, width/length ratio 1.47–1.59. Body slimmer, length/width 1.50-1.66, less converging posterad. Basal pronotal emargination completely obsolete ..... ***punctatissima*** (WEISE)

Sphenocassis anosibensis BOROWIEC, 2002

(fig. 263-268, 420, 421, map 20)

Sphenocassis anosibensis BOROWIEC, 2002: 230.

TYPE MATERIAL

Holotype: MADAGASCAR EST: « Anosibe, 21. XII. 1963, 1 (*R. VIEU*) » [DBET]. – Paratype: MADAGASCAR CENTRE : « Lac Mantasoa, 29. VIII-1. IX. 1997 » [DBET].

DESCRIPTION

Length: 6.9 mm, width: 4.6 mm, length of pronotum: 2.45 mm, width of pronotum: 3.8-3.85 mm, length/width ratio: 1.50, width/length of pronotum ratio: 1.55-1.57. Body subtriangular, distinctly converging posterad (fig. 263, 420).

Pronotum yellow, only basal margin close to basal incision narrowly black. Elytra yellowish-green, only teeth on basal margin of disc black. Clypeus, ventrites and legs yellow. Antennae yellow, with last four segments infuscate to black.

Pronotum reversely trapezoidal, with maximum width c. in middle, anterior margin moderately convex, lateral angles narrowly rounded, sides behind the angle straight, strongly converging posterad. Base of pronotum on each side, before pronotal callus, with moderately deep incision. Disc moderately convex, indistinctly separated from explanate margin, coarsely and densely punctate, punctures in basal part of disc tend to form longitudinal striation, in anterior part of disc punctures almost touching each other but without tendency to form striation. Explanate margin narrow, shallowly but very dense punctate, punctures almost touching each other, surface appears irregular. Surface of pronotum slightly opaque to slightly shiny.

Scutellum triangular, without punctures or sulci. Base of elytra distinctly wider than pronotum, humeri strongly protruding anterad, but not exceeding half Lp, angulate. Basal margin of each disc with row of teeth, the largest are placed in opposite to pronotal basal emargination. Disc regularly convex (fig. 264, 421), postscutellar impressions barely marked or obsolete, without elevated borders, no principal impressions, lateral impressions barely marked to obsolete. Puncturation completely irregular, coarse and dense (fig. 268), distance between punctures from slightly narrower to twice wider than puncture diameter, interspaces mostly regular, surface of disc at least on top and anterior half of disc does not appear irregular, only on slope slightly rugose. Marginal interval present only in anterior half length of elytron. Marginal row distinct, especially in anterior half of disc, its punctures twice coarser than punctures of central part of disc. Explanate margin very narrow, strongly deflexed, in the widest part c. four times narrower than width of each disc of elytron, in apical part as wide as diameter of punctures of marginal row, coarsely, shallowly punctate, distance between punctures mostly narrower than puncture diameter, surface appears slightly irregular. Whole surface of elytra slightly dull. Apex of elytral epipleura only in area close to sutural angle with a few erect hair.

Clypeus broad, c. 1.5 times wider than long, with fine clypeal grooves, in basal half of clypeus parallel to inner margin of eyes, then slightly converging anterad. Surface of clypeus flat, with several shallow punctures, slightly shiny. Labrum emarginate to 1/6 length (fig. 265). Venter of pronotum with short and moderately deep antennal groove, separated externally by obtuse fold. Antennae stout, segments 9 and 10 slightly longer than wide, length ratio of antennal segments: 100:55:60:60:57: 55:60:50:52:50:100. Segments 3 and 4 c. 1.1 times as long as 2 (fig. 267).

Prosternal collar prominent with deep lateral emargination, and barely marked plate above the emargination. Prosternal process narrow (fig. 265), moderately expanded apically, apex shallowly impressed and with few shallow punctures.

Claws large, simple (fig. 266).

DISTRIBUTION

MADAGASCAR CENTRE, MADAGASCAR EST (map 20).

REMARKS

Sphenocassis anosibensis belongs to the group of species with distinct basal pronotal emargination. Like *S. rotundella*, it has elytral disc almost regularly convex, without distinct postscutellar impressions. Both species distinctly differs in body size, *S. anosibensis* has length above 6.5 mm, while *S. rotundella* below 5.0 mm. In *S. anosibensis*, antennal grooves are bordered externally by obtuse carina, while in *S. rotundella* the carina is sharp. Puncturation of elytra disc of *S. anosibensis* is sparser than in *S. rotundella*, does not appearing rugose. *S. praerupta* and *S. punctatissima* have elytral disc like in *S. anosibensis* but they differ in barely marked or obsolete basal pronotal emargination.

MATERIAL EXAMINED

No additional material.

Sphenocassis humerosa (FAIRMAIRE, 1898)

(fig. 269-274, 424, 425, map 21)

Laccoptera humerosa FAIRMAIRE, 1898a: 258.
Sphenocassis humerosa: SPAETH, 1911: 261; 1914: 85; 1924: 311. – BOROWIEC, 1999: 317; 2002: 233.

TYPE MATERIAL

3 syntypes: MADAGASCAR OUEST: « Suberbieville [= Maevatanana], Madagasc., Donckier » « *Laccoptera humerosa* cotyp » [MM]. – Syntype: « Madagascar » [MNHN].

DESCRIPTION

Length: 7.1-8.5 mm, width: 5.7-6.85 mm, length of pronotum: 2.5-2.9 mm, width of pronotum: 4.4-5.15 mm, length/width ratio: male: 1.20-1.25, female: 1.29-1.33, width/length of pronotum ratio: 1.71-1.78. The largest species of the genus, body subtriangular, strongly converging posterad (fig. 269, 424).

Pronotum and elytra brown, basal margin of pronotum and basal crenulation of elytral disc narrowly black. Head, ventrites and legs yellowish–brown. Antennal segments 1-6 yellowish, 8-11 black, segment 7 from yellowish to mostly infuscate.

Pronotum very broad, reversely trapezoidal, 1.71-1.78 wider than long, with maximum width slightly before middle, anterior margin moderately convex, lateral angles rounded. Base of pronotum on each side, before humeral callus, with very deep emargination. Disc moderately convex, coarsely and densely punctate, on top of disc distance between punctures from narrower than puncture diameter; in area above head puncturation sparse and very shallow. In basal half of disc punctures tend to form longitudinal striation, sometimes whole surface of disc except area above head or only basal third of disc rugoso-striate. Explanate margin narrow, indistinctly separated from disc, shallowly, coarsely, and densely punctate, punctures almost touching each other. Intervals more regular than on disc, surface appears slightly irregular. Whole surface of disc slightly shiny.

Scutellum triangular, smooth or with transverse sulcus. Base of elytra strongly wider than pronotum, humeri extremely strongly protruding anterad, up to 1/3 Lp, angulate. Basal margin of each disc with row of large teeth, the largest placed opposite to pronotal basal emargination. Disc extremely, unevenly convex, distinctly angulate in profile (fig. 270, 425). Postscutellar impressions deep, the deepest in the genus, separated by high elevation, which runs from top of postscutellar convexity to impunctate elevations between scutellum and humeral impression. The elevated border of postscutellar impressions forms also two short costae run posterad, parallel to suture; as a result in postscutellar area there is a distinct H-shaped elevation. Puncturation of disc completely irregular, coarse and dense, distance between punctures mostly narrower than puncture diameter (fig. 274). Space between punctures partly convex and surface of disc appears irregular to rugose. Marginal interval distinct in anterior half of disc. Marginal row distinct only in anterior half of disc, its punctures c. twice coarser than punctures of central part of disc. Explanate margin narrow, strongly deflexed, but not perpendicular, in the widest part c. 2.5 times narrower than width of each disc of elytron, in apical part as wide as diameter of punctures of marginal row. Surface of explanate margin much coarsely punctate as on disc but distinctly sparser, interspaces mostly flat, surface appears regular or only slightly irregular. Whole surface of elytra slightly shiny. Elytral epipleura only in apical area with short, sparse erect hairs.

Clypeus very broad, c. 1.6-1.7 times wider than long, flat, with few coarse punctures. Clypeal grooves moderately deep, softly converging in triangle but not connected apically. Labrum narrowly emarginate to 1/4 length (fig. 271). Venter of pronotum with short but deep antennal groove, separated externally by a sharp or obtuse carina. Antennae stout, segments 9 and 10 approximately equal in length and width, length ratio of antennal segments: 100:47:70:82:70:61:70:58:58:62:129. Segment 3 c. 1.5 times as long as 2, and segment 4 c. 1.2 times as long as segment 3 (fig. 273).

Prosternal collar prominent with deep lateral emargination, without or with small plate above the emargination. Prosternal process narrow (fig. 271), moderately expanded apically, apex with deep round or oval impression.

Claws large, simple (fig. 272).

DISTRIBUTION

MADAGASCAR OUEST, MADAGASCAR EST (map 21).

REMARKS

Sphenocassis humerosa with *S. incisicollis* form a group of large species, reddish brown to brown, with deep postscutellar impressions separated by distinct, sharp or obtuse, carina and very deep basal pronotal emargination. Both species have also the most protruding anterad humeral angles. *S. incisicollis* differs in slimmer, more convex body, less convex postscutellar elevation, shallower postscutellar impressions separated, and elytra disc behind the elevated border of the postscutellar impression without additional costa, while *S. humerosa* has very stout body and postscutellar elevation very high, which forms H-shaped figure. Puncturation of elytral disc is in *S. humerosa* more dense, on slope and on sides appears rugose (not rugose in *S. incisicollis*).

MATERIAL EXAMINED

MADAGASCAR OUEST : – Route d'Anosibé, XI-XII. 1960 [MRAC, 3 ex., LB, 1 ex.]. – Sambirano, Suberbieville [= Maevatanana] [MNHN, 1 ex.].

MADAGASCAR EST : – Farafangana, Midongy du Sud, 600-1000 m, VIII. 1926 (*R. DECARY*) [MNHN, 1 ex.]. – forêt de Fito [MRAC, 4 ex., LB, 2 ex.]. – Baie d'Antongil [MNHN, 3 ex.].

Madagascar [MNHN, 1 ex.]. – NO Madagascar [MM, 2 ex.]. – Maromandia R., 1934 (*MELLY*) [DEI, MM, 5 ex.].

Sphenocassis imerina (SPAETH, 1926)

(fig. 275-280, 422, 423, map 21)

Cassida imerina SPAETH, 1926c: 23.
Sphenocassis imerina: BOROWIEC, 1999: 317; 2002: 235.

TYPE MATERIAL

2 syntypes: « Madagascar » [1 BMNH, 1 MM].

DESCRIPTION

Length: 7.0-7.6 mm, width: 5.4-5.75 mm, length of pronotum: 2.5-2.6 mm, width of pronotum: 4.4-4.7 mm, length/width ratio: 1.30-1.33, width/length of pronotum ratio: 1.69-1.81. Body subtriangular, strongly converging posterad (fig. 275, 422).

Pronotum yellowish-brown, only basal margin close to basal incision narrowly black. Elytra yellowish-brown, only teeth on basal margin of disc black. Clypeus, ventrites and legs yellow. Antennal segments 1-6 yellow, 8-11 black, segment 7 from uniformly yellow to mostly infuscate.

Pronotum elliptical, 1.69-1.81 times wider than long, with maximum width c. in middle, anterior margin moderately convex, lateral angles narrowly rounded. Base of pronotum on each side, before humeral callus, with deep emargination. Disc moderately convex, almost whole surface distinctly rugoso-striate, only anterior part of area above head coarsely punctate. Explanate margin narrow, indistinctly separated from disc, shallowly but very coarsely punctate, distance between punctures mostly narrower than puncture diameter, surface appears slightly irregular. Whole surface of pronotum slightly shiny.

Scutellum triangular, without punctures or sulci. Base of elytra distinctly wider than pronotum, humeri strongly protruding anterad, up to half length of pronotum, angulate. Basal margin of each disc with row of teeth, the largest are placed in opposite to pronotal basal incision. Disc strongly, unevenly convex, angulate in profile (fig. 276, 423), postscutellar impressions distinct, separated by low elevation, which runs from the top of postscutellar angulation to impunctate elevation close to each upper corner of scutellum. On each side of disc well marked longitudinal lateral impression. Puncturation completely irregular, moderately coarse and dense, distance between punctures from slightly narrower to twice wider puncture diameter (fig. 280), surface of disc appear

irregular to slightly rugose. Marginal interval distinct only in anterior half length of elytron. Marginal row distinct, especially in anterior half of disc, its punctures 1.5-2.0 times coarser than punctures of central part of disc. Explanate margin narrow, strongly deflexed, in the widest part c. three times narrower than width of disc of each elytron, in apical part as wide as diameter of punctures of marginal row. Surface of explanate margin coarsely, shallowly punctate, appears irregular. Whole surface of elytra slightly shiny. Whole surface of elytral epipleura with a sparse but long hairs.

Clypeus broad, c. 1.6 times wider than long, with shallow clypeal lines, run in basal 2/3 length parallel to inner margin of eyes, slightly converging apically. Surface of clypeus flat, with few shallow punctures, slightly shiny. Labrum shallowly emarginate to 1/5 length (fig. 277). Venter of pronotum with short but deep antennal groove, separated externally by an obtuse carina. Antennae stout, segments 9 and 10 c. 1.2 times as long as wide, length ratio of antennal segments: 100:58:88:94:76:70:65:58:70:70:135. Segment 3 c. 1.5 times as long as segment 2, and segment 4 slightly longer than segment 3 (fig. 279).

Prosternal collar prominent with deep lateral emargination and without or with barely marked plate above the emargination. Prosternal process narrow (fig. 277), moderately expanded apically, distinctly impressed longitudinally.

Claws large, simple (fig. 278).

DISTRIBUTION

MADAGASCAR NORD (map 21).

REMARKS

Sphenocassis imerina belongs to the species group with distinct basal pronotal emargination. *S. imerina* and *S. impressipennis* are very similar, they are characterised by yellow to yellow-green elytra, and well marked postscutellar impressions but not separated by distinct elevation. *S. impressipennis* differs in puncturation of pronotal disc without tendency to form a distinct longitudinal striation (rugoso-striate in *S. imerina*), and less angulate in profile elytral disc. Pronotum of *S. imerina* is much transverse with width/length ratio 1.69-1.81, while in *S. impressipennis* only 1.60-1.62.

MATERIAL EXAMINED

MADAGASCAR NORD: – Amber Geb. [= Montagne d'Ambre] [LB, 1 ex.].
Madagascar int. austr. [LB, 1 ex.].

Sphenocassis impressipennis BOROWIEC, 2002

(fig. 281-286, 426, 427, map 22)

Sphenocassis impressipennis BOROWIEC, 2002: 238.

TYPE MATERIAL

Holotype: MADAGASCAR EST: « Madagascar, Moramanga » [DBET]. – paratype: « Madagascar, forêt de Fito » [DBET].

DESCRIPTION

Length: 6.7-7.5 mm, width: 4.8-5.2 mm, length of pronotum: 2.4-2.6 mm, width of pronotum: 3.85-4.2 mm, length/width ratio: 1.40-1.44, width/length of pronotum ratio: 1.60-1.62. Body subtriangular, distinctly converging posterad (fig. 281, 426).

Pronotum yellow, only basal margin close to basal incision narrowly black. Elytra yellowish or yellowish-green, only teeth on basal margin of disc black. Clypeus, ventrites and legs yellow. Antennal segments 1-6 yellow, segments 8-11 black. segment 7 partly infuscate to black.

Pronotum elliptical, less transverse than in related species, 1.60-1.62 times wider than long, with maximum width in middle, anterior margin moderately convex, sides broadly rounded. Base of pronotum on each side with deep emargination. Disc moderately convex, indistinctly separated from explanate margin but with well defined, impressed area above head. Puncturation of elevated part of disc coarse and dense, punctures mostly touching each other, but only few tend to form longitudinal striation, surface appears mostly irregular to slightly rugose. Puncturation of impressed area above head coarse but distinctly sparser than on elevated part of disc, distance between punctures slightly wider than puncture diameter and surface appears regular. Explanate margin narrow, shallowly, but coarsely and densely punctate, distance between punctures mostly narrower than puncture diameter, surface appears irregular. Whole surface of pronotum slightly shiny.

Scutellum triangular, without punctures or sulci. Base of elytra distinctly wider than pronotum, humeri strongly protruding anterad, angulate. Basal margin of each disc with row of teeth, the largest are placed opposite to pronotal basal emargination. Disc unevenly convex, with top of convexity in postscutellar area (fig. 282, 427), with shallow but well marked postscutellar, principal and lateral impressions, only on slope, parallel to suture, there is an elongate shallow impression. Postscutellar impressions does not separated by elevation. Puncturation completely irregular, coarse and dense, distance between punctures from narrower to twice wider than puncture diameter (fig. 286), surface of disc appears irregular to rugose. Marginal interval present only in anterior half length of elytron. Marginal row distinct, especially in anterior half of disc, its punctures twice to thrice coarser than punctures of central part of disc. Explanate margin very narrow, strongly deflexed, in the widest part c. 2.8 times narrower than width of each disc, in apical part as wide as diameter of punctures of marginal row. Surface of explanate margin coarsely punctate, punctures slightly coarser than on central part of disc but sparser, surface appears irregular. Whole surface of elytra slightly shiny. Elytral epipleura in apical half with sparse erect hairs.

Clypeus broad, c. 1.6 times wider than long, with shallow but distinct clypeal lines, run parallel to inner margin of eyes. Surface of clypeus flat, with few shallow punctures, slightly shiny. Labrum shallowly emarginate to 1/6 length (fig. 283). Eyes shorter than in related *Sphenocassis imerina*. Venter of pronotum with short but deep antennal groove, separated externally by a sharp carina. Antennae stout, segments 9 and 10 approximately equal in length and width, length ratio of antennal segments: 100:52:82:76:65:65:58:64:64:70:117. Segment 3 c. 1.6 as long as segment 2, and slightly longer than segment 4 (fig. 285).

Prosternal collar prominent with deep lateral emargination but without plate above the emargination. Prosternal process narrow, moderately expanded apically, shallowly canaliculate longitudinally (fig. 283).

Claws large, simple (fig. 284).

DISTRIBUTION

MADAGASCAR EST (map 22).

REMARKS

Sphenocassis impressipennis belongs to the species group with distinct basal pronotal emargination. *S. impressipennis* and *S. imerina* are very similar, they are characterised by yellow to yellow-green elytra, and well marked postscutellar impressions but not separated by distinct elevation. For distinguishing characters, see remarks under *S. imerina*.

MATERIAL EXAMINED

No additional material.

Sphenocassis incisicollis (SPAETH, 1911)

(fig. 287-293, 428, 429, map 22)

Torbinia incisicollis SPAETH, 1911: 262; 1914: 85; 1924: 311.
Sphenocassis incisicollis: BOROWIEC, 1999: 317; 2002: 241.

TYPE MATERIAL

Holotype: MADAGASCAR SUD: « Rég. d'Ambovombe, Plateau d'Androy, coll. Donckier » [MM].

DESCRIPTION

Length: 7.25-8.6 mm, width: 4.9-6.1 mm, length of pronotum: 2.5-2.8 mm, width of pronotum: 4.3-5.1 mm, length/width ratio: 1.41-1.48, width/length of pronotum ratio: 1.72-1.82. Body subtriangular, strongly converging posterad (fig. 287, 288, 428).

Pronotum and elytra brown, basal margin of pronotum and basal crenulation of elytral disc narrowly black. Punctures of elytral disc with darker brown areola, especially punctures in postscutellar impression dark marked. Dark areolae at anterior side of postscutellar elevation sometimes coalescent, form small, blackish spot of indistinct borders. Head, ventrites and legs yellowish-brown. Antennal segments 1-6 yellowish, remainder brown to black.

Pronotum very broad, reversely trapezoidal, 1.72–1.82 wider than long, with maximum width in or slightly before middle, anterior margin moderately convex, lateral angles rounded. Base of pronotum on each side, before humeral callus, with deep emargination. Disc moderately convex, coarsely and densely punctate, on top of disc distance between punctures from slightly narrower to slightly wider than puncture

diameter; only on praescutellar lobe punctures tend to form short longitudinal striation, on other parts of disc surface only slightly irregular or slightly rugose but shiny. Explanate margin narrow, indistinctly separated from disc, shallowly, coarsely, and densely punctate, with distance between punctures c. as wide as puncture diameter. Intervals more regular than on disc, mostly flat, and surface of explanate margin does not appear rugose, but slightly dull.

Scutellum triangular, smooth and shiny. Base of elytra strongly wider than pronotum, humeri strongly protruding anterad, up to half length of pronotum, angulate. Basal margin of each disc with row of large teeth, the largest placed opposite to pronotal basal emargination. Disc extremely, unevenly convex, obtusely angulate in profile (fig. 289, 429). Postscutellar impressions deep, separated by elevation, which runs from top of postscutellar convexity to each humeral callus, forms an arch figure. Basal margin between scutellum and humeral callus in middle with impunctate elevation, which is sometimes connected with arch-shaped border of postscutellar elevation by slightly elevated interval. Puncturation of disc completely irregular, coarse and dense, distance between punctures from slightly narrower to twice wider than puncture diameter (fig. 293). Space between punctures partly convex and surface of disc appears slightly irregular, or on slope slightly rugose. Marginal interval reduced to impunctate plate in 1/4 length of margin of disc. Marginal row distinct only in anterior half of disc, its punctures c. twice coarser than punctures of central part of disc. Explanate margin very narrow, strongly deflexed, almost perpendicular, in the widest part c. four times narrower than width of each disc of elytron, in apical part as wide as diameter of punctures of marginal row. Surface of explanate margin as coarsely punctate as on disc but sparser, interspaces flat, surface appears regular. Whole surface of elytra slightly shiny. Apex of elytral epipleura only in area close to sutural angle with a few erect hairs.

Clypeus very broad, c. 1.8 times wider than long, flat, with several fine punctures. Clypeal grooves moderately deep, run parallel to inner margin of eyes, not converging apically. Labrum shallowly emarginate to 1/6 length (fig. 290). Venter of pronotum with short but deep antennal groove, separated externally by an obtuse carina. Antennae stout, length ratio of antennal segments: 100:50:83:66:58:55:66:55:60:60:116. Segment 3 c. 1.7 times as long as segment 2 and c. 1.3 times as long as segment 4 (fig. 292).

Prosternal collar prominent with deep lateral emargination, and small plate above the emargination. Prosternal process narrow (fig. 290), moderately expanded apically, apex deeply canaliculate longitudinally.

Claws large, simple (fig. 291).

Distribution

Madagascar Sud (map 22).

Remarks

Sphenocassis incisicollis with *S. humerosa* form a group of large species, reddish brown to brown, with deep postscutellar impressions separated by distinct, sharp or obtuse, carina and very deep basal pronotal emargination. For distinguishing characters see remarks under *S. humerosa*.

MATERIAL EXAMINED
Madagascar [LB, 1 ex.].

Sphenocassis praerupta (SPAETH, 1918)
(fig. 294-299, 430, 431)

Cassida praerupta SPAETH, 1918: 30.
Sphenocassis praerupta: BOROWIEC, 1999: 317; 2002: 243.

TYPE MATERIAL
Syntype: « Madagascar, 1902, Plason » [MM].

DESCRIPTION
Length: 7.8 mm, width: 5.3 mm, length of pronotum: 2.7 mm, width of pronotum: 4.45 mm, length/width ratio: 1.47, width/length of pronotum ratio: 1.65. Body oval, softly converging posterad (fig. 294, 430).

Pronotum yellowish-reddish-brown. Elytra brownish–green, only teeth on basal margin of disc black. Clypeus, ventrites and legs yellow. Antennal segments 1–7 yellow, remainder black.

Pronotum elliptical, very broad, c. 1.65 times wider than long, with maximum width in middle, sides rounded. Base of pronotum before humeral calli with very small, barely marked basal emargination. Disc only slightly convex, in basal half longitudinally punctato-striate, in area above head coarsely punctate, its surface appears rugoso-striate. Explanate margin indistinctly separated from disc, densely, coarsely but shallowly punctate, its surface appears irregular; distance between punctures narrower than puncture diameter.

Scutellum triangular, its surface with few longitudinal, shallow striae. Base of elytra slightly wider than pronotum, humeri moderately protruding anterad, angulate. Basal crenulation of disc distinct. Disc almost evenly convex, with top of convexity in postscutellar area (fig. 295, 431). Postscutellar impressions barely marked, without elevated borders, no principal or lateral impressions. Puncturation completely irregular, coarse and sparse, distance between punctures mostly wider than puncture diameter (fig. 299), surface of disc appears irregular to slightly rugose. Punctures at top of disc c. twice coarser than on slope. Marginal interval present only in anterior half length of elytron. Marginal row distinct, especially in anterior half of disc, its punctures twice to thrice coarser than punctures of central part of disc. Explanate margin very narrow, strongly deflexed, in the widest part c. four times narrower than width of each elytron disc, in apical part as wide as diameter of punctures of marginal row. Surface of explanate margin coarsely punctate, punctures slightly coarser but sparser than on central part of disc. Elytral epipleura along margin and in area close to sutural angle with short, erect hairs.

Clypeus broad, c. 1.5 times wider than long, flat, its surface shiny, with several fine punctures. Clypeal grooves deep, parallel to inner margin of eyes, but not converging

apically. Labrum shallowly emarginate to 1/6 length (fig. 296). Venter of pronotum with short but deep antennal groove, separated externally by a sharp carina. Antennae stout, segment 9 as long as wide, segment 10 slightly transverse, length ratio of antennal segments: 100:60:67:93:73:66:73:60:60:63:133. Segment 3 c. 1.1 times as long as 2 and segment 4 c. 1.4 times as long as segment 3 (fig. 298).

Prosternal collar prominent with deep lateral emargination, but without plate above the emargination. Prosternal process narrow (fig. 296), moderately expanded apically, shallowly canaliculate in middle, apex smooth and shiny.

Claws large, simple (fig. 297).

DISTRIBUTION

MADAGASCAR.

REMARKS

Sphenocassis praerupta with *S. punctatissima* are well distinguished from other members of the genus by very small but visible (in *S. praerupta*) or completely invisible (in *S. praerupta*) basal pronotal impressions. *S. praeurpta* differs from *S. punctatissima* is larger body, with length above 7.5 mm (below 7.5 in *punctatissima*), more transverse pronotum with width/length ratio above 1.64 (below 1.60 in *punctatissima*) and basal part of pronotal disc strongly punctato-striate (in *S. punctatissima* punctuation only tends to form striation, or it is completely irregular and dense, rugose but not distinctly punctato-striate). Dorsal coloration of *S. praerupta* is darker, especially pronotum is yellowish-reddish-brown, while in *S. punctatissima* it is yellowish-green or yellowish-pale brownish. *S. rotundella* and *A. anosibensis* are also similar, especially in almost regularly convex elytral disc, without impressions, but differ well marked basal pronotal emargination; *S. rotundella* differs also in very small body with length below 4.6 mm.

MATERIAL EXAMINED

No additional material.

Sphenocassis punctatissima (WEISE, 1910)

(fig. 300-305, 432, 433, map 22)

Cassidula punctatissima WEISE, 1910: 481.
Cassida (Cassida) punctatissima: SPAETH, 1914: 116.
Sphenocassis punctatissima: BOROWIEC, 1999: 317; 2002: 246.

TYPE MATERIAL

Location of type unknown.

DESCRIPTION

Length: 5.7-7.25 mm, width: 3.65-4.55 mm, length of pronotum: 2.15-2.55 mm, width of pronotum: 3.15-3.8 mm, length/width ratio: 1.50-1.66, width/length of pro-

notum ratio: 1.43-1.59. Body elongate-oval, softly converging posterad (fig. 300, 432). The most plesiomorphic species within the genus, with intermediate position between genera *Cassida* L. and *Sphenocassis* Sp.

Pronotum yellow to yellowish brown. Elytra yellowish or yellowish-green, only teeth on basal margin of disc black. Clypeus, ventrites and legs yellow. Antennae yellow, basal segments 1-7 yellowish, remainder black.

Pronotum elliptical, less transverse than other species, 1.47-1.59 times wider than long, with maximum width in or slightly behind middle, anterior margin regularly convex, sides broadly rounded. Base of pronotum on each side without emargination. Disc slightly convex, indistinctly separated from explanate margin, whole surface coarsely and densely punctate, punctures almost touching each other, tend to form longitudinal striation, and surface appears rugosostriate, also partly in area above head. Explanate margin narrow, shallowly but densely punctate, punctures almost touching each other, surface appears irregular. Whole surface of pronotum slightly shiny.

Scutellum triangular, its surface slightly irregular. Base of elytra slightly wider than pronotum, humeri moderately protruding anterad, angulate. Basal margin of each disc with row of very small teeth. Disc regularly convex, without impressions (fig. 301, 433). Puncturation completely irregular, coarse and dense, distance between punctures mostly narrower than puncture diameter (fig. 305), surface of disc appear irregular to rugose, especially on slope. Marginal interval present only in anterior half length of elytron. Marginal row distinct, especially in anterior half of disc, its punctures twice to thrice coarser than punctures of central part of disc. Explanate margin very narrow, strongly deflexed, in the widest part c. four times narrower than width of each disc, in apical part as wide as diameter of punctures of marginal row. Surface of explanate margin coarsely, shallowly punctate, punctures slightly coarser than on disc but sparser, surface appears irregular. Whole surface of elytra slightly shiny. Elytral epipleura in posterior half with short, sparse, erect hairs.

Clypeus broad, c. 1.4 times wider than long, with shallow but distinct clypeal lines, run in basal part parallel to inner margin of eyes, slightly converging but connected apically. Surface of clypeus flat, with few shallow punctures, slightly shiny. Labrum shallowly emarginate to 1/6 length (fig. 302). Venter of pronotum with very short and shallow antennal groove, separated externally by an obtuse fold. Antennae stout, segments 9 and 10 transverse, distinctly wider than long, length ratio of antennal segments: 100:53:70:76:59:59:64:59:59:64:129. Segment 3 c. 1.3 times as long as 2, and segment 4 slightly longer than 3 (fig. 304).

Prosternal collar prominent with shallow, barely marked lateral emargination. Prosternal process narrow, moderately expanded apically (fig. 302), not impressed, apex with few shallow punctures.

Claws large, simple (fig. 303).

Distribution

Madagascar (map 22).

Remarks

Sphenocassis punctatissima with *S. praerupta* are well distinguished from other members of the genus by very small but visible (in *S. praerupta*) or completely invisible (in *S. punctatissima*) basal pronotal impressions. For distinguishing characters see remarks under *S. praerupta*. *S. punctatissima* has intermediate characters between the genera *Cassida* L. and *Sphenocassis* Sp. In general body shape, irregular elytral puncturation, simple claws, and pronotum without basal emargination it resembles members of *Cassida litigiosa* group. But *S. punctatissima* has, like other members of the genus, well defined antennal grooves, dorsal part of body with short, erect setae, rugose pronotal and elytral puncturation, broad clypeus with distinct clypeal grooves, well marked prosternal collar with shallow but present lateral emargination. Thus, its position within the genus *Sphenocassis* is not questionable.

Material examined

Madagascar Centre: – Ambositra [MM, LB, 2 ex.]. – Ambositra (*Sicard*) [MNHN, 1 ex.]. – "Dano" depression, km 102 Route Ankazobe, 6. II. 1948 [MNHN, 1 ex.].

Madagascar Est: – Forêts de Fito [LB, 1 ex.].

Madagascar [LB, 1 ex.]. – Madagascar int. austr. [LB, 1 ex.].

Sphenocassis rotundella Borowiec, 2002

(fig. 306-311, 434, map 21)

Sphenocassis rotundella Borowiec, 2002: 248.

Type material

Holotype: « Madagascar Sud: Itampolo, 13. V. 51, RP, "*Cassida rotundella* Hincks type, det. W.D. Hincks » (*R. Paulian*) [MNHN].

Description

Length: 4.5 mm, width: 3.0 mm, length of pronotum: 1.65 mm, width of pronotum: 2.6 mm, length/width ratio: 1.5, width/length of pronotum ratio: 1.58. Body elongate oval, slightly cylindrical, sides in posterior half distinctly converging posterad (fig. 306, 434).

Pronotum yellow, only basal margin close to basal emargination narrowly black. Elytra yellowish-green, only teeth on basal margin of disc black. Clypeus, ventrites and legs yellow. Antennae yellow, with slightly infuscate last four segments.

Pronotum trapezoidal, with maximum width slightly in front of the middle, anterior margin moderately convex, lateral angles rounded, sides behind the angle straight, strongly converging posterad. Base of pronotum on each side before humeral callus with deep emargination. Disc moderately convex, indistinctly separated from explanate margin, surface with irregular wrinkles. Explanate margin narrow, shallowly punctate, its surface appears irregular. Whole surface of pronotum slightly dull, only some wrinkles on top of disc slightly shiny.

Scutellum triangular, without punctures or sulci. Base of elytra distinctly wider than pronotum, humeri strongly protruding anterad, angulate. Basal margin of each disc with row of teeth, the largest are placed in opposite to pronotal basal incision. Disc regularly convex (fig. 307), postscutellar impressions barely marked, without elevated borders, no principal impressions. Puncturation completely irregular, very coarse and dense, distance between punctures distinctly narrower to as wide as puncture diameter (fig. 311), surface of disc appear irregular to slightly rugose. Marginal interval present only in anterior 1/3 length of elytron. Marginal row distinct, especially in anterior half of disc, its punctures twice to thrice coarser than punctures of central part of disc. Explanate margin very narrow, strongly deflexed, in the widest part c. four to five times narrower than width of each disc, in apical part as wide as diameter of punctures of marginal row. Surface of explanate margin distinctly, shallowly punctate, appears irregular. Whole surface of elytra slightly dull. Apex of elytral epipleura only in area close to sutural angle with a few erect hairs.

Clypeus very broad, c. 1.9 times wider than long, with shallow but distinct clypeal lines, parallel to inner margin of eyes. Surface of clypeus flat, with few shallow punctures, slightly shiny. Labrum emarginate to 1/6 length (fig. 308). Venter of pronotum with short but deep antennal groove, separated externally by a sharp carina. Antennae stout, segments 9 and 10 approximately as long as wide, length ratio of antennal segments: 100:60:87:73:73:53:60:57:55:55:146. Segment 3 c. 1.5 as long as segment 2 and c. 1.2 times as long as segment 4 (fig. 310).

Prosternal collar prominent with shallow lateral emargination, without plate above the emargination. Prosternal process small and narrow, moderately expanded apically, shallowly canaliculate longitudinally (fig. 308), apex with few shallow punctures.

Claws large, simple (fig. 309).

DISTRIBUTION

MADAGASCAR SUD (map 21).

REMARKS

Sphenocassis rotundella distinctly differs from congeners by its small size (in other species of the genus length usually above 5.0 mm). Only small specimens of *S. punctatissima* are at first glance similar, especially in almost cylindrical, regularly convex body and elytra without distinct impressions, but they differ in base of pronotum without basal incision (with deep incision in *S. rotundella*), and venter of pronotum with shallow antennal groove not separated externally by sharp carina (deep and bordered externally by sharp carina in *S. rotundella*).

MATERIAL EXAMINED

No additional material.

Genus: *Tegocassis* SPAETH, 1924

Tegocassis SPAETH, 1924: 310 (type species: *Cassida corpulenta* WEISE, 1904, by original designation). – HINCKS, 1952: 338. – SEENO and WILCOX, 1982: 177. – BOROWIEC, 1994a: 19; 1999: 317.

DIAGNOSIS

Moderately large cassids, body length 8-12 mm. Body almost circular. Pronotum very broad, with maximum width slightly before middle, sides rounded but posterior corners well marked. Pronotal disc unseparated from explanate margin, microreticulate, with fine pricks, and sometimes with fine wrinkles. Explanate margin broad, microreticulate, impunctate with shallow striation. Elytral base only slightly wider than pronotum. Elytral disc angulate in profile. Puncturation completely irregular. Marginal row distinct in 1/3-1/2 length of elytra, in posterior half of elytra marginal row vanished between coarse puncturation of disc and marginalia. Explanate margin of elytra very broad, moderately deflexed, irregularly punctate. Clypeus very short, c. as long as length of first antennal segment, no clypeal grooves only margins of clypeal triangle slightly elevated. Venter of pronotum without antennal grooves. Antennae elongate, third segment distinctly longer than second, segments 8-10 longer than wide. Last segment of tarsi slightly longer than third, bilobate segment. Claws simple.

It is close to *Cassida* L., especially to large species from Madagascar. *Tegocassis* differs in peculiar structure of prosternal collar which runs up to lateral sides of head cavity, but between head cavity collar and prosternal collar, at sides of head, there is a deep emargination. No species of *Cassida* has as short clypeus as *Tegocassis*. Members of *Cassida* are usually smaller, only few species extend their size above 8 mm. Uniformly yellow or green, irregularly punctate elytra have also species of *Cassida litigiosa* group from South Africa. They differ from *Tegocassis* in smaller size, short prosternal collar, and longer clypeus.

DISTRIBUTION

Only one species in Africa and Madagascar.

Tegocassis corpulenta (WEISE, 1904)
(fig. 312-317, 380, 381, map 14)

Cassida corpulenta WEISE, 1904b: 173.
Cassida (*Cassida*) *corpulenta*: SPAETH, 1914: 118.
Tegocassis corpulenta: SPAETH, 1924: 310; 1932c: 233. – BOROWIEC, 1999: 317; 2002: 252.
Tegocassis corpulenta ssp. *salamensis* SPAETH, 1932c: 233.
Cassida exsanguis FAIRMAIRE, 1894: 470. – SPAETH, 1914: 115, not *C. exsanguis* Gerstaecker, 1884. – BOROWIEC, 1999: 318 (as syn.).
Tegocassis exsanguis: SPAETH, 1924: 310.

TYPE MATERIAL

Cassida corpulenta WEISE: « Kamerun Kraatz» [ZMHU].

Cassida exsanguis FAIRMAIRE: syntype « Ankarahitra Perrier » [= Ankirihitra] (*H. PERRIER DE LA BÂTHIE*) [MNHN].

Tegocassis corpulenta ssp. *salamensis* SPAETH: type unknown to us; we examined specimens from Tanzania preserved in MM and labelled by SPAETH as "ssp. *salamensis*".

DESCRIPTION

Length: 8.5-12.7 mm, width: 6.8-10.8 mm, length of pronotum: 2.8-3.8 mm, width of pronotum: 5.4-7.7 mm, length/width ratio: 1.13-1.27, width/length of pronotum ratio: 1.83-2.06. Body almost circular (fig. 312, 380).

Whole body, including head, ventrites and legs uniformly yellow (green in life). Antennae mostly yellow, in western populations usually three last segments brown to black, and segment 8 partly infuscate, in eastern populations usually only last segment brownish to black and segment 10 partly infuscate.

Pronotum very broad, 1.96-2.06 times wider than long, widest at base, posterior corners well marked. Disc only slightly convex, separated from explanate margin by shallow impression. Surface in western populations completely smooth, in populations from Madagascar usually with indistinct, very shallow, fine puncturation, especially on sides of disc, or impunctate but slightly irregular. Explanate margin broad, smooth. Whole surface of disc slightly dull.

Scutellum triangular, smooth and slightly shiny. Base of elytra only slightly wider than pronotum, humeri only slightly protruding anterad, rounded. Basal margin of disc not or indistinctly crenulate. Disc unevenly convex, obtusely angulate in profile (fig. 313, 381), in populations from Cameroon slightly more angulate than in populations from Madagascar. Puncturation of disc completely irregular, fine to moderately coarse (fig. 317), in sutural half of disc slightly finer and denser than on sides of disc. Distance between punctures in sutural half of disc from as wide as to twice, on sides to thrice wider than puncture diameter. Marginal interval distinct, but narrow, in anterior part c. thrice wider than three punctures together. Marginal row distinct, its punctures not coarser than on disc. Explanate margin moderately deflexed, broad, in the widest part c. 1.3 times narrower than width of each disc of elytron, shallowly punctate, punctures c. as coarse as on disc but distinctly sparse, surface appears slightly irregular. Whole surface of disc slightly dull. Apex of elytral epipleura with row of sparse, short, erect setae.

Clypeus very short, c. twice wider than long, slightly elevated but with depressed top, fine clypeal grooves visible only in basal corners of the depressed top. Surface of clypeus smooth, slightly dull. Labrum transverse, shallowly emarginate to 1/5 length (fig. 314). Eyes very short, gena as long as half length of eye. Antennae slim, segments 9 and 10 c. 1.5 times as long as wide, length ratio of antennal segments: 100:50:83: 77:72:55:80:64:66:66:105. Segment 3 c. 1.7 as long as segment 2, and slightly longer segment 4 (fig. 316).

Prosternal collar long, its inner surface on sides densely pubescent, no lateral emargination. Head cavity on sides with sharp collar, but between it and prosternal collar

there is a deep emargination. Prosternal process moderately broad in middle, strongly expanded apically, apex with large but shallow impression (fig. 314).

Claws large, simple (fig. 315).

DISTRIBUTION

Forest regions of CAMEROON, TANZANIA, and MADAGASCAR (map 14).

REMARKS

Populations from Cameroon, described under name *T. corpulenta* (WEISE), slightly differ from Malagasy populations, described under name *T. exsanguis* (FAIRMAIRE), in pronotal disc completely smooth, with regular surface, slightly much convex elytral disc, and usually four last antennal segments infuscate to black, while specimens from Madagascar have pronotal surface slightly irregular, and usually only two last antennal segments infuscate to black. The differences were also emphasised by broad geographical disjunction. But SPAETH (1932b) described from Tanzania *T. corpulenta* ssp. *salamensis* with intermediate characters between Cameroon and Madagascar populations. Thus, the name *T. exsanguis* should be synonymized with *T. corpulenta* and this point of view was presented in the world catalogue of Cassidinae by BOROWIEC (1999). Probably the species in the past was wide spread in forests across African continent and Madagascar, but on several areas had been extinct together with extinction of humid forests in eastern Africa.

MATERIAL EXAMINED

MADAGASCAR NORD: – Diégo-Suarez [= Antsiranana], Montagne des Francais, II. 1959 (*A. ROBINSON*) [MNHN, 1 ex.]. – Diégo-Suarez [= Antsiranana], forêt d'Analamerana, 80 m, 50 km SE Diégo, I. 1959 (*A. ROBINSON*) [MNHN, 1 ex.].

MADAGASCAR OUEST: – Statin agricole du Bas Mangoky [MNHN, 1 ex.]. – Sakaraha, réserve forestière du Zombitsy, 11-12. IV. 1956 (*P. GRIVEAUD*) [MM, 1 ex.].

MADAGASCAR SUD: – Beloha, 5. VIII. 1948 [MNHN, 1 ex.], env. Beloha, 22. VI. 1948 (*P. CLÉMERT*) [MM, 1 ex.]. – Mandrare Moyen, de Besakoa à Bekily, 4. III. 1901 (*J. DECORSE*) [MNHN, 1 ex.]. – Plateau de l'Androy, Rég. Ambovombe [MM].

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05. *Androya tenuecostata* (FAIRMAIRE, 1899)

Genus *Cassidopsis* FAIRMAIRE, 1899

06. *Cassidopsis basipennis* FAIRMAIRE, 1899
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16. *Aspidimorpha* (*Aspidimorpha*) *madagascarica* BOHEMAN, 1854
17. *Aspidimorpha* (*Aspidimorpha*) *pontifex* BOHEMAN, 1854
18. *Aspidimorpha* (*Aspidimorpha*) *quinquefasciata* (FABRICIUS, 1801)
19. *Aspidimorpha* (*Aspidimorpha*) *rubroornata* BOROWIEC, 1997
20. *Aspidimorpha* (*Aspidimorpha*) *undulatipennis* SPAETH, 1911
21. *Aspidimorpha* (*Aspidimorpha*) *vernicata* FAIRMAIRE, 1901

Subgenus: *Afroaspidimorpha* BOROWIEC, 1997

22. *Aspidimorpha* (*Afroaspidimorpha*) *fallaciosa* (FAIRMAIRE, 1904)
23. *Aspidimorpha* (*Afroaspidimorpha*) *polyspila* SPAETH, 1911

Subgenus: *Aspidocassis* BOROWIEC, 1997

24. *Aspidimorpha* (*Aspidocassis*) *apicalis* (KLUG, 1833)
25. *Aspidimorpha* (*Aspidocassis*) *tanolaensis* BOROWIEC, 1997

Subgenus *Spaethia* BERG, 1899

26. *Aspidimorpha* (*Spaethia*) *cepaecolor* (FAIRMAIRE, 1898)

Genus *Laccoptera* BOHEMAN, 1855

Subgenus *Asphalesia* WEISE, 1899

27. *Laccoptera* (*Asphalesia*) *confragosa* (WEISE, 1899)
28. *Laccoptera* (*Asphalesia*) *pallicolor* (FAIRMAIRE, 1901)

29. *Laccoptera* (*Asphalesia*) *perrieri* FAIRMAIRE, 1898
30. *Laccoptera* (*Asphalesia*) *regularis* FAIRMAIRE, 1898
31. *Laccoptera* (*Asphalesia*) *spectrum* BOHEMAN, 1855
32. *Laccoptera* (*Asphalesia*) *undulata* (SPAETH, 1919)

Genus *Mahatsinia* SPAETH, 1919

33. *Mahatsinia nodulosa* (WEISE, 1910)

Tribe **Cassidini** GYLLENHAL, 1813

Genus *Andevocassis* SPAETH, 1924

34. *Andevocassis picta* (SPAETH, 1905)

Genus *Chiridopsis* SPAETH, 1922

35. *Chiridopsis atricollis* BOROWIEC, 2005
36. *Chiridopsis leopardina* (BOHEMAN, 1855)
37. *Chiridopsis levis* BOROWIEC, 2005
38. *Chiridopsis limbella* (FAIRMAIRE, 1899)
39. *Chiridopsis maculata* BOROWIEC, 2005
40. *Chiridopsis marginepunctata* BOROWIEC, 2005
41. *Chiridopsis nickerli* (SPAETH, 1911)
42. *Chiridopsis nigroreticulata* BOROWIEC, 2005
43. *Chiridopsis trizonata* (FAIRMAIRE, 1904)

Genus *Hovacassis* SPAETH, 1952

44. *Hovacassis brunneofasciata* BOROWIEC, 2002
45. *Hovacassis discolor* (BOHEMAN, 1855)
46. *Hovacassis flavonigra* BOROWIEC, 2002
47. *Hovacassis formosa* BOROWIEC, 2002
48. *Hovacassis murzini* BOROWIEC, 2002
49. *Hovacassis pulchra* (SPAETH, 1915)
50. *Hovacassis rubromaculata* BOROWIEC, 2002
51. *Hovacassis rubrovittata* BOROWIEC, 2002

Genus *Sphenocassis* SPAETH, 1911

52. *Sphenocassis anosibensis* BOROWIEC, 2002
53. *Sphenocassis humerosa* (FAIRMAIRE, 1898)
54. *Sphenocassis imerina* (SPAETH, 1926)
55. *Sphenocassis impressipennis* BOROWIEC, 2002
56. *Sphenocassis incisicollis* (SPAETH, 1911)
57. *Sphenocassis praerupta* (SPAETH, 1918)
58. *Sphenocassis punctatissima* (WEISE, 1910)
59. *Sphenocassis rotundella* BOROWIEC, 2002

Genus *Tegocassis* SPAETH, 1924

60. *Tegocassis corpulenta* (WEISE, 1904)

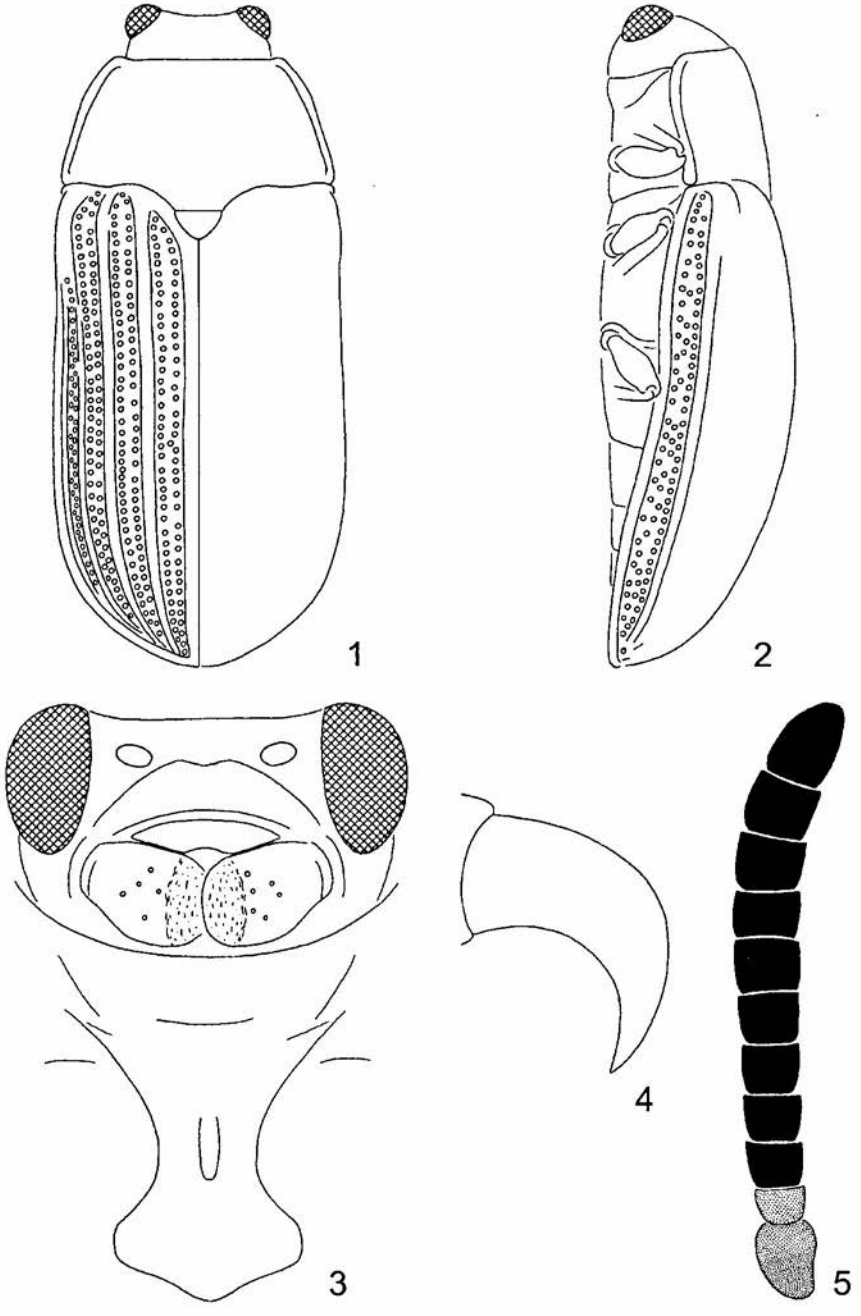


Plate 1. fig. 1-5: *Androya longula* (FAIRMAIRE). – 1: body dorsal. – 2: body lateral. – 3: head and prosternum. – 4: claw. – 5: antenna.

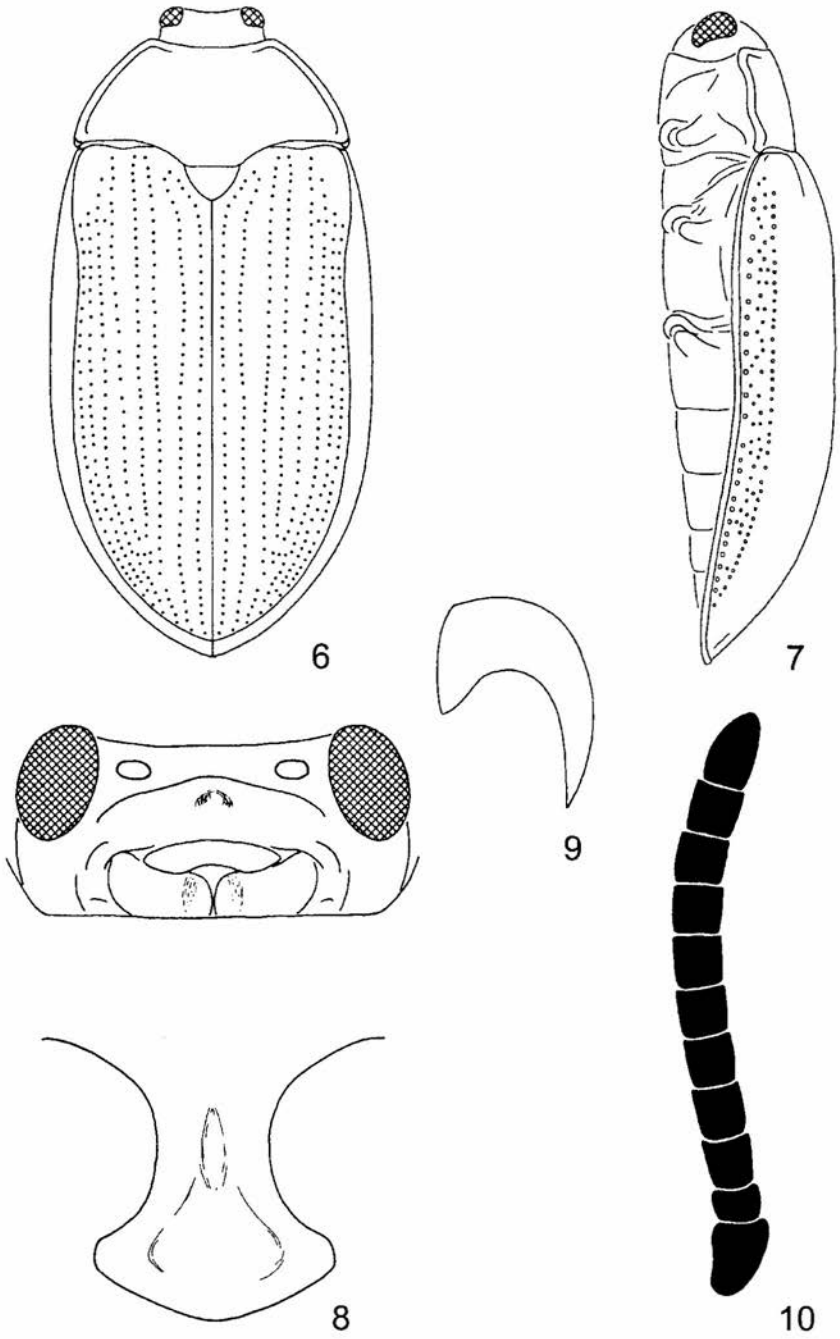


Plate 2. fig. 6-10: *Androya obscuricollis* (FAIRMAIRE). – 6: body dorsal. – 7: body lateral. – 8: head and prosternum. – 9: claw. – 10: antenna.

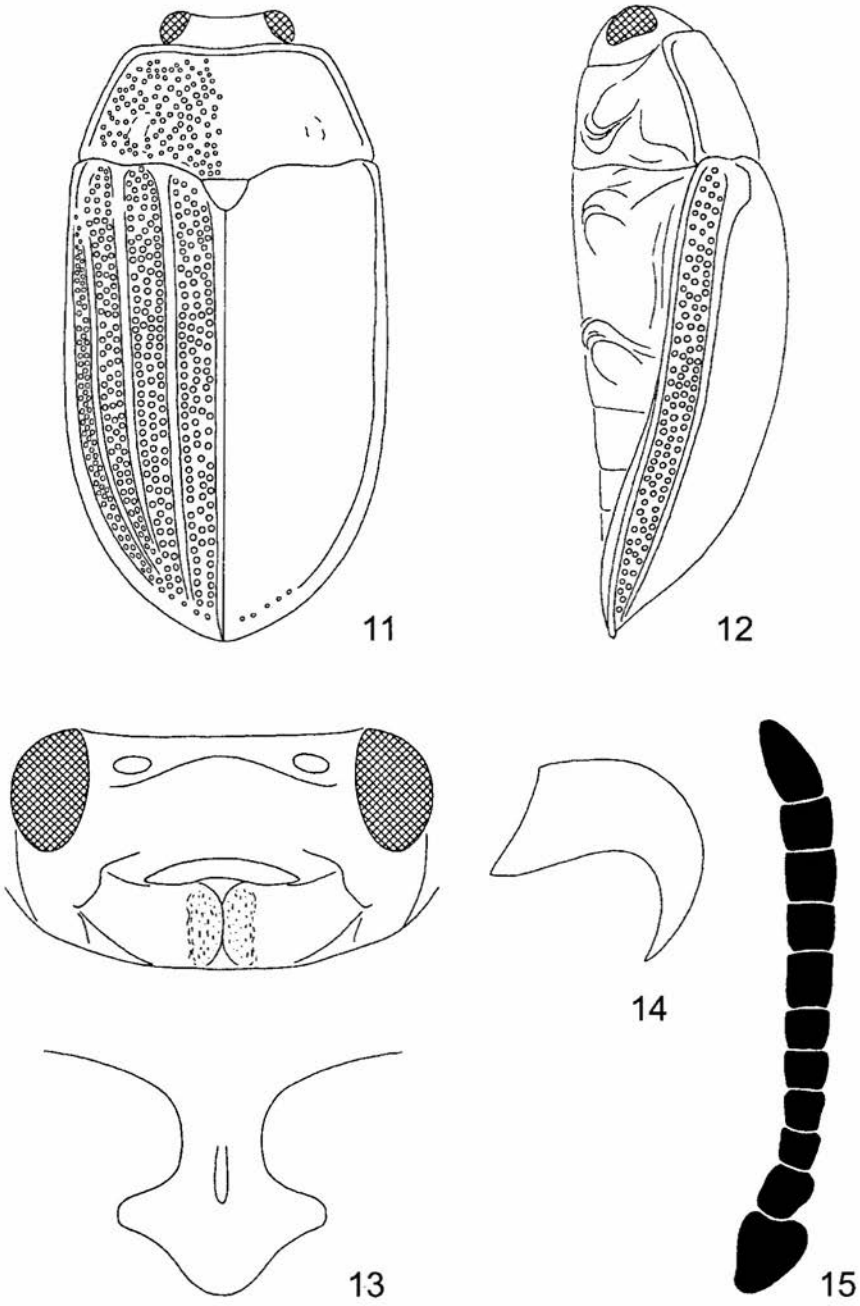
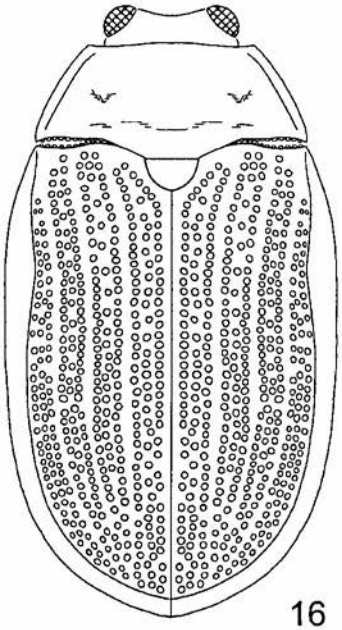
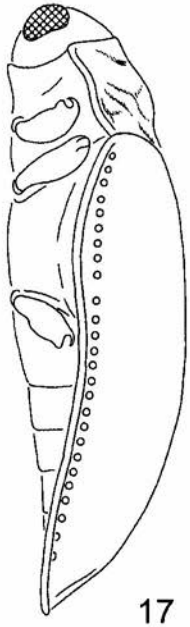


Plate 3. fig. 11-15: *Androya rubrocostata* (FAIRMAIRE). – 11: body dorsal. – 12: body lateral. – 13: head and prosternum. – 14: claw. – 15: antenna.





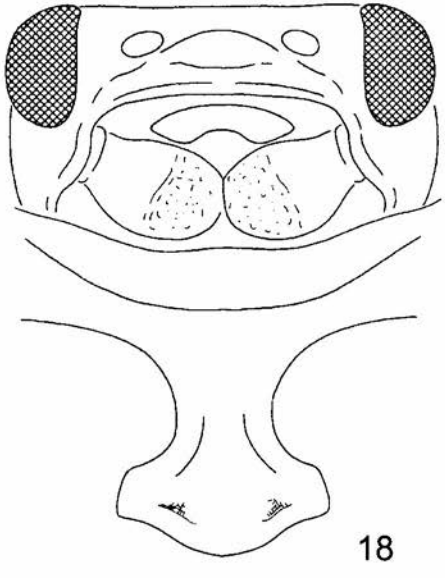


Plate 4. fig. 16-20: *Androya tenuecostata* (FAIRMAIRE). – 16: body dorsal. – 17: body lateral. – 18: head and prosternum. – 19: claw. – 20: antenna.

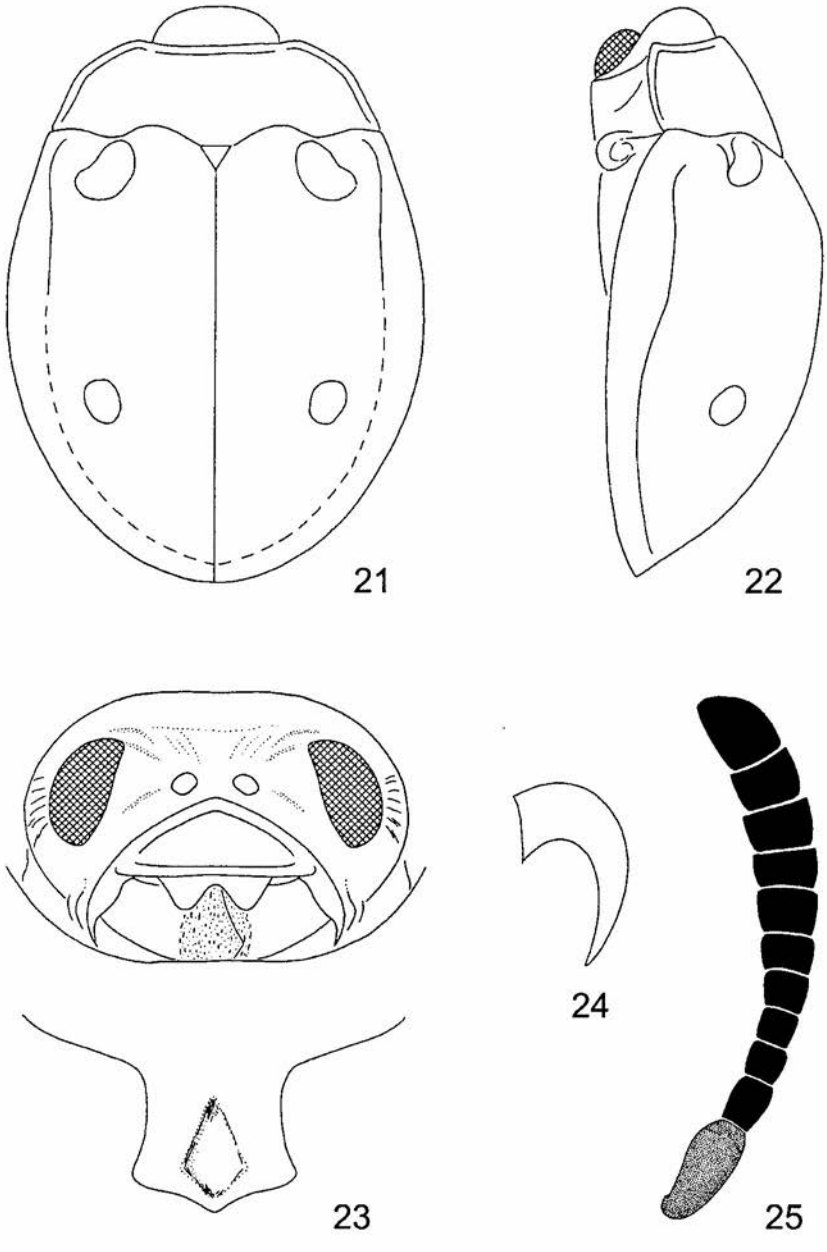


Plate 5. fig. 21-25: *Cassidopsis basipennis* FAIRMAIRE. – 21: body dorsal. – 22: body lateral. – 23: head and prosternum. – 24: claw. – 25: antenna.

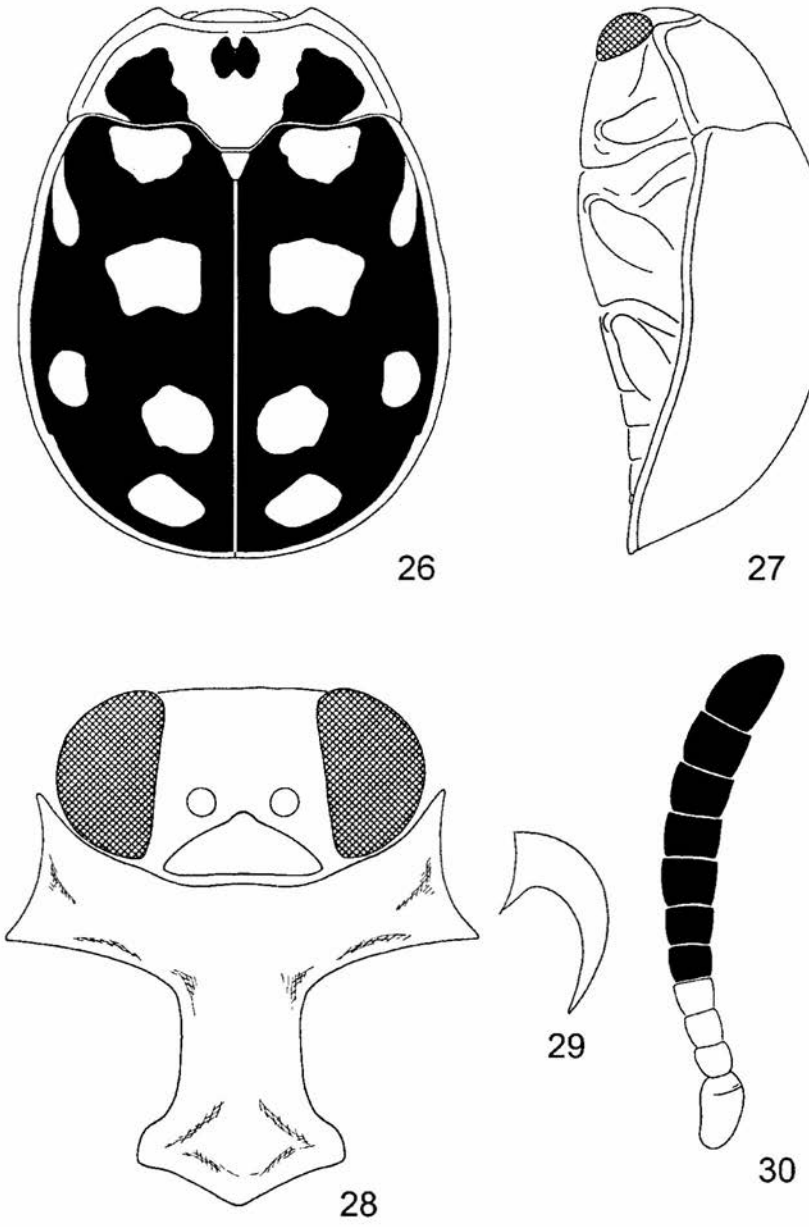


Plate 6. fig. 26-30: *Cassidopsis perrieri* FAIRMAIRE. – 26: body dorsal. – 27: body lateral. – 28: head and prosternum. – 29: claw. – 30: antenna.

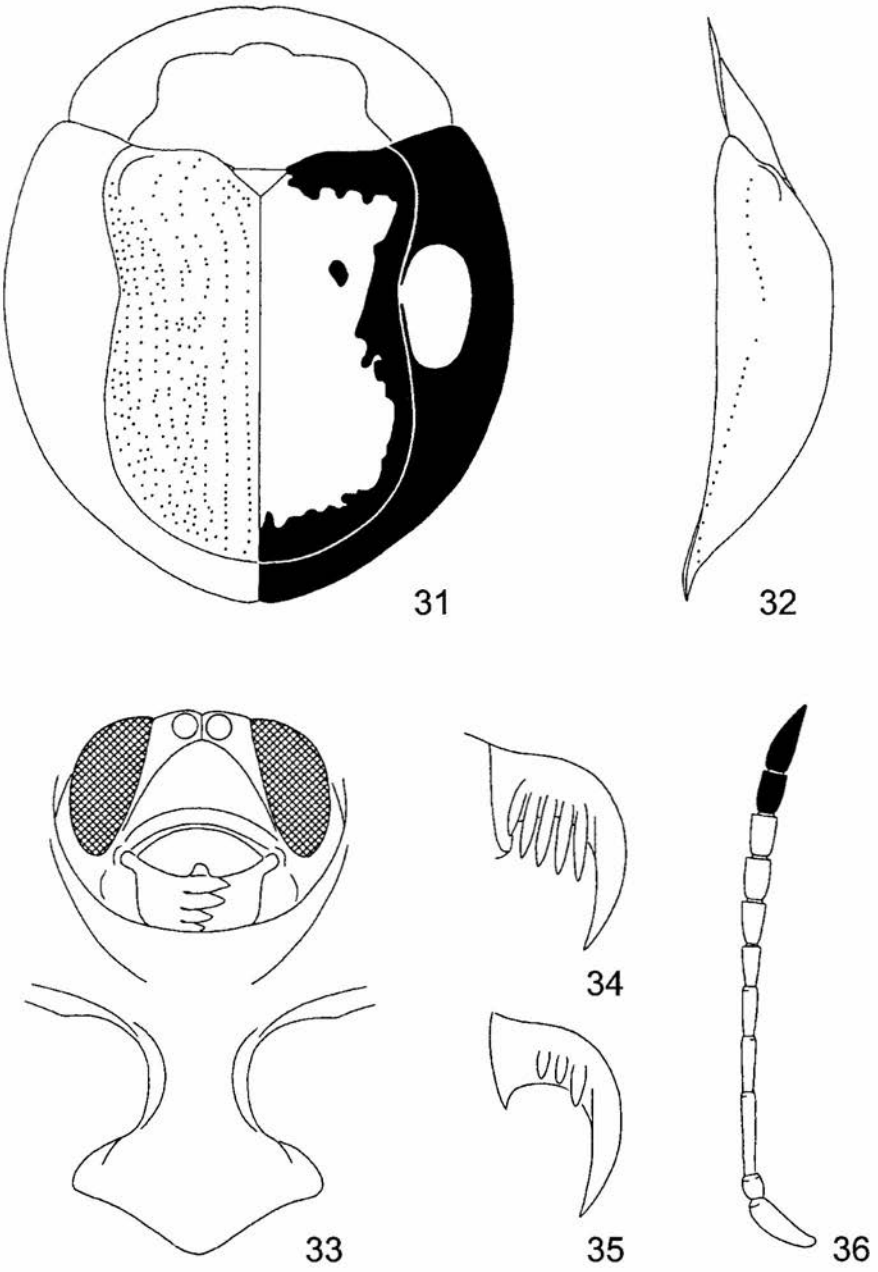


Plate 7. fig. 31-36: *Aspidimorpha* (*Aspidimorpha*) *bertiae* BOROWIEC. – 31: body dorsal. – 32: body lateral. – 33: head and prosternum. – 34: inner side of claw. – 35: outer side of claw. – 36: antenna.

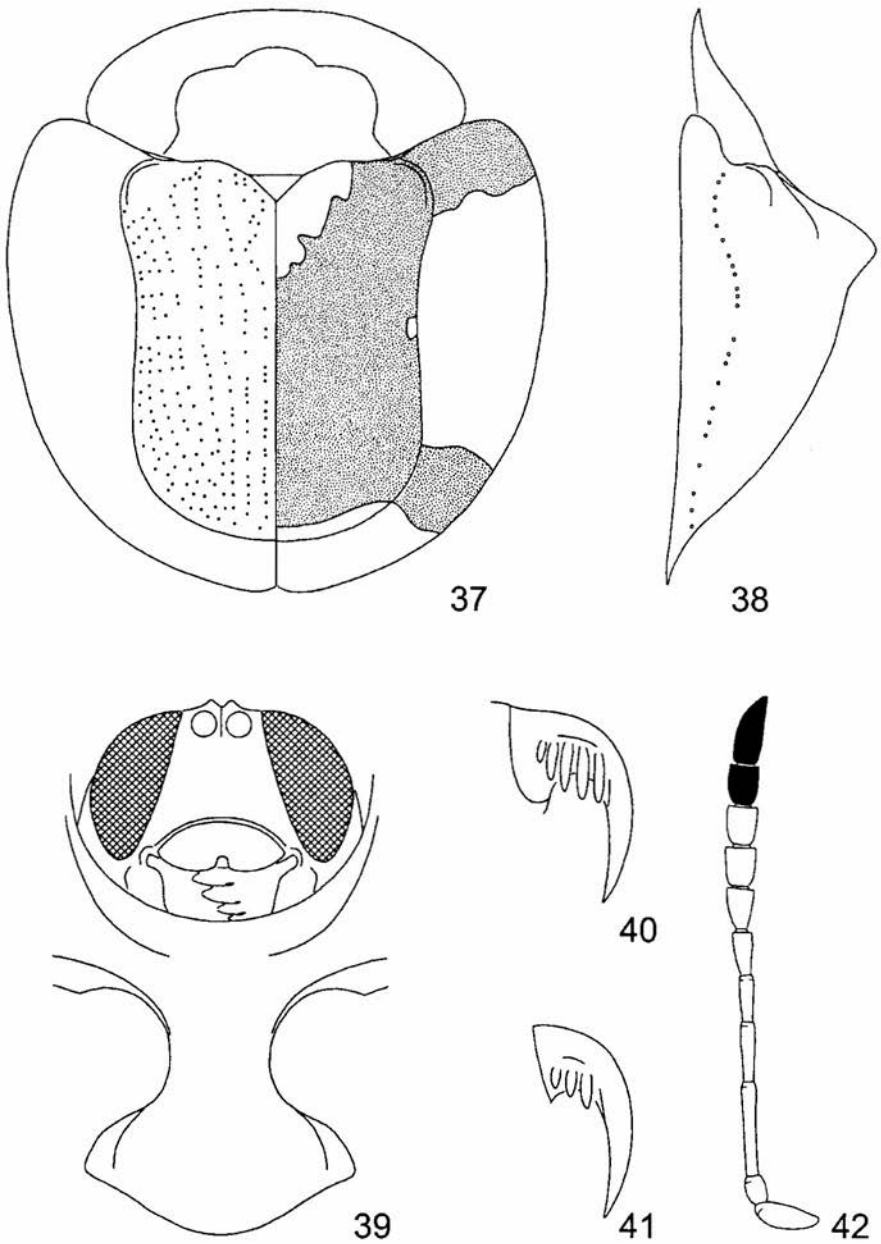


Plate 8. fig. 37-42: *Aspidimorpha* (*Aspidimorpha*) *corrugata* BOROWIEC. – 37: body dorsal. – 38: body lateral. – 39: head and prosternum. – 40: inner side of claw. – 41: outer side of claw. – 42: antenna.

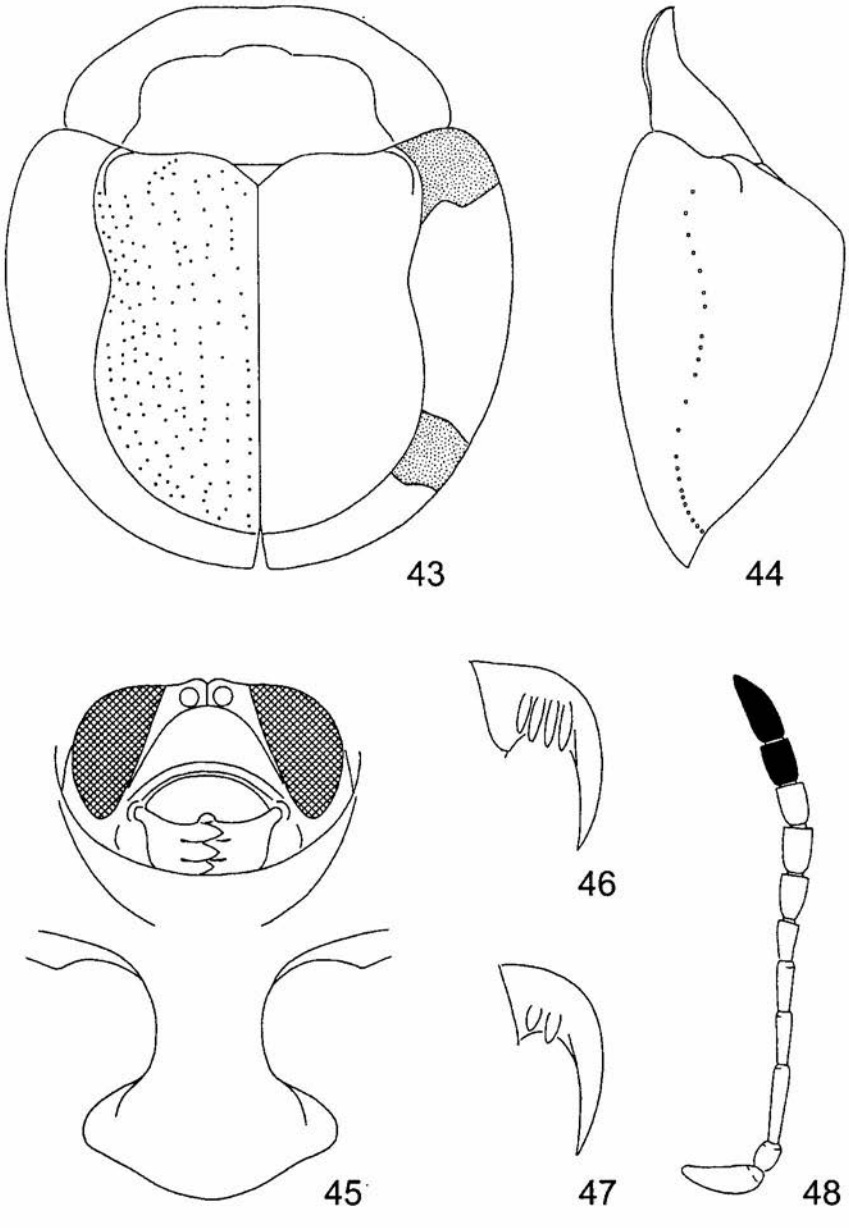


Plate 9. fig. 43-48: *Aspidimorpha* (*Aspidimorpha*) *curtidens* HINCKS. – 43: body dorsal. – 44: body lateral. – 45: head and prosternum. – 46: inner side of claw. – 47: outer side of claw. – 48: antenna.

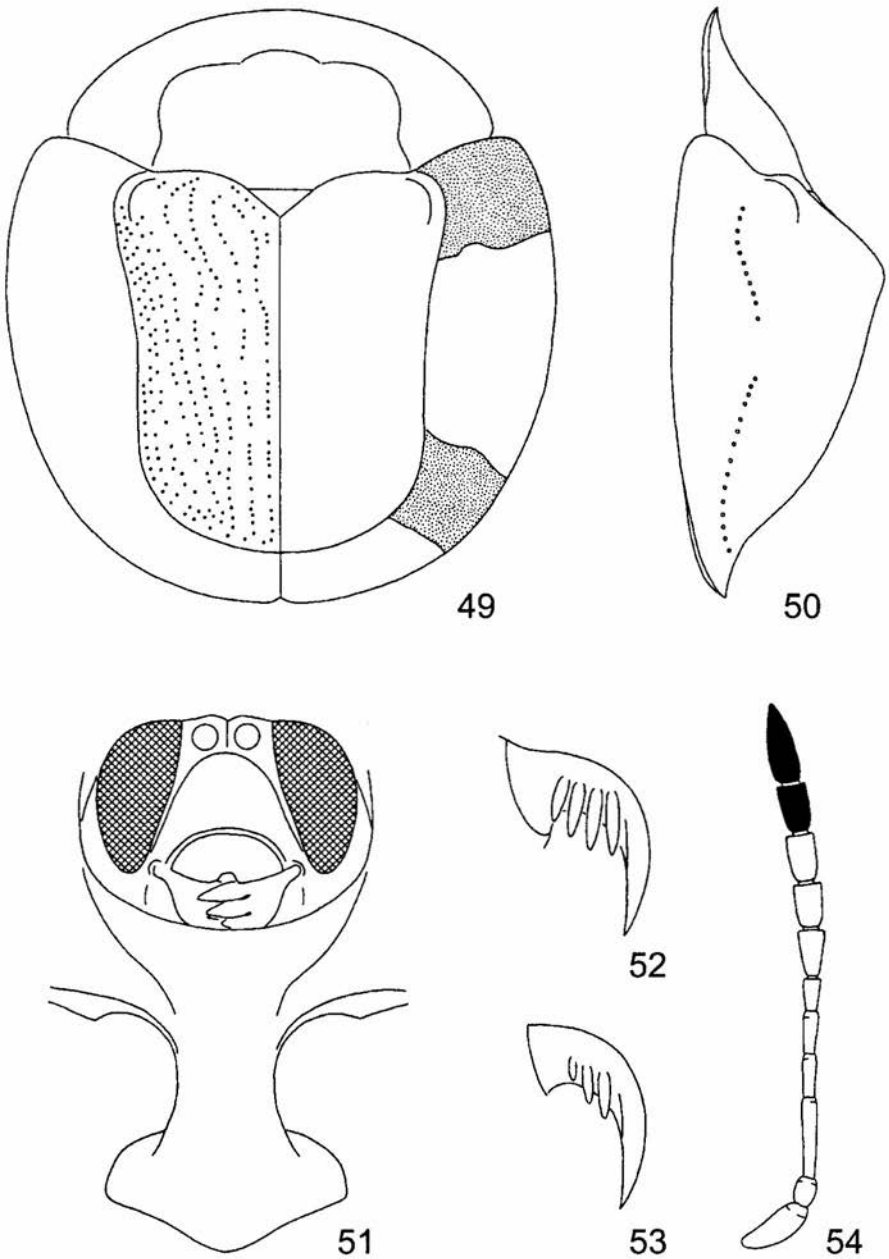


Plate 10. fig. 49-54: *Aspidimorpha* (*Aspidimorpha*) *densepicta* HINCKS. – 49: body dorsal. – 50: body lateral. – 51: head and prosternum. – 52: inner side of claw. – 53: outer side of claw. – 54: antenna.

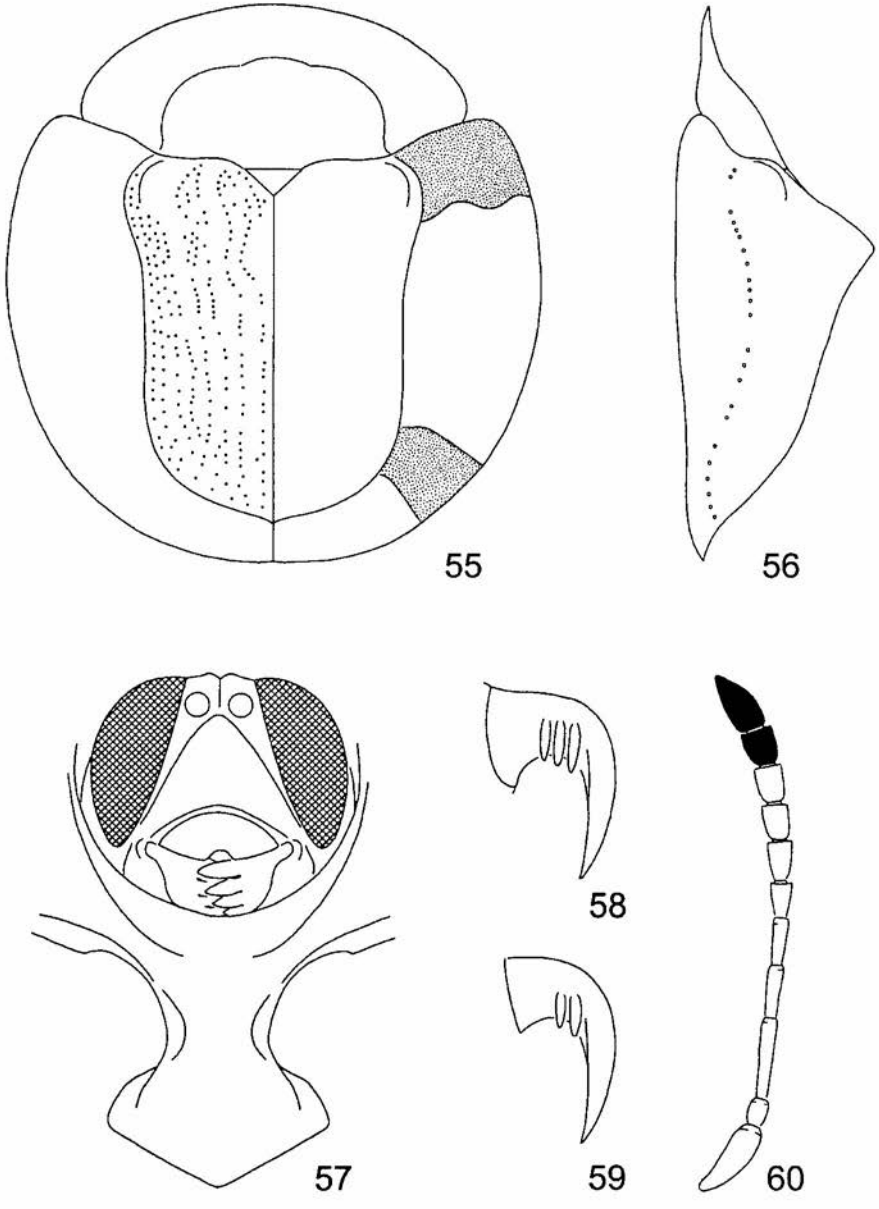
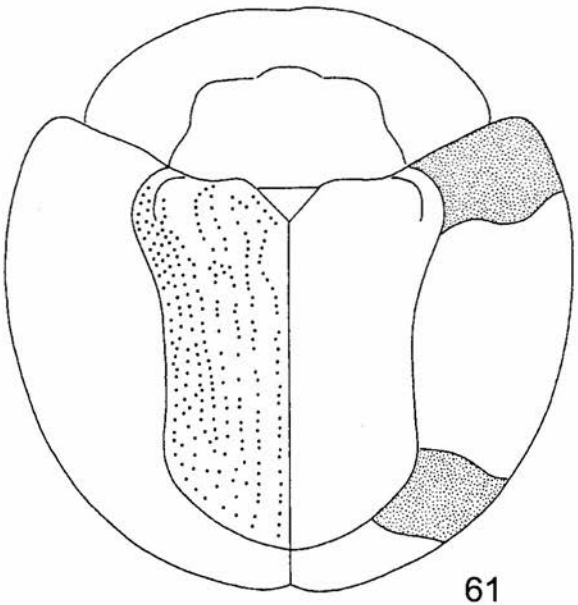
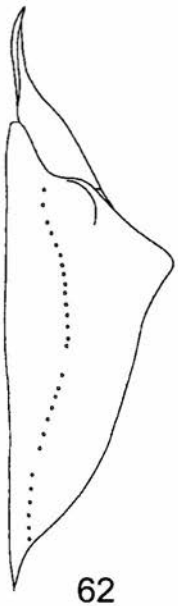
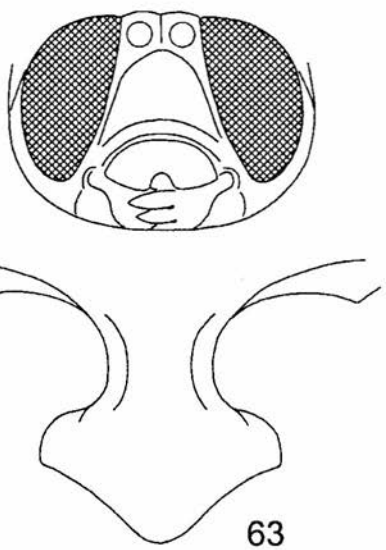


Plate 11. fig. 55-60: *Aspidimorpha* (*Aspidimorpha*) *extumida* SPAETH. – 55: body dorsal. – 56: body lateral. – 57: head and prosternum. – 58: inner side of claw. – 59: outer side of claw. – 60: antenna.







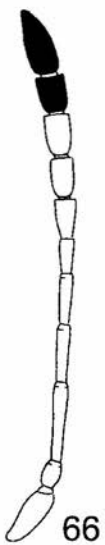


Plate 12. fig. 61-66: *Aspidimorpha* (*Aspidimorpha*) *fampanamboensis* BOROWIEC. – 61: body dorsal. – 62: body lateral. – 63: head and prosternum. – 64: inner side of claw. – 65: outer side of claw. – 66: antenna.

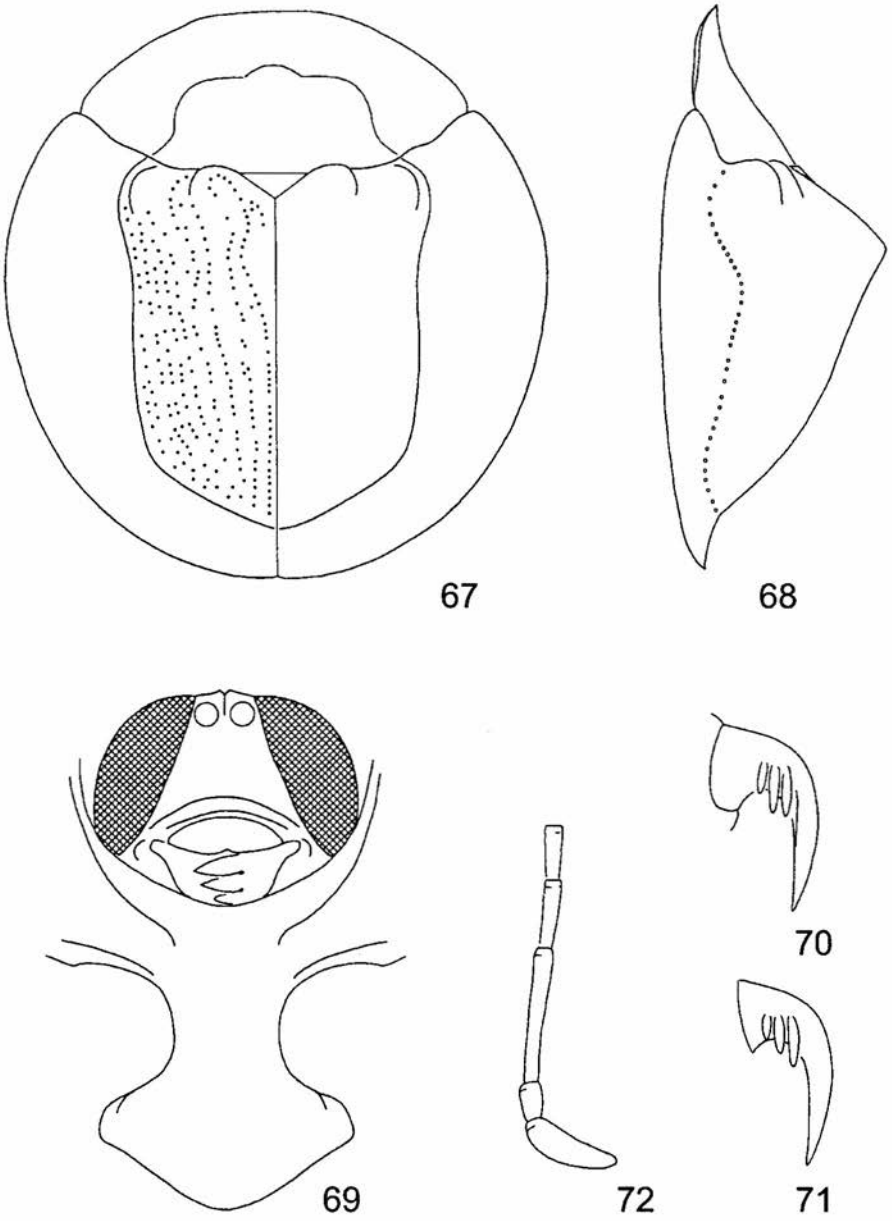


Plate 13. fig. 67–72: *Aspidimorpha* (*Aspidimorpha*) *illustris* HINCKS. – 67: body dorsal. – 68: body lateral. – 69: head and prosternum. – 70: inner side of claw. – 71: outer side of claw. – 72: basal antennal segments.

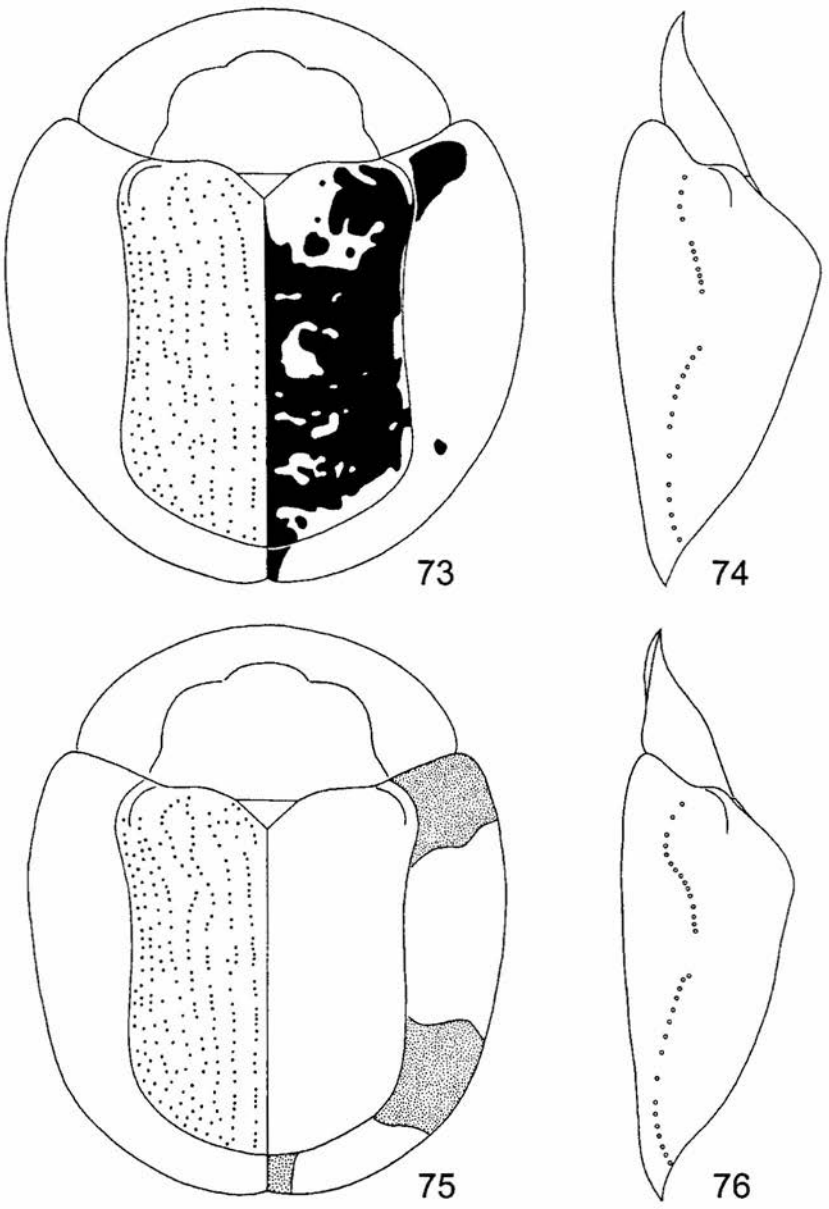
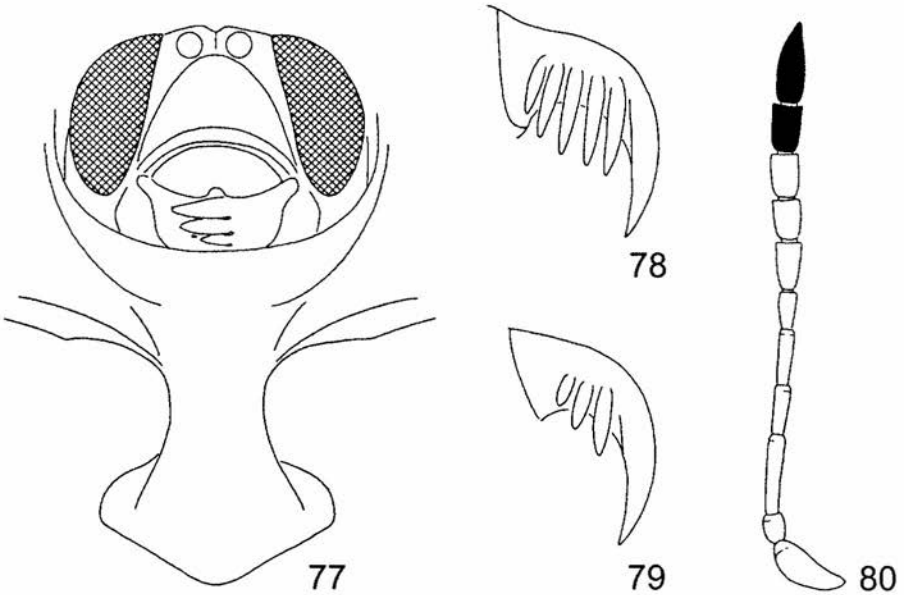


Plate 14. fig. 73-76: *Aspidimorpha* (*Aspidimorpha*) *madagascarica* BOHEMAN. – 73: body dorsal, typical male. – 74: body lateral, typical male. – 75: body dorsal, female of ab. *fugax* SPAETH. – 76: body lateral, ab *fugax* SPAETH.



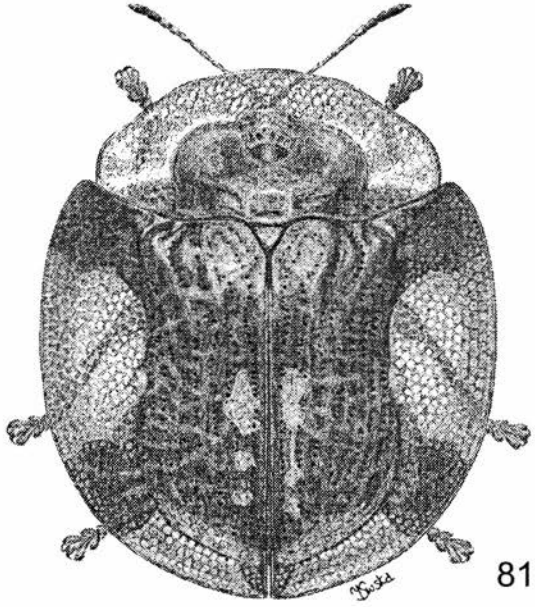


Plate 15. fig. 77-80: *Aspidimorpha* (*Aspidimorpha*) *madagascarica* BOHEMAN. – 77: head and prosternum. – 78: inner side of claw. – 79: outer side of claw. – 80: antenna. – 81: habitus (by J. ŚWIĘTOJAŃSKA).

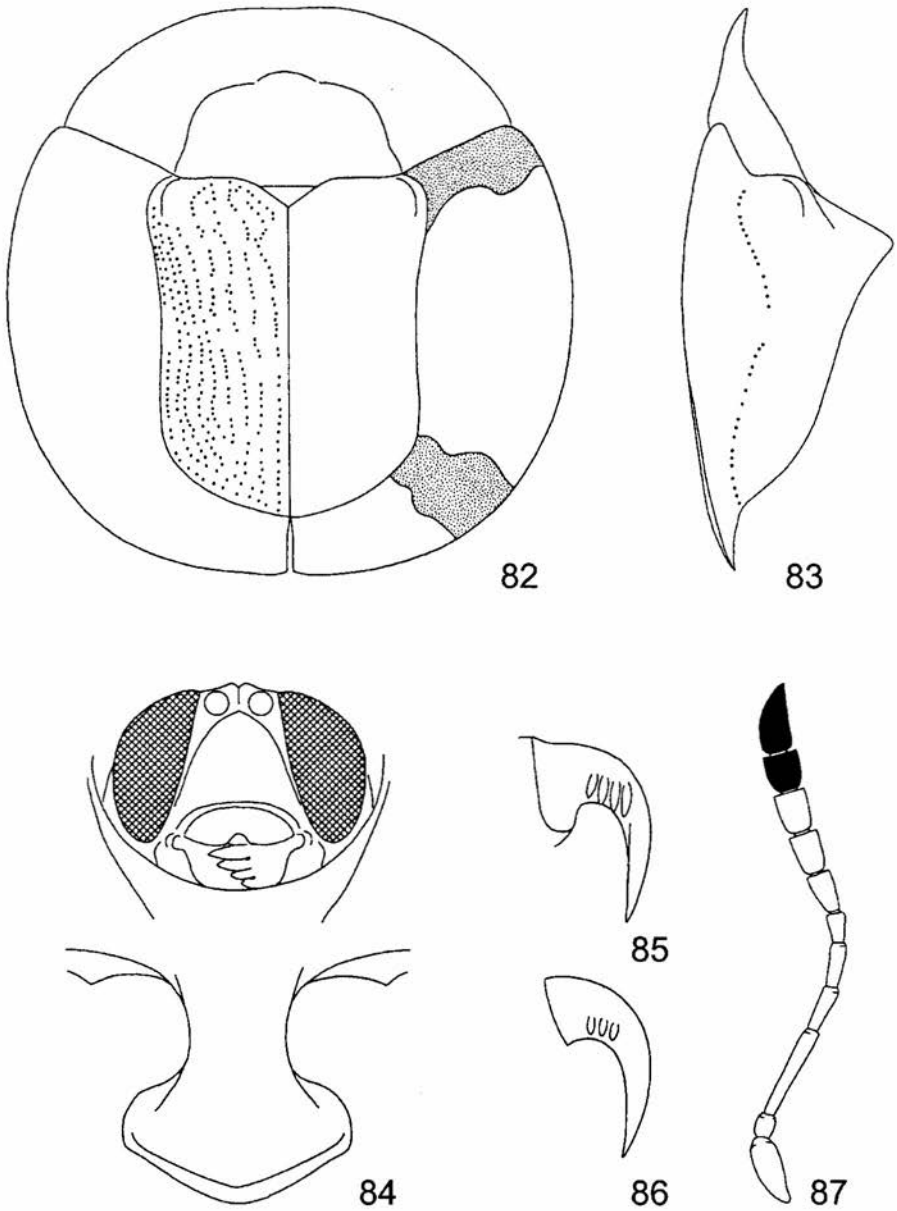


Plate 16. fig. 82-87: *Aspidimorpha* (*Aspidimorpha*) *pontifex* BOHEMAN. – 82: body dorsal. – 83: body lateral. – 84: head and prosternum. – 85: inner side of claw. – 86: outer side of claw. – 87: antenna.

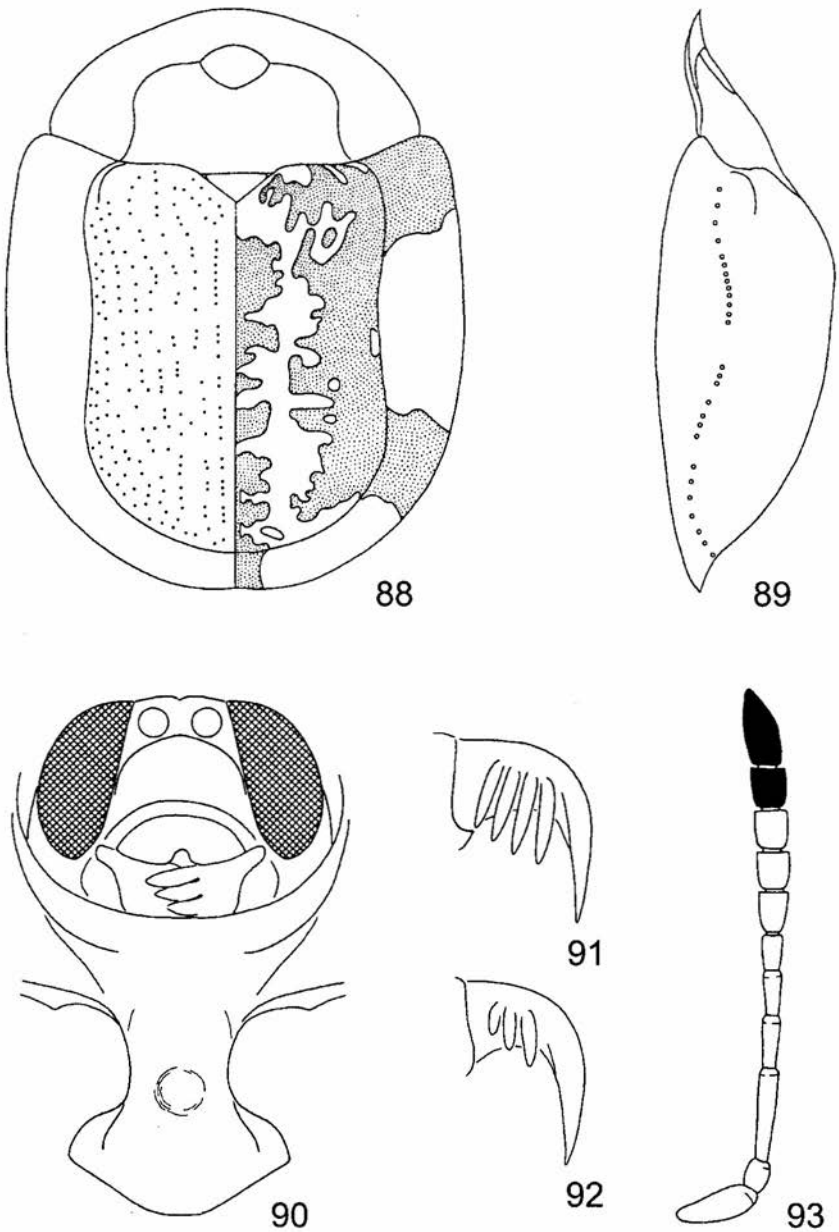


Plate 17. fig. 88-93: *Aspidimorpha* (*Aspidimorpha*) *quinquefasciata* (FABRICIUS). – 88: body dorsal. – 89: body lateral. – 90: head and prosternum. – 91: inner side of claw. – 92: outer side of claw. – 93: antenna.

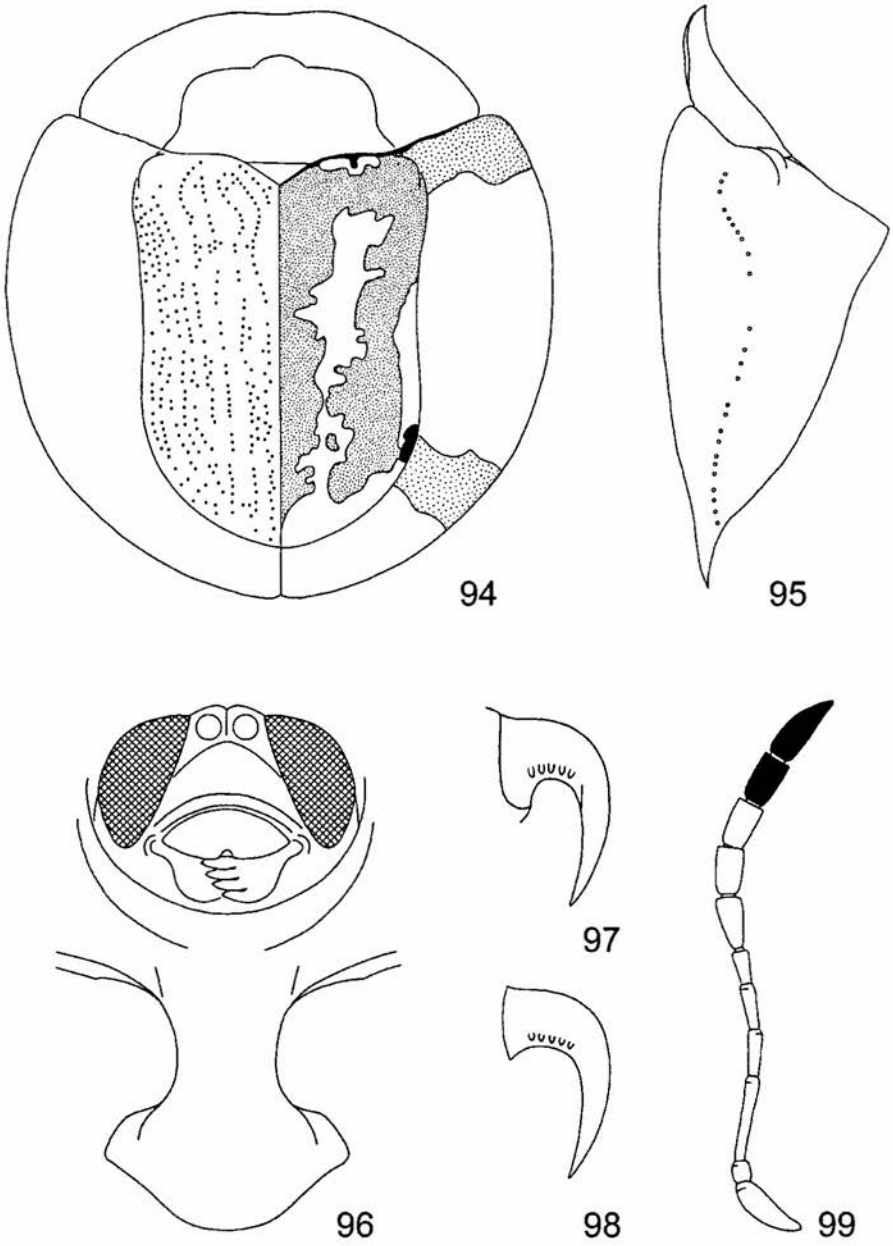


Plate 18. fig. 94-99: *Aspidimorpha* (*Aspidimorpha*) *rubroornata* Borowiec. – 94: body dorsal. – 95: body lateral. – 96: head and prosternum. – 97: inner side of claw. – 98: outer side of claw. – 99: antenna.

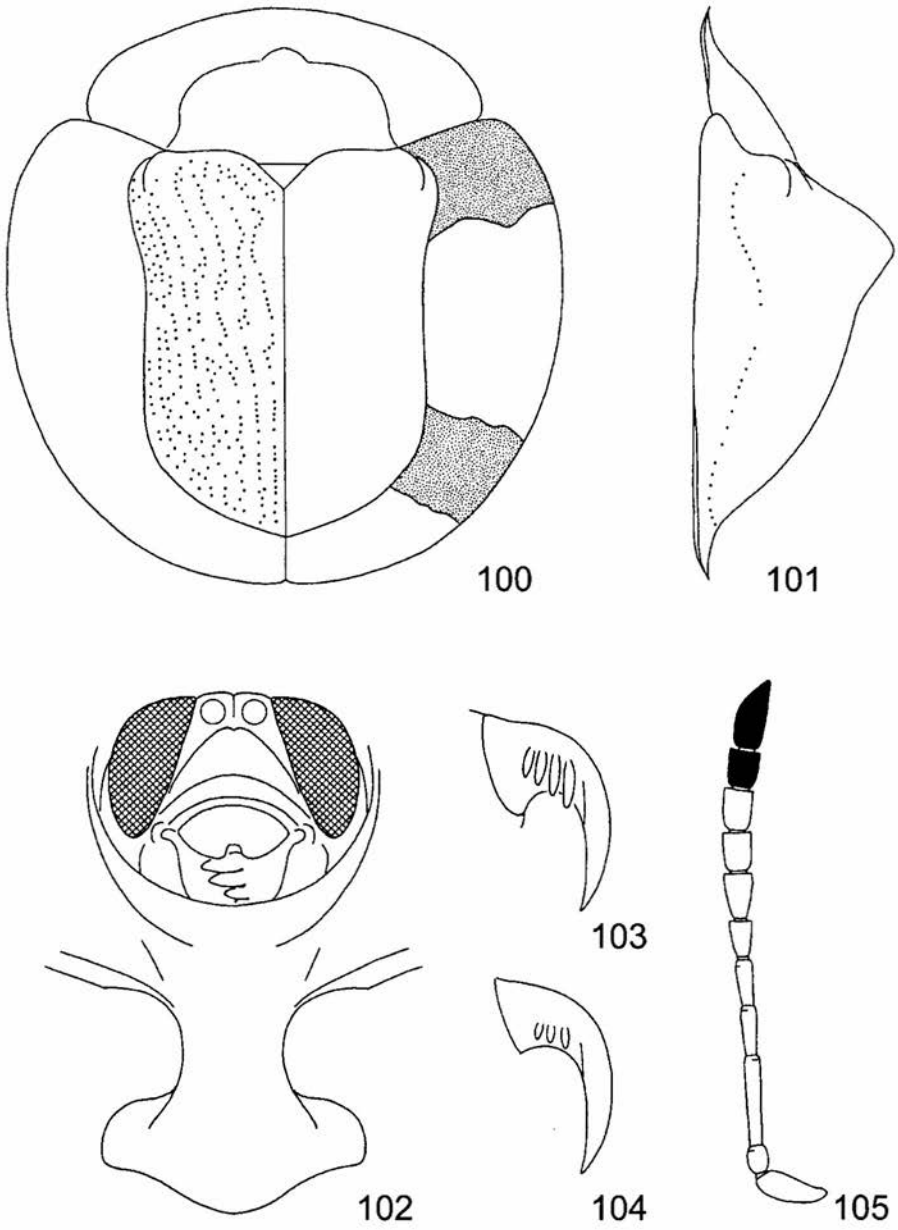


Plate 19. fig. 100-105: *Aspidimorpha* (*Aspidimorpha*) *undulatipennis* SPAETH. – 100: body dorsal. – 101: body lateral. – 102: head and prosternum. – 103: inner side of claw. – 104: outer side of claw. – 105: antenna.

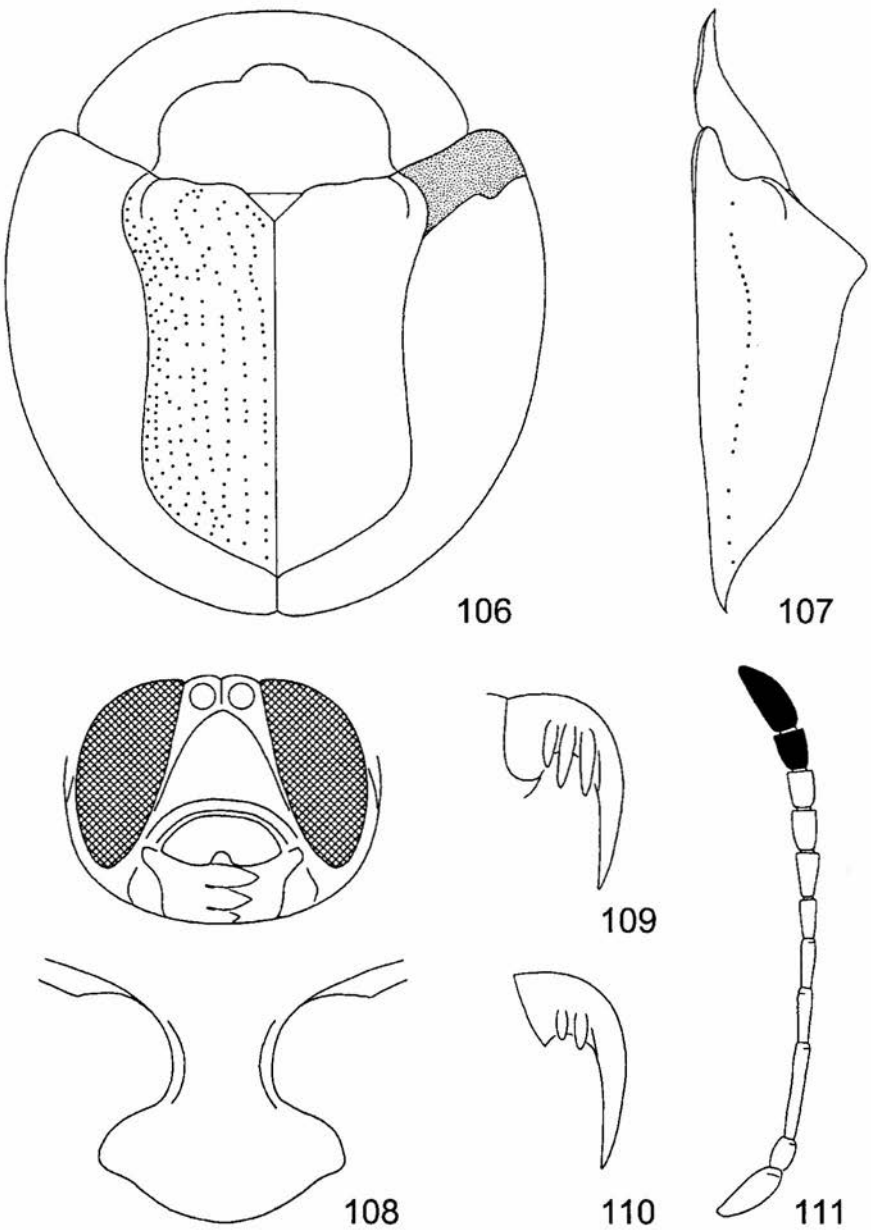


Plate 20. fig. 106-111: *Aspidimorpha* (*Aspidimorpha*) *vernicata* FAIRMAIRE. – 106: body dorsal. – 107: body lateral. – 108: head and prosternum. – 109: inner side of claw. – 110: outer side of claw. – 111: antenna.

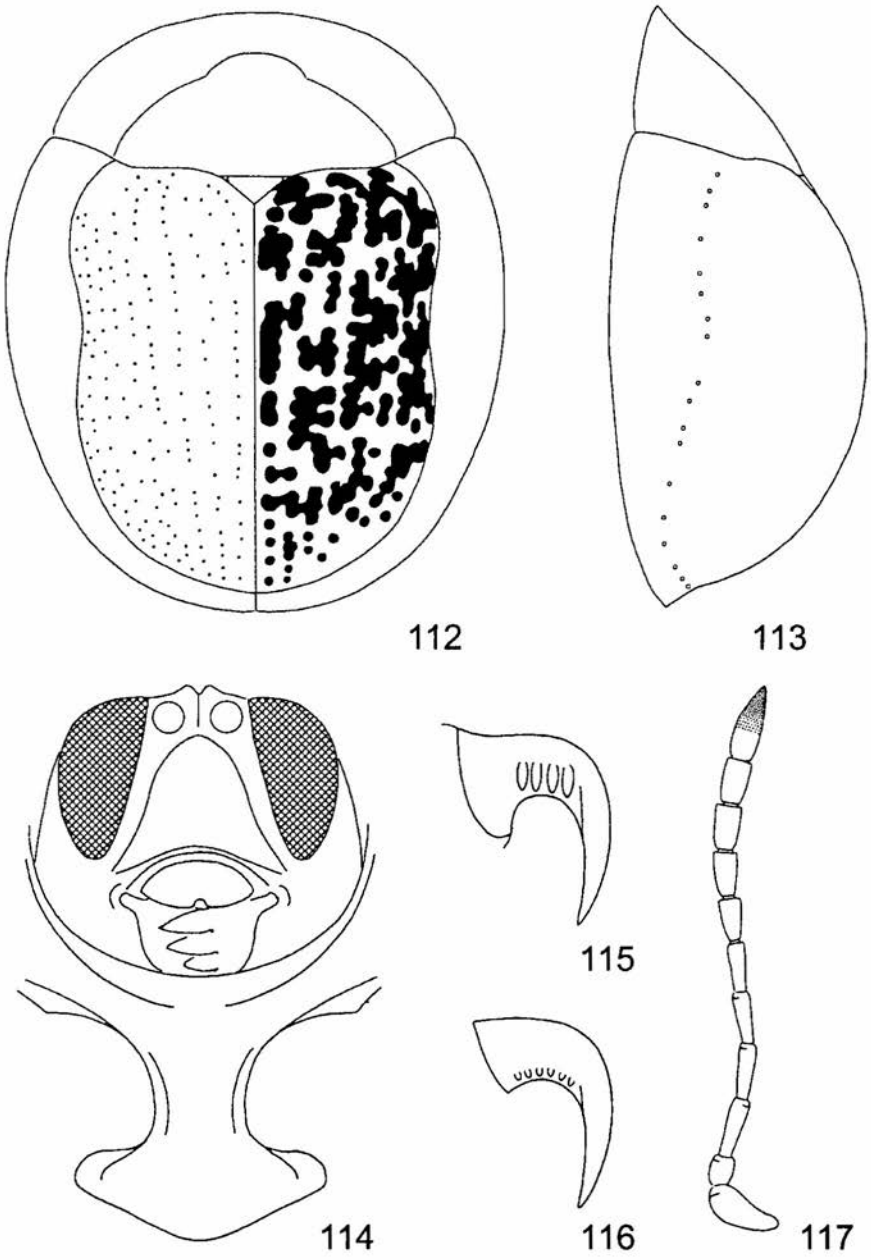


Plate 21. fig. 112-117: *Aspidimorpha* (*Afroaspidimorpha*) *fallaciosa* (FAIRMAIRE). – 112: body dorsal. – 113: body lateral. – 114: head and prosternum. – 115: inner side of claw. – 116: outer side of claw. – 117: antenna.

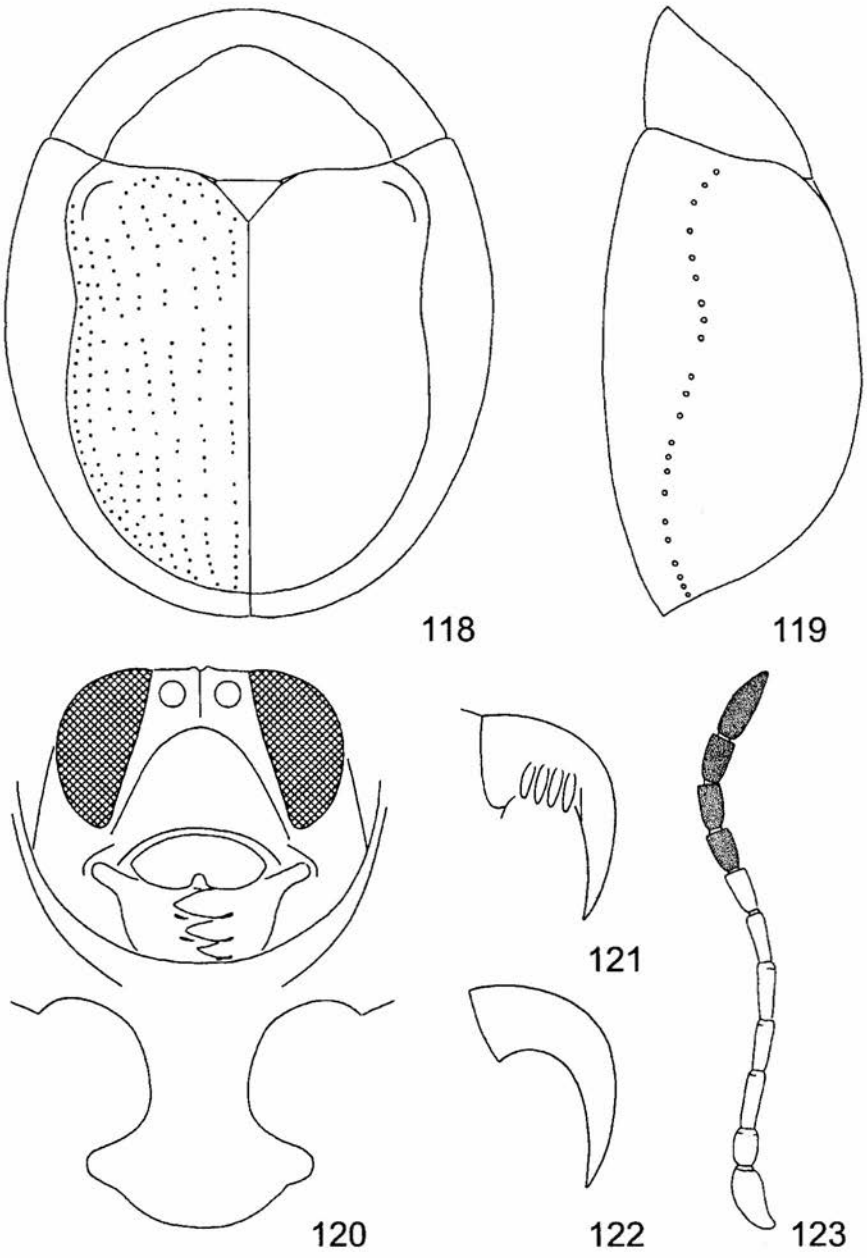
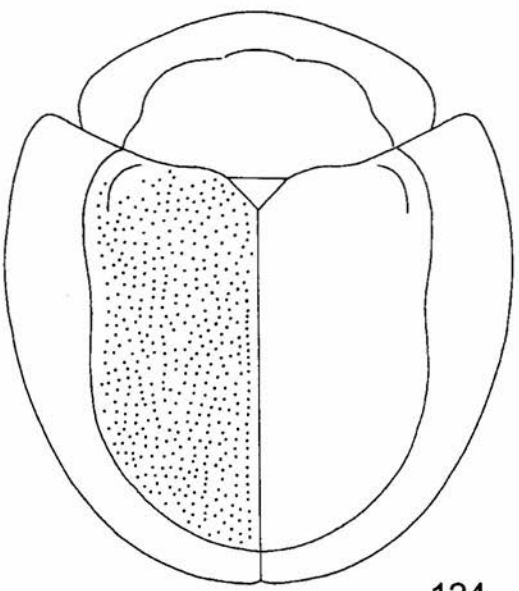


Plate 22. fig. 118-123: *Aspidimorpha* (*Afroaspidimorpha*) *polyspila* SPAETH. – 118: body dorsal. – 119: body lateral. – 120: head and prosternum. – 121: inner side of claw. – 122: outer side of claw. – 123: antenna.



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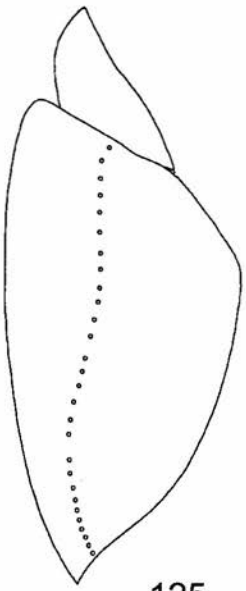

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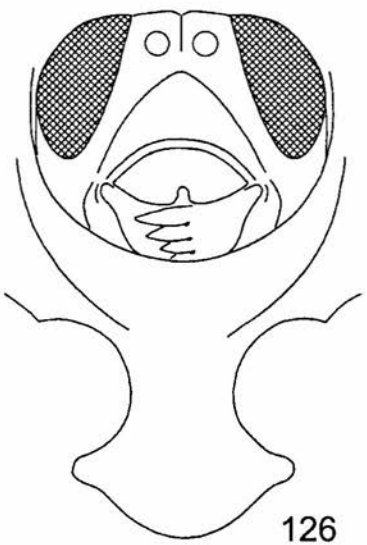

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Plate 23. fig. 124-129: *Aspidimorpha* (*Aspidocassis*) *apicalis* (KLUG). – 124: body dorsal. – 125: body lateral. – 126: head and prosternum. – 127: inner side of claw. – 128: outer side of claw. – 129: antenna.

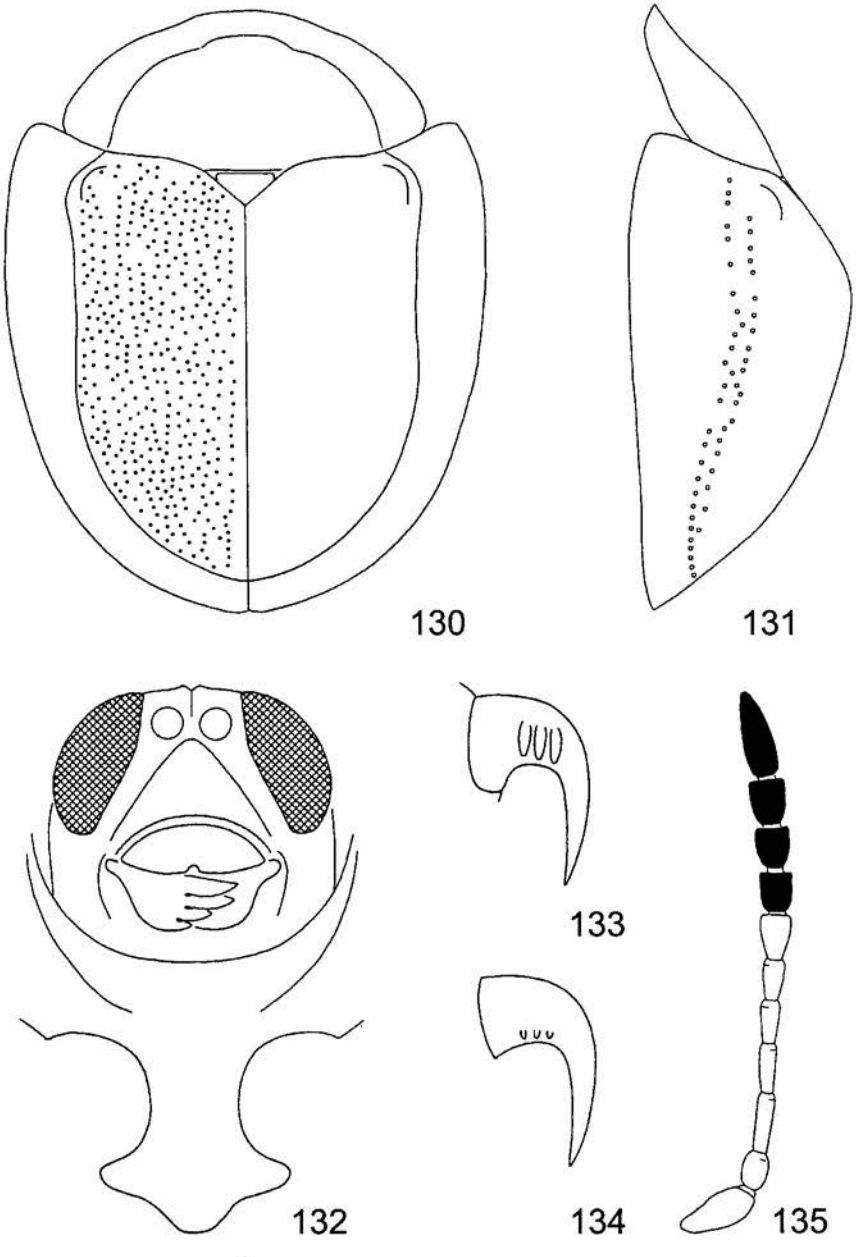


Plate 24. fig. 130-135: *Aspidimorpha* (*Aspidocassis*) *tanolaensis* Borowiec. – 130: body dorsal. – 131: body lateral. – 132: head and prosternum. – 133: inner side of claw. – 134: outer side of claw. – 135: antenna.

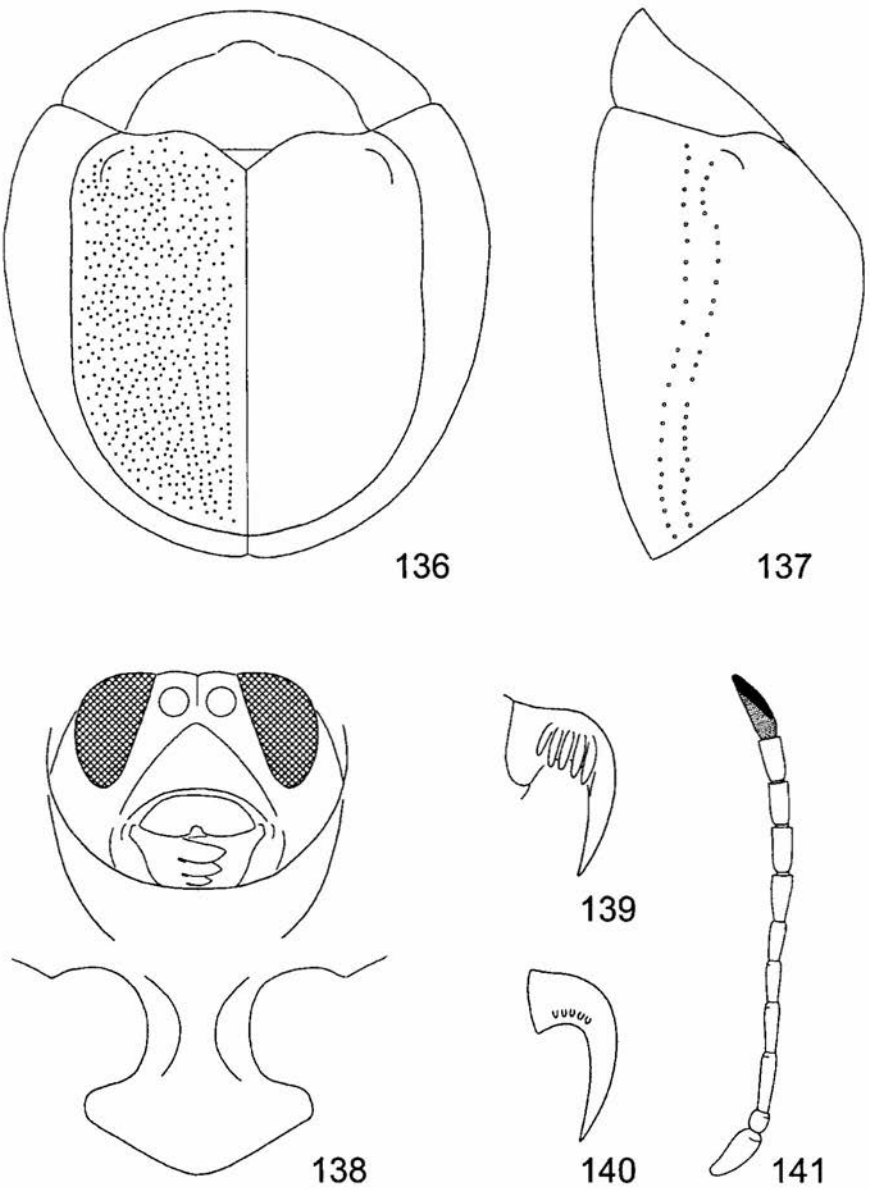


Plate 25. fig. 136-141: *Aspidimorpha* (*Spaethia*) *cepaecolor* (FAIRMAIRE). – 136: body dorsal. – 137: body lateral. – 138: head and prosternum. – 139: inner side of claw. – 140: outer side of claw. – 141: antenna.

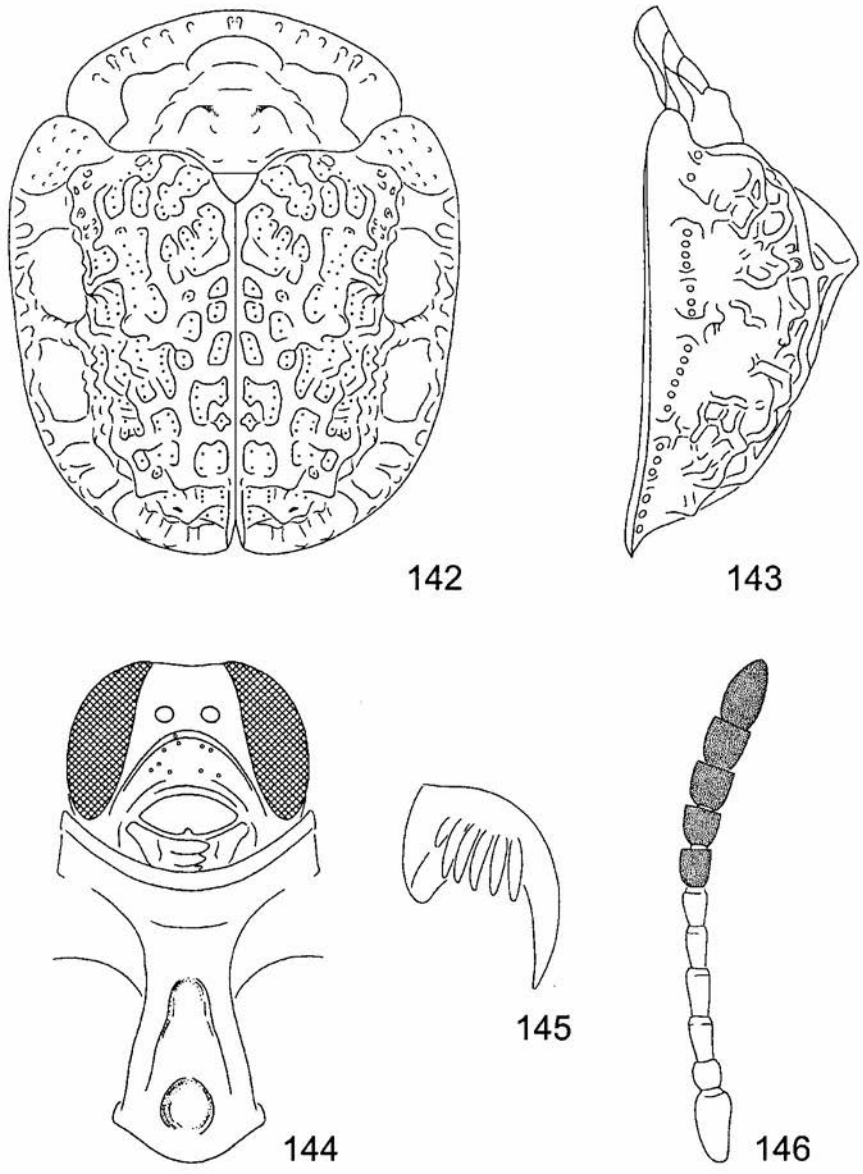
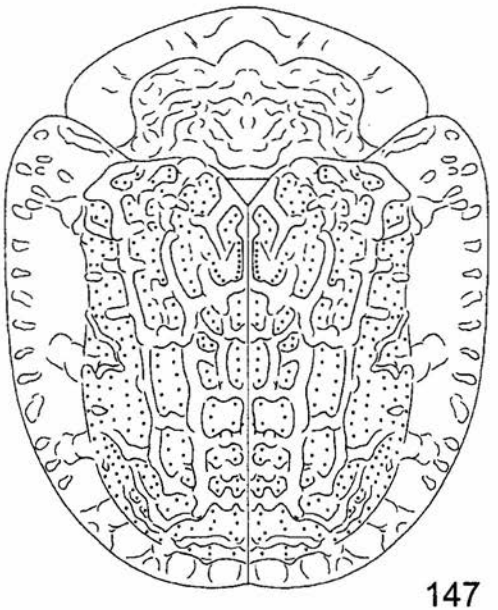
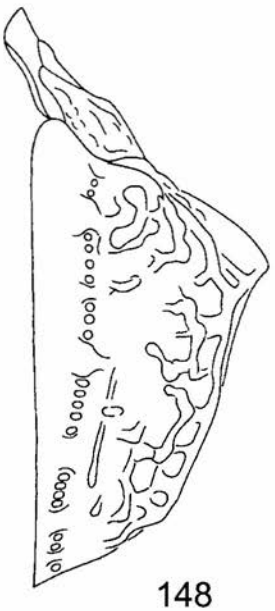


Plate 26. fig. 142-146: *Laccoptera* (*Asphalesia*) *confragosa* WEISE. – 142: body dorsal. – 143: body lateral. – 144: head and prosternum. – 145: inner side of claw. – 146: antenna.





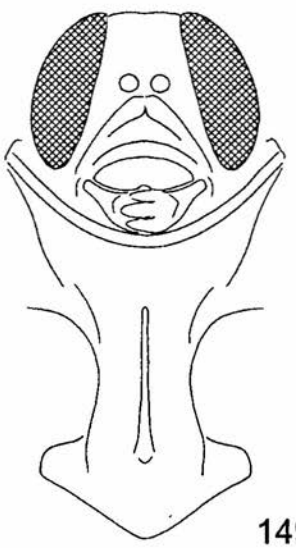
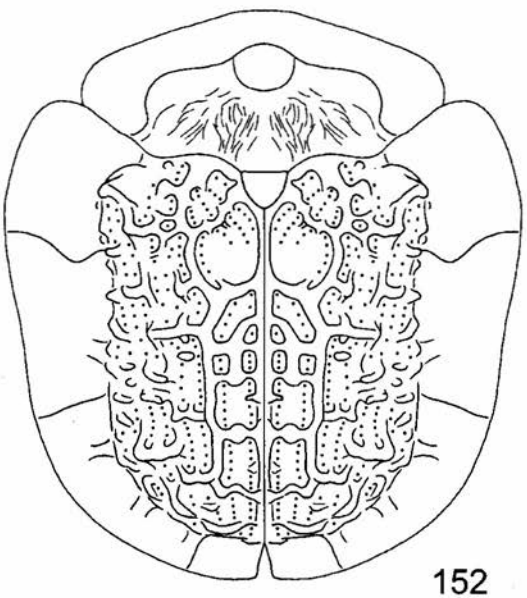


Plate 27. fig. 147-151: *Laccoptera* (*Asphalesia*) *pallicolor* (FAIRMAIRE). – 147: body dorsal. – 148: body lateral. – 149: head and prosternum. – 150: inner side of claw. – 151: antenna.



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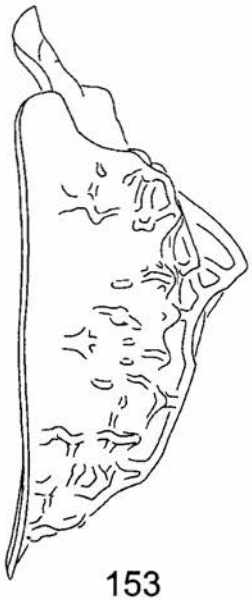

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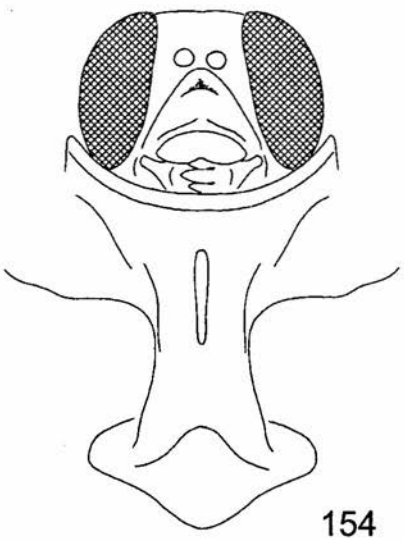

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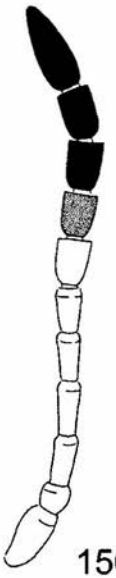
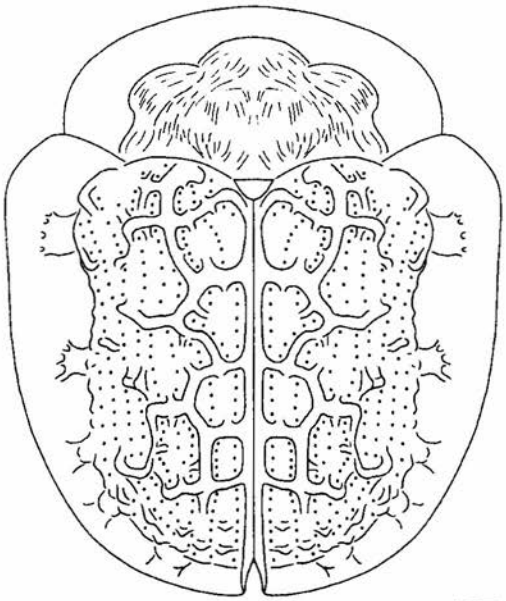


156

Plate 28. fig. 152-156: *Laccoptera* (*Asphalesia*) *perrieri* FAIRMAIRE. – 152: body dorsal. – 153: body lateral. – 154: head and prosternum. – 155: inner side of claw. – 156: antenna.



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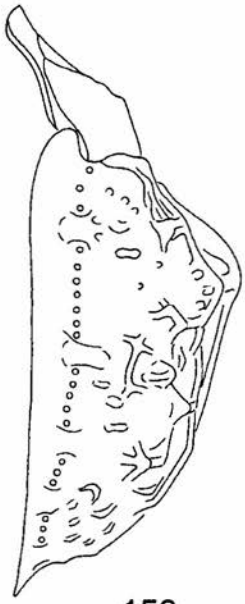

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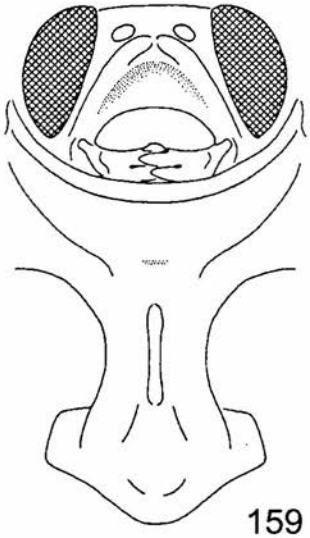

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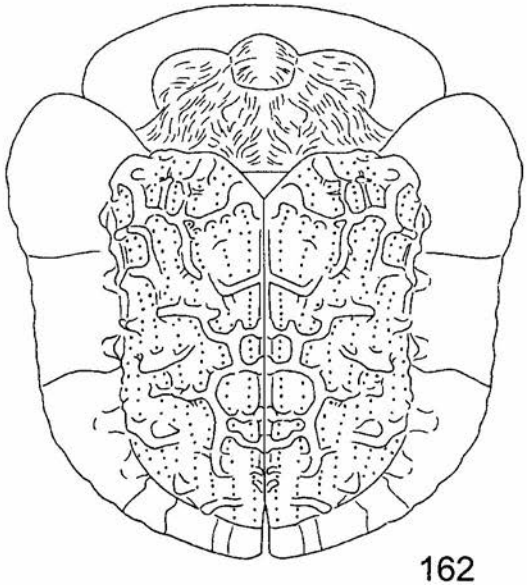
161

Plate 29. fig. 157-161: *Laccoptera* (*Asphalesia*) *regularis* FAIRMAIRE. – 157: body dorsal. – 158: body lateral. – 159: head and prosternum. – 160: inner side of claw. – 161: antenna.



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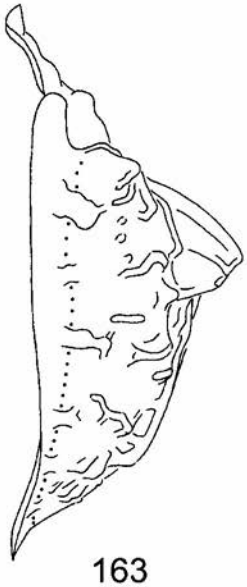

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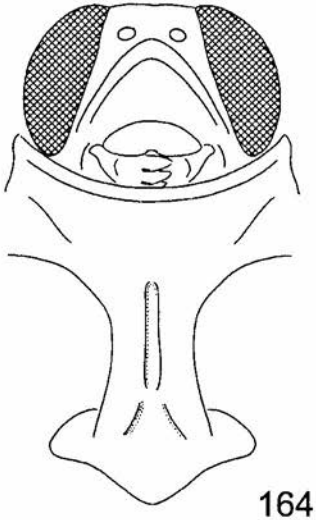

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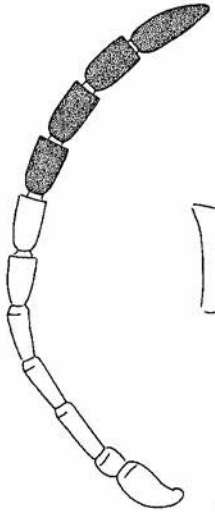
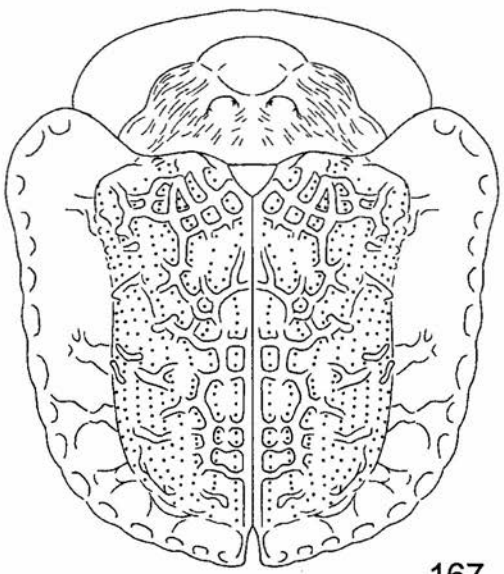
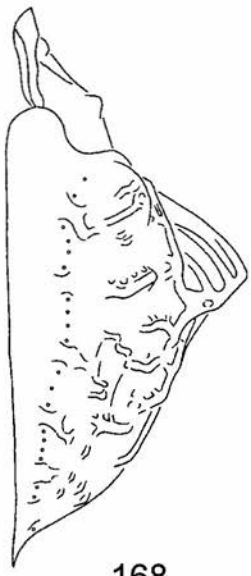


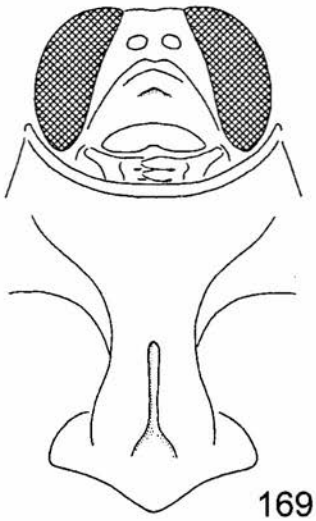
166

165

Plate 30. fig. 162-166: *Laccoptera* (*Asphalesia*) *spectrum* BOHEMAN. – 162: body dorsal. – 163: body lateral. – 164: head and prosternum. – 165: inner side of claw. – 166: antenna.







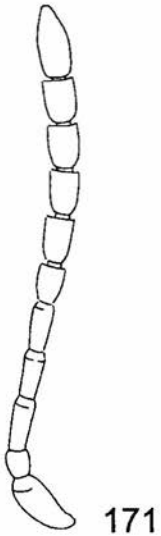
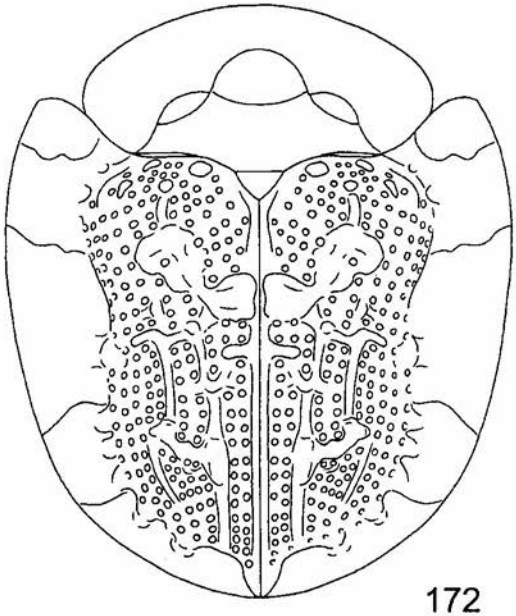


Plate 31. fig. 167-171: *Laccoptera* (*Asphalesia*) *undulata* (SPAETH). – 167: body dorsal. – 168: body lateral. – 169: head and prosternum. – 170: inner side of claw. – 171: antenna.



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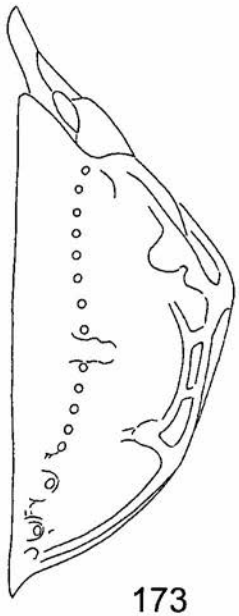

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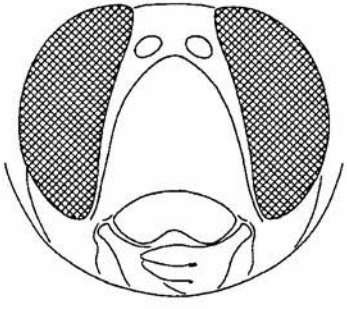

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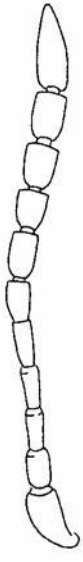

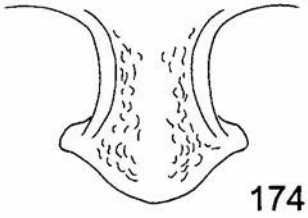

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Plate 32. fig. 172-176: *Mahatsinia nodulosa* (WEISE). – 172: body dorsal. – 173: body lateral. – 174: head and prosternum. – 175: inner side of claw. – 176: antenna.

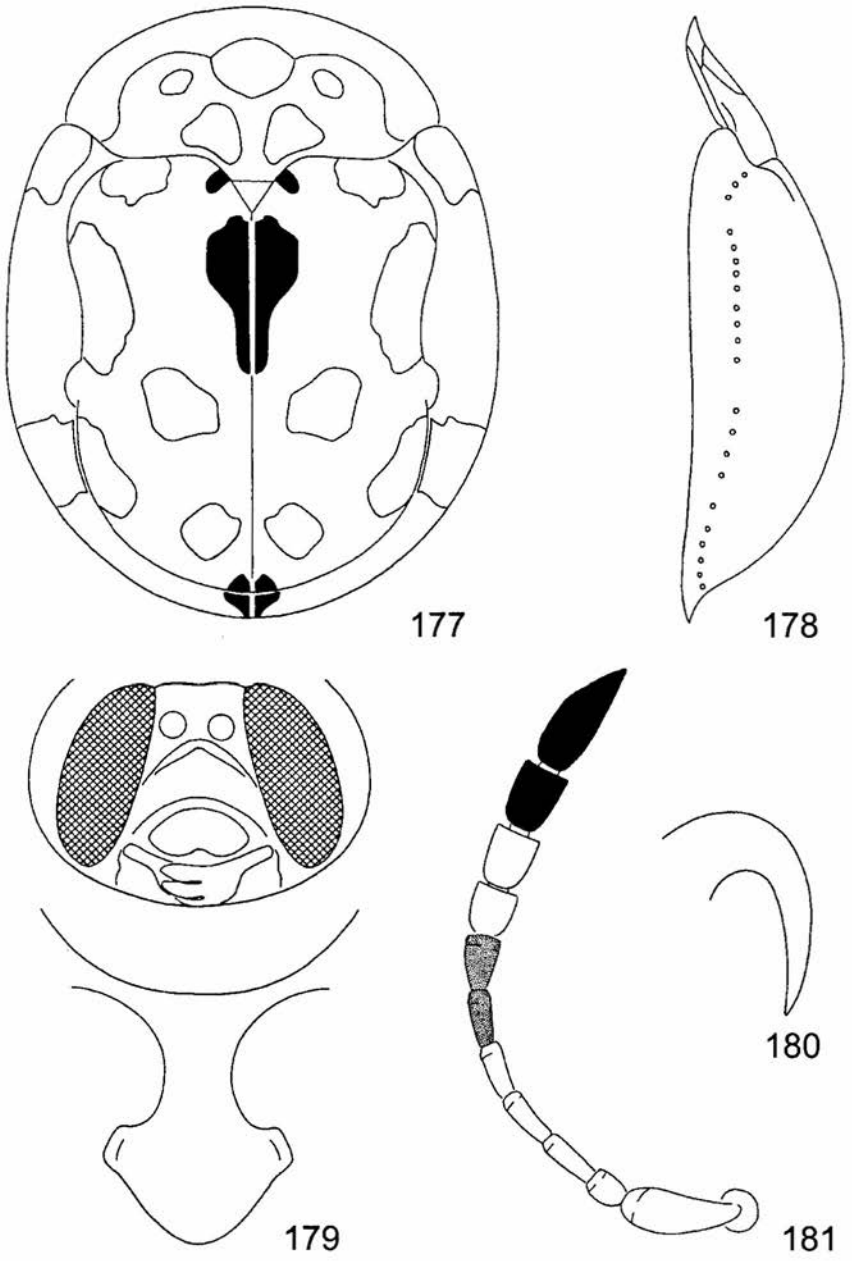
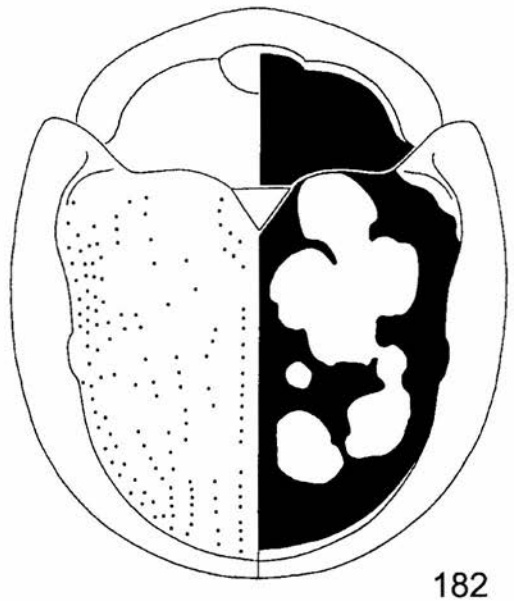


Plate 33. fig. 177-181: *Andevocassis picta* SPAETH. – 177: body dorsal. – 178: body lateral. – 179: head and prosternum. – 180: claw. – 181: antenna.



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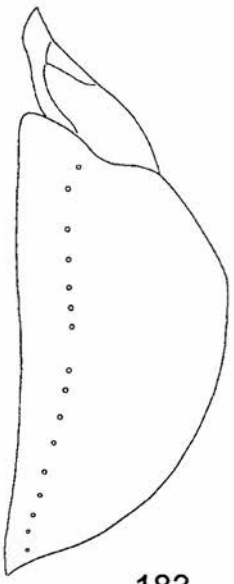

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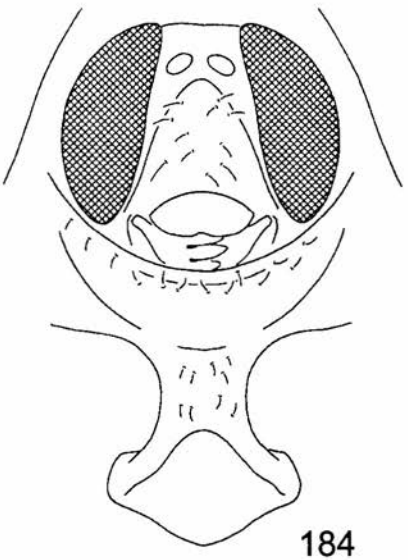

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Plate 34. fig. 182-186: *Chiridopsis atricollis* Borowiec. – 182: body dorsal. – 183: body lateral. – 184: head and prosternum. – 185: claw. – 186: antenna.

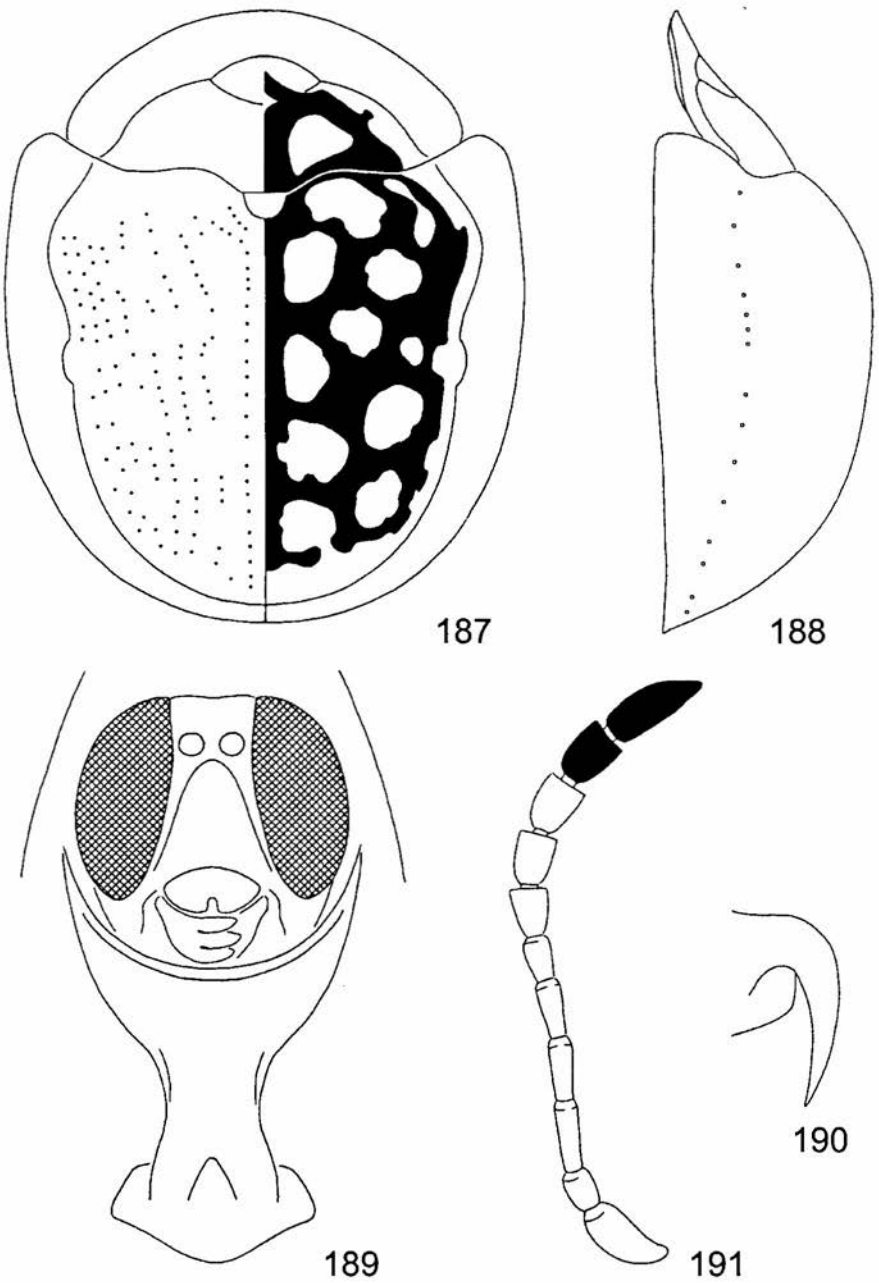
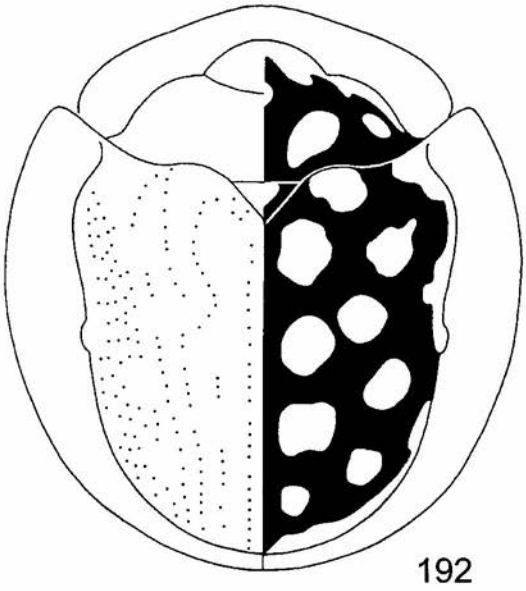
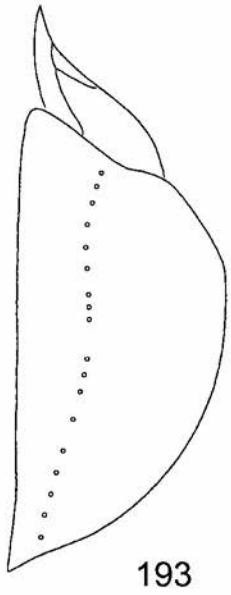
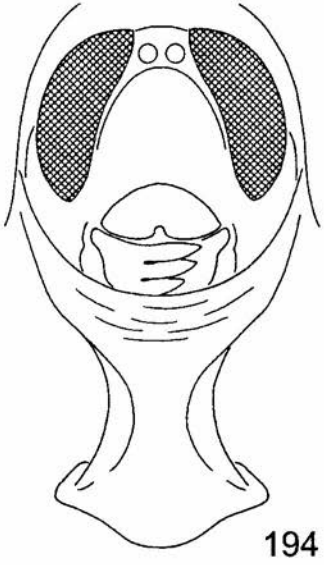


Plate 35. fig. 187-191: *Chiridopsis leopardina* (BOHEMAN). – 187: body dorsal. – 188: body lateral. – 189: head and prosternum. – 190: claw. – 191: antenna.







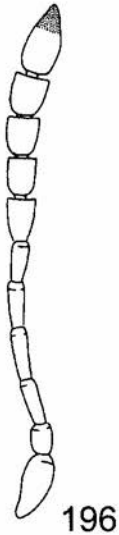
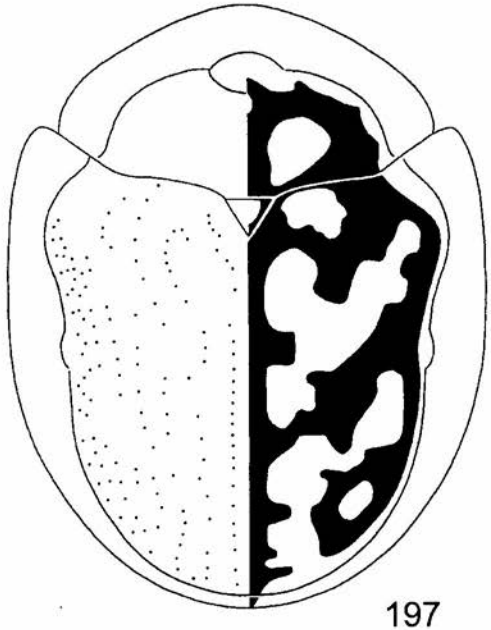
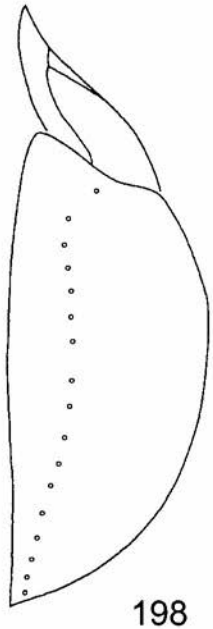
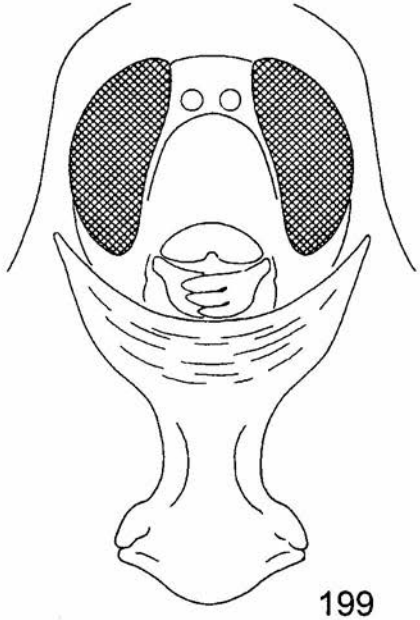


Plate 36. fig. 192-196: *Chiridopsis levis* Borowiec. – 192: body dorsal. – 193: body lateral. – 194: head and prosternum. – 195: claw. – 196: antenna.







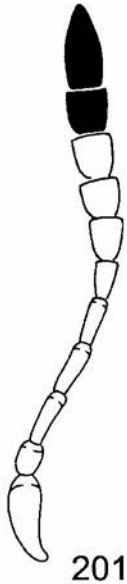
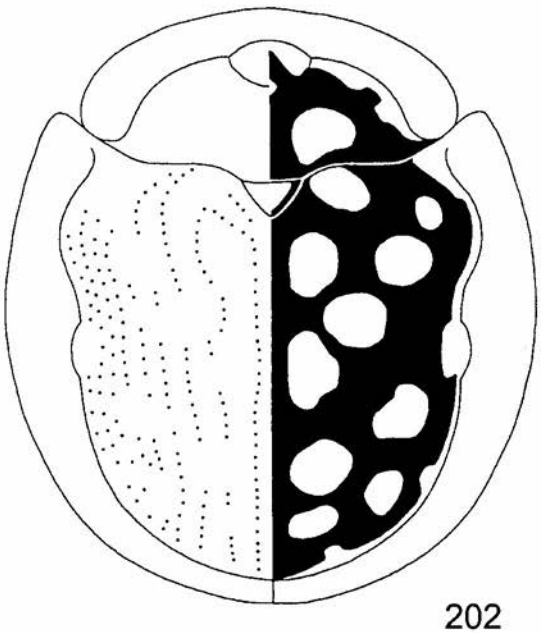


Plate 37. fig. 197-201: *Chiridopsis maculata* BOROWIEC. – 197: body dorsal. – 198: body lateral. – 199: head and prosternum. – 200: claw. – 201: antenna.



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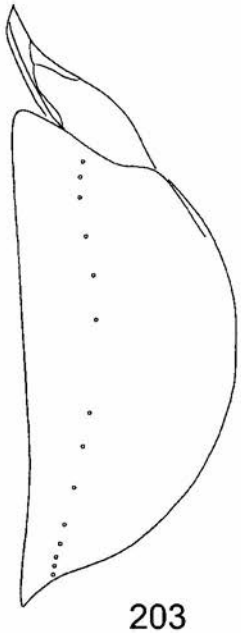

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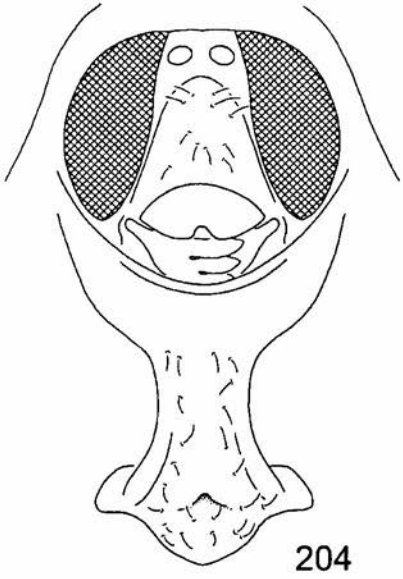

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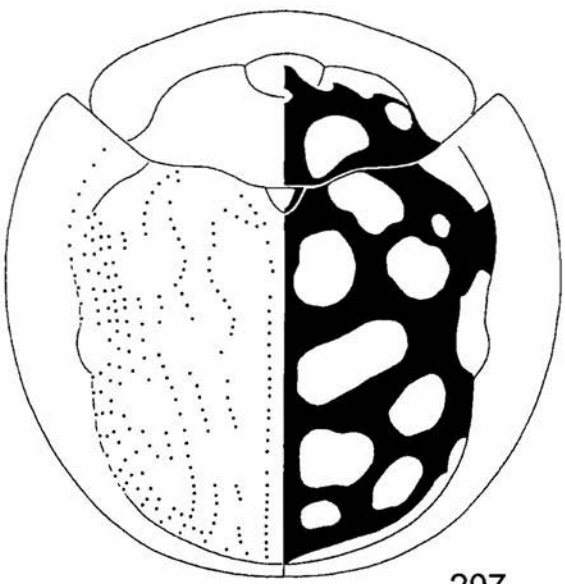
Plate 38. fig. 202-206: *Chiridopsis marginepunctata* BOROWIEC. – 202: body dorsal. – 203: body lateral. – 204: head and prosternum. – 205: claw. – 206: antenna.



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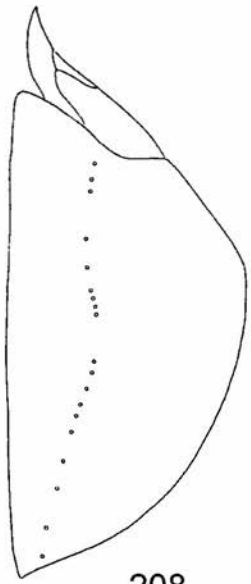

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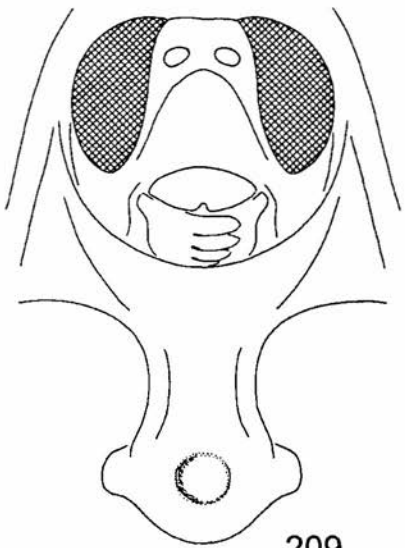

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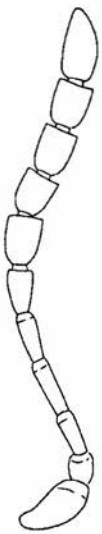
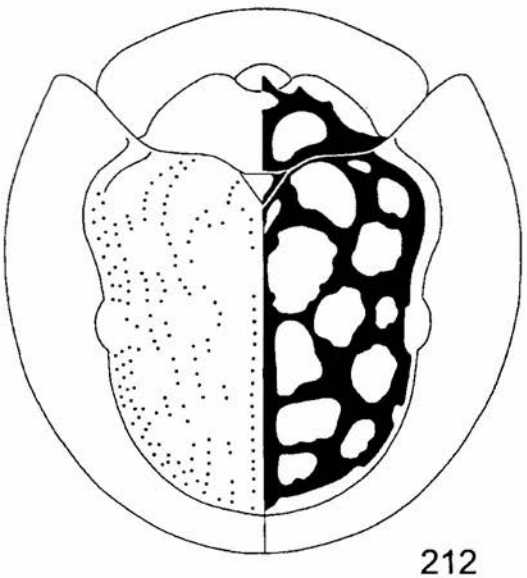


211

Plate 39. fig. 207-211: *Chiridopsis nickerli* (SPAETH). – 207: body dorsal. – 208: body lateral. – 209: head and prosternum. – 210: claw. – 211: antenna.



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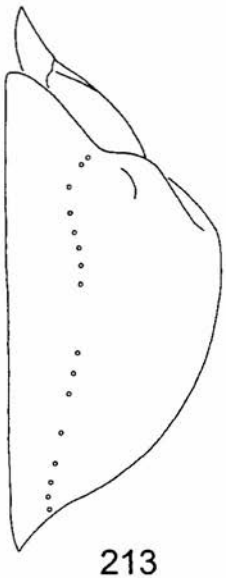

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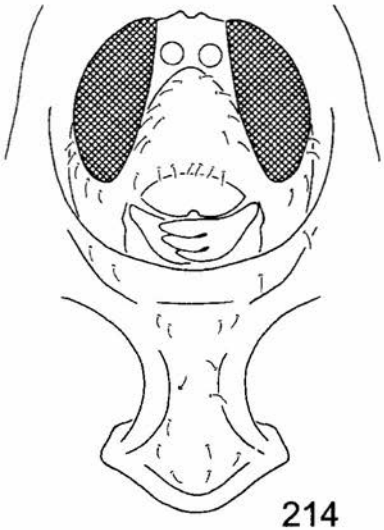

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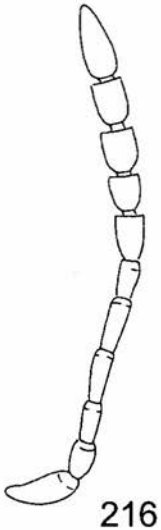

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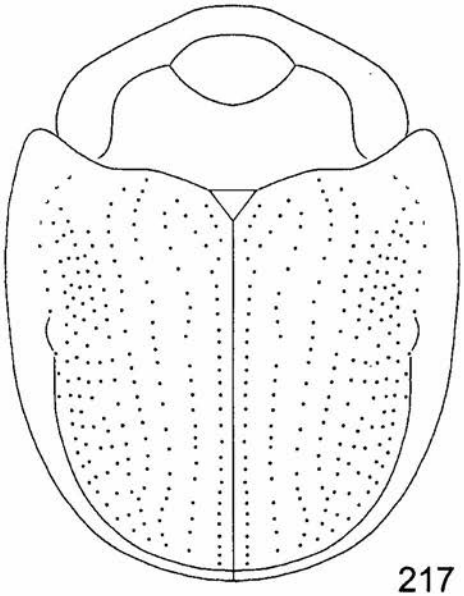
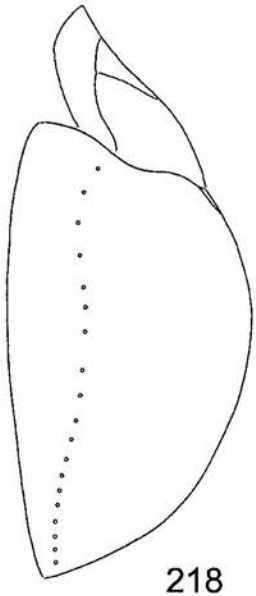
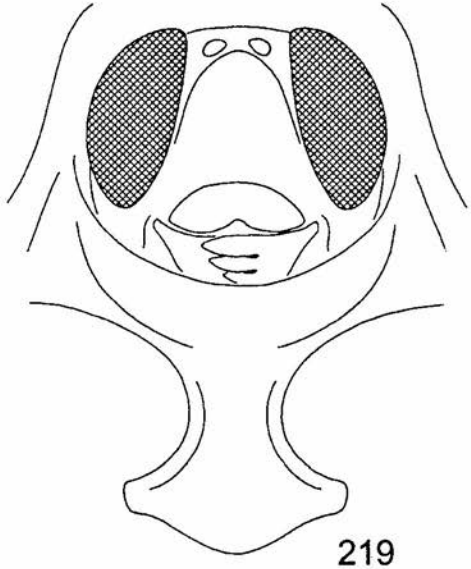
Plate 40. fig. 212-216: *Chiridopsis nigroreticulata* Borowiec. – 212: body dorsal. – 213: body lateral. – 214: head and prosternum. – 215: claw. – 216: antenna.







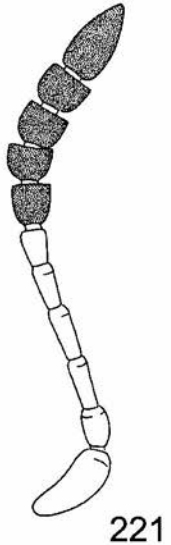


Plate 41. fig. 217–221: *Chiridopsis trizonata* FAIRMAIRE. – 217: body dorsal. – 218: body lateral. – 219: head and prosternum. – 220: claw. – 221: antenna.

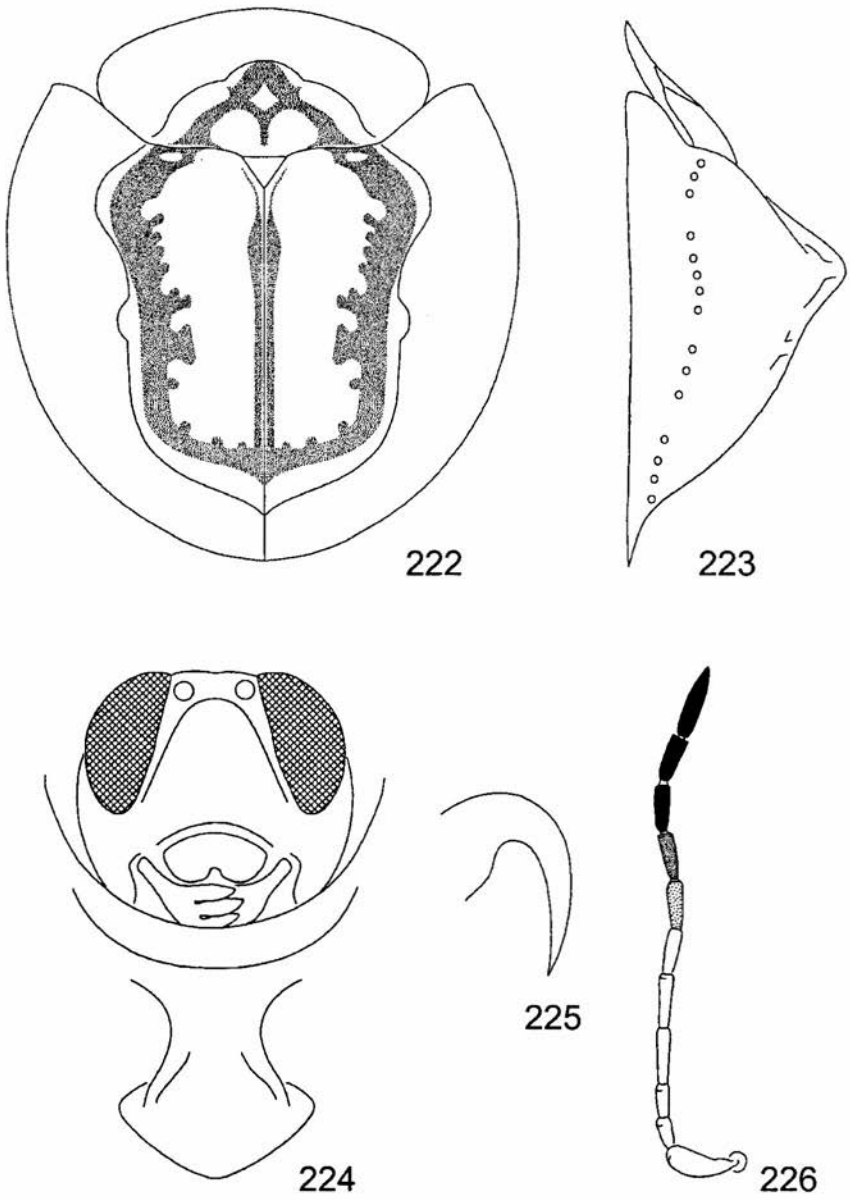


Plate 42. fig. 222-226: *Hovacassis brunneofasciata* BOROWIEC. – 222: body dorsal. – 223: body lateral. – 224: head and prosternum. – 225: claw. – 226: antenna.

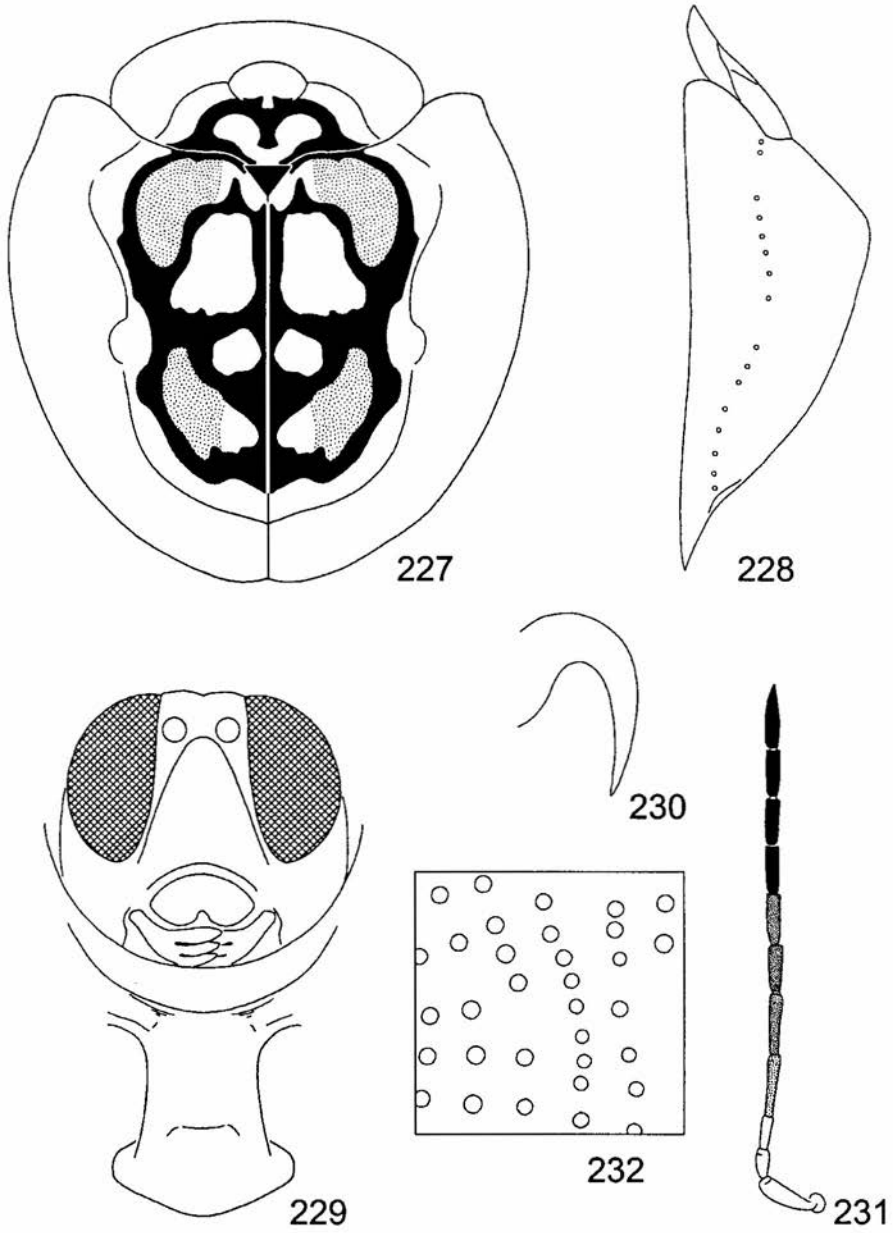
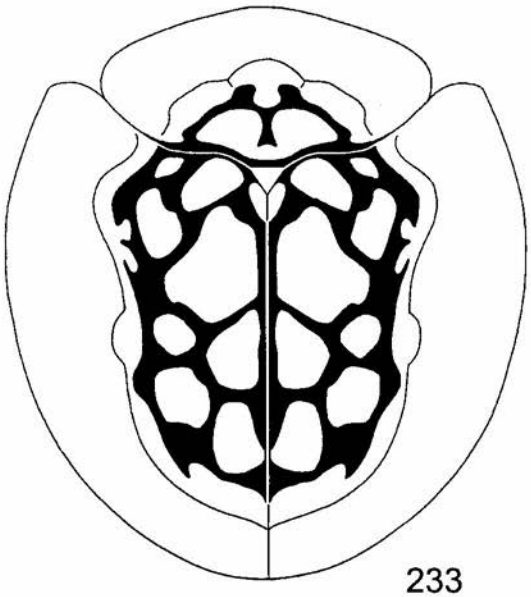
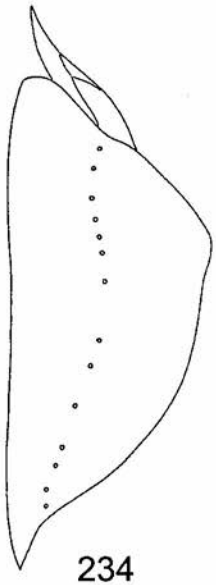
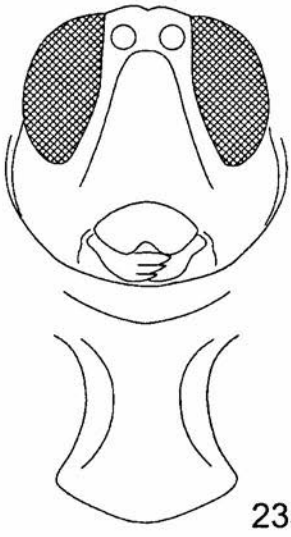


Plate 43. fig. 227-232: *Hovacassis discolor* (BOHEMAN). – 227: body dorsal. – 228: body lateral. – 229: head and prosternum. – 230: claw. – 231: antenna. – 232: puncturation of central part of elytral disc.







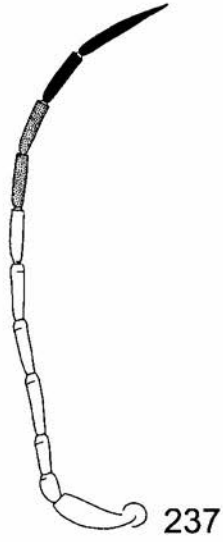


Plate 44. fig. 233-237: *Hovacassis flavonigra* BOROWIEC. – 233: body dorsal. – 234: body lateral. – 235: head and prosternum. – 236: claw. – 237: antenna.

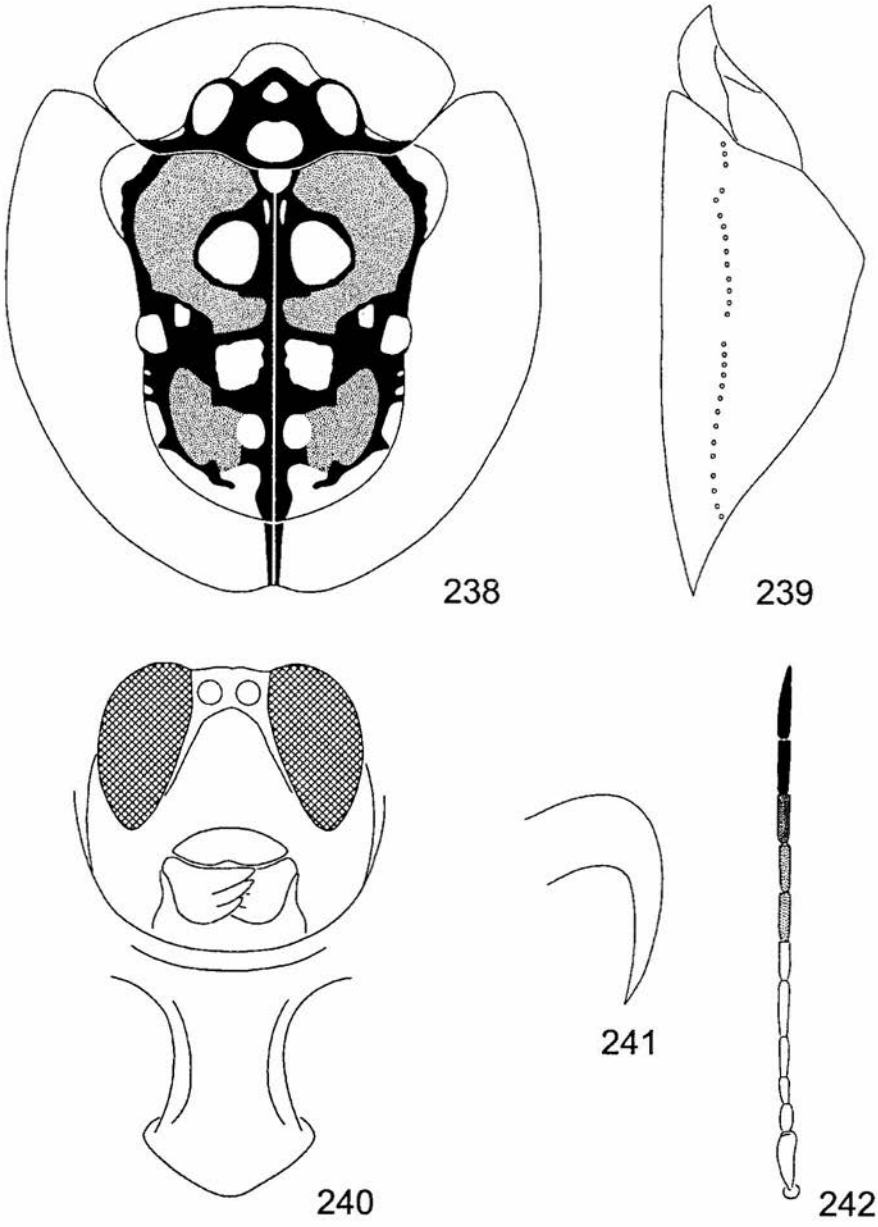


Plate 45. fig. 238-242: *Hovacassis formosa* BOROWIEC. – 238: body dorsal. – 239: body lateral. – 240: head and prosternum. – 241: claw. – 242: antenna.

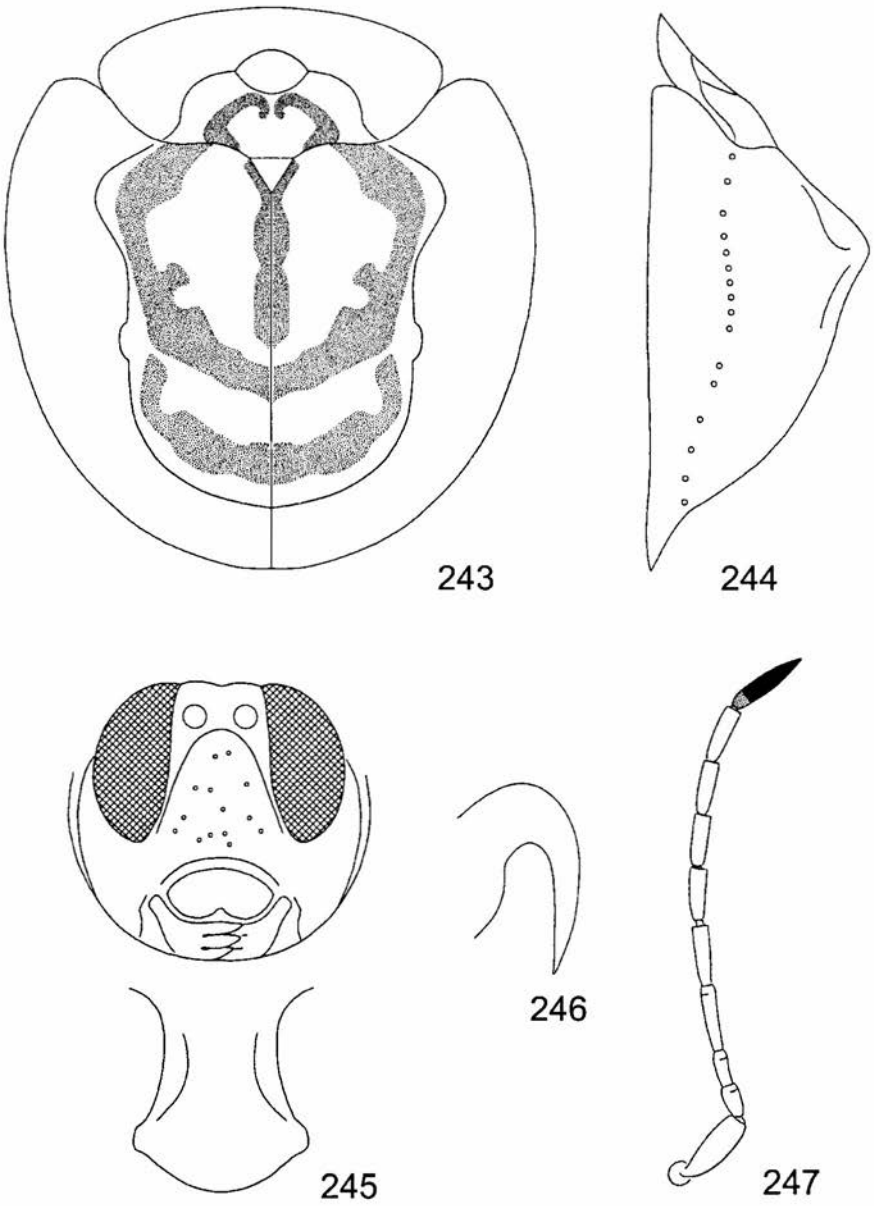


Plate 46. fig. 243-247: *Hovacassis murzini* BOROWIEC. – 243: body dorsal. – 244: body lateral. – 245: head and prosternum. – 246: claw. – 247: antenna.

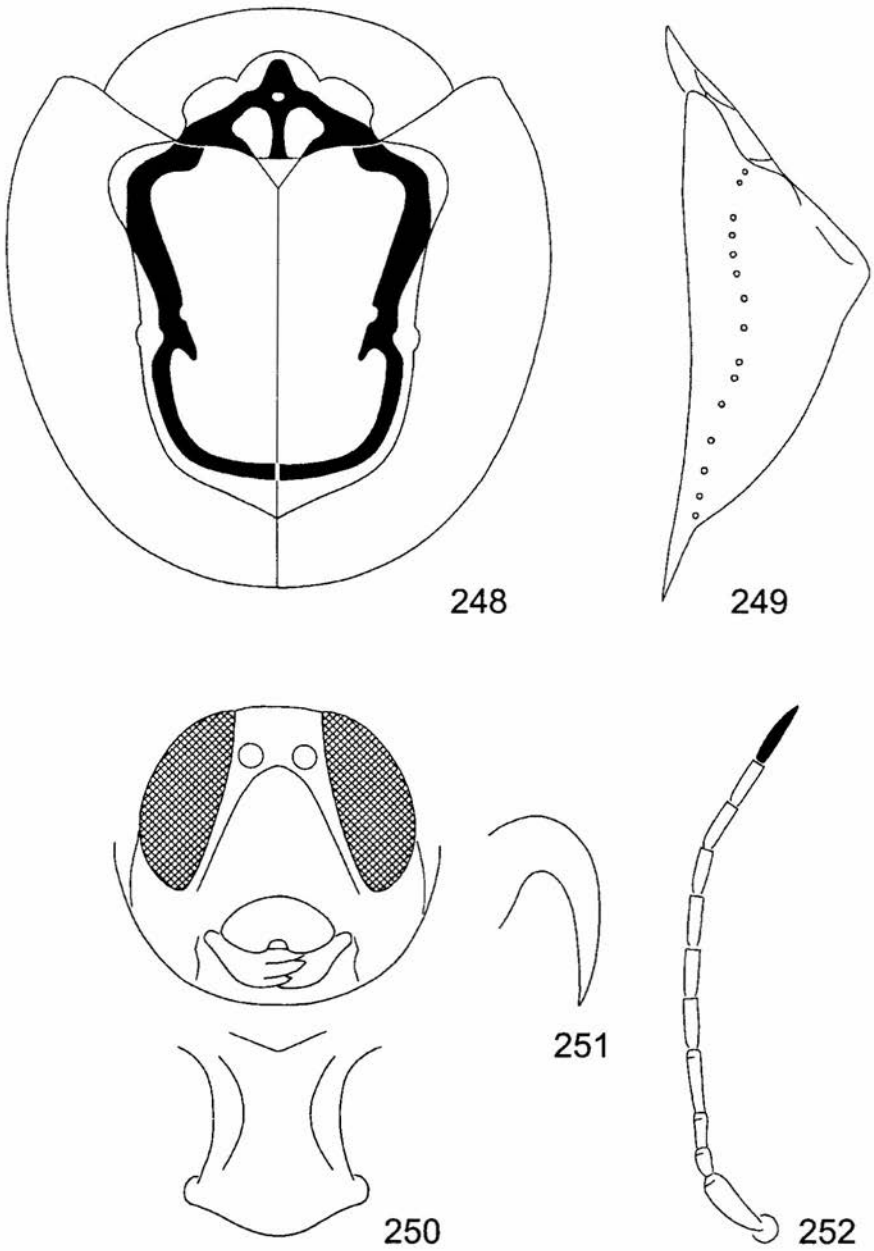


Plate 47. fig. 248-252: *Hovacassis pulchra* (SPAETH). – 248: body dorsal. – 249: body lateral. – 250: head and prosternum. – 251: claw. – 252: antenna.

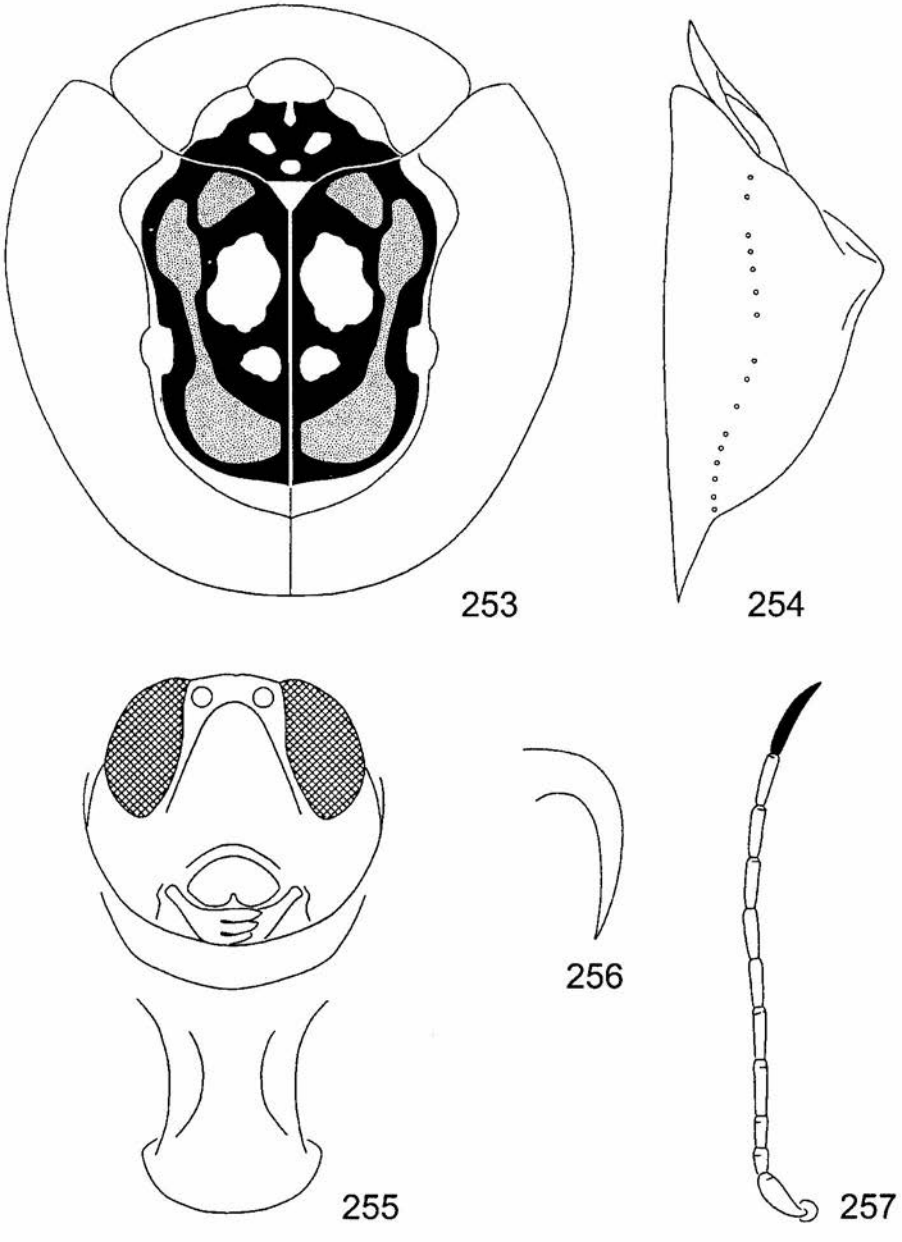
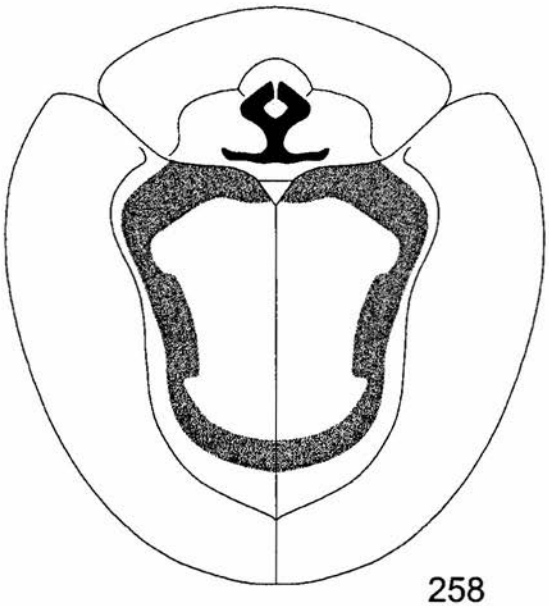
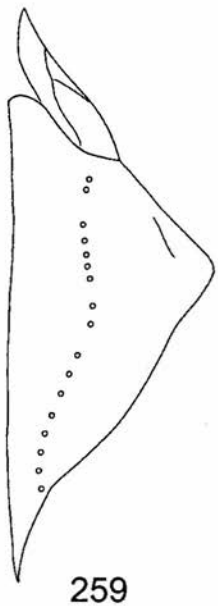


Plate 48. fig. 253-257: *Hovacassis rubromaculata* Borowiec. – 253: body dorsal. – 254: body lateral. – 255: head and prosternum. – 256: claw. – 257: antenna.





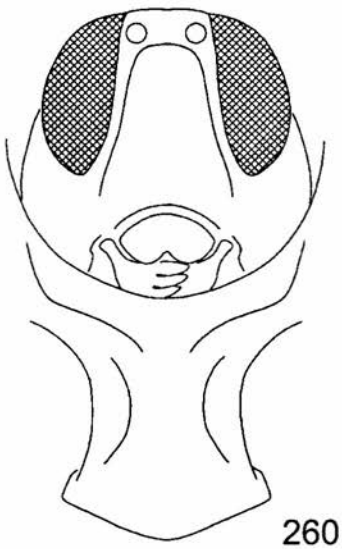


Plate 49. fig. 258-262: *Hovacassis rubrovittata* BOROWIEC. – 258: body dorsal. – 259: body lateral. – 260: head and prosternum. – 261: claw. – 262: antenna.

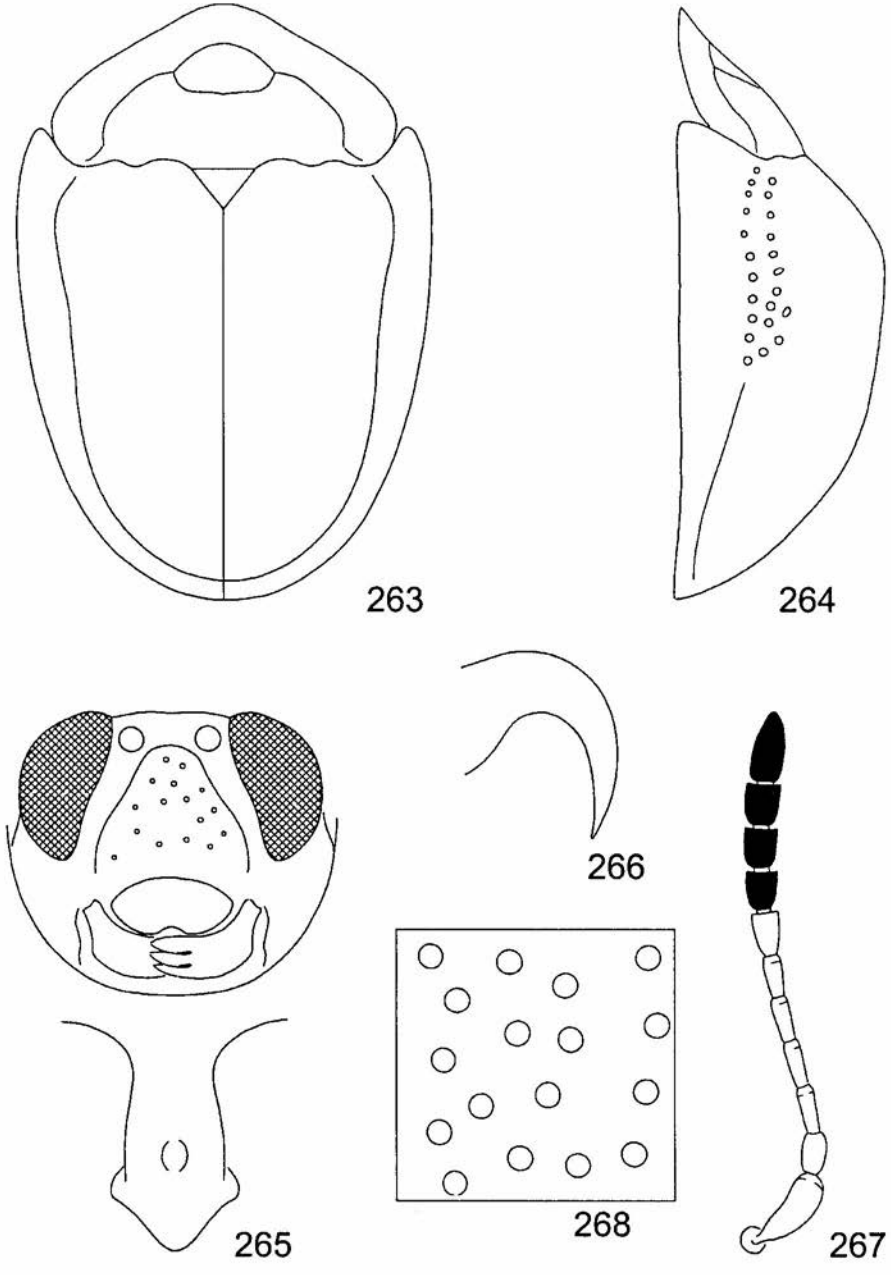


Plate 50. fig. 263-268: *Sphenocassis anosibensis* BOROWIEC. – 263: body dorsal. – 264: body lateral. – 265: head and prosternum. – 266: claw. – 267: antenna. – 268: puncturation of central part of elytral disc.

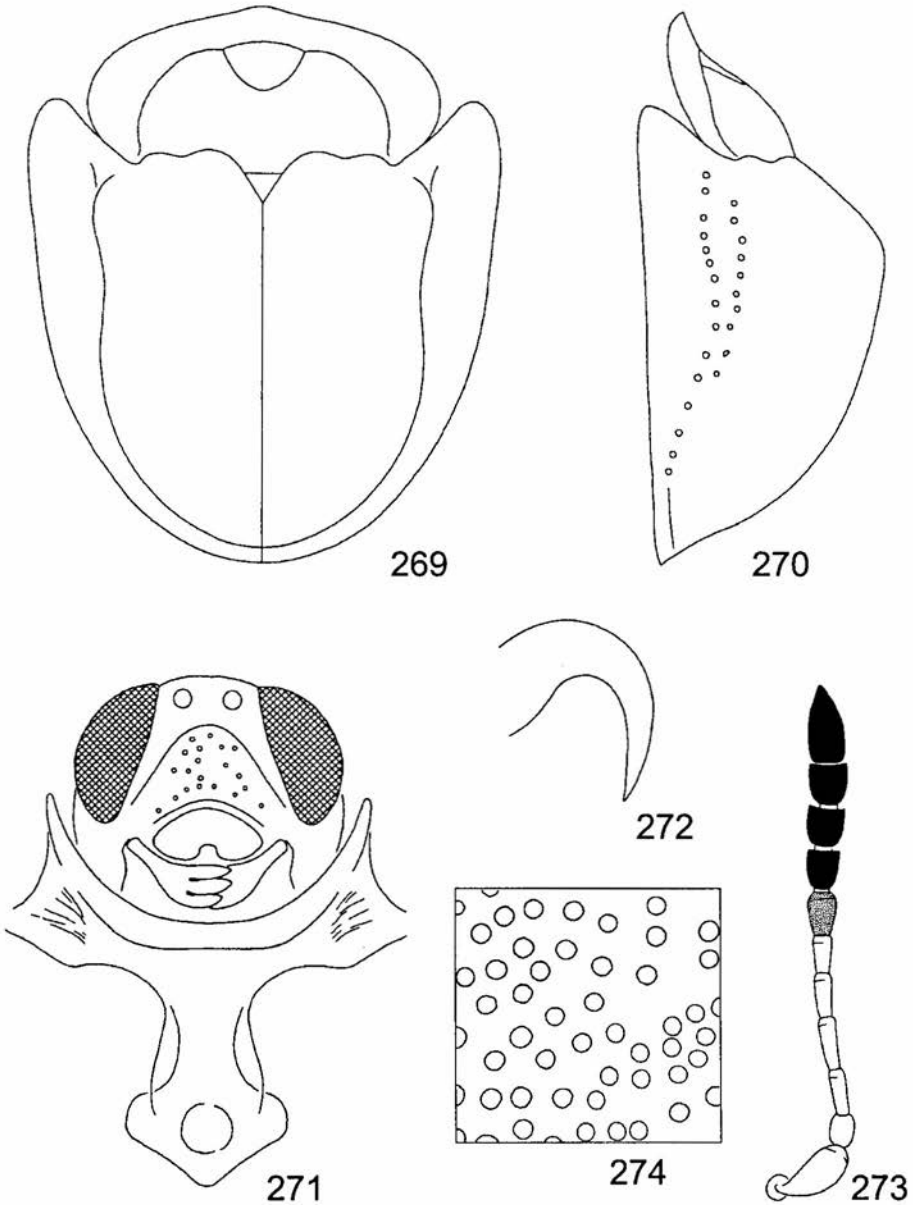


Plate 51. fig. 269-274: *Sphenocassis humerosa* (FAIRMAIRE). – 269: body dorsal. – 270: body lateral. – 271: head and prosternum. – 272: claw. – 273: antenna. – 274: puncturation of central part of elytral disc.

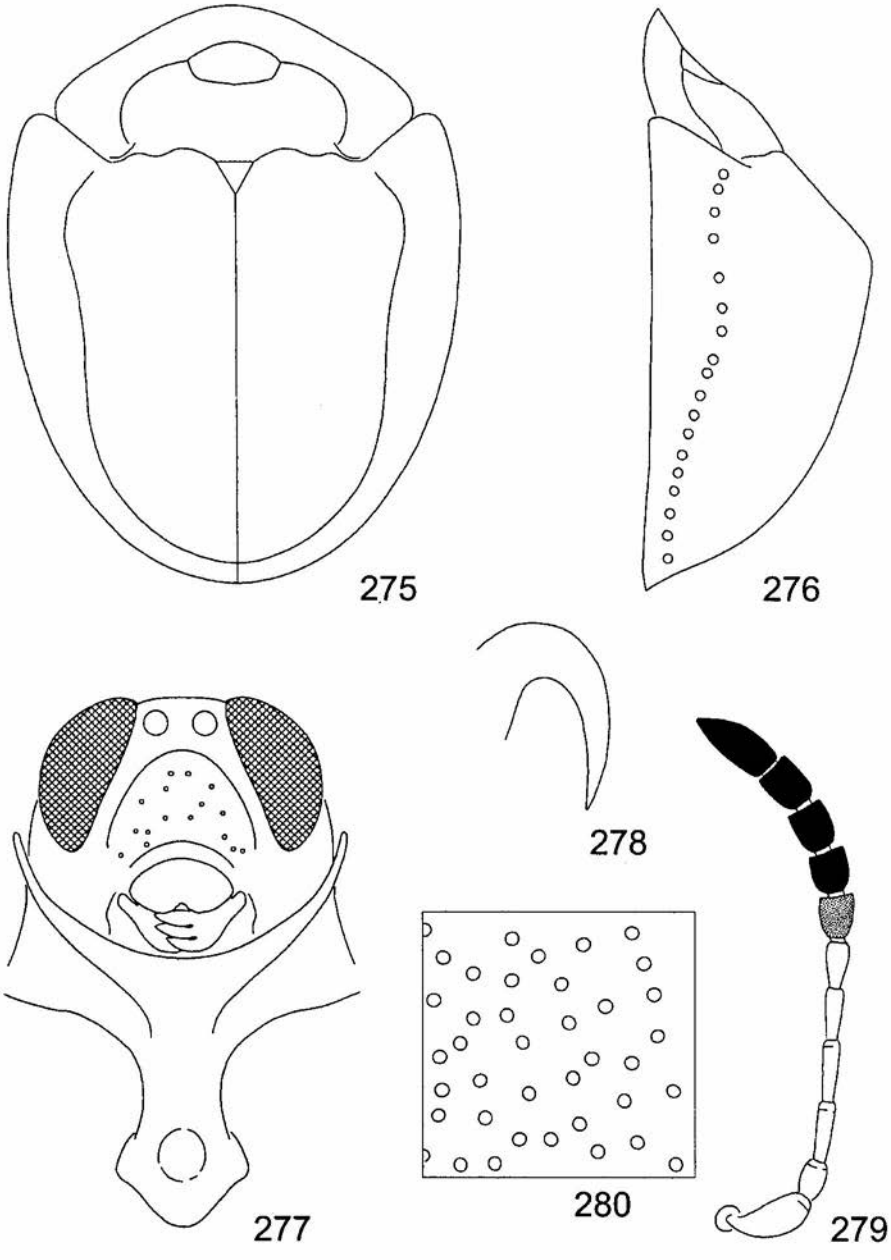


Plate 52. fig. 275-280: *Sphenocassis imerina* (SPAETH). – 275: body dorsal. – 276: body lateral. – 277: head and prosternum. – 278: claw. – 279: antenna. – 280: puncturation of central part of elytral disc.

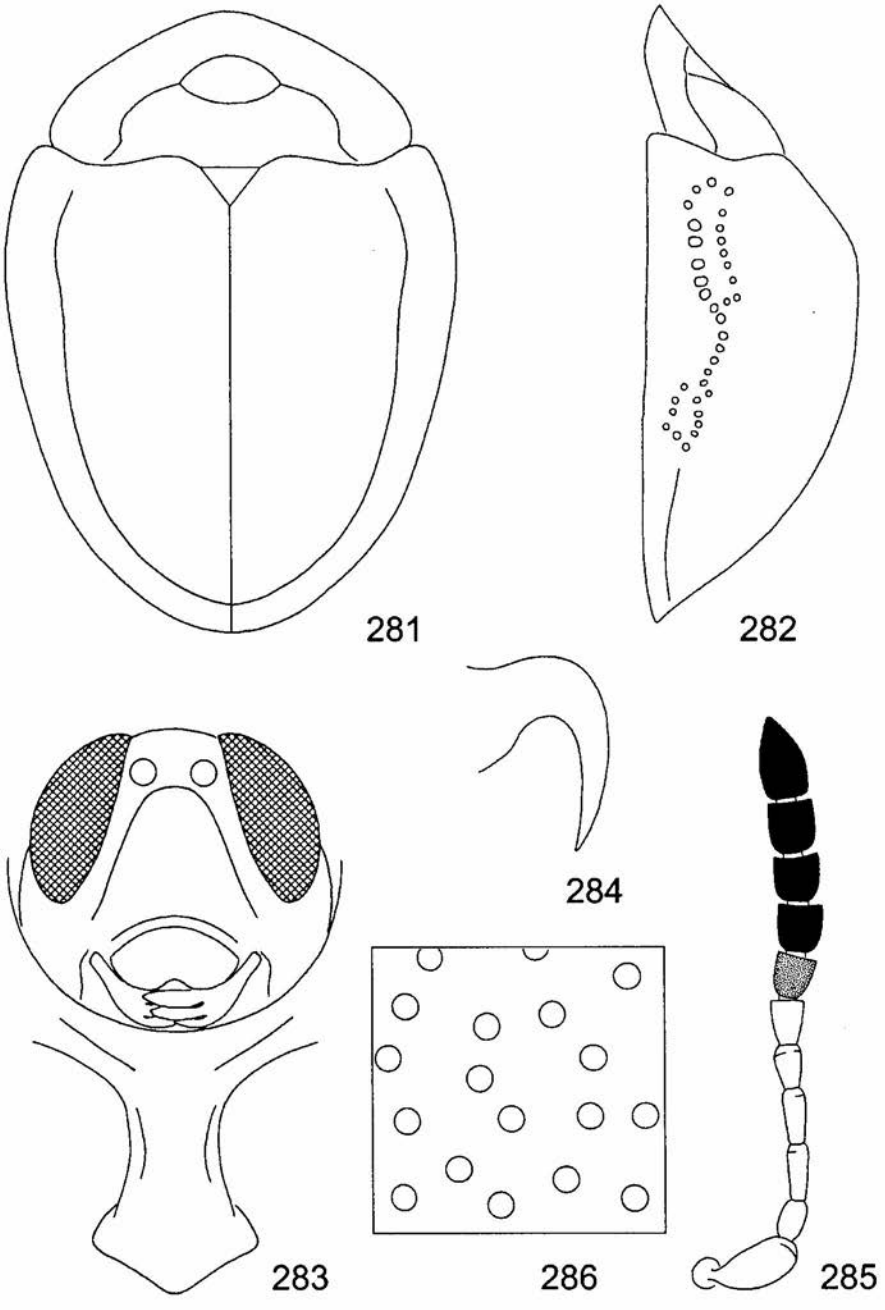


Plate 53. fig. 281-286: *Sphenocassis impressipennis* Borowiec. – 281: body dorsal. – 282: body lateral. – 283: head and prosternum. – 284: claw. – 285: antenna. – 286: puncturation of central part of elytral disc.

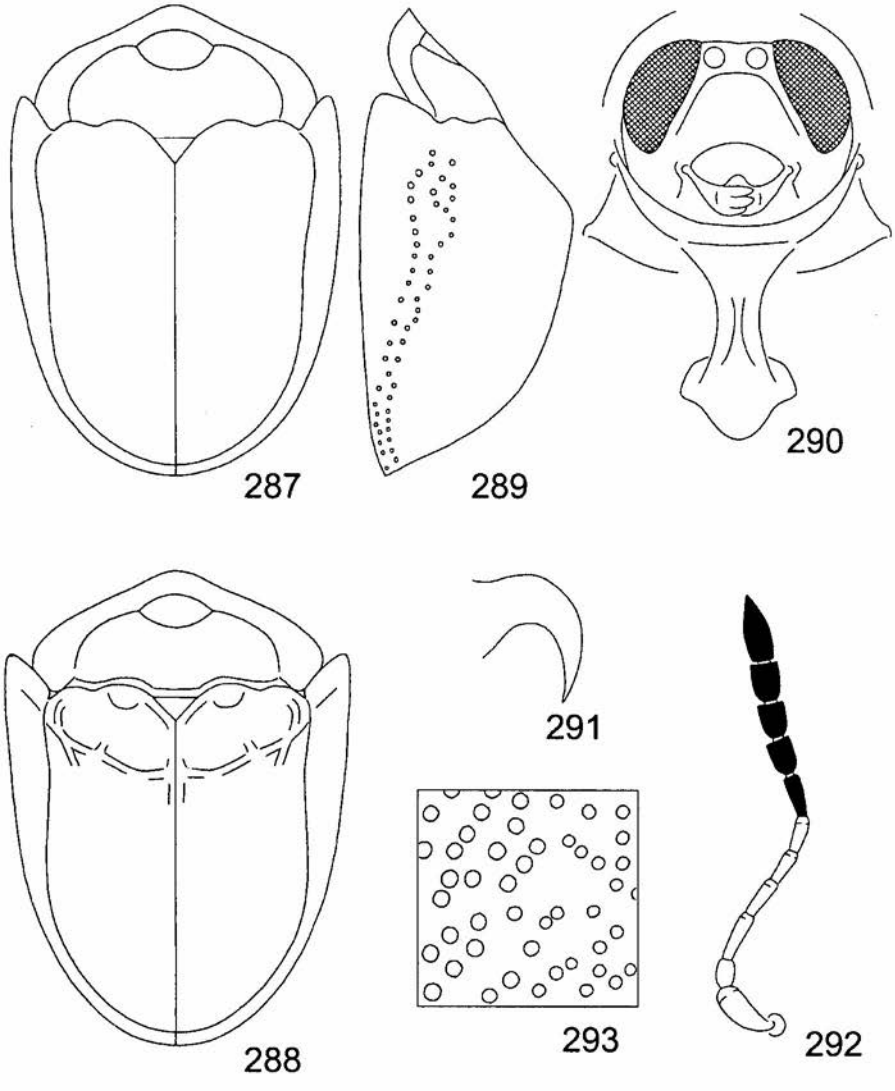


Plate 54. fig. 287-293: *Sphenocassis incisicollis* SPAETH. – 287: body dorsal, female. – 288: body dorsal, male. – 289: body lateral. – 290: head and prosternum. – 291: claw. – 292: antenna. – 293: puncturation of central part of elytral disc.

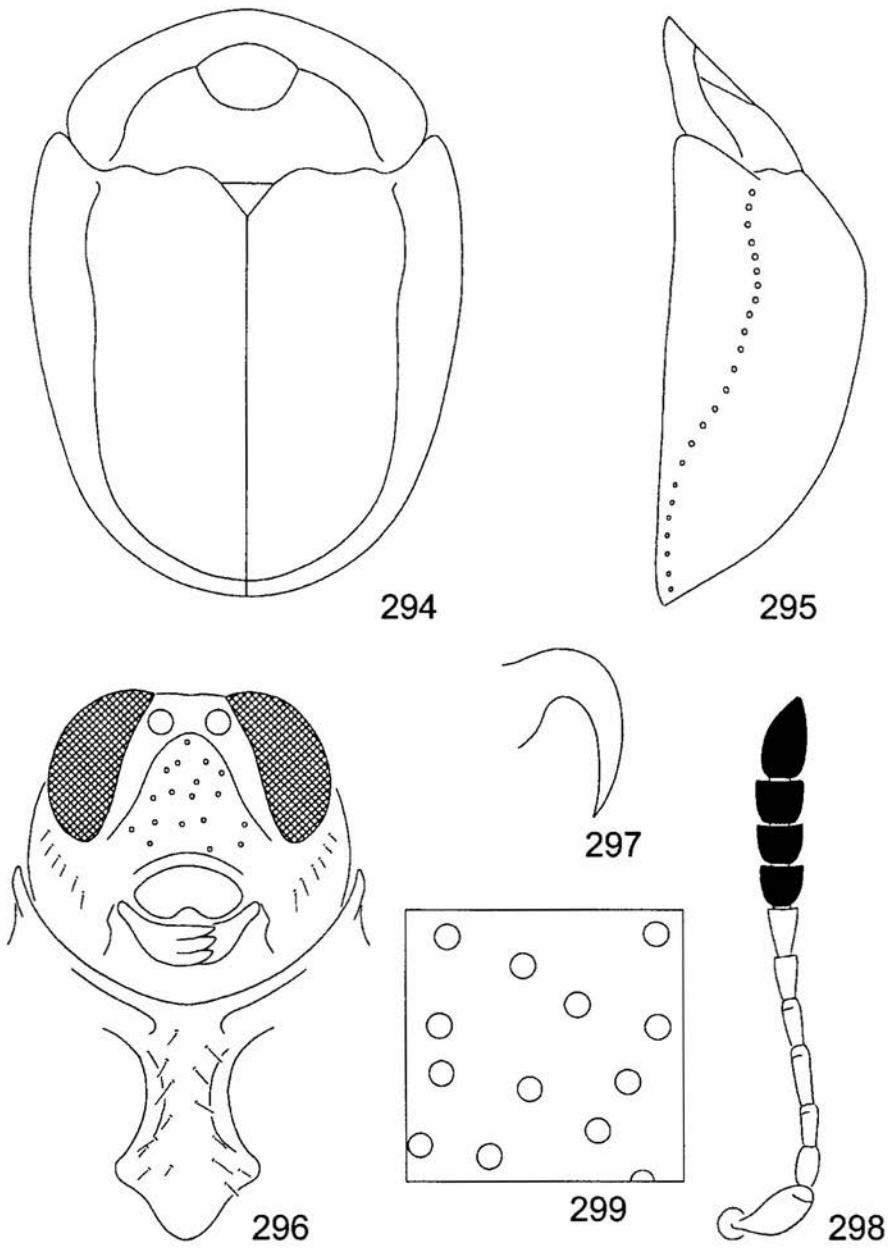


Plate 55. fig. 294-299: *Sphenocassis praerupta* (SPAETH). – 294: body dorsal. – 295: body lateral. – 296: head and prosternum. – 297: claw. – 298: antenna. – 299: puncturation of central part of elytral disc.

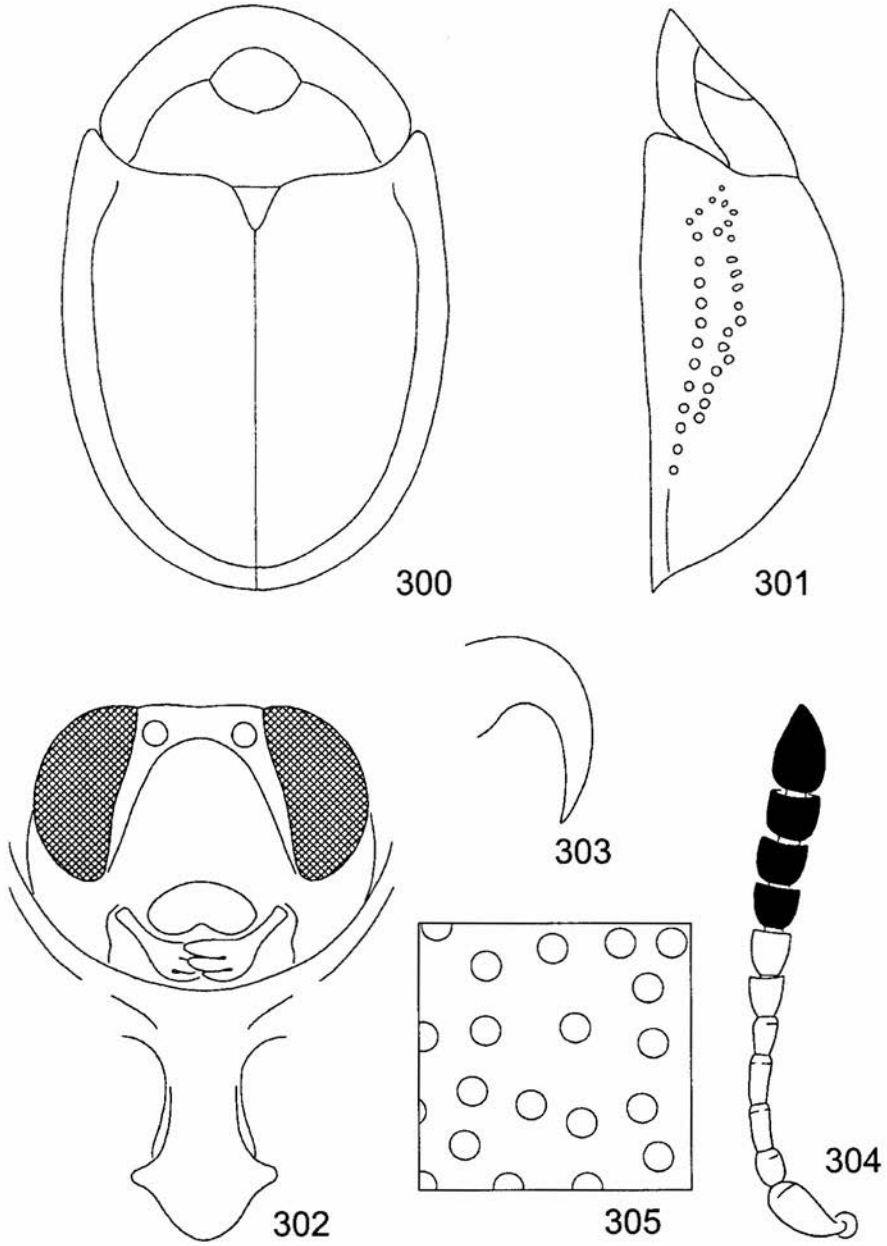


Plate 56. fig. 300-305: *Sphenocassis punctatissima* (WEISE). – 300: body dorsal. – 301: body lateral. – 302: head and prosternum. – 303: claw. – 304: antenna. – 305: puncturation of central part of elytral disc.

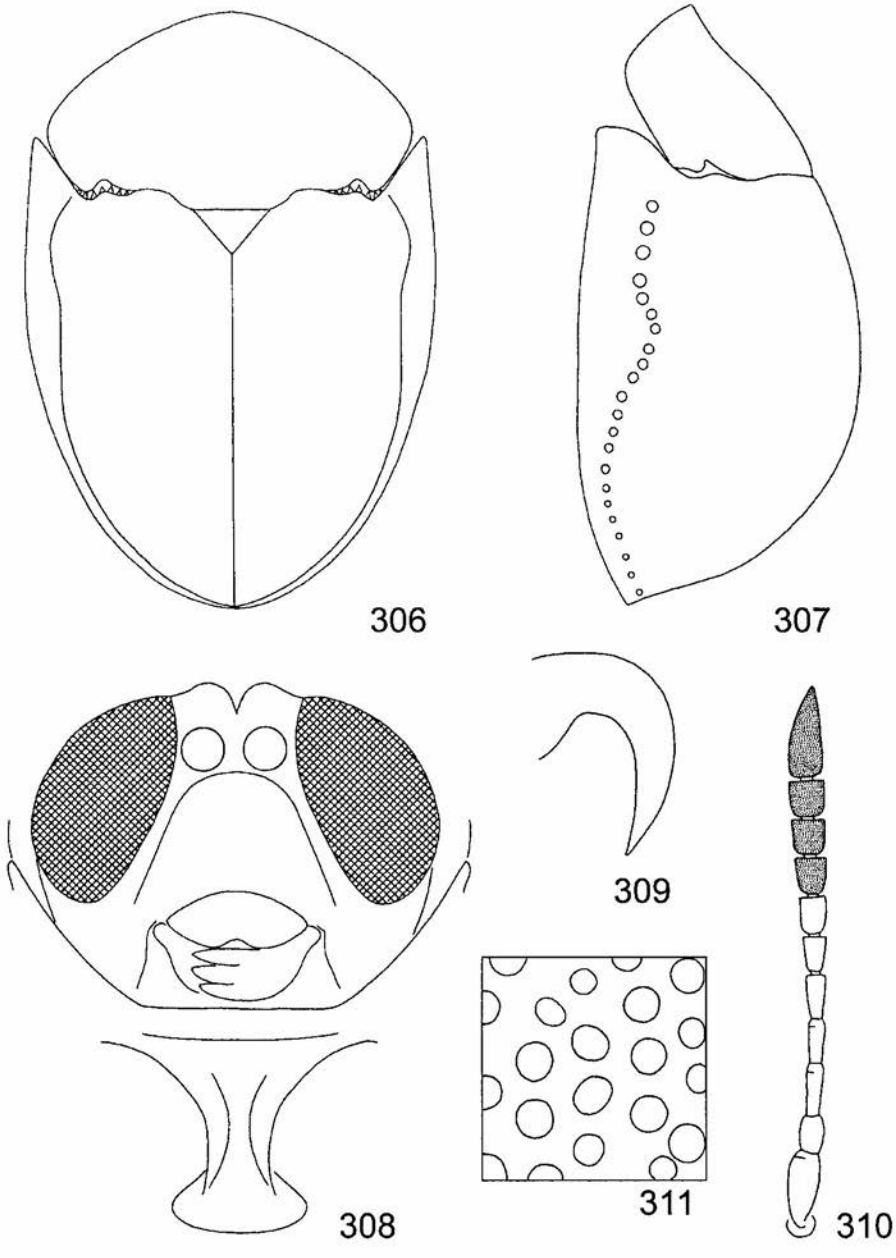


Plate 57. fig. 306-311: *Sphenocassis rotundella* Borowiec. – 306: body dorsal. – 307: body lateral. – 308: head and prosternum. – 309: claw. – 310: antenna. – 311: puncturation of central part of elytral disc.

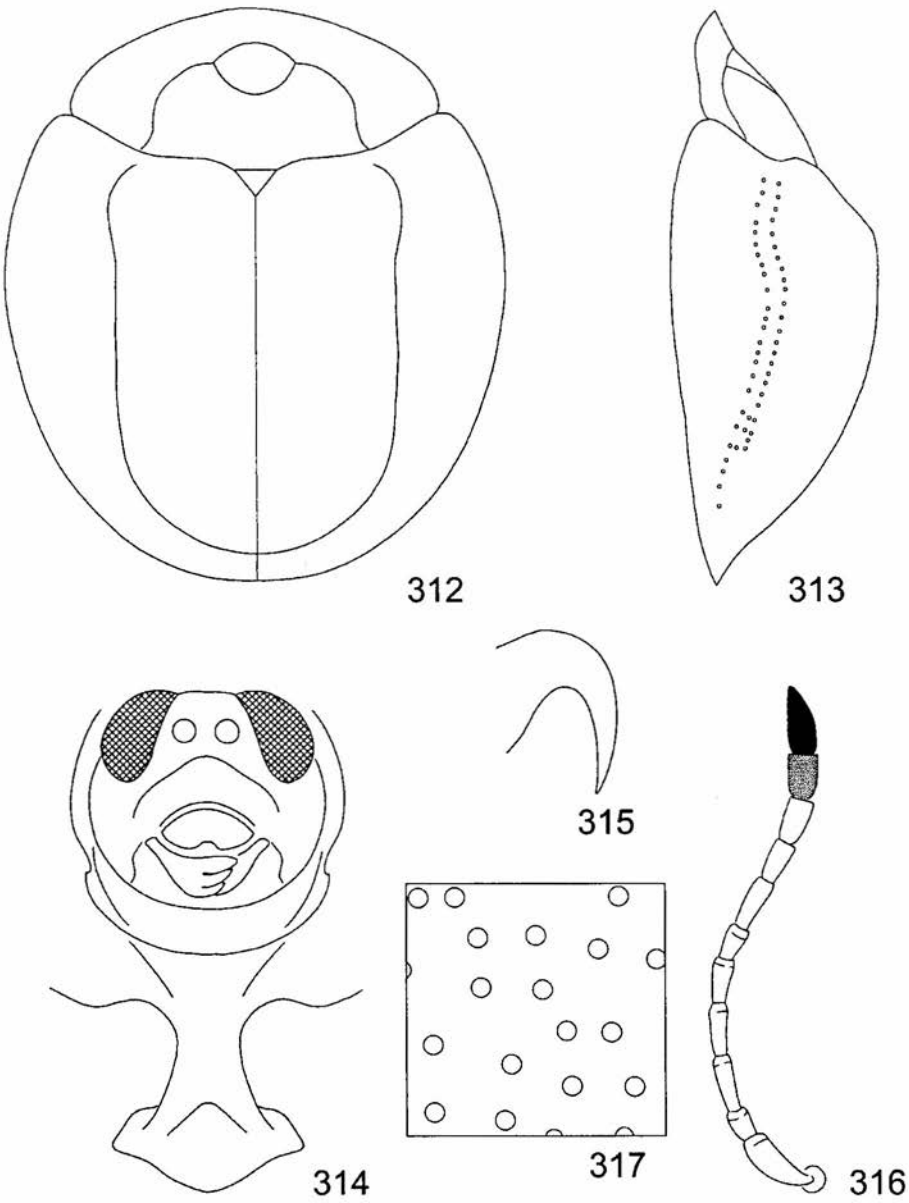


Plate 58. fig. 312-317: *Tegocassis corpulenta* (WEISE). – 312: body dorsal. – 313: body lateral. – 314: head and prosternum. – 315: claw. – 316: antenna. – 317: puncturation of central part of elytral disc.

COLOUR PLATES

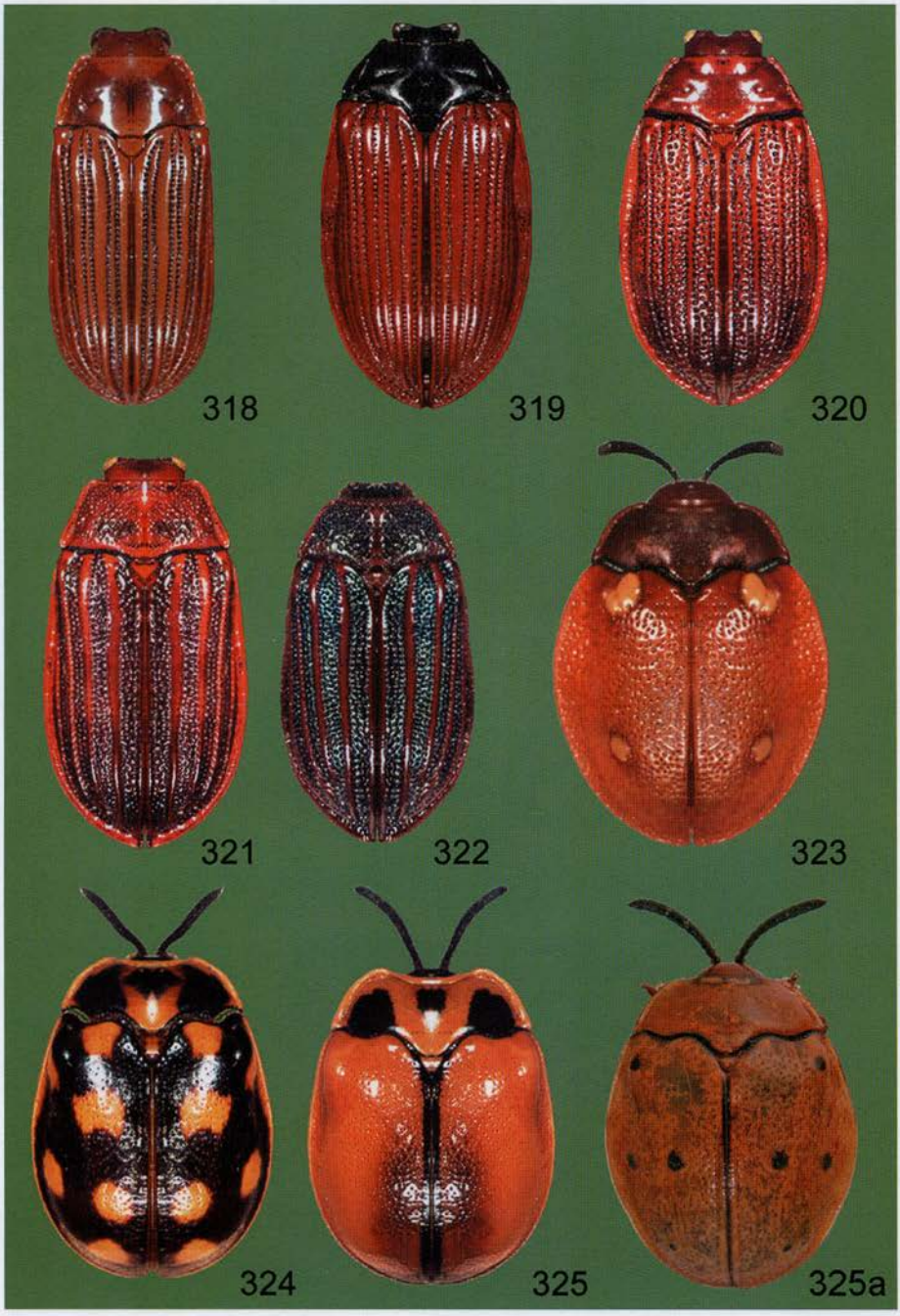


Plate 59. fig. 318: *Androya longula* (FAIRM.). – fig. 319: *Androya obscuricollis* (FAIRM.). – fig. 320: *Androya tenuecostata* (FAIRM.). – fig. 321, 322: *Androya rubrocostata* (FAIRM.). – fig. 323: *Cassidopsis basipennis* FAIRM. – fig. 324, 325: *Cassidopsis perrieri* FAIRM.

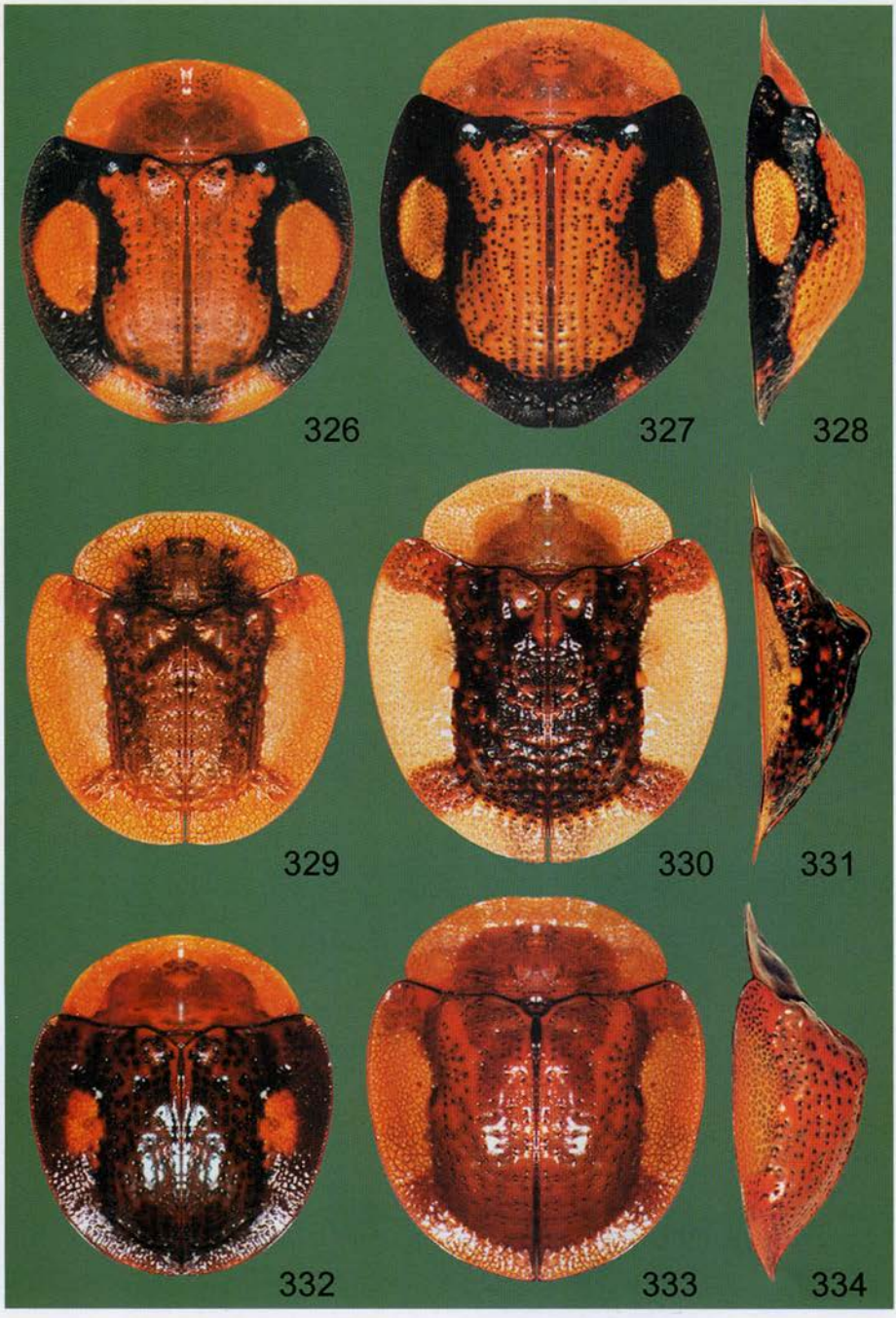


Plate 60. fig. 326-328: *Aspidimorpha bertiae* BOROW. – fig. 329-331: *Aspidimorpha corrugata* BOROW. – fig. 332-334: *Aspidimorpha curtidens* HINCKS.

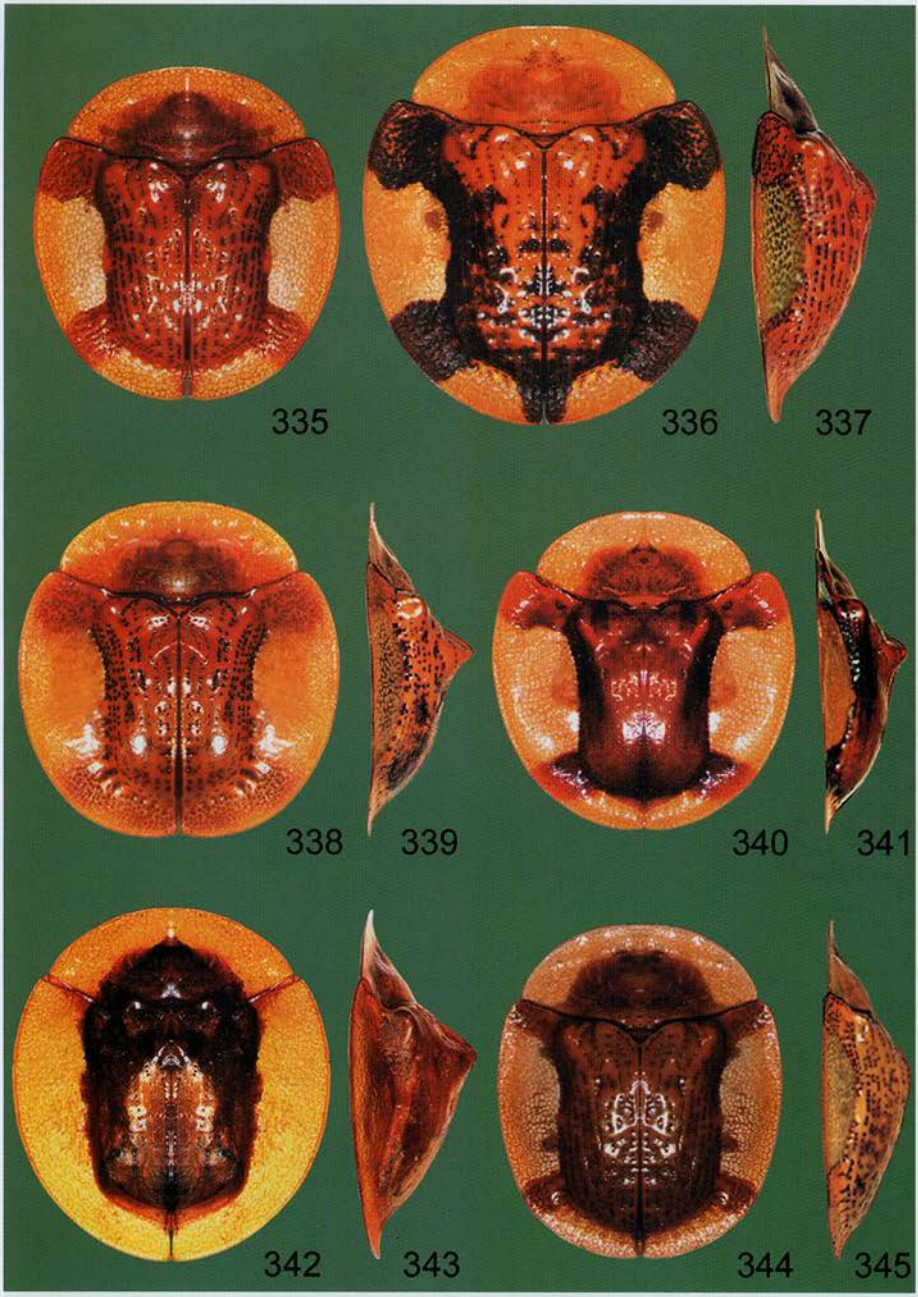


Plate 61. fig. 335-337: *Aspidimorpha densepicta* HINCKS. – fig. 338, 339: *Aspidimorpha extumida* SP. – fig. 340, 341: *Aspidimorpha fampanamboensis* BOROW. – fig. 342, 343: *Aspidimorpha illustris* HINCKS. – fig. 344, 345: *Aspidimorpha madagascarica* BOH.

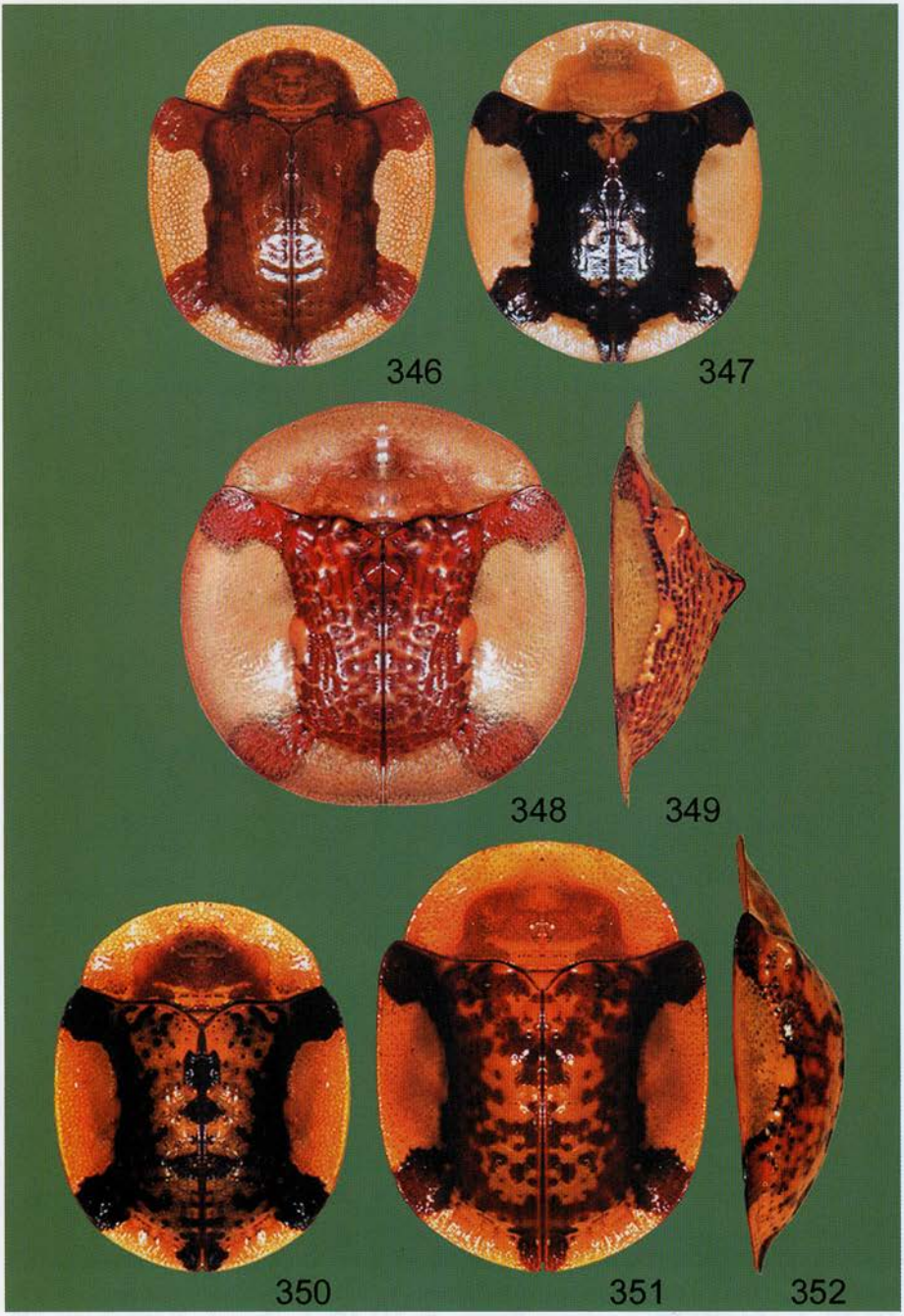


Plate 62. fig. 346-347: *Aspidimorpha madagascarica* Boh, aberrations. – fig. 348, 349: *Aspidimorpha pontifex* Boh. – fig. 350-352: *Aspidimorpha quinquefasciata* (F.).

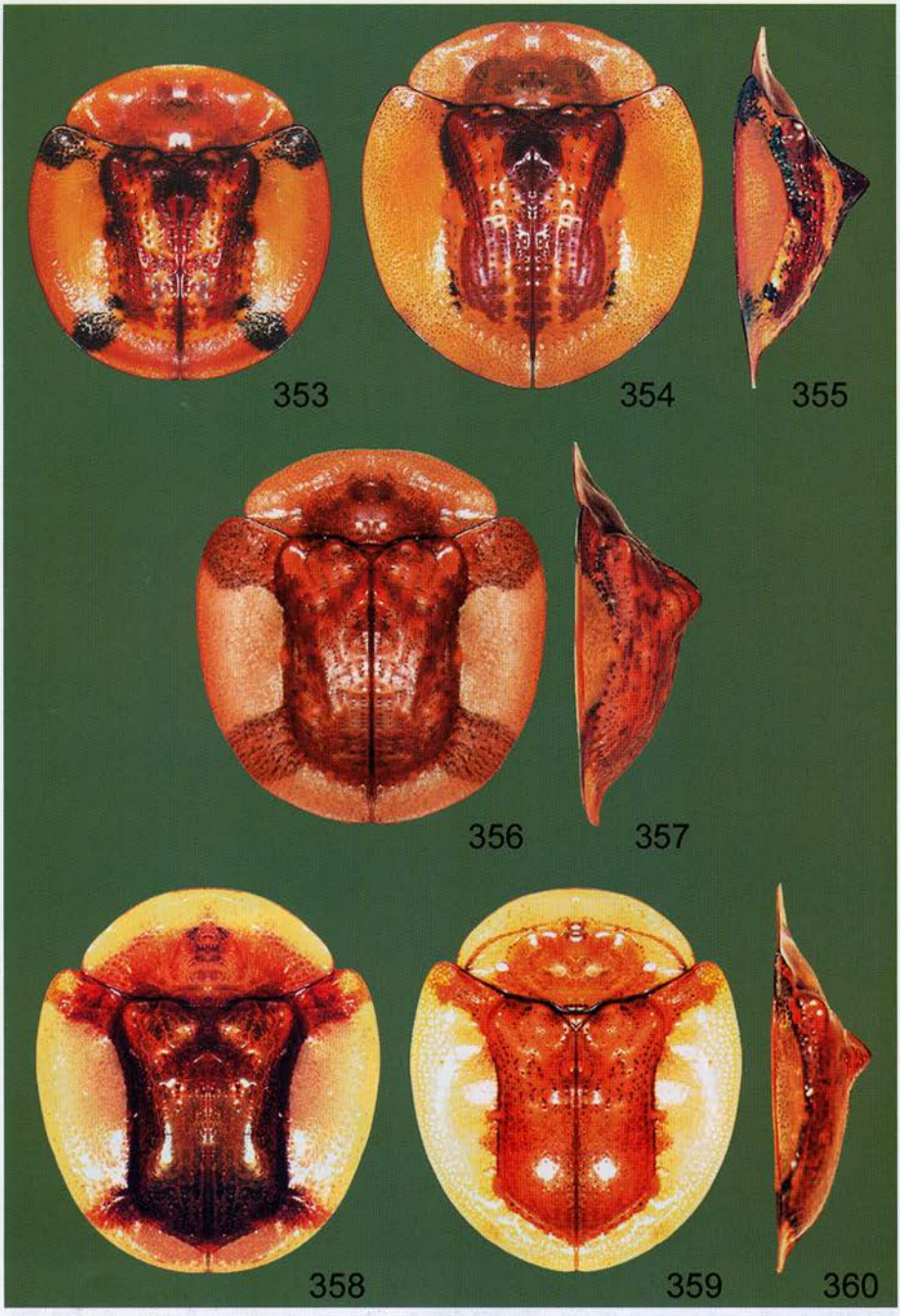


Plate 63. fig. 353-355: *Aspidimorpha rubroornata* BOROW. – fig. 356, 357: *Aspidimorpha undulatipennis* SP. – fig. 358-360: *Aspidimorpha vernicata* FAIRM.

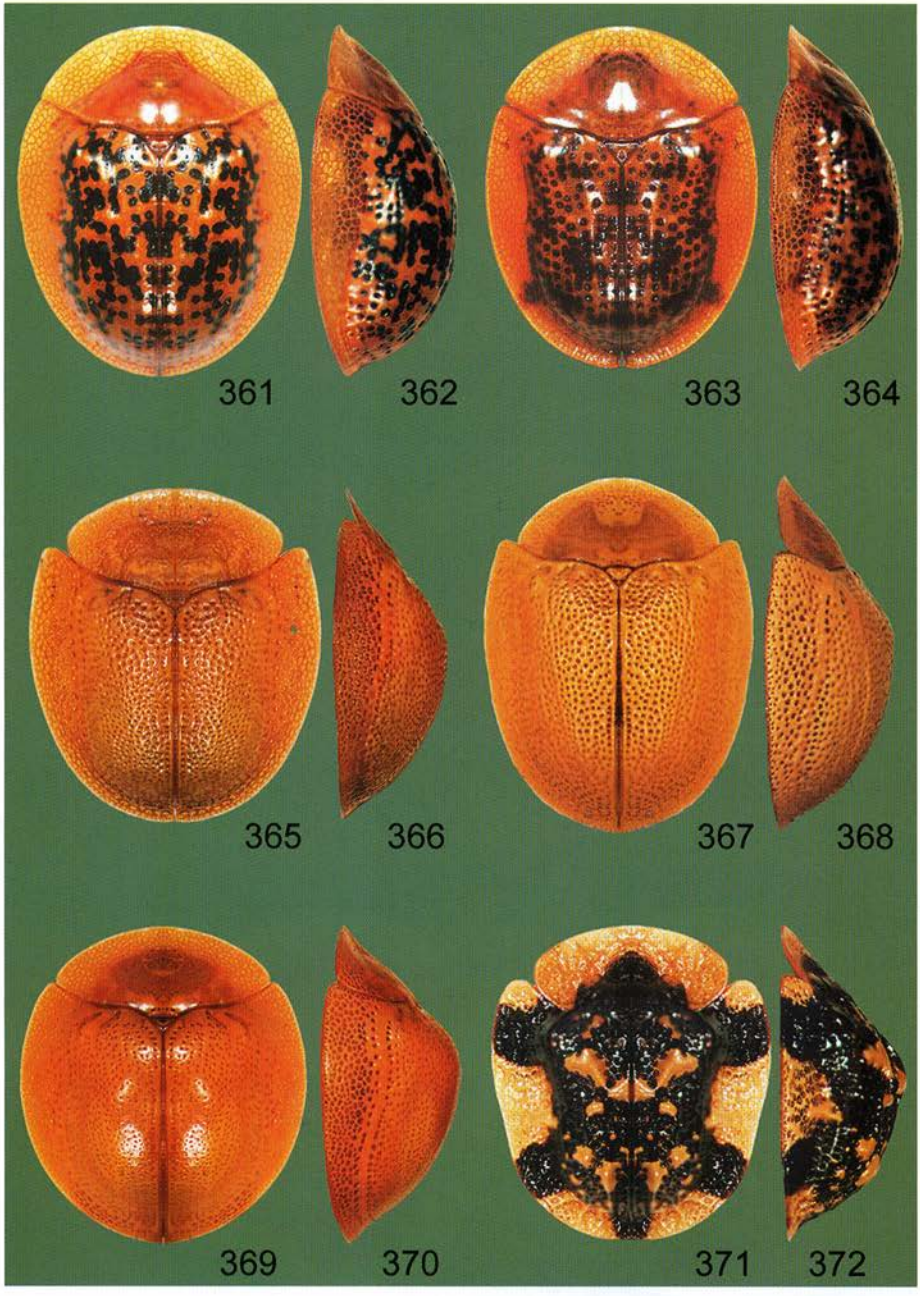


Plate 64. fig. 361-362: *Aspidimorpha fallaciosa* (FAIRM.). – fig. 363, 364: *Aspidimorpha polyspila* SP. – fig. 365, 366: *Aspidimorpha apicalis* (KLUG). – fig. 367, 368: *Aspidimorpha tanolaensis* BOROW. – fig. 369, 370: *Aspidimorpha cepaecolor* (FAIRM). – fig. 371, 372: *Mahatsinia nodulosa* (WEISE).

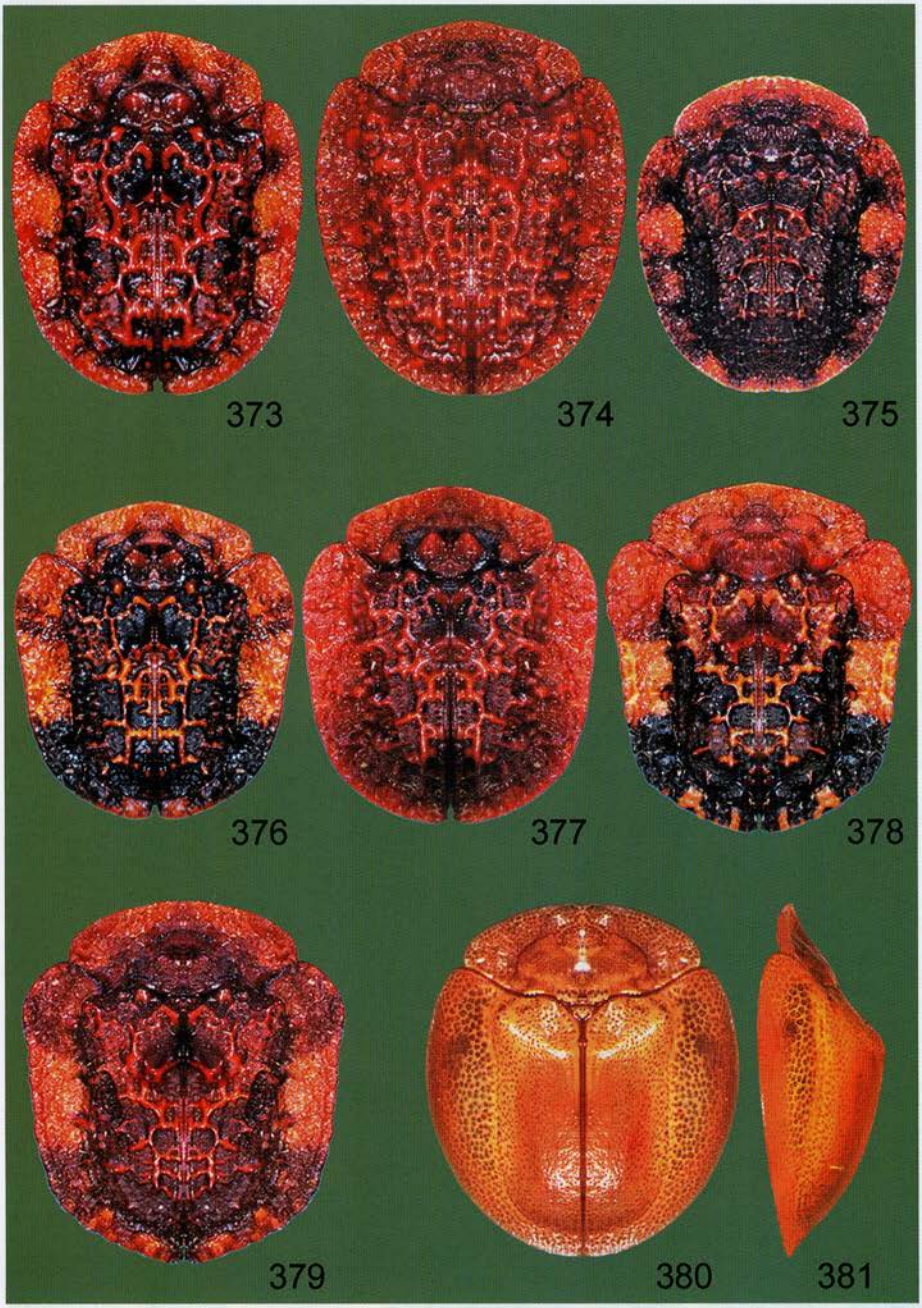


Plate 65. fig. 373: *Laccoptera confragosa* (WEISE). – fig. 374: *Laccoptera pallicolor* (FAIRM.). – fig. 375: *Laccoptera regularis* FAIRM. – fig. 376, 377: *Laccoptera perrieri* FAIRM. – fig. 378: *Laccoptera spectrum* BOH. – fig. 379: *Laccoptera undulata* (SP.). – fig. 380, 381: *Tegocassis corpulenta* (WEISE).

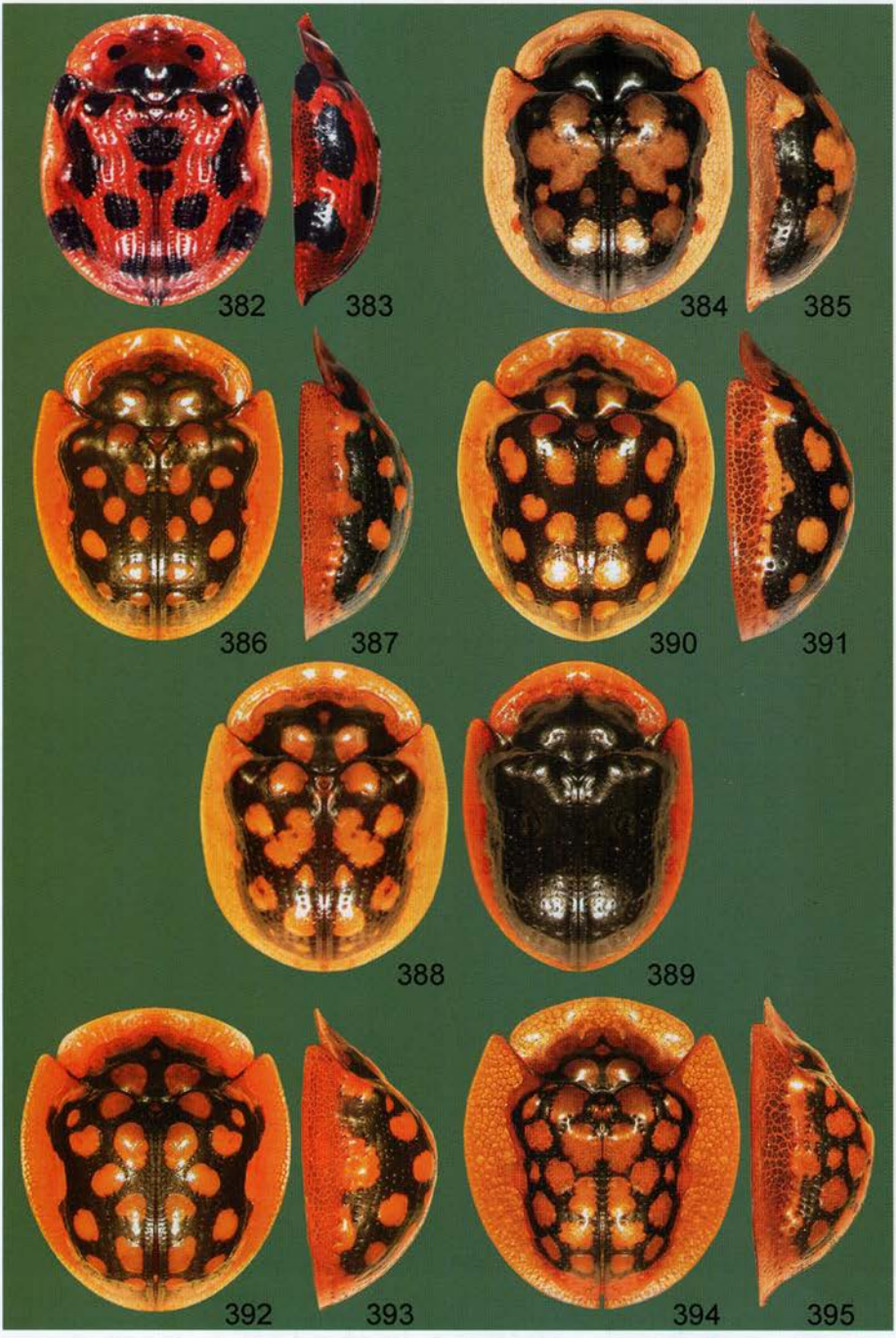


Plate 66. fig. 382,383: *Andevocassis picta* (Sp.). – fig. 384,385: *Chiridopsis atricollis* Borow. – fig. 386-389: *Chiridopsis leopardina* (Boh.). – fig. 390, 391: *Chiridopsis levis* Borow. – fig. 392, 393: *Chiridopsis nickerli* (Sp.) – fig. 394, 395: *Chiridopsis nigroreticulata* Borow.

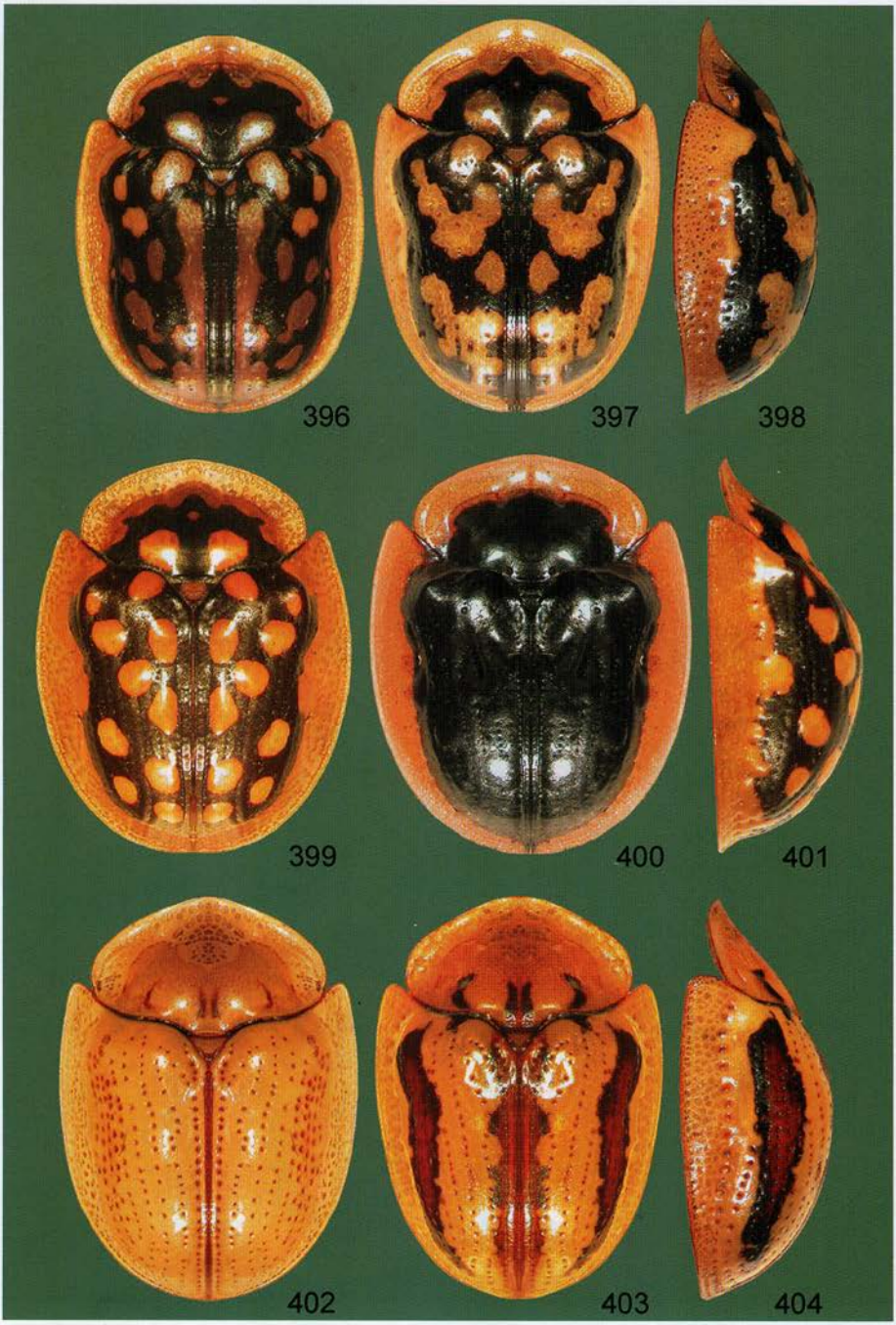


Plate 67. fig. 396–398: *Chiridopsis maculata* BOROW. – fig. 399–401: *Chiridopsis marginepunctata* BOROW. – fig. 402–404: *Chiridopsis trizonata* (FAIRM.).

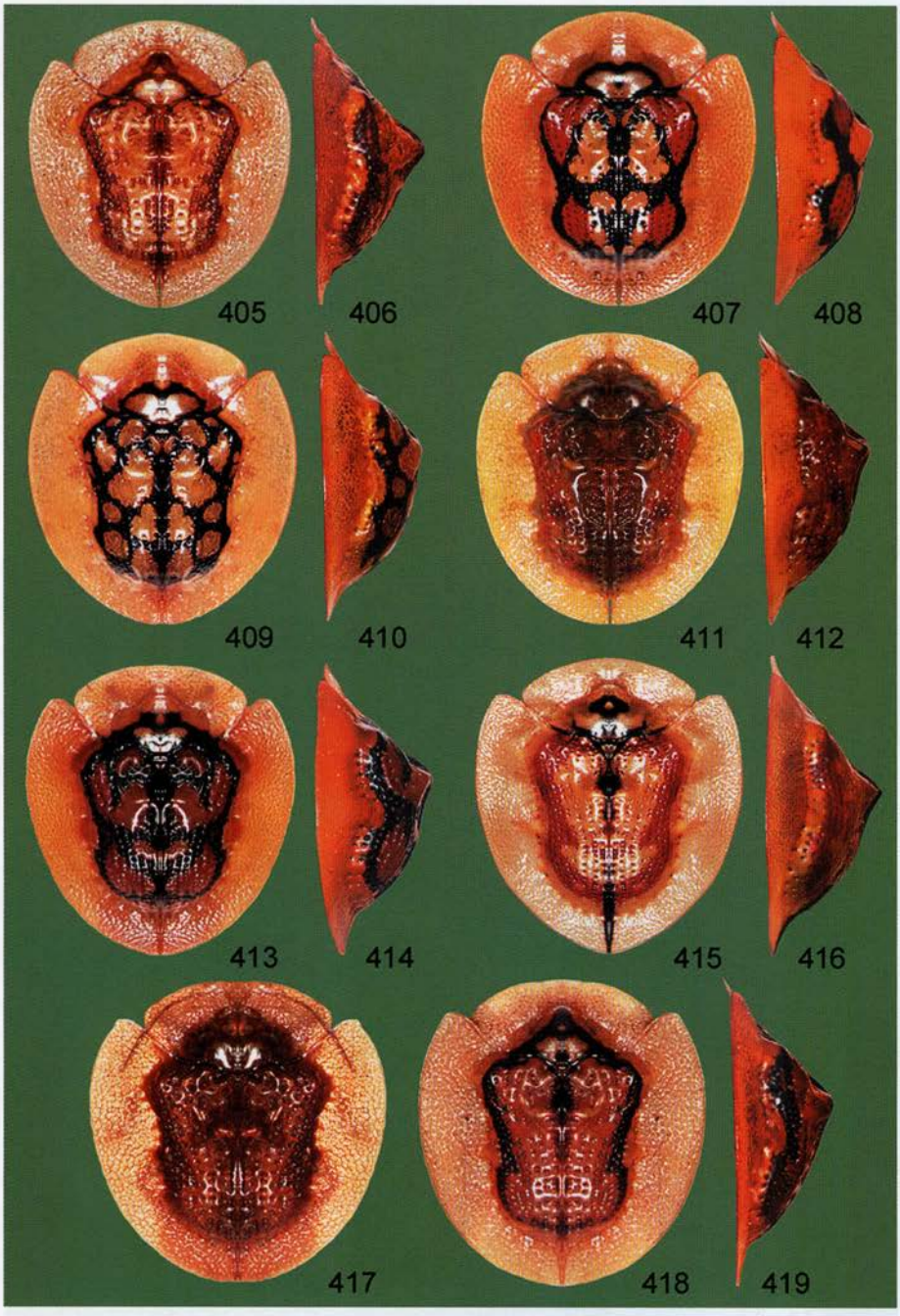


Plate 68. fig. 405–406: *Hovacassis brunneofasciata* Borow. – fig. 407, 408: *Hovacassis discolor* (Boh.). – fig. 409, 410: *Hovacassis flavonigra* Borow. – fig. 411, 412: *Hovacassis murzini* Borow. – fig. 413, 414: *Hovacassis rubromaculata* Borow. – fig. 415, 416: *Hovacassis rubrovittata* Borow. – fig. 417–419: *Hovacassis pulchra* (Sp.).

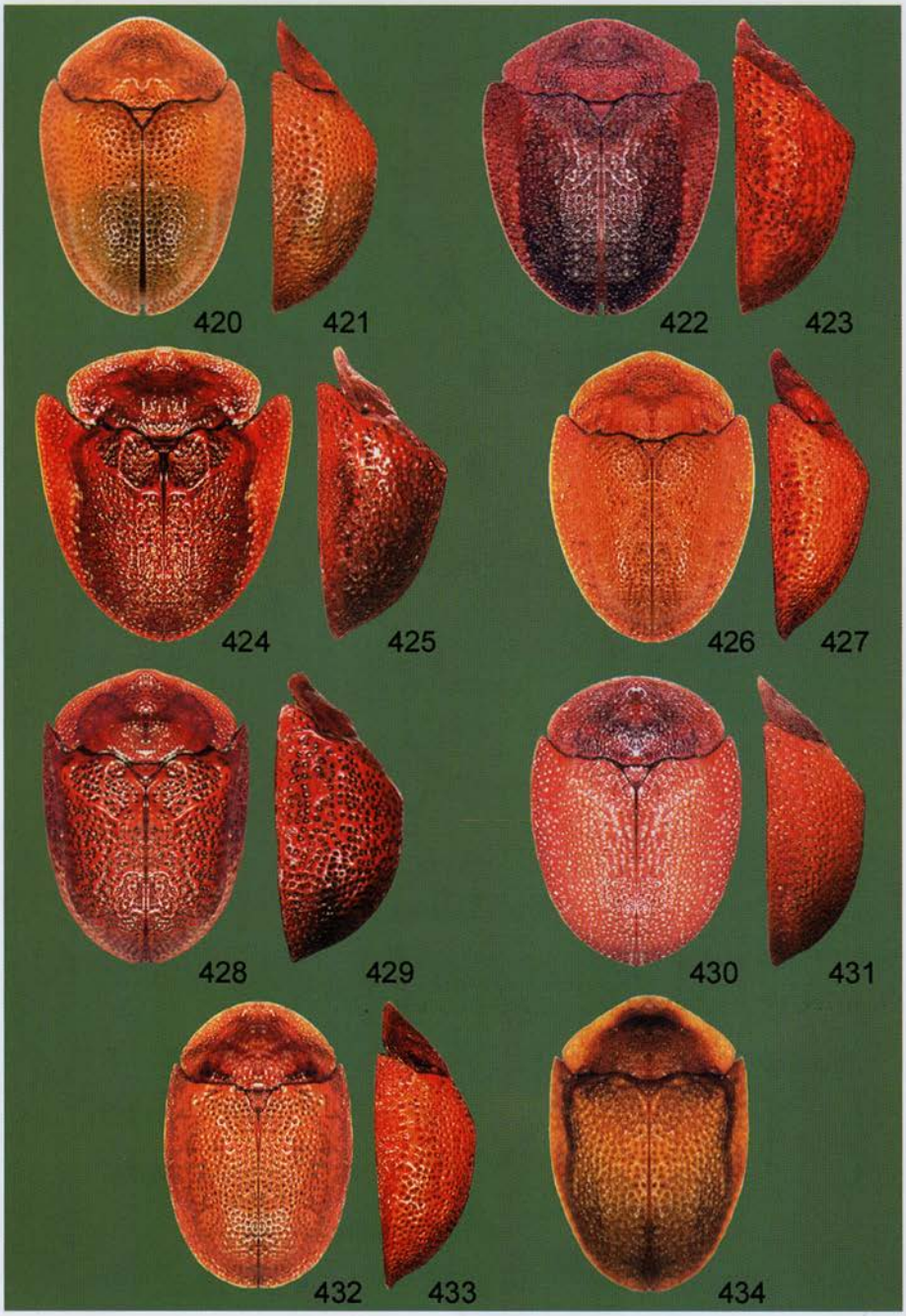
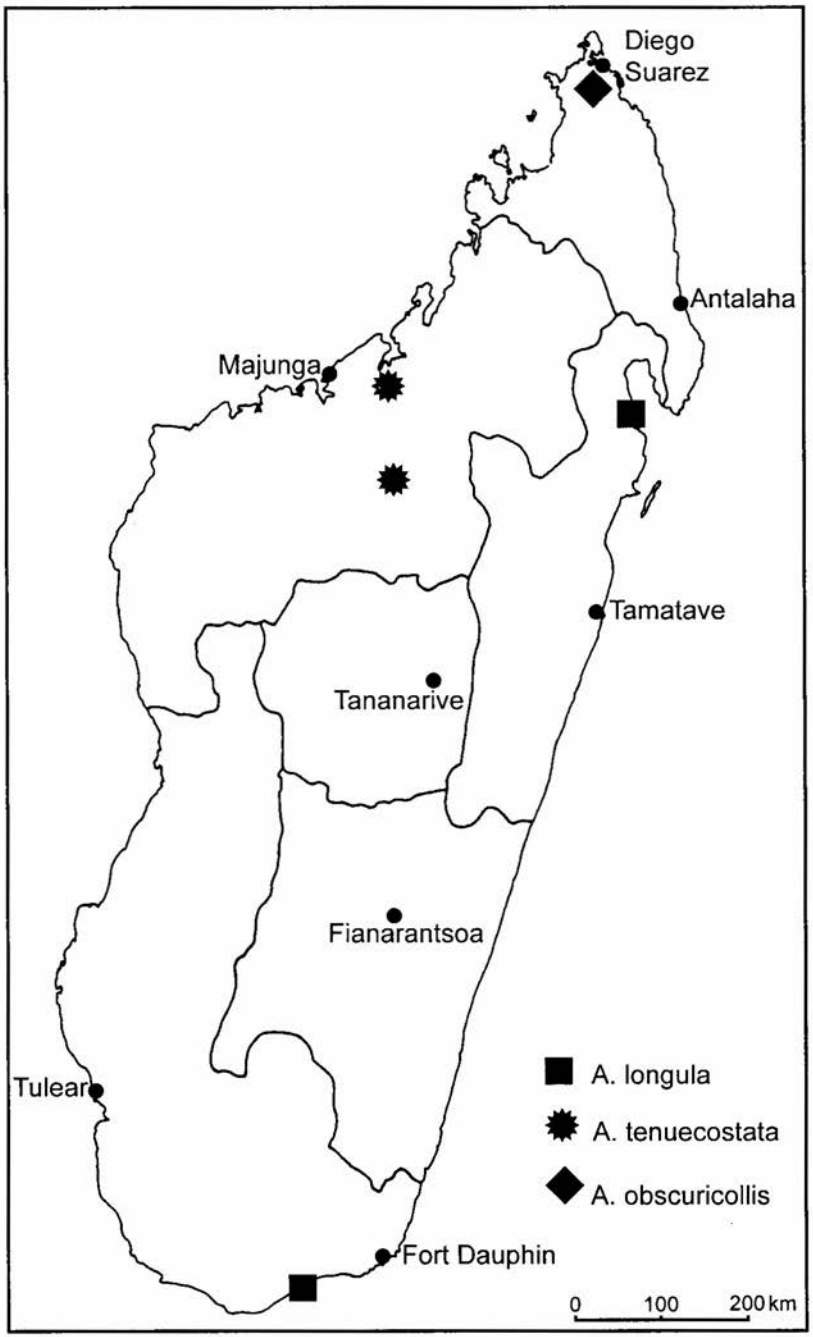
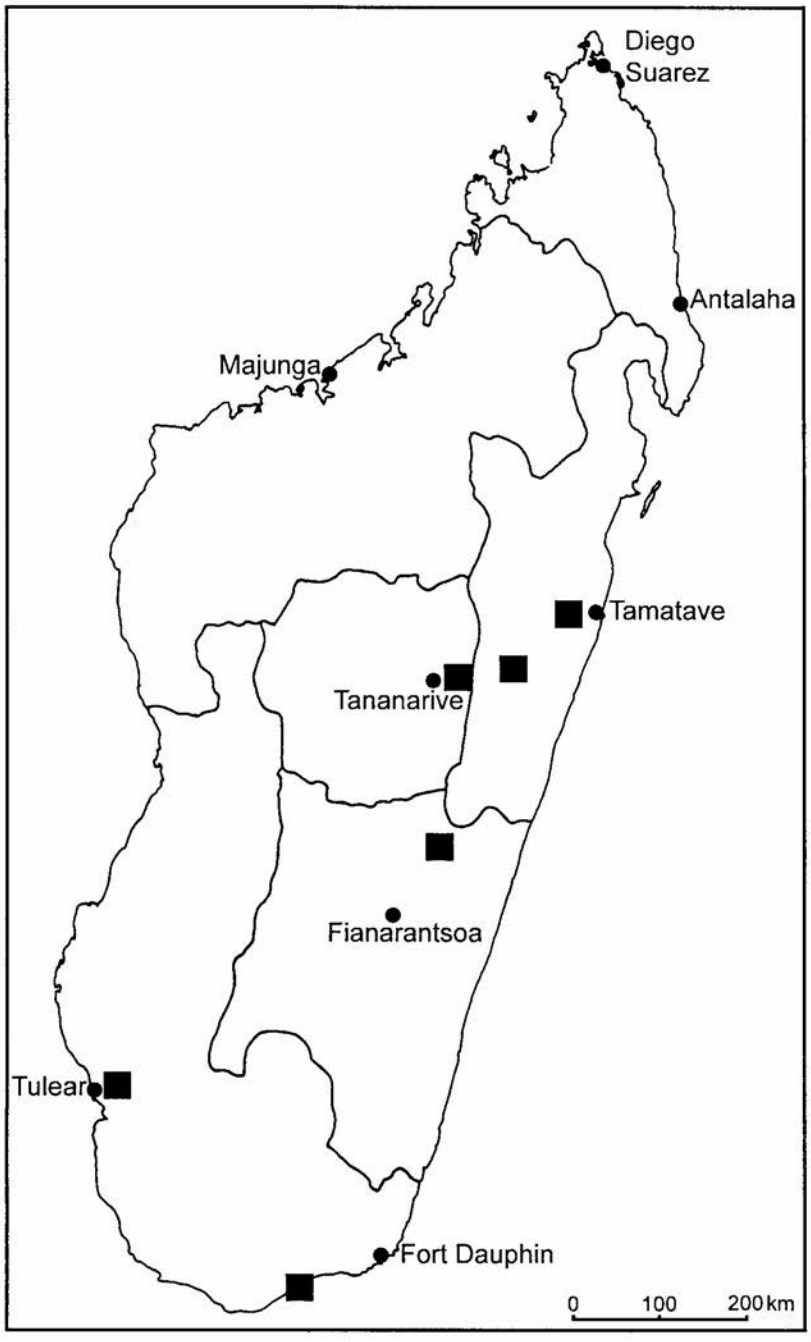


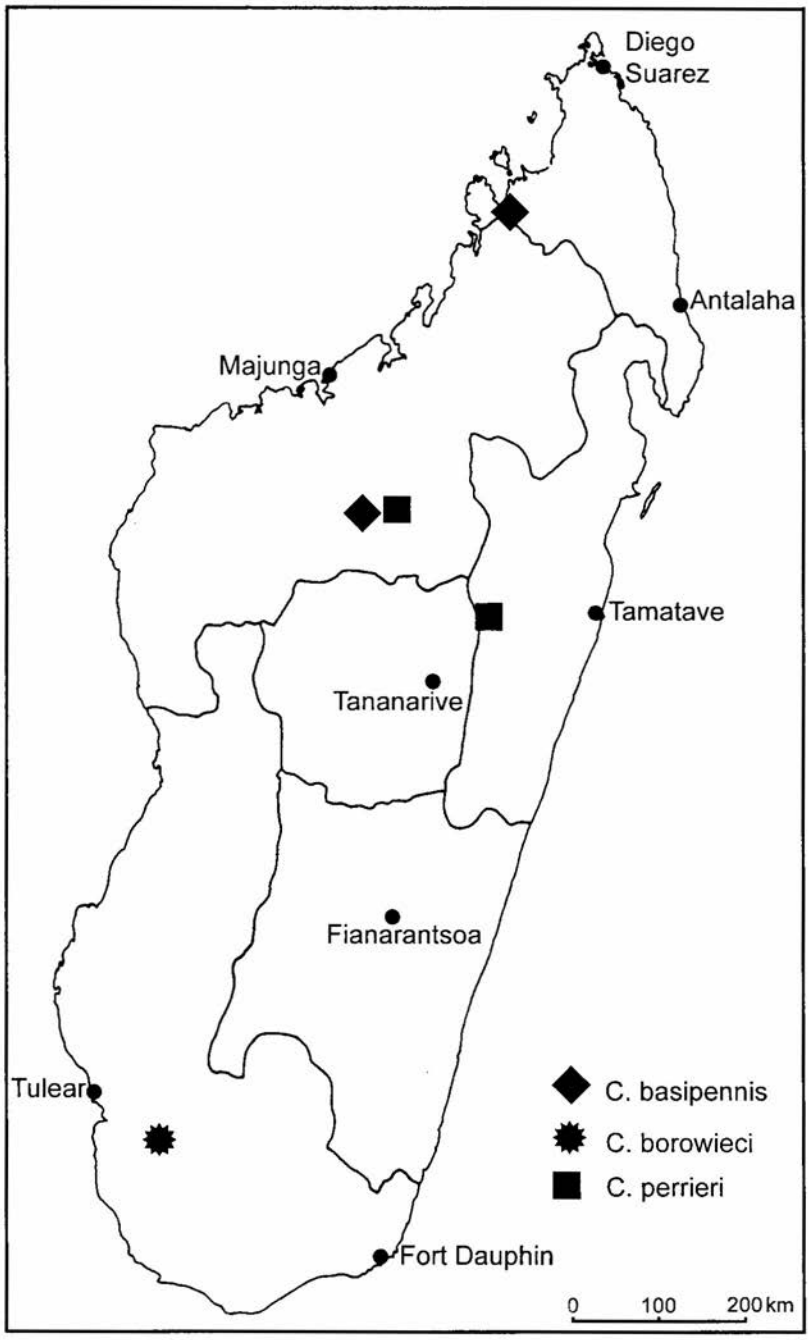
Plate 69. fig. 420–421: *Sphenocassis anosibensis* BOROW. – fig. 422, 423: *Sphenocassis imerina* (SP.). – fig. 424, 425: *Sphenocassis humerosa* (FAIRM.). – fig. 426, 427: *Sphenocassis impressipennis* BOROW. – fig. 428, 429: *Sphenocassis incisicollis* (SP.). – fig. 430, 431: *Sphenocassis praerupta* (SP.). – fig. 432, 433: *Sphenocassis punctatissima* (WEISE). – fig. 434: *Sphenocassis rotundella* BOROW.



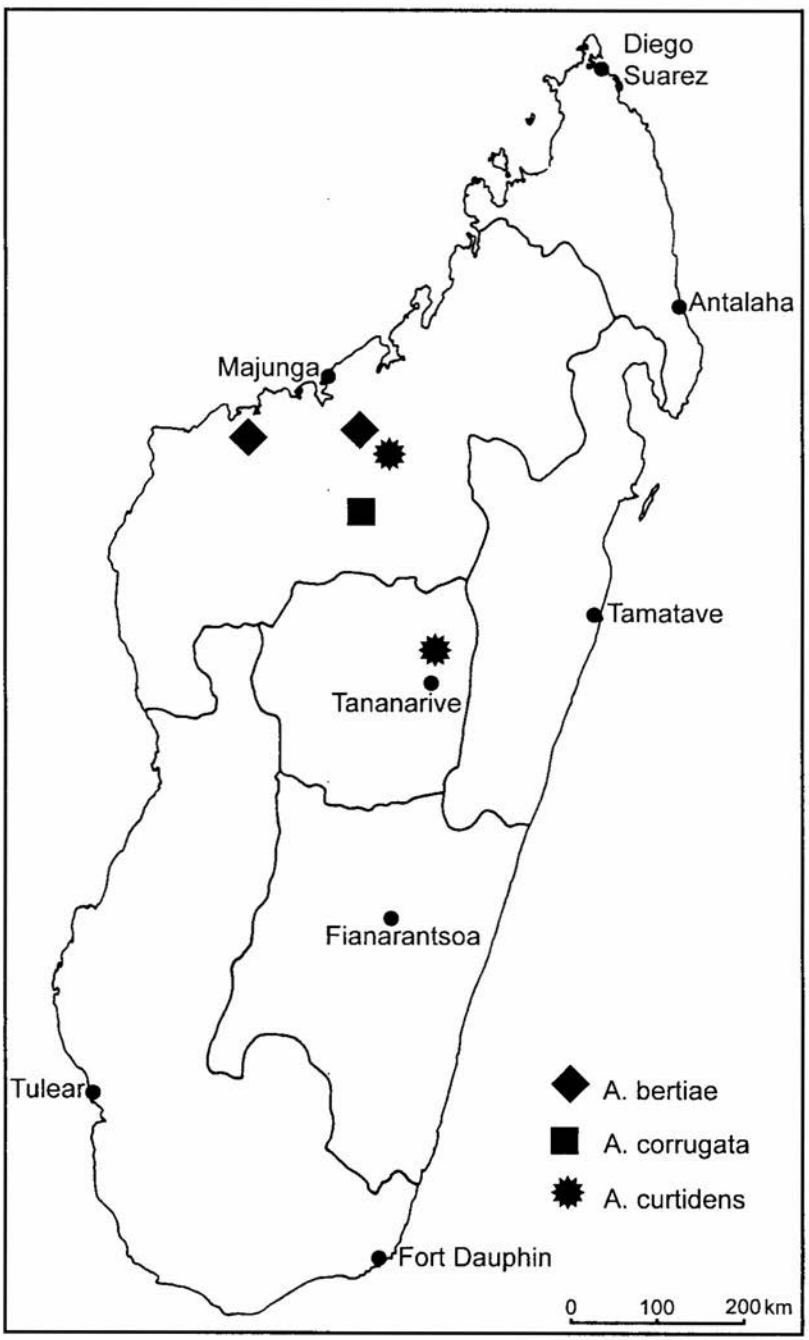
Map 1. Distribution of *Androya longula* (FAIRM.), *Androya tenuecostata* (FAIRM.) and *Androya obscuricollis* (FAIRM.)



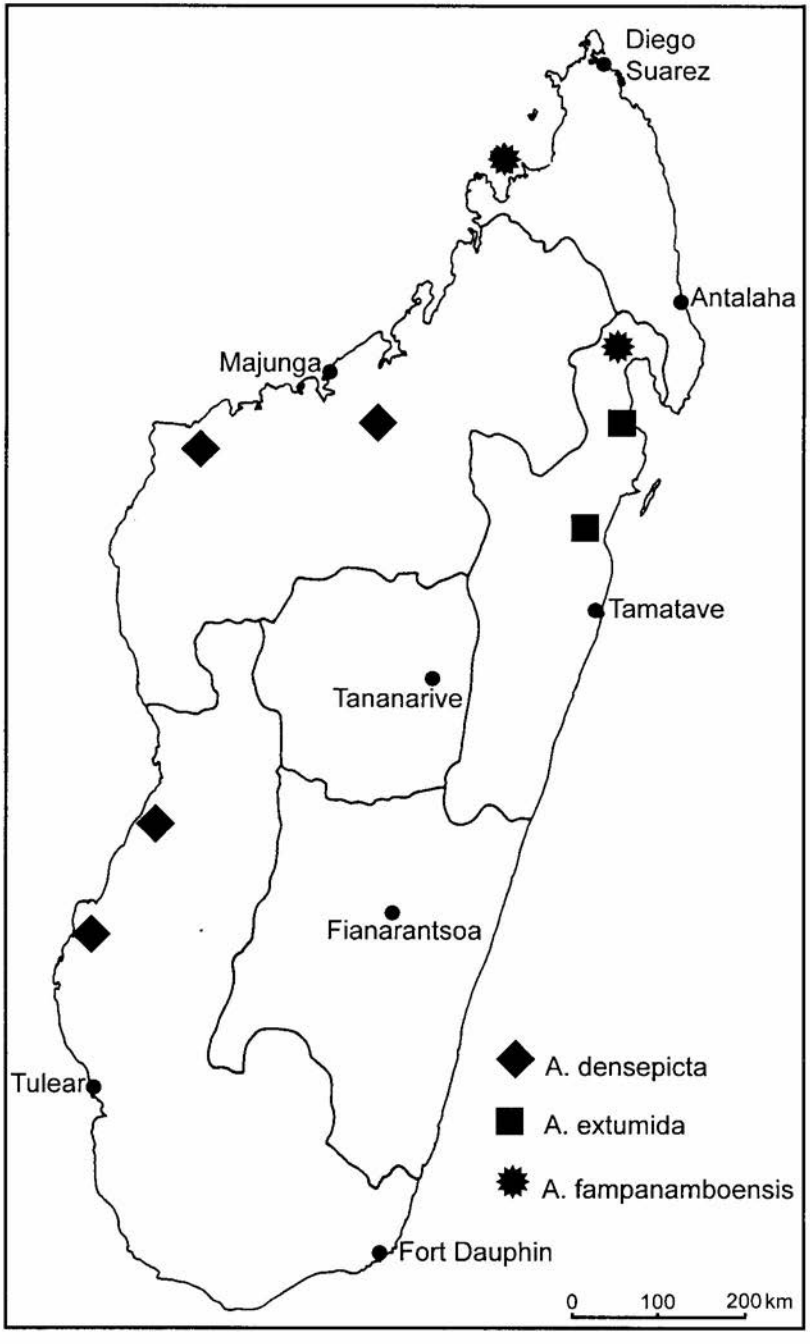
Map 2. Distribution of *Androya rubrocostata* (FAIRM.)



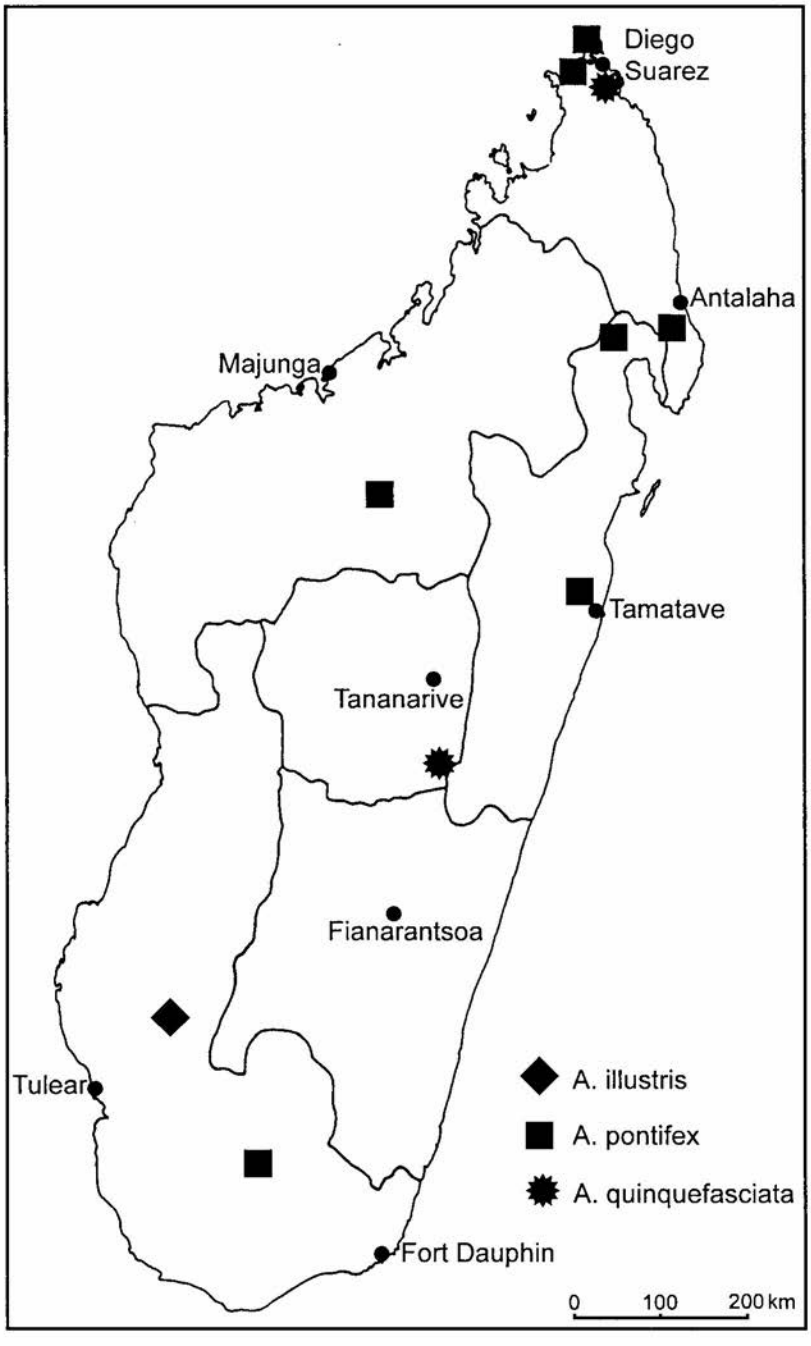
Map 3. Distribution of *Cassidopsis basipennis* FAIRM., *Cassidopsis borowieci* SEKERKA and *Cassidopsis perrieri* FAIRM.



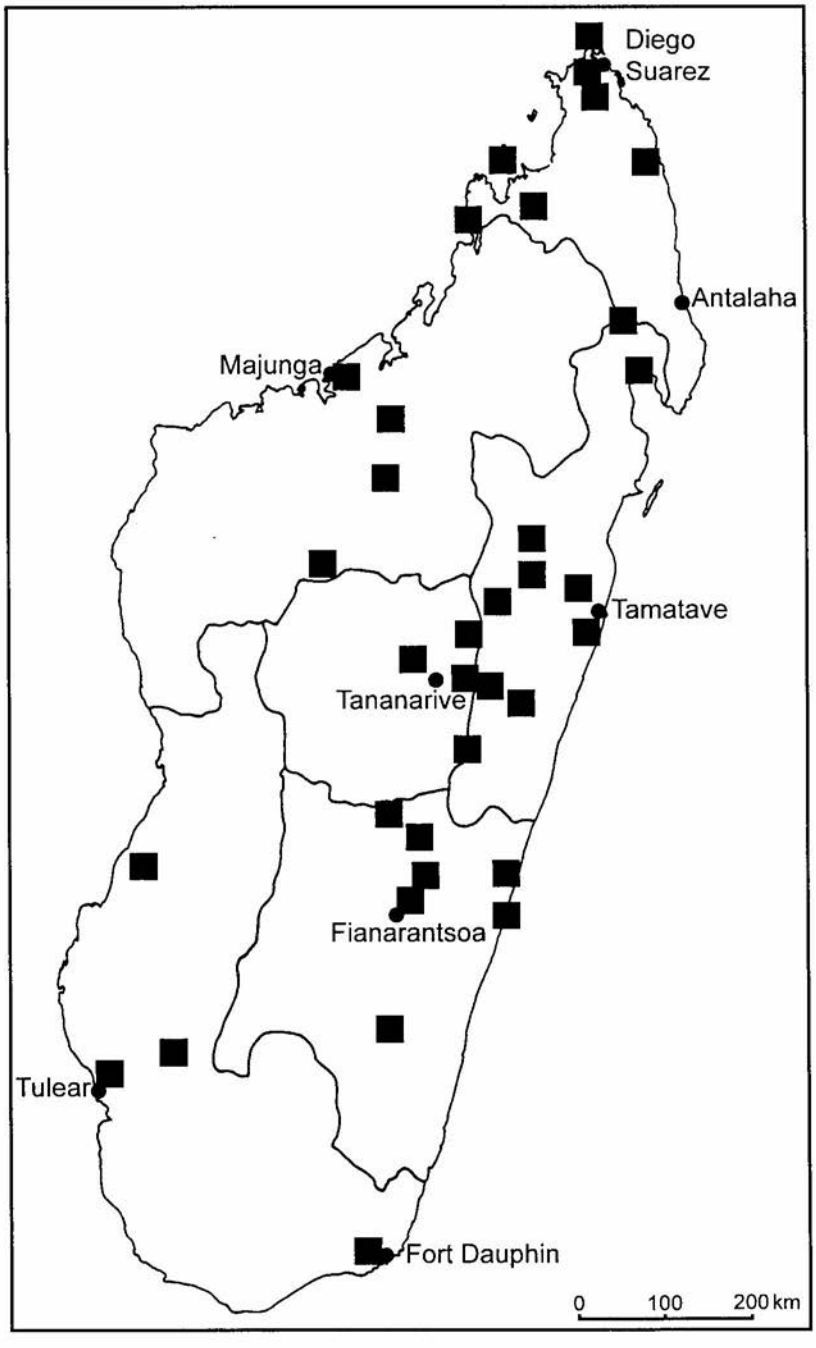
Map 4. Distribution of *Aspidimorpha bertiae* BOR., *Aspidimorpha corrugata* BOR. and *Aspidimorpha curtidens* HINCKS



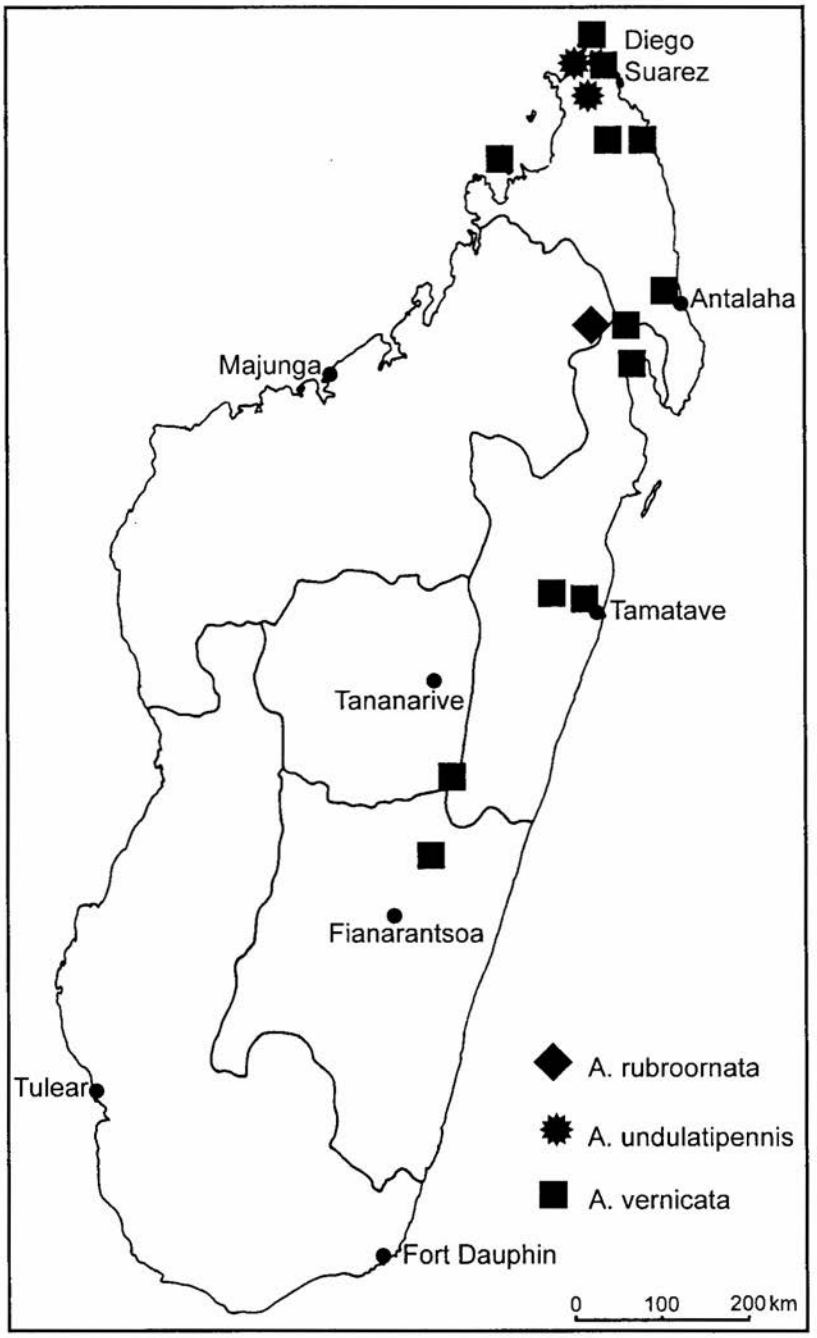
Map 5. Distribution of *Aspidimorpha densepicta* HINCKS, *Aspidimorpha extumida* SP. and *Aspidimorpha fampanamboensis* BOR.



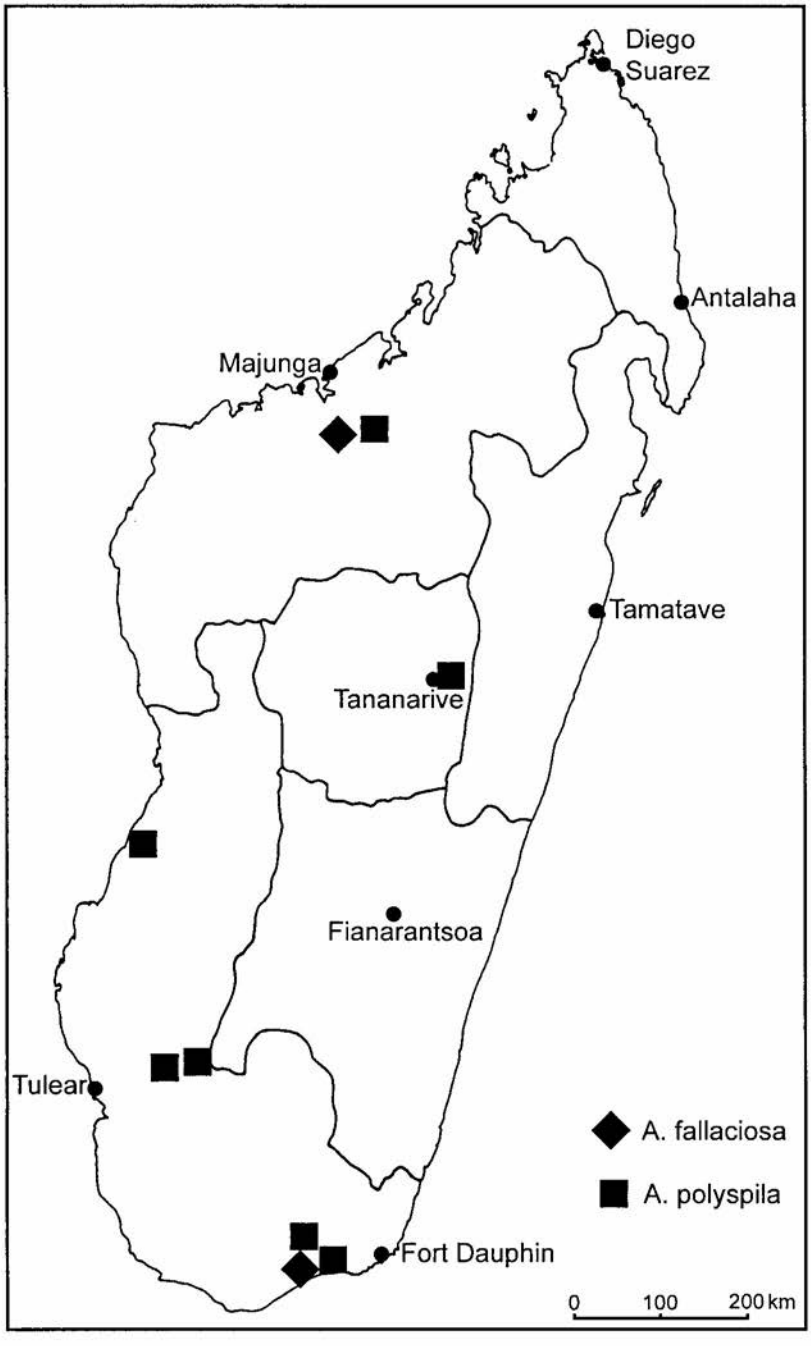
Map 6. Distribution of *Aspidimorpha illustris* HINCKS, *Aspidimorpha pontifex* BOH. and *Aspidimorpha quinquefasciata* (F.)



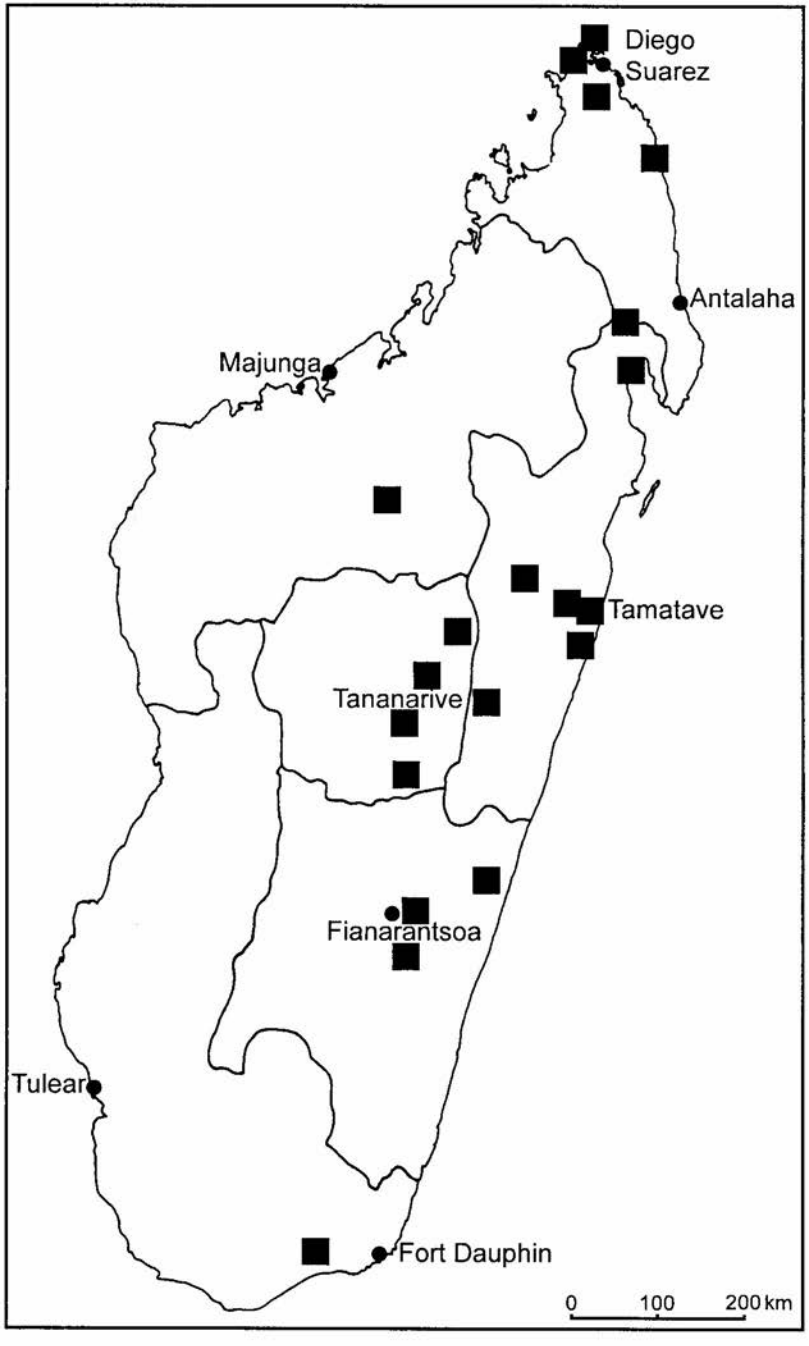
Map 7. Distribution of *Aspidimorpha madagascarica* Boh.



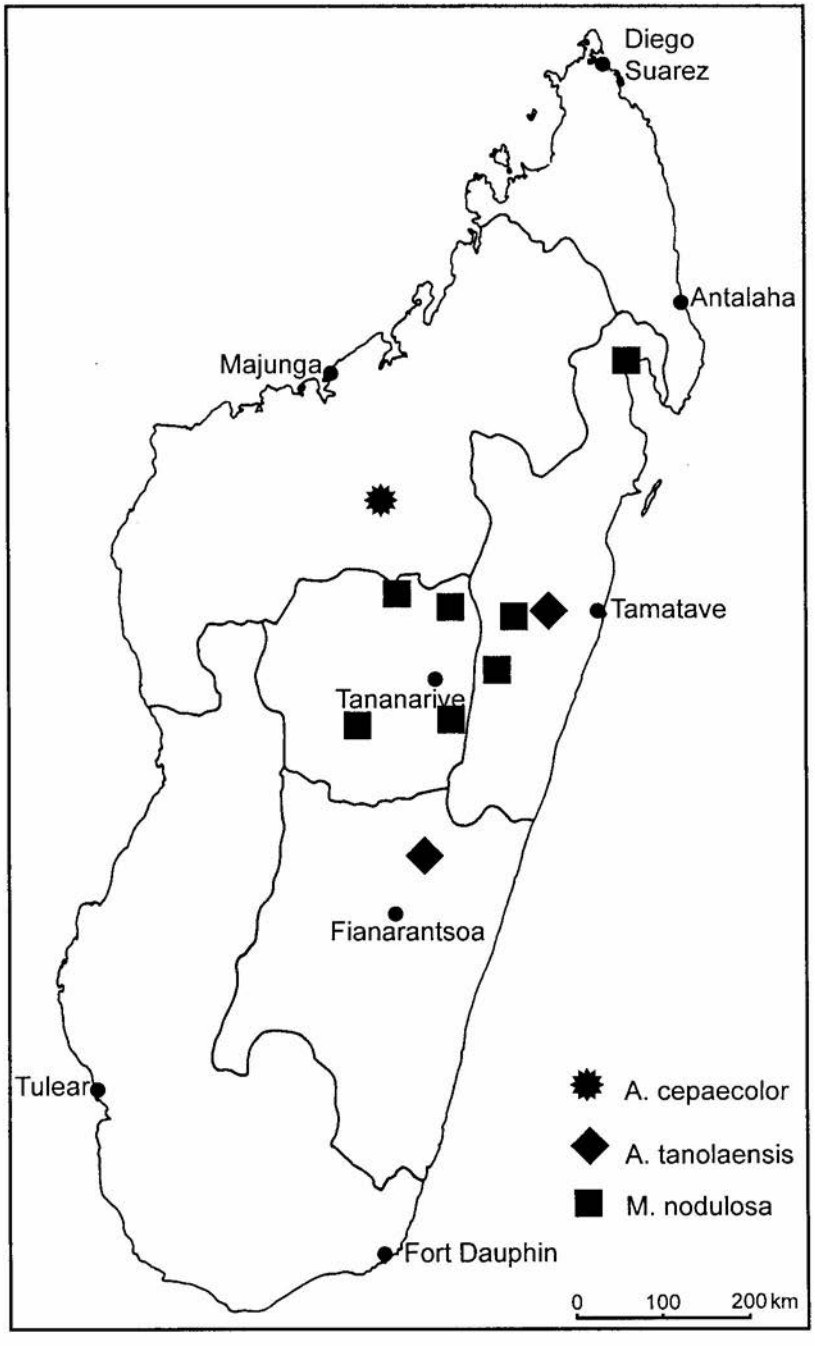
Map 8. Distribution of *Aspidimorpha rubroornata* BOR., *Aspidimorpha undulatipennis* SP. and *Aspidimorpha vernicata* FAIRM.



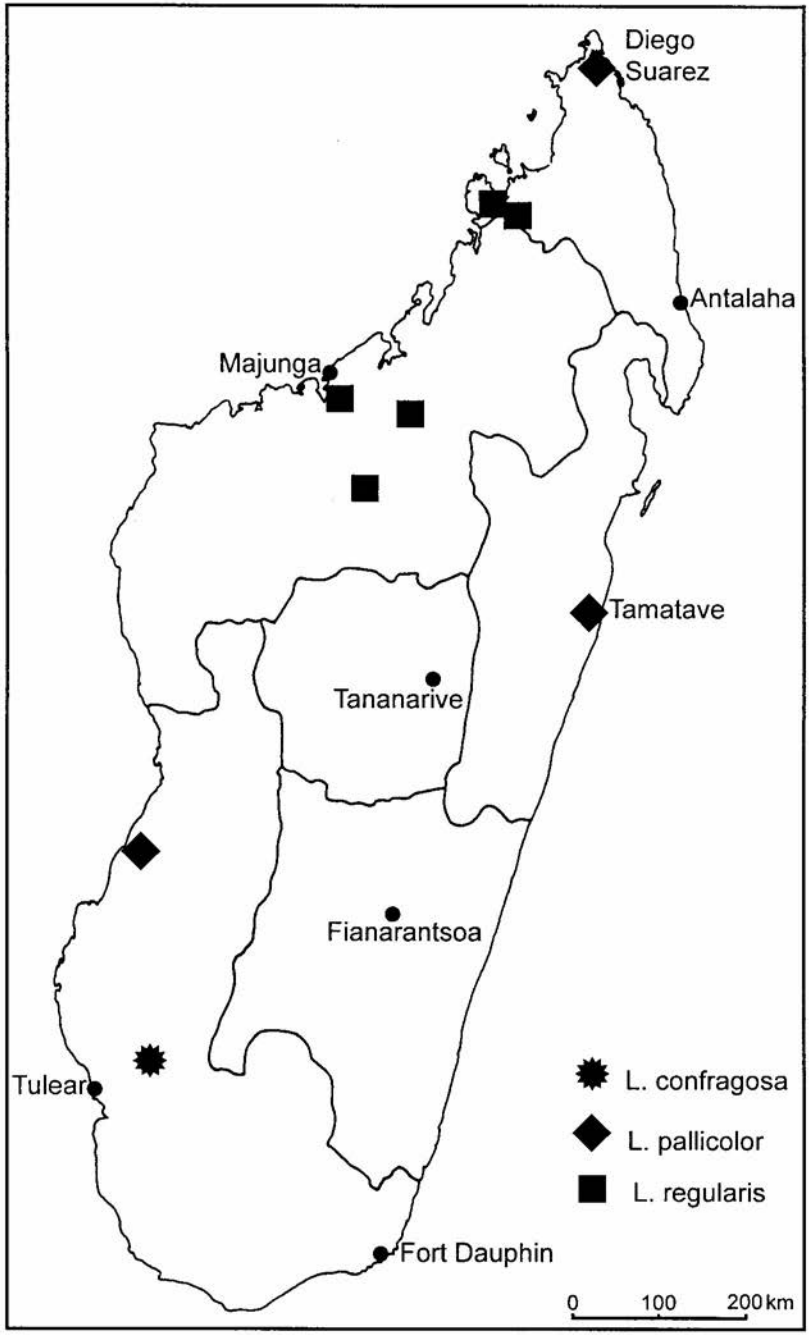
Map 9. Distribution of *Aspidimorpha fallaciosa* (FAIRM.), *Aspidimorpha polyspila* SP.



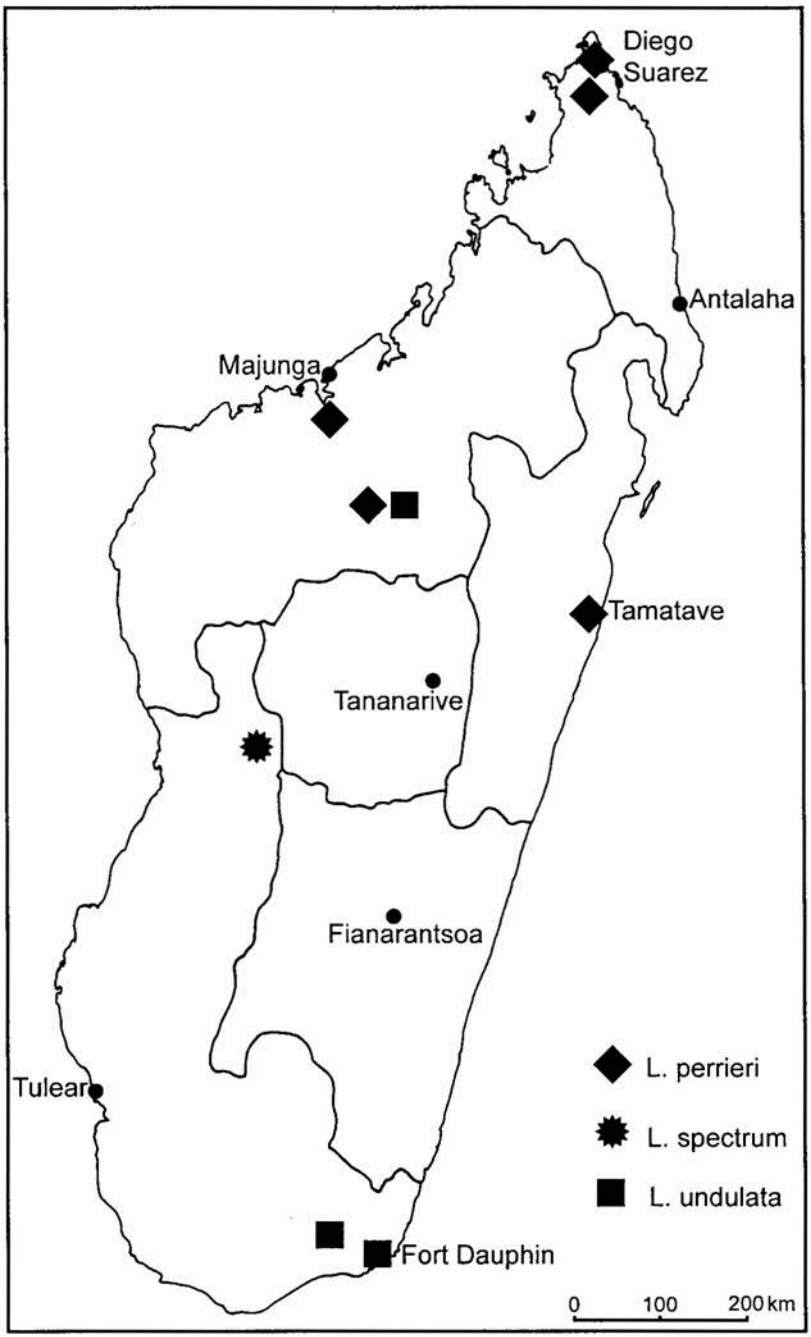
Map 10. Distribution of *Aspidimorpha apicalis* (KLUG)



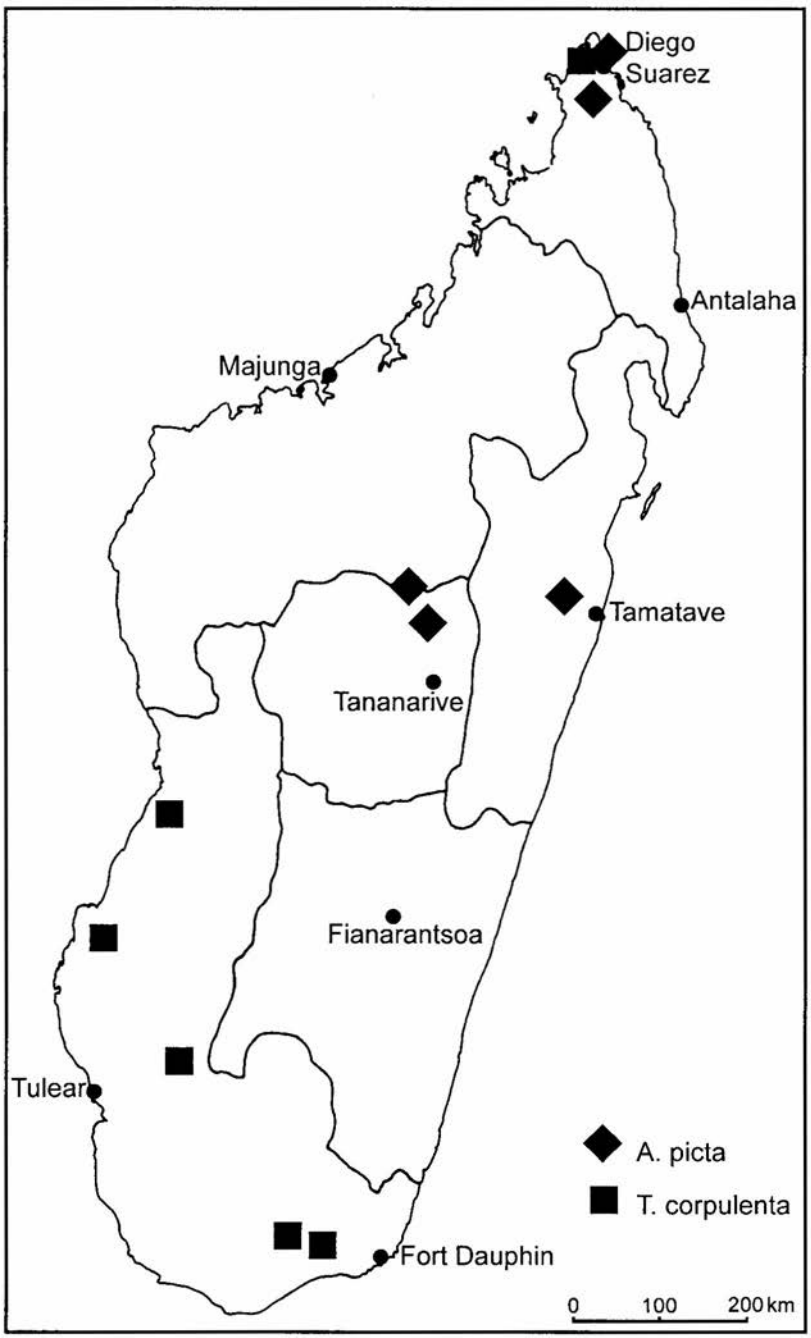
Map 11. Distribution of *Aspidimorpha cepaecolor* (FAIRM.)., *Aspidimorpha tanolaensis* BOR. and *Mahatsinia nodulosa* (WEISE)



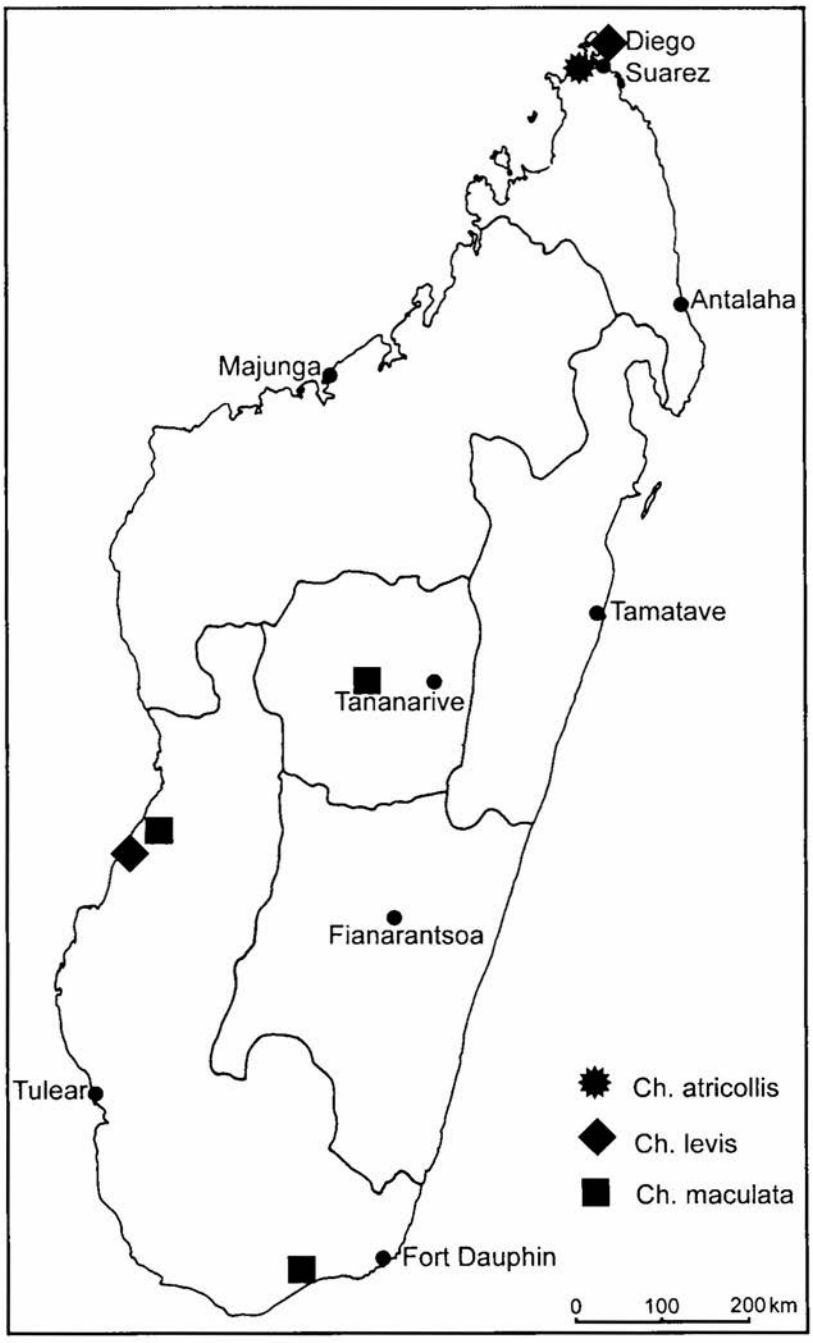
Map 12. Distribution of *Laccoptera confragosa* (WEISE), *Laccoptera pallicolor* (FAIRM.) and *Laccoptera regularis* FAIRM.



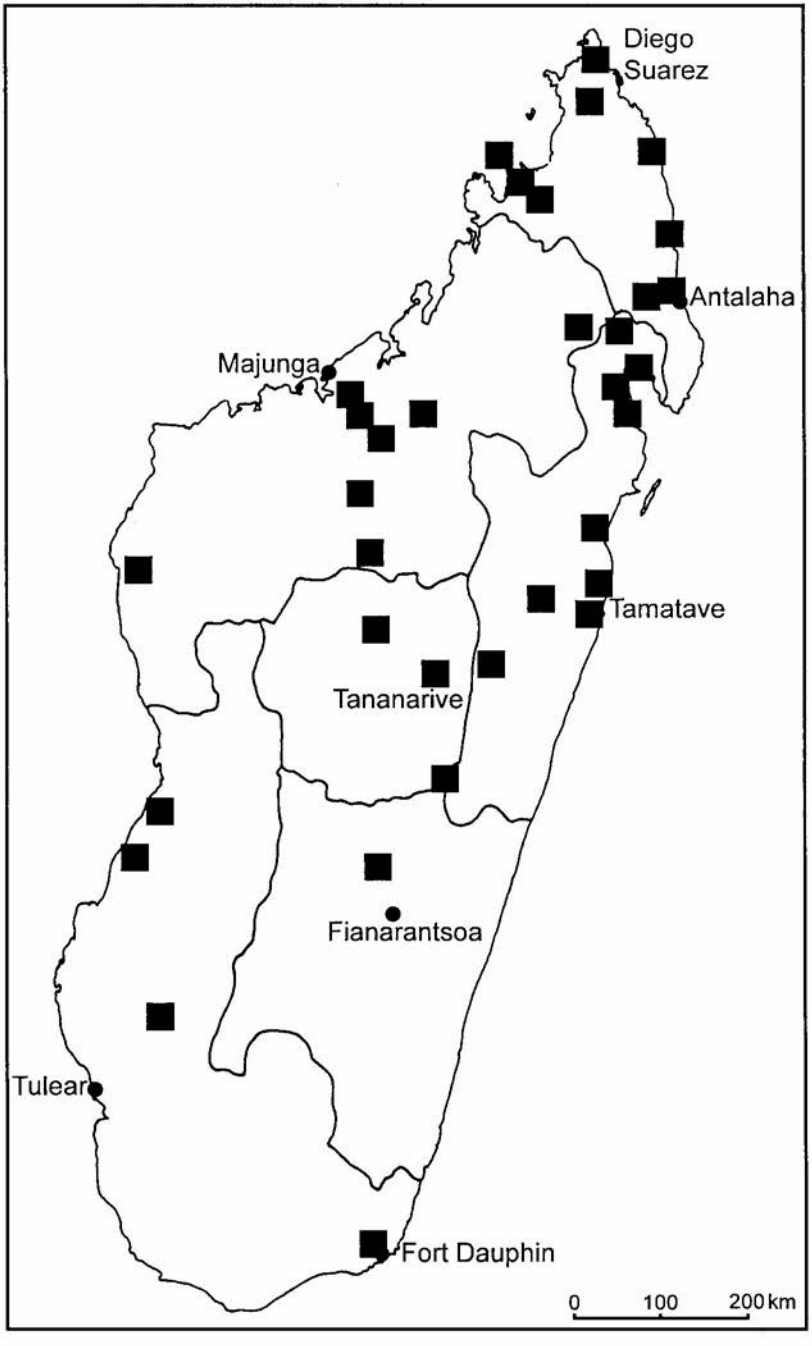
Map 13. Distribution of *Laccoptera perrieri* FAIRM., *Laccoptera spectrum* BOH. and *Laccoptera undulata* (SP.)



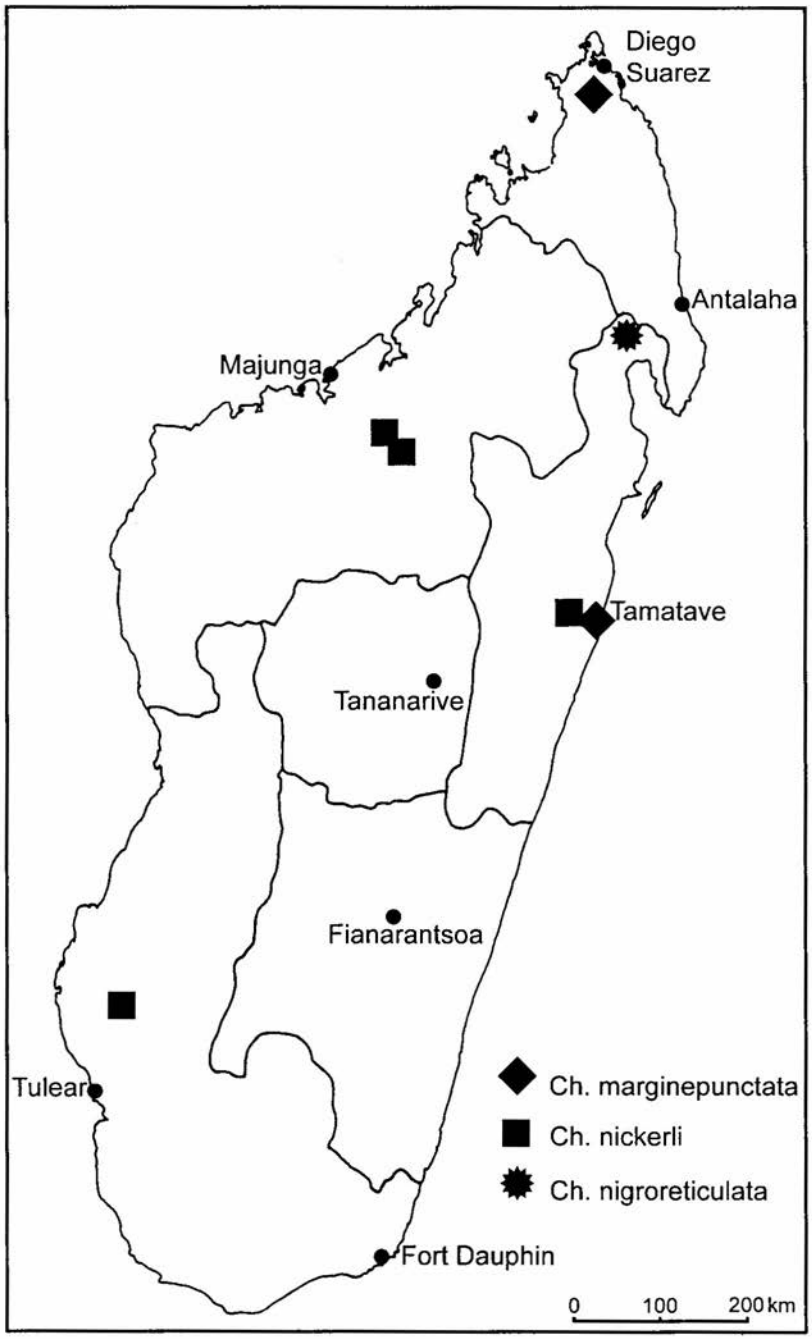
Map 14. Distribution of *Andevocassis picta* (Sp.), *Tegocassis corpulenta* (Weise).



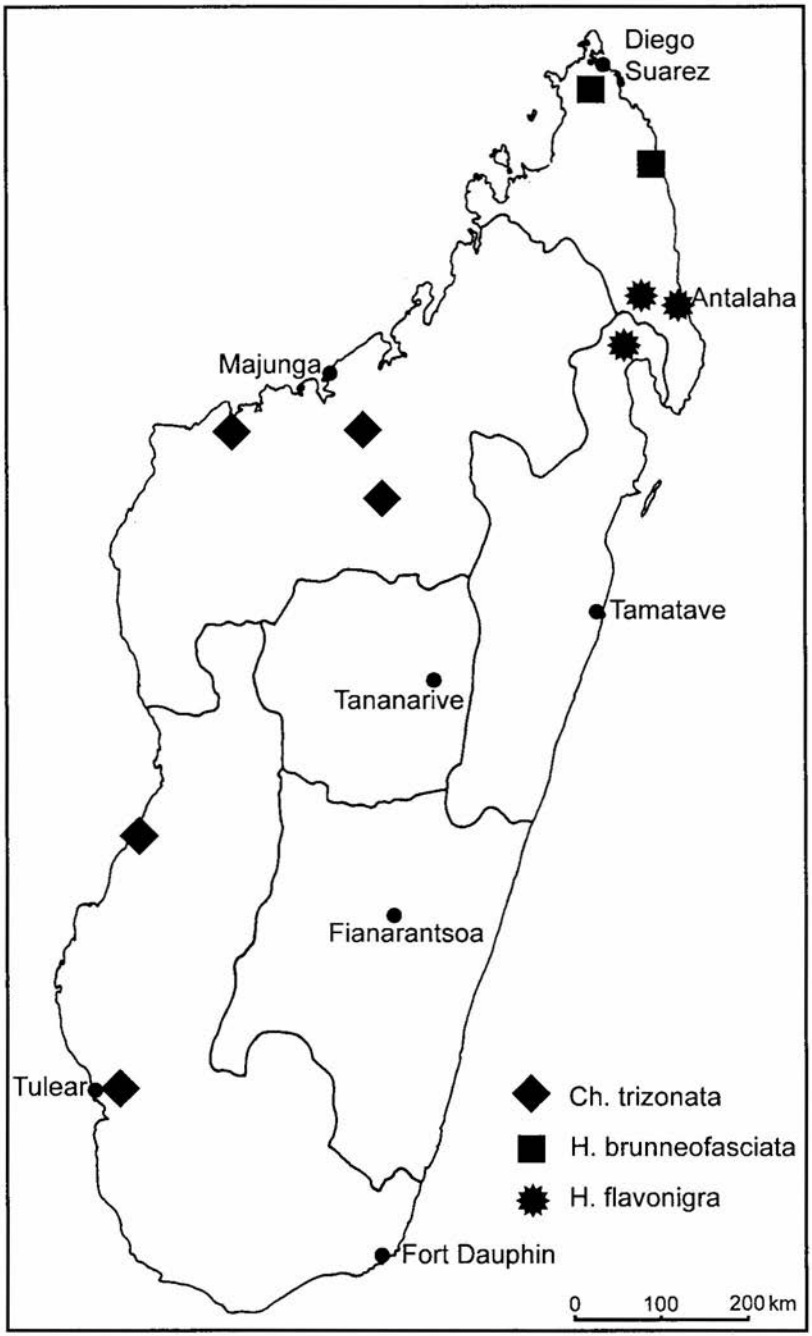
Map 15. Distribution of *Chiridopsis atricollis* Bor., *Chiridopsis levis* Bor. and *Chiridopsis maculata* Bor.



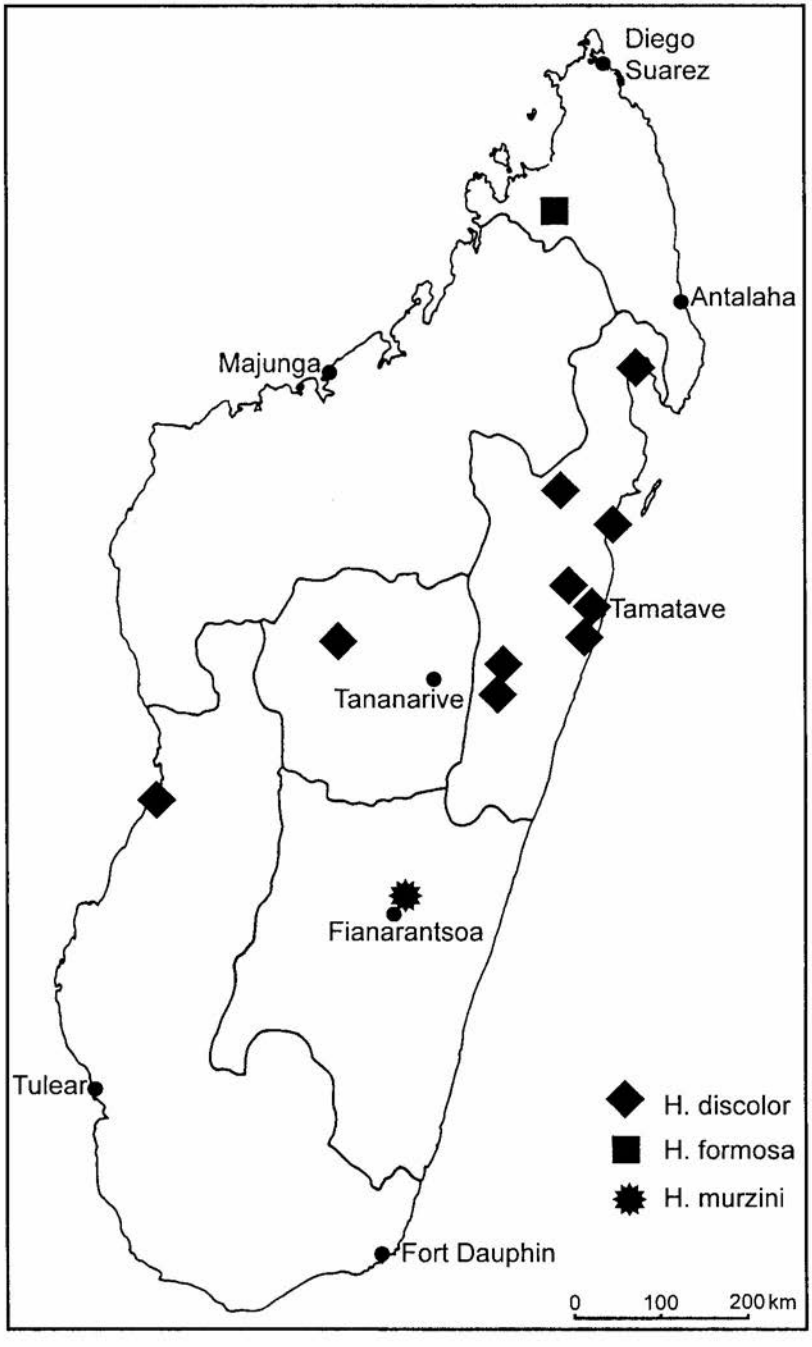
Map 16. Distribution of *Chiridopsis leopardina* (Boh.)



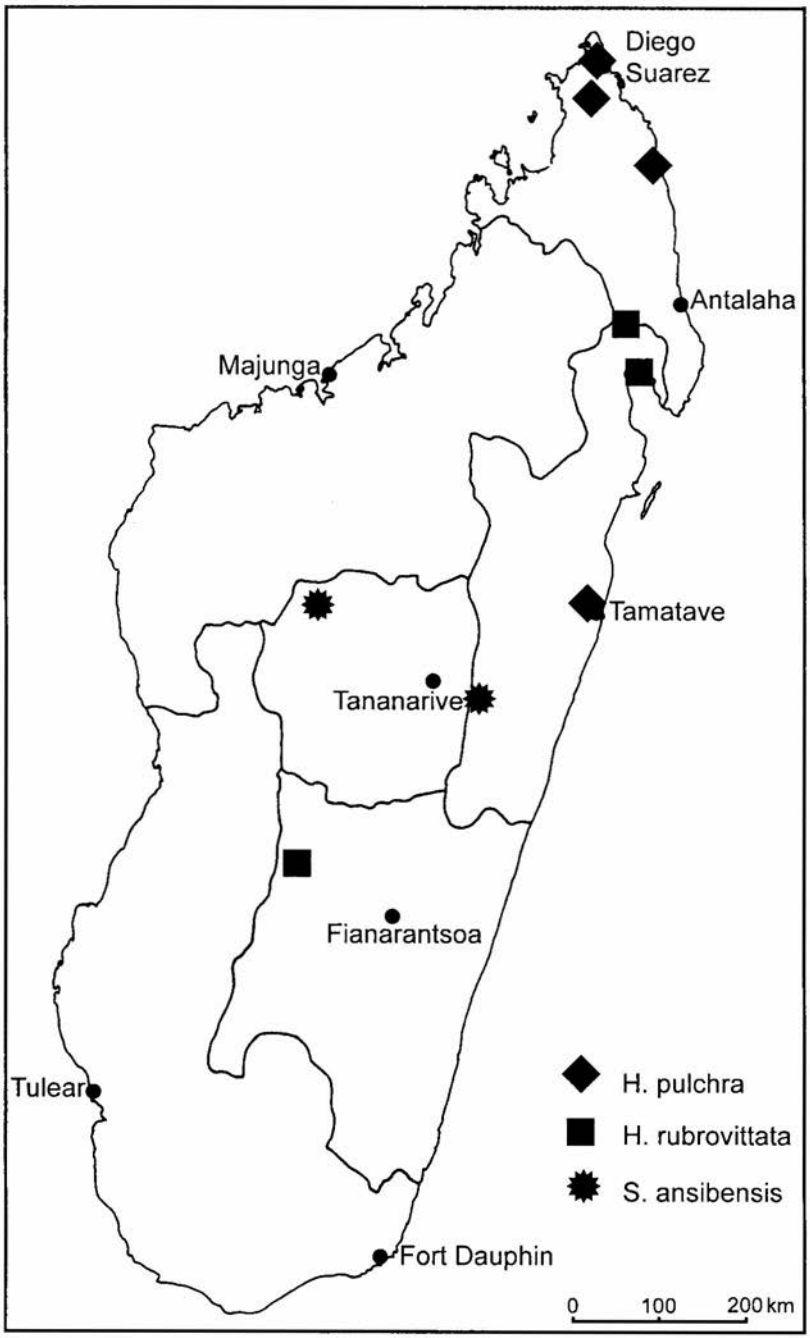
Map 17. Distribution of *Chiridopsis marginepunctata* Bor., *Chiridopsis nickerli* (Sp.) and *Chiridopsis nigroreticulata* Bor.



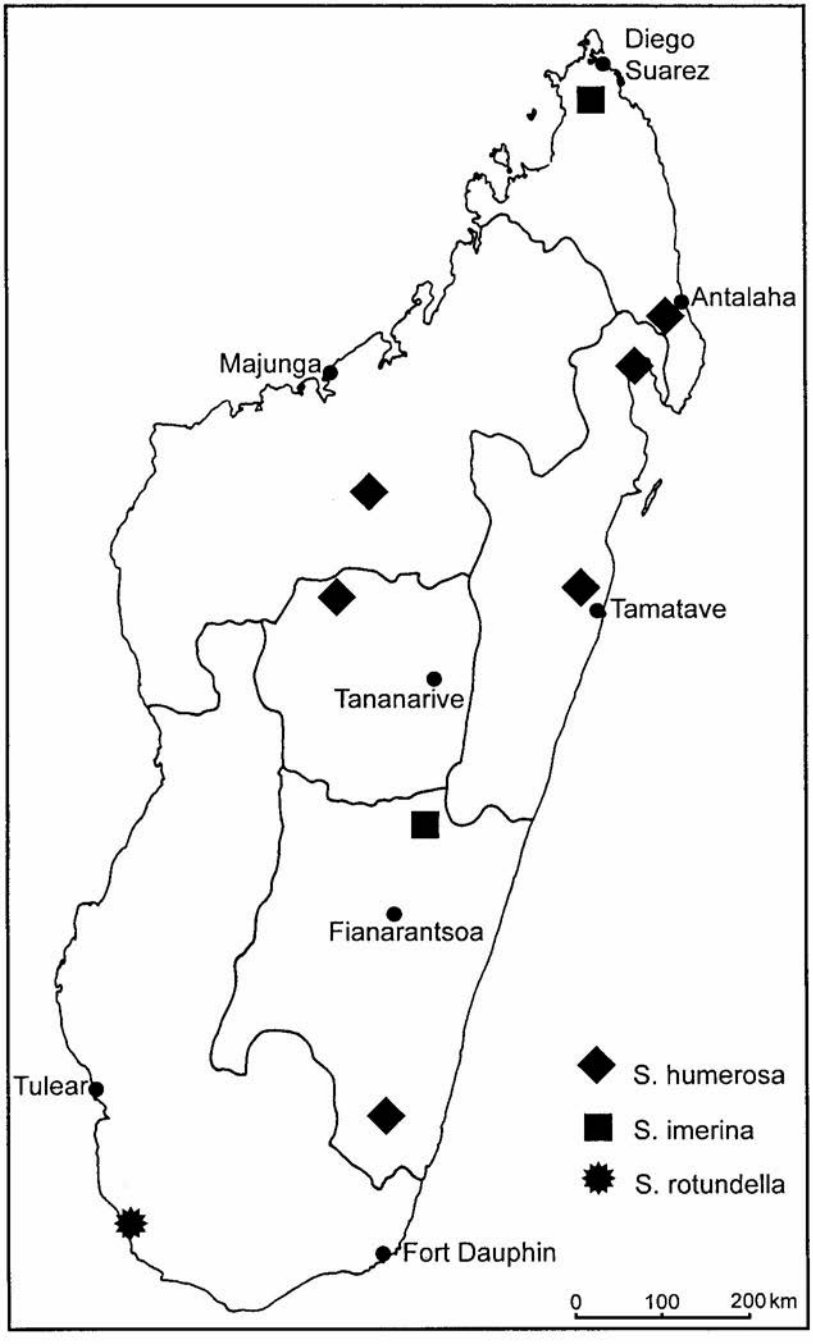
Map 18. Distribution of *Chiridopsis trizonata* (FAIRM.), *Hovacassis brunneofasciata* BOR. and *Hovacassis flavonigra* BOR.



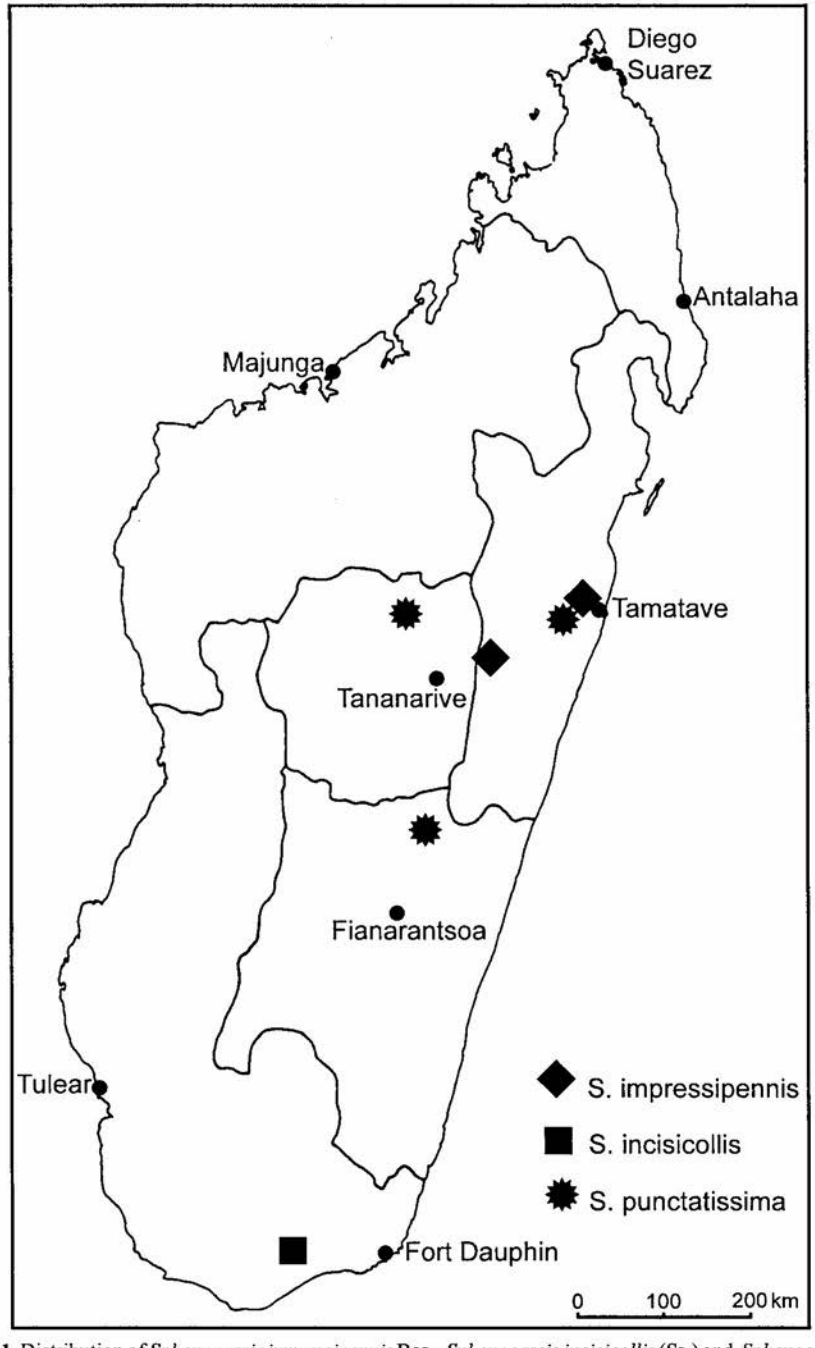
Map 19. Distribution of *Hovacassis discolor* (BOH.), *Hovacassis formosa* BOR. and *Hovacassis murzini* BOR.



Map 20. Distribution of *Hovacassis pulchra* (Sp.), *Hovacassis rubrovittata* Bor. and *Sphenocassis anosibensis* Bor.



Map 21. Distribution of *Sphenocassis humerosa* (FAIRM.), *Sphenocassis imerina* (SP.) and *Sphenocassis rotundella* BOR.



Map 21. Distribution of *Sphenocassis impressipennis* BOR., *Sphenocassis incisicollis* (SP.) and *Sphenocassis punctatissima* (WEISE)

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