

Taxonomic revision of the genus *Macrohaltica* Bechyné (Coleoptera: Chrysomelidae, Alticinae)

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SUMMARY

SANTISTEBAN J. 2006. *Taxonomic revision of the genus Macrohaltica Bechyné (Coleoptera: Chrysomelidae, Alticinae)*. Rev. perú. Entomol. 45.- The species of the Neotropical genus *Macrohaltica* Bechyné are taxonomically reviewed, based on a detailed study of adult external morphology and analysis of genital characters. *Macrohaltica* is redescribed and diagnostic characters are provided for all species included in the genus. A key to all extant species is provided. The following species are redescribed: *M. plicata* (Erichson), *M. aequifacta* Bechyné & Bechyné (new status), *M. complicata* (Harold), *M. convexicollis* (Harold), *M. costata* (Erichson), *M. gregaria* (Harold) (new combination), *M. lánguida* (Harold) (new combination), *M. patruelis* (Harold) (new combination), *M. transversa* (Germar), *M. weyrauchi* Bechyné (new combination), *M. salvadorensis* Bechyné (new status), and *M. jamaicensis* (Fabriciis). *Macrohaltica crypta* is described as new species. Information on host plant affiliation and geographic ranges is updated for each of the species.

Key words: Chrysomelidae, Coleoptera, *Macrohaltica*, Neotropics, new species, taxonomy.

RESUMEN

SANTISTEBAN J. 2006. *Revisión taxonómica del género Macrohaltica Bechyné (Coleoptera: Chrysomelidae, Alticinae)*. Rev. perú. Entomol. 45.- Las especies del género Neotropical *Macrohaltica* Bechyné son revisadas taxonómicamente, en base a un estudio detallado de la morfología externa del adulto y el análisis de los caracteres de la genitalia externa. *Macrohaltica* es redescrito y se proporciona caracteres diagnósticos para todas las especies incluidas en el género. Se presenta una clave para todas las especies. Las siguientes especies son redescritas: *M. plicata* (Erichson), *M. aequifacta* Bechyné & Bechyné (**estatus nuevo**), *M. complicata* (Harold), *M. convexicollis* (Harold), *M. costata* (Erichson), *M. gregaria* (Harold) (**combinación nueva**), *M. lánguida* (Harold) (**combinación nueva**), *M. patruelis* (Harold) (**combinación nueva**), *M. transversa* (Germar), *M. weyrauchi* Bechyné (**combinación nueva**), *M. salvadorensis* Bechyné (**estatus nuevo**), y *M. jamaicensis* (Fabricius). Se describe *Macrohaltica crypta*, **nueva especie**. Se actualiza la información sobre afiliación con plantas hospederas y se revisa los rangos geográficos de distribución conocida para cada una de las especies.

Palabras clave: Chrysomelidae, Coleoptera, especie nueva, *Macrohaltica*, neotrópico, taxonomía.

Introduction

Members of the genus *Macrohaltica* Bechyné, 1959 are rather large, bluish, usually metallic flea beetles distributed in Central and South America. BECHYNÉ (1959) erected the genus to include the "large" (body length >5 mm), Neotropical *Altica*-like species. He separated *Macrohaltica* from *Altica* based on two characters: the number of small setae present along the posterior margin of the elytra (from 40-100 for *Macrohaltica* but only 4-6 in *Altica* species); and the setation of the labrum, which for *Macrohaltica* he considered to be "primitive" and described as "setiferous punctures variable in number and not in a fixed position", whereas *Altica* always had a "fixed" number of symmetrically arranged setae: 6 (3:3) or 4 (2:2).

Known distribution for the genus ranges from México to northern Chile and Argentina. *Macrohaltica* species seem to prefer disturbed habitats and are typically found on herbaceous vegetation; a few species appear to be restricted to cloud mountain forests. Little is known on the biology and host plant relationships for most species in the genus. COTTON (1917) gave a brief account of the life history of *Macrohaltica jamaicensis*, with a short description of the immature stages. CALVERT (1917) wrote a natural history note on *Haltica amethystina* feeding on "morning-glory" in Costa Rica (*Ipomoea*); WOLCOTT (1936) provided host records for *jamaicensis* from Puerto Rico. For the majority of species, host records are scanty and plant associations from label data should be carefully revised. Records stating actual beetle activity (i.e. feeding, ovipositing, etc.) are few. Recorded host plants include *Muehlenbeckia* and *Polygonum* (Polygonaceae), *Sida* (Malvaceae), *Epilobium*, *jussiaea* (= *Ludwigia*), *Oenothera*, (Onagraceae), *Gunneria* (Gunneraceae), *Ipomoea*

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and *Convolvulus* (Convolvulaceae), and unidentified Melastomataceae, Onagraceae and Polygonaceae. Some species seem to display aggregation behavior (described as "lekking"), in which a large number of individuals will feed from the same plant and subsequently move to the next host in a concerted fashion. The mating behavior of a Central American species has been studied in detail by EBERHARD (1990).

Some species of *Macrohaltica* exhibit identification problems similar to those found on *Altica* (KONSTANTINOV 1987), such as great variability in size, punctuation patterns and color tones. From museum specimens it is apparent that a great range of individual size may be present within a local population. Names such as *jamaicensis* Fabricius and *amethystina* Olivier had been used for a long time, and due to the great variability of these species, there is great confusion about them.

Taxonomic History

BECHYNÉ (1956) used the name *Macrohaltica* for the first time for several new species such as *weyrauchi* and *plicata*. However, there was no diagnosis or description associated with this name. BECHYNÉ (1957a) used the name as "*Macrohaltica* Bechyné MS" with only a brief mention to the "primitive chaetotaxia of the labrum". Later, BECHYNÉ (1959) provided a generic description and selected *plicata* (Erichson) as the type species. BECHYNÉ & BECHYNÉ (1960) included in their key *Macrohaltica*, *Lysathia*, *Deuteraltica* and *Syphraea*. SCHERER (1963) in his key to genera of Neotropical Alticinae (English translation in SCHERER 1983) included *Macrohaltica*, *Lysathia*, *Deuteraltica* and *Conococha* under *Altica*. SEENO & WILCOX (1982) listed each of the previous names as a separate genus. For species names, FABRICIUS (1792) used the name *Galleruca jamaicensis* for a species from Jamaica. OLIVIER (1807) used *Altica amethystina* for a Caribbean species from Santo Domingo which BECHYNÉ (1958a) transferred to *Macrohaltica*. GERMAR (1824) described *Altica (Galeruca) transversa* from Argentina later transferred to *Macrohaltica* by BECHYNÉ (1957a,b). ERICHSON (1847) described *Graptodera costata* and *G. plicata* from Perú. BLANCHARD (1851) described a small species from Chile as *Galleruca janthina* which was transferred by BECHYNÉ (1957b) to *Macrohaltica*. HAROLD (1875a,b) described *Haltica gregaria* and *H. lánguida* from Colombia, *H. patruelis* from México, and *H. violácea* from Brazil. HAROLD (1876) described *Haltica complicata* from México. HAROLD (1880) described *Haltica convexicollis* from Argentina which BECHYNÉ (1956) transferred to *Macrohaltica*. JACOBY (1884) described *Haltica guatemalensis* and *H. mexicana* from México which were later transferred to

Macrohaltica by WILCOX (1977); LESAGE (1996) *redescribed guatemalensis* under the costete-group of *Altica* from the Nearctic Región. BECHYNÉ (1956) described *Macrohaltica weyrauchi* from Perú.

Material and methods

Observation and Study

Material was studied with the aid of a Wild 5M-C dissecting microscope and Leitz Dialux 20 compound microscope with differential interference illumination. Observation of pinned specimens was routinely made at magnifications from 12 to 100x. Drawings were made with the aid of a drawing tube. External genitalia for both males and females were routinely dissected and used as an aid for species identification. Specimens were first softened by soaking them for a few minutes in nearly boiling soapy water, thoroughly rinsed in distilled water and dissected. Male genitalia were extracted through an incision between the 5th and 6th abdominal tergites. Male genitalia were placed in 10 % KOH for 24 h, transferred to weak acetic acid solution and rinsed in distilled water. The infernal sac was everted by gently forcing distilled water through. This procedure provided reliable and repeatable means to study the internal sac. Genitalia were taken through a series of alcohol dilutions (30, 50, 75, 95 %), stained with an alcoholic solution of Clorazol Black-E, transferred to 50:50 95 % ethanol / glycerin mixture and temporarily mounted in glycerin for study. Female genitalia were extracted by detaching the apical portion of the abdomen (including spermatheca). The ovipositor was extended by gently pulling from the coxites through the distal opening. Dissected female genitalia were treated in the same way as male preparations. Specimens for whole body dissections were softened as described above, placed in cold 10 % KOH for 24 h, rinsed in acidic solution and dissected. When necessary specimens were partially bleached in a mixture of 15 % Hydrogen Peroxide / 10 % KOH. Mouthparts were extracted and dehydrated by successive changes of alcohols, cleared in Terpeneol and mounted in permanent slides using Canadá balsam and cellosolve. Cellosolve allowed for a much shorter drying time, in contrast with use of xylene. Hind wings were mounted flat on a microscope slide under a cover slide and allowed to air-dry (KUKALOVA-PECK & LAWRENCE 1993).

Taxonomic procedure

Terminology used for description of general morphology followed LAWRENCE & BRITTON (1991); for the metendosternite mainly CROWSON (1944)

and KONSTANTINOV & LOPATIN (1987); hind wings after SUZUKI (1994); metafemoral spring after FURTH (1988) after BARTH (1954); spermatheca after DÓBERL (1986) and SAMUELSON (1973); male genitalia after SAMUELSON (1973) and LESAGE (1995); and female genitalia after TANNER (1927) and TEOTIA (1958). General orientation terms followed DUPORTE (1962).

Measurements were made with the aid of an ocular micrometer; averages were obtained from original scores and then converted into metric units. Measurements of pinned specimens were made from eight males and eight females chosen from the same population, including average as well as small and large individuals. Measurements of aedeagus and spermatheca were made from all available dissections. Values given are averages with ranges in parentheses. (BL) *Overall body length*: measured from the most anterior part of the frons to the apex of the elytra. (BW) *Maximum body width*: measured at the broadest section of the elytra. (PL) *Pronotal length*: measured from the anterior-most to posterior-most margins of pronotum. (PW) *Pronotal maximum width*: taken as a straight line across the broadest part of pronotum before posterior pronotal angles. (EL) *Elytral length*: taken along a straight line from anterior margin to apex of elytra. (AL) *Aedeagal length*: sum of (ML) and (BP), see below. (ML) *Median lobe length*: taken as a straight line between the apex of median lobe and the division between median lobe and the basal piece, dorsally. (BP) *Basal piece length*: taken as a straight line between the division with median lobe and posterior apex of basal piece, dorsally. (SL) *Spermathecal length*: the sum of (RL) and (PL). This measure gives a better estimate of the actual spermathecal size. The measurement of the spermathecal length as the maximum distance between the apex of receptacle and the furthest coil of the distal spermathecal duct (LESAGE 1996) may be influenced by the variability in size and number of spirals found within species. (RL) *Spermathecal receptacle length*: taken as a straight line between junction of the receptacle with the distal spermathecal duct, and the apex of the receptacle. (PL) *Spermathecal pump length*: taken as a straight line between the apex of the receptacle and the tip of the pump.

Locality records for type material is presented *verbatim*, lines within a single label are separated by "/", separate labels are indicated by "///"; sequence of labels presented as found on the specimen; notes or comments on labels themselves are enclosed in square brackets. Locality records for additional material are presented by country, and within each country by States, provinces or localities in alphabetical order. SELANDER & VAURIE (1962) and BROWN (1979) were used for older locality names. PAPAYERO (1971) and URBAN

(1908, 1909) were used to check collector names and possible collecting localities.

Species delimitation. Material included in this revision was initially sorted on apparent external morphology. Within each one of these clusters specimens were additionally sorted according to geographic precedence (North to South). Genitalic preparations of males and females were made from selected specimens to help delimit species, and when external characteristics were ambiguous or color and punctuation forms were evident. Selection of specimens for genitalia dissections attempted to cover entire apparent range of the species. Morphologically similar species were diagnosed based on a combination of both genitalic and external characters.

Collections. Acronyms for collections used are those of ARNETT *et al.* (1993). The name of the curator/person contacted is given as well as collection address. AMNH: American Museum of Natural History, Department of Entomology, Central Park West at 79th Street, New York, NY 10024-5192, USA (L.H. Hermán Jr.). ANSP: Academy of Natural Sciences of Philadelphia, Department of Entomology, 19th and the Parkway, Philadelphia, PA 19103, USA (D. Azuma). BMNH: Natural History Museum, Department of Entomology, Cromwell Road, London SW7 5BD, ENGLAND (S.L. Shute). CMEC: Canadian Museum of Nature, Entomology - Collections División, P.O. Box 3443, Station "D", Ottawa, Ontario, K1P 6P4 CANADÁ (R. Anderson). CSUC: Colorado State University, Department of Entomology, Fort Collins, Colorado 80523, USA (B.C. Kondratieff). CUIC: Cornell University, Department of Entomology, Insect Collection, Comstock Hall, Ithaca, NY 14853, USA (R.H. Hoebeke). EELM: Estación Experimental Agrícola de La Molina, Lima, PERÚ. FMNH: Field Museum of Natural History, Department of Entomology, Chicago, Illinois 60605, USA (A.F. Newton). ICCM: The Carnegie Museum of Natural History, Section of Invertebrate Zoology, 4400 Forbes Avenue, Pittsburgh, PA 15213-4080, USA (R.L. Davidson). IMLA: Fundación Miguel Lillo, Instituto de Zoología, Miguel Lillo 251, 4000 San Miguel de Tucumán, ARGENTINA (A. Terán). INHS: Illinois Natural History Survey, Center for Biodiversity, 607 East Pabody Drive, Champaign, IL 61820, USA (K.C. McGiffen). LSUC: Louisiana State University, Department of Entomology, Baton Rouge, Louisiana 70803, USA (V.L. Moseley). MACN: Museo Argentino de Ciencias Naturales "Bernardino Rivadavia", División Entomología, Av. Ángel Gallardo 470, Casilla de Correo 220, Sucursal 5, 1405 Buenos Aires, ARGENTINA (A.O. Bachmann). MCPM: Milwaukee Public Museum, Invertebrate Zoology, 800 West Wells, Milwaukee WI 53233, USA (G.R. Noonan). MCSN: Museo Cívico di

Storia Naturale "G. Doria", Via Brigatta, Liguria, 9, 16121 Genova, ITALY. MCZ: Harvard University, Museum of Comparative Zoology, Cambridge, Massachusetts 02138, USA (D.G. Furth). MIZT: Università di Torino, Dipartimento di Biologia Animale, Museo di Zoologia, Via Accademia Albertina, 17, 10123 Torino, ITALY. MJPL: Universidad Nacional Mayor de San Marcos, Museo de Historia Natural, Departamento de Entomología, Apartado Postal 14-0434, Lima-14, PERÚ (I. Bohórquez). MNHN: Museum National d'Histoire Naturelle, Laboratoire d'Entomologie, 45 bis, Rué de Buffon, Paris, FRANCE (N. Berti). MZSP: Museu de Zoologia, Universidade de Sao Paulo, Caixa Postal 7172, Sao Paulo, BRASIL (C. Costa). NCSU: North Carolina State University, Department of Entomology, Box 7613, Raleigh, NC 27695-7613, USA (R.L. Blinn). NHMW: Naturhistorisches Museum Wien, Zweite Zoologische Abteilung - Insekten, Burgring 7, A-1014 Wien, AUSTRIA (H. Schömann). OSUC: The Ohio State University, Department of Zoology and Entomology, Columbus, Ohio, 43210, USA (CA. Triplehorn). SEMC: University of Kansas, Snow Entomological Museum, Lawrence, Kansas 66045, USA (R. Brooks). TAMU: Texas A & M University, Department of Entomology, Insect Collection, College Station, TX 77843, USA (E.G. Riley). UAST: Universidad Nacional Agraria "La Molina", Departamento de Entomología, Museo, Lima, PERÚ (C. Vergara). UCVM: Universidad Central de Venezuela, Facultad de Agronomía, Museo del Instituto de Zoología Agrícola, Apartado 4579, Código Postal 2101-A, Maracay, VENEZUELA (F. Cerda & V. Savini). UNAM: Universidad Nacional Autónoma de México, Instituto de Biología, Departamento de Zoología, Apartado Postal No. 70-153, México 20, D.F., MÉXICO (S. Santiago). UNT: Universidad Nacional de Trujillo, Departamento de Biología, Cátedra de Entomología, Trujillo, La Libertad, PERÚ. USNM: National Museum of Natural History, Smithsonian Institution, Washington, DC 20560, USA (R.E. White, D.G. Furth). ZMHB: Museum für Naturkunde der Humboldt-Universität zu Berlin, Invalidenstrasse 43, DDR 1040, Berlin, GERMANY (F. Hieke). ZMUC: Zoologisk Museum, Kobenhavns Universitet, Universitetsparken 15, DK 2100 København 0, DENMARK (O. Martin). ZSMC: Zoologische Staatssammlung, Münchhausenstrasse 21, D-8000, München 60, GERMANY (G. Scherer).

Taxonomic Treatment

Macrohaltica Bechyné, 1959
Macrohaltica BECHYNÉ, 1956: 965-1071. **Nomen nudum** (no generic description).
Macrohaltica BECHYNÉ, 1957a: 61. **Nomen nudum**

(no generic description).

Macrohaltica BECHYNÉ, 1959:305 (n. gen.); BECHYNÉ & BECHYNÉ, 1960: 52; SEENO & WILCOX, 1982:134 (cat.) SCHERER, 1983: 49.

Altica (*Macrohaltica*), HATCH, 1971:217 (n. comb.). *Megaltica* HATCH, 1971: 582 (subgenus of *Altica*, typographical error). SEENO & WILCOX, 1982:134 (n. syn.); LESAGE, 1991:317 (syn.).

Type Species: *Macrohaltica plicata* Erichson, by original designation (BECHYNÉ 1959).

Diagnosis

Macrohaltica species may be differentiated from species of Neotropical *Altica*, by their larger size, the number of setae in the labrum always more than six, the tibia usually profoundly excavate, the aedeagus more or less straight and without strong grooves on the ventral side, the presence of a large sclerite and a middle sclerite in the infernal sac in the male, and by the baculi in the coxites which almost never reach sclerotized portions. From other superficially similar genera (e.g. *Lactina*, etc.) by the antebasal sulcus not ending in longitudinal folds but depressions, and the elytra being glabrous.

Generic Description

Body oblong, somewhat elongate, more or less parallel-sided or somewhat broadened posteriorly, particularly in females (fig. 1). Dorsal surface seemingly glabrous (but see LESAGE 1996); ventral surface densely pubescent, pubescence short and semi-erect. Color predominantly blue, some species bluish-green, coppery, violet or purple; mostly metallic but a few dull colored due to sculpturing of body surface. Coloration may be diagnostic or variable.

Head (fig. 2) with vertex glabrous, posterior aspect of frons delimited by more or less depressed area; a pair of larger supra-orbital punctures are always conspicuous and positioned in between posterior margin of calli and orbit. Punctuation irregular and usually restricted to areas behind frontal calli and between frontal calli and eye orbit. Although the size and position of individual punctures is variable within a given species (except for supra-orbital above), the overall appearance of this area helps to distinguish between several species. Frontal calli conspicuous and variable in size and shape. Antennal insertions separated by width of frontal carina. Frontal (longitudinal) carina somewhat prominent and usually narrowed anteriorly, with small setae on each side and reaching transverse carina. Transverse carina distinct to somewhat flattened at middle. Clypeus semi-membranous, transverse and narrowed. Labrum (fig. 4) subquadrate, with anterior margin slightly emarginate; dorsal

aspect with several large labral setae which number and position are variable as described by BECHYNÉ (1959), but always more than six and not symmetrically arranged. A row of very short, thickened labral bristles on antero-ventral margins and usually two pairs of very small middle setae located anteriorly; tormae (tormal epipharyngeal processes) long and projecting posteriorly. Genae with numerous irregular setiferous punctures, setae longer towards back of head; guiar sutures separate and short, gula glabrous, sometimes with faint transverse grooves. Orbit of eye distinct and broadest between frontal calli and eye, reduced towards posterior and inferior eye margins. Eyes oblong with inner margin straight or feebly sinuous. Ommatidia small. Eyes rather small, sometimes projecting or somewhat enlarged. Antennae (fig. 3) filiform, densely pubescent and usually half the body length. First antennomere enlarged and thickened; second small and triangular; third only a little longer than second to more than twice as long; fourth slightly longer than third; fifth to seventh almost of same size and shape and shortly pedunculate; eighth to tenth slightly shortened and more cylindrical; eleventh with distal end pointed. Relative proportions of second and third antennomeres indicated in descriptions. From third to eleventh all antennomeres with subapical ring of sensory setae, last antennomere has an additional ring at apex. Mandibles stout with base triangular, protheca with a fringe of numerous short hairs; and four mandibular teeth. Maxillae (fig. 5) of generalized form and very similar in most species, last palpomere very small and triangular. Labium (fig. 6) with mentum transverse, narrowed and with several setae on anterior margin; premental sclerite fused with palpigers, with long setae at base and a number of sensilla along the midline. Ligula membranous with additional two to four pairs of ligular setae, labial palpi with last palpomere very short and triangular.

Thorax with pronotum (figs. 7-8) at base narrower than elytra, broader than long, a little wider posteriorly, smooth or rugose, sometimes microsculptured, anterior pronotal angles strongly produced, anterior pronotal setae placed subapically, posterior pronotal angles reduced with posterior pronotal setae apical. The position of the anterior pronotal setae is characteristic and is given in the descriptions as 1x or 2x, indicating how many times the puncture diameter the setae is placed from the apex of the anterior pronotal angle. Margins of pronotum narrowed, evenly rounded from above; usually a pair of circular fovea on each side of pronotal disc, antebasal sulcus (fig. 8) conspicuously ending on depressed areas before reaching lateral margins. Pronotum confusedly

punctate, punctures very small to mid-sized, usually larger and denser posterior of antebasal sulcus; a number of large pores on each side of pronotum visible on cleared specimens; number and individual position variable. Hypomeron glabrous and finely punctate, with shallow depression along posterior margin. Prosternum narrow and transverse, pubescent; prosternal process more or less narrow, slightly broadened posteriorly, pubescent and usually extending beyond posterior margin of front coxae; anterior coxal cavities open behind. Scutellum triangular (fig. 16), microsculptured; mesepisternum triangular, finely pubescent; mesepimeron closing external margin of middle coxal cavities, finely pubescent. Mesosternum narrowed, pubescent, mesosternal process shortened and broad. Metathorax (fig. 9) with metaepisternum pubescent, elongate and with a longitudinal groove running along anterior and inferior margins, microsculptured. Metasternum usually broader than long, pubescent, with a more or less defined glabrous area in between hind coxae; a metasternal longitudinal suture sometimes visible near base of coxae. Metendosternite (fig. 15) with stalk longer than broad, furcal arms with anterior (dorsal) and lateral processes, membranous portion more or less narrowed and reduced towards arm apex; anterior tendons situated midway between ventral longitudinal flange and apex of furcal arm. Humeral calli weakly to strongly produced; elytral disc with costae variable, none to several clearly marked; microsculpture variable. Small setae on posterior margin of elytra usually numerous, short or very short; epipleura basally broad, becoming narrowed towards apex of elytra.

Venation (fig. 10) with costa (C) much reduced beyond basal third of wing, Subcosta (Sc/ScP) strongly sclerotized and fused to radius (R) before reaching radial cell; radial sector (Rs/radial bar) very faint; radial cell (Re) rectangular; medial (M/MP) strongly sclerotized, medial 3 (M₃/medial spur) not reaching inferior margin of wing; cubital (CU/CuA) not bifurcate, fused with posterior cubital (Pcu/AA) halfway towards wing margin.

Legs (figs. 11-13) with procoxae oblong, mesocoxae subrounded and metacoxae transverse, pro-andmesocoxae usually pubescent underneath. Trochanters triangular and ventrally pubescent. Femora densely pubescent, with apical 1/3 of inferior aspect slightly excavate to receive tibiae, hind femora only slightly enlarged (fig. 13). Protibiae sexually dimorphic (figs. 11-12), apically broadened on males and slender on females. Anterior aspect strongly excavate or only carinate; tibial apex with rows of thickened, short tibial bristles on each side, more numerous on hind leg; a small tibial spur present on external

side of tibial apex on all legs. Tarsus sexually dimorphic on all species with males having basal tarsomere much broader than females; second tarsomere small and triangular; third tarsomere deeply notched and last tarsomere slender, dilated apically; tarsal pads thick; tarsal claws appendiculate. Proportions between first, second and third tarsomeres indicated in descriptions with formulae. Metafemoral spring (fig. 14) with posterior lobe very long, as long as rest of spring; anterior lobe with upper margin oblique; recurved flange present.

Abdomen (fig. 17) with abdominal spiracle seven located on lateral margin of abdominal tergite eighth, all others on intersegmental membrane. Pygidium densely pubescent, grooved at midline and with fields of very small setae on both sides of furrow; abdominal ventrites alutaceous; first abdominal ventrite (VI) longer than second (V2), second to fourth ventrites (V2-V4) of equal length, last abdominal ventrite (V5) with a middle lobe on posterior margin of males.

Aedeagus (figs. 18,20-31) more or less straight, strongly sclerotized, median lobe usually about 4-5 times as long as basal piece. Median lobe with sides subparallel or clearly broadened anteriorly, usually without deep grooves on dorsal aspect. Dorsal depression ("washboard") usually long, sometimes as long as median lobe; medial opening with a medial and two lateral lamellae, which may be of equal width and length; ventral depression with a medial and two lateral keels. Internal sac membranous (fig. 18), sometimes as long as median lobe when everted. Shoe sclerite sometimes poorly pigmented; large sclerite U-shaped with a triangular connecting piece and two arms, connecting portion sometimes weakly sclerotized, arms long and often broadened; middle sclerite usually divided; flagellum small, arrow-head shaped, strongly sclerotized (fig. 18). Basal piece triangular with posterior margin thickened, basal foramen elongate with anterior margin more or less triangular. Tegmen Y-shaped, manubrium and tegmen arms usually of equal length.

Female genitalia (figs. 19-20) with eighth tergite (T8) subrounded to somewhat triangular, partially sclerotized towards posterior margin and lateral sides, middle portion membranous, posterior margin with numerous setiferous punctures; eighth sternite (S8) reduced to a narrow band with few setae; ninth tergite (T9) transverse, mostly membranous, reduced to small, oblong lateral sclerites. Spiculum long, distal apex strongly expanded to more or less narrow and linear. Coxites long, often longer than eighth abdominal tergite, or shortened and digitiform; distal portion of coxite sclerotized (about 1/3 to 1/2 of coxite length) with numerous sensory setae.

Basal part membranous with sensilla; an *internal sclerotized rod* (baculum) runs from base towards apex but never reaches sclerotized portion (except in *M. gregaria*). Spermatheca roughly V-shaped, pump and receptacle strongly sclerotized, equal or subequal in length and usually of similar diameter; sometimes a very small appendix present at apex of pump; distal spermathecal duct sclerotized, coiled, shape and number of spirals variable; gland valve membranous.

Key to species of *Macrohaltica* Bechyné, 1959

1. Elytra not costate.....2
- 1'. Elytra clearly costate.....5
- 2 (1) Front tibiae carinate, aedeagus distinctly broadened anteriorly and with medial lamella at least twice as wide as lateral lamellae (figs. 23, 28).....3
- 2'. Front tibiae non-carinate, aedeagus not broadened anteriorly and with medial lamella at most 1.5 times as wide as lateral lamellae (figs. 20, 27).....4
- 3 (2) Elytra markedly convex on lateral view, coxites not shortened, color usually deep metallic blue.....*convexicollis* (Harold)
- 3'. Elytra not convex on lateral view, evenly rounded, coxites very short (fig. 51), color usually violaceous, sometimes with greenish reflections.....*transversa* (Harold)
- 4 (2') Aedeagus distinctly grooved dorsally and with ventral depression and ventral keels long (fig. 27), coxites very long and digitiform (fig. 50), México.....*patruelis* (Harold)
- 4'. Aedeagus not grooved dorsally and ventral depression and keels not so long (fig. 2.31A-B), coxites not so long (fig. 52), Central Perú and Ecuador.....*weyrauchi* Bechyné
- 5 (1') Aedeagus broadened anteriorly, with dorsal grooves (fig. 24), body clearly broadened posteriorly, elytra usually with three distinct costae.....*costata* (Erichson)
- 5'. Aedeagus not broadened anteriorly, without dorsal grooves (figs. 20, 22, 25), body not strongly broadened posteriorly, elytral costae variable.....6
- 6 (5') Elytra with several distinct costae...7
- 6'. Elytra with few distinct costae, usually only humeral clearly marked.....8
- 7 (6) Coxites long and with baculi almost reaching sclerotized portions (fig. 48), aedeagus with ventral depression very long, frontal calli small, densely punctate behind, body size very large.....*gregaria* (Harold)
- 7'. Coxites not so long (fig. 49), frontal calli large, sparsely punctuated behind.....*languida* (Harold)
- 8 (6') Aedeagus with ventro-lateral keels

- very broad and developed (fig. 31), color usually metallic, yellowish, Central America.....*crypta* n. sp.
- 8'. Aedeagus with ventro-lateral keels not as above, color usually blue or violet.....9
- 9 (8') Body small, shortened, antennae with middle antennomeres shortened, elytral costae obsolete.....*aequifacta* Bechyné
- 9'. Body larger, elongate, antennae not as above, humeral costa and humeral sulcus usually developed.....10
- 10 (9') Humeral sulcus deep and strongly developed, elytra distinctly "wrinkled", heavily microsculptured, color usually blue-green, México.....*complicata* (Harold)
- 10'. Humeral sulcus not so deeply impressed, elytral surface more or less smooth, microsculpture variable.....11
- 11 (10') Body more or less broad and compact, humeral costa interrupted a little posterad humeral calli, color deep metallic blue.....*plicata* (Erichson)
- 11'. Body more or less elongate, humeral costa not interrupted.....12
- 12 (11') Elytral costae obsolete, humeral sulcus faint, sometimes inconspicuous, body size large, elytral punctation small and sparse, females not microsculptured, color metallic blue or bluish-green, México, Guatemala.....*salvadorensis* Bechyné
- 12'. Humeral costae distinct, secondary costae obsolete, humeral sulcus evident, body mid-sized, elytral punctation coarse, bluish or violaceous, females clearly microsculptured, dense, widely distributed.....*jamaicensis* (Olivier)

Species Descriptions

Macrohaltica plicata (Erichson)

(Figs. 20, 32, 43, 55)

Graptodera plicata ERICHSON, 1847:173.

Haltica plicata, HAROLD, 1875b: 65 (new combination); GEMMINGER & HAROLD, 1876:3493. *Altica plicata*, BLACKWELDER, 1946: 699; BECHYNÉ, 1955b: 142.

Macrohaltica plicata, BECHYNÉ, 1956: 999 (invalid combination); BECHYNÉ, 1957a: 57 (invalid combination).

Macrohaltica plicata, BECHYNÉ, 1959: 305. (new combination); BECHYNÉ & BECHYNÉ, 1961: 58.

Type material: Lectotype female (ZMHB), here designated: "45263 //Zool. Mus. /Berlin //Plicata /v. Er.* /Perú Pavón [green label]" (examined). Pronotum broken transversely (damage caused by crushing), with right antenna missing antennomeres 7-11, left antenna missing 9-11. Note: Erichson's description indicates "... Hoffmgg. in mus", J.C. Hoffmannsegg apparently

obtained material from Perú collected by Ruiz and Pavón (PAPAVERO 1971). Paralectotypes: 1 male, 1 female (ZMHB): "Hist. Coll. /Nr. 45263 /Perú /Pavón with Pavón numbers 2 and 3 (examined).

Diagnosis: This species can be distinguished from other Andean species by the broad body, the deep metallic blue color of the body and the shape of the humeral costa.

Description: *Body* shortened and compact, legs and antennae robust; posterior half of body clearly broader. BL = 7.14 mm (6.75-7.62mm), BW = 3.64 mm (3.37-4.00 mm), PL = 1.57 mm (1.44-1.68 mm), PW = 2.31 mm (2.16-2.46 mm), EL = 5.29 mm (5.15-5.50 mm). Antennae, venter of thorax and legs sparsely pubescent, abdominal sternites densely pubescent. Coloration metallic blue. *Head* distinctly produced in front; vértex sparsely punctate behind frontal calli, supraorbital punctures large and prominent; frontal calli small, semiquadrate and not touching at middle; frontal carina narrowed between calli, reaching transverse carina; transverse carina flattened at middle. Eye orbit wide between inner margin of eye and calli; eyes rather small and not prominent, sub-oblong and entire. Antennae more or less robust, antennomere 3 = x1.5 of 2. *Thorax* with pronotum smooth and shiny with very small punctures, slightly broader posterior of antebasal sulcus; not microsculptured; sides from above slightly rounded; anterior pronotal angles weakly produced, anterior pronotal setae x2; antebasal impression weak; prosternal pubescence only in posterior half and sparse; prosternal process not extending beyond posterior margin of front coxa; metasternum shorter than first abdominal sternite. *Elytra* more or less rugose and sparsely punctate, females with fine microsculpture and small shallow punctures; males non-microsculptured, with larger and deeper punctures; humeral calli prominent; disc costate with humeral costae abruptly discontinued (interrupted and directed inwards) shortly posterad calli; humeral sulcus distinct; setae on posterior margin numerous and long. *Legs* with procoxae glabrous, middle coxae sparsely pubescent; protibiae excavated (at least in males), in females middle and hind tibiae carinate; hind tarsomeres: 1st = 2nd + 3rd. *Aedeagus* (fig. 20): AL = 2.94 (2.76 - 3.06) mm, ML = 2.41 (2.28-2.46) mm, BP = 0.53 (0.48-0.60) mm. Elongate, more or less parallel-sided from above, markedly tapering towards apex on side view; median lobe with dorsal depression 3/4 of aedeagus length, sculptured with numerous irregular ridges; medial lamella slightly tapering distally, about 2x width of laterals and of equal length; lateral lamellae pedunculate and narrowed distally; ventral depression with weak central and lateral keels; shoe sclerite curved and

triangular; large sclerite (fig. 32) with connecting portion triangular and elongate, arms more or less broadened; medial sclerite fused medially; basal foramen with proximal margin more or less thickened. Tegmen with short manubrium and pointed arms. *Female genitalia* (figs. 43, 55): S9 reduced to a narrow band, sclerotization heavier on lateral lobes, almost non-existent at middle; spiculum with distal end elongate; coxites of same length as T8, apical half melanized; baculi short and weakly developed. Spermatheca (fig. 55): SL = 0.756 (0.705-0.825) mm, RL = 0.375 (0.345-0.405) mm, PL = 0.381 (0.360-0.420) mm; receptacle thicker than pump and of equal length; distal duct not so heavily sclerotized, convoluted and with a conspicuous neck.

Remarks: Two additional costae, weaker than humeral on specimens from central Perú. Material from South Perú and Bolivia show reduction in the costae, with mostly humeral costae and humeral sulcus prominent, other costae reduced or absent.

Distribution: Ecuador; Perú, Bolivia.

Other material examined: [no data] 1, USNM. BOLIVIA: *Cochabamba*: 3, Chuwa Kocha, l.ix.1990, Ledezma, M., (StaCruz); 2, 2.ÍX.1990, Ledezma, M., (StaCruz); 15, Cochabamba (dept), 1889, Germain, P, MNHN; 8, Cochabamba, MCZ; 1, Valle de Colomi, 3500 m, 20.iii.1950, Zischka, R., UCVN; 3, Limbo, 2000 m, 19.Í.1958, Monrós & Wygodzinsky, IMLA; 53, Sehucenas, 9.L1990, Ledezma, M., (StaCruz); 1, Tablas Monte, l.i.1990, Ledezma, M., (StaCruz); *La Paz*: 1, Río Unduavi, 2800 m, 26.iii.1950, Forster, W., FREY; 15, 2800 m, 26.iii.1950, Forster, W., ZSMC; 2, Yungas de Corani, 2500 m, 29.ix.1953, Forster, W., FREY; 3, 2500 m, 29.ix.1953, Forster, W., ZSMC; 8, 2500 m, 3.X.1953, Forster, W., ZSMC; 4, Yungas del Palmar, 2000 m, Zischka, R., FREY; 1, 2000 m, 15.iii.1950, Zischka, R., ZSMC; 1, 2000 m, 2.ÜL1950, Zischka, R., ZSMC; 4, 2000 m, iii.1951, Dirings, MZSP. ECUADOR: 1, Guayaquil, 1924, Carbone, V, Dr., MCSN. PERÚ: [no locality]: 4, MNHN; 1, 1945, BMNH; *Cuzco*: 2, Aguas Calientes, 3.V.1974, García, R., MHNJP; 12, Buenos Aires, 3.ix.1988, Reyes A., L., UNT; 2, Callanga, FREY; 7, Machu Picchu, 2300 m, 21-24.X.1972, Wygodzinsky, R., AMNH; 1, 9500 ft, 2.Ü.1947, Pallister, J.C., AMNH; 1, 9500 ft, 6.ÍÜ.1947, Pallister, J.C., AMNH; 4, 11.xii.1965, Virkki, N., UCVN; 1, 7.V.1965, UCVN; 3, 12.ii.1978, (MHNJP); 2, 12.xi.1963, (MHNJP); 1, 3.Ü.1964, (MHNJP); 1, 3.Ü.1964, USNM; 2, 18.iv.1971, Lamas, G, UAST; 6, Pilcopata, 13.ii.1978, USNM; 7, Río Vilcabamba 15-30 Km W of Chaullay, 11.iii.1978, USNM; *Huánuco*: 1, Carislla, 1700 m, x.1946, Weyrauch, W., IMLA; 3, Carpish, 2700 m, x.1946, Weyrauch, W., FREY; 4, 2800 m, l.x.1946, IMLA; 2, 2800 m, x.1946, Weyrauch, W., USNM; 1, Pampaconas River, viii.1911, USNM; *Junín*: 3, Chanchamayo,

1400 m, l.iv.1939, Weyrauch, W., IMLA; 1, 800 m, iv.1943, Weyrauch, W., IMLA; 2, Thamm, MCZ; 3, Valle Chanchamayo, 1400 m, l.iv.1939, Weyrauch, W., FREY; 2, 1400 m, l.iv.1939, Weyrauch, W., USNM; 1, Huacapistana, 1800 m, 25.iii.1940, Woytkowski, F, SEMC; 1, Río Mishollo, 1200 m, 7.viii.1900, Baer, G.A., MCZ; 1, 1200 m, 7.viii.1900, Baer, G.A., MNHN; *La Libertad*: Buenos Aires: 12, Buenos Aires, 3.ix.1988, Reyes A., L., UNT; *Lima*: 1, Lima, Soukup, J., USNM; *San Martín*: 1, Hera [Jera], 860 m, 21.vi.1947, Woytkowski, E, AMNH. Total specimens: 228.

Macrohaltica aequifacta Bechyné & Bechyné, new status (Figs. 21, 33, 44, 56)

Macrohalticaplicataaequifacta BECHYNÉ & cBvcüYNÉ, 1961: 58 (new subspecies).

Type material: Holotype female (MIZT): "Íulcan /Ecuador //Macrohaltica /(Altica) TYPE /plicata /aequifacta m. /J. Bechyné det. 1956" (examined). Paratypes: 1 male (FREY): "Chuquipoqui /Chimborazo //P-TYPE /A. plicata /aequifacta m. /J. Bechyné det. 1956" (examined).

Diagnosis: This species can be distinguished by its smaller size and its more or less shortened and compact body, the shortened and thickened distal antennomeres and by the poorly developed elytral costae.

Description: *Body* small, compact, shortened; sides almost parallel; legs robust; metallic blue, pronotum and legs bluish or bluish-black. *Head* with vértex rugóse posterad of frontal calli, impunctate, setiferous punctures present between eye orbit and calli; frontal calli large and pyriform touching at midline; frontal carina narrow and weakly produced; transverse carina laterally raised and more or less flattened at middle. Eye; oblong, moderate size, entire and prominent. Antenna thickened, distal segments abbreviated antennomeres 3rd = 1.5x 2nd; 6-7 shortened subconical; 8-10 shortened, subcylindrical antenna shorter than 1/2 body length. *Thora*: with pronotum smooth and shiny with very small, scattered punctures, punctures large posterad antebasal sulcus; not microsculptured sides from above only slightly rounded; anterior angles strongly produced, anterior pronotal seta position x2; prosternal process not extending beyond posterior margin of front coxae. *Elytra* with large punctures, disk not microsculptured humeral calli subrounded; humeral costa poorly defined, secondary costae obsolete or faint humeral sulcus weakly impressed; setae on posterior margin few and very short. *Legs* with pro- and mesocoxae sparsely pubescent; tibiae excavated on all legs; hind leg tarsomeres: 1 = + 3. *Male genitalia* (figs. 21, 33), aedeagus: AL 2.59 (2.52-2.64) mm, ML = 2.13 (2.10-2.16) mm, BP = 0.45 (0.42-0.48) mm. Elongate, distal portic

slightly broader, tapering towards apex on side view; median lobe with apex heavily punctured; dorsal depression 3/4 length of median lobe; medial lamella 2x width of laterals; ventral depression inconspicuous, 1/4 length of median lobe, middle keel absent; shoe sclerite strongly pigmented, triangular; large sclerite (fig. 33) with connecting piece weak, arms distally expanded; middle sclerite weak, not divided; posterior border of basal opening thickened, not divided externally; tegmen strongly sclerotized, manubrium shorter than arms. *Female genitalia* (figs. 44, 56) with T8 subtriangular, weakly sclerotized, middle membranous, with numerous setiferous punctures on distal margin; spiculum lightly sclerotized, distal end expanded; coxites equal T8 in length, distal half melanized; baculi very reduced, shortened. Spermatheca (fig. 56): SL = 0.690 mm, RL = 0.345 mm, PL = 0.344 mm; receptacle thicker than pump and of equal length, pump narrowed distally; distal duct heavily convoluted with a more or less defined neck.

Distribution: Ecuador and Southern Colombia. Other material examined: COLOMBIA: *Nariño*: 4, Pasto, Gotz, NHMW. ECUADOR: [no locality]: 2, 1911, Bourgeois, J., MNHN; 1, Céllica, 2000 m, viii.1977, OSUC; 15, Cotacallao, viii.1924, Muñoz, R, USNM; 28, 6 Km ESE Guanazan. pass, 3040 m, 7.xi.1987, Young, C, Davidson, R., Rawlins, J., ICCM; 1, Loja, Abbé Gaujon, MNHN; 3, Machachi, 9000-10000 ft, Whymp, E., MCZ; 40, 11 mi W of Pujili, 12500 ft, 15.iii.1958, Hodges, R.H., CUIC; 1, Pun, MIZT; 38, Riobamba, 1901, Rivet, G, MNHN; 1, 1902, Bourgeois, J., MNHN; 2, San Gabriel, 1901, Rivet, G, MNHN; 4, San Lucas, BMNH. Total specimens: 141.

Macrohaltica complicata (Harold), new combination (Figs. 22,34, 45,57)

Haltica complicata HAROLD, 1876:119; GEMMINGER & HAROLD, 1876:3492 (cat.); JACOBY, 1884:300, pl. 17, fig. 10; CSIKI & HEIKERTINGER, 1940: 243.

Altica complicata, BLACKWELDER, 1946: 699.

Type Material: Lectotype male (MNHN), here designated: "México /Haltica /complicata /Typ. Harold //Ex. Museo /E. Harold //TYPE [red label] //Museum París /Coll. E. Oberthur /Ex. E. Allard" (examined). Condition: specimen missing left antenna except for basal antennomere. Paralectotype male (MNHN), same data as lectotype, but lacking identification label (examined).

Diagnosis: This species is distinctive and easy to separate from other species by the "wrinkled" appearance of the elytra and the rugose pronotum. Humeral costa and humeral sulcus are strongly developed. Coloration is usually greenish, and the elytra is heavily microsculptured.

Description: *Body* robust, broad, somewhat

flattened, disc rugose with strongly marked costae giving this species in general a "wrinkled" appearance. BL = 8.73 mm (7.62-9.5 mm), BW = 4.26 mm (3.75-4.63 mm), PL = 1.86 mm (1.75-1.87 mm), PW = 2.56 mm (2.25-2.75 mm), EL = 6.62 mm (5.00-7.50 mm) Abdomen with dense, short pubescence ventrally. Thorax, abdomen and legs (specially femura and tibiae) microsculptured. Color greenish, shiny, sometimes bluish-green, metallic. *Head* with few punctures behind frontal calli, vertex weakly ridged towards back of head, sometimes a short coronal suture continues posteriorly from longitudinal carina; frontal calli rather large and oblong, more or less protuberant, not touching at midline; frontal carina narrowly raised before transverse carina, more or less flattened at middle. Eyes oblong, inner margin entire. Antennae less than half body length; antennomeres 3 = 1.5x 2. *Thorax* with pronotum densely punctate, somewhat rugose, punctures posterior of antebasal sulcus similar to anterior portion of pronotum; microsculptured; anterior pronotal angles strongly produced; anterior pronotal setae x2; antebasal sulcus deep and sinuous; prosternum densely pubescent; prosternal process extending beyond hind margin of front coxae; metasternum as long as 1st abdominal ventrite. *Elytra* with large punctures, microsculptured; humeral calli projecting, more or less angulate; elytra clearly costate with deep humeral sulcus; 2-3 strongly marked costae, sometimes a little less developed but distinct, setae in posterior margin of short and numerous. *Legs* with procoxae pubescent, mesocoxae densely pubescent; tibiae excavated on males and females; excavation glabrous; hind legs costate with weak excavation at side; hind tarsomeres length: 1 = 2 + 3. *Male genitalia* (figs. 22,34) with aedeagus: AL = 3.37 (3.24 - 3.48) mm, ML = 2.85 (2.76-2.94) mm, BP = 0.52 (0.48-0.54) mm. Median lobe nearly parallel sided; dorsal opening subapical with margin straight; dorsal depression 2/3 length of median lobe; medial lamella long, about twice as broad as laterals; washboard smooth without grooves; ventral keels extending 1/3 of median lobe, median keel weak; large sclerite (fig. 34) with connecting portion narrow, arms broadened apically 3/4 of their length; middle sclerite small and divided; basal piece 1/5 length of aedeagus. Manubrium only 1/3 of tegmen length, arms slightly sinuous and apically pointed. *Female genitalia* (figs. 45, 57): T8 semicircular; spiculum with distal end enlarged and heavily sclerotized; coxites longer than 8th tergite, with 1/3 apical portion melanized; baculi not reaching sclerotized portion of coxites. Spermatheca: SL = 0.675 mm, RL = 0.315 mm, PL = 0.360 mm; receptacle subequal in length and thickness with pump, appendix absent, distal duct heavily convoluted with conspicuous neck.

Distribution: México.

Other material examined: [no data]: 1, BMNH. MÉXICO: [no locality]: 1, MCZ; 1, ZMHB; 1, Deppe, ZMHB; 4, BMNH; 1, Zarialpan [?], Purpus, S.V., ZMHB; **Distrito Federal:** 5, México city, ZMHB; 2, Demaison, C.H., MNHN; 4, Heyne, A., FREY; **Durango:** 1, Sierra de Durango, MCZ; **Guerrero:** 1, Chilpacingo, Hóge, MCZ; **Puebla:** 1, Necaxa, Heine & Reinach, FREY; 1, Xicotepec, 6.XÜ.1897, ANSP; **Veracruz:** 1, Cordova, Becker, ZSMC; 5, Cordova, Flohr, }, ZMHB; 3, Salle, MCZ; 2, 1841, Salle, BMNH; 2, Jalapa, FREY; 3, ZMHB; 1, Hoege, S., BMNH; 1, Heine, G., FREY; 6, Misantla, iii.1888, F.D.G., MCZ; 7, iii.1888, F.D.G., BMNH; 1, Orizaba, xii.1887, H.H.S. & F.D.G., BMNH. **Total specimens:** 58.

Macrohaltica convexicollis (Harold)

(Figs. 23, 35, 46, 58)

Haltica convexicollis HAROLD, 1880: 218; CSIKI & HEIKERTINGER, 1940: 243.

Altica convexicollis, BLACKWELDER, 1946: 699; BECHYNÉ, 1957b: 13.

Macrohaltica convexicollis, BECHYNÉ, 1956: 1000 (invalid combination, genus name *nomem nudum*); BECHYNÉ, 1957a: 61 (invalid combination, genus name *nomem nudum*).

Macrohalticaconvexicollis, BÉCHYNÉ & cBCHYNÉ, 1961: 59 (new combination); BECHYNÉ & BECHYNÉ, 1969: 43.

Type Material: Lectotype female (ZMHB), here designated: "Hist. Coll. /Nr. 45278 /Brasil / Sello 4 [green label] //convexicollis /Harold" (examined). Condition: left antenna missing antennomeres 6-11. Paralectotypes: 3 males, 2 females (ZMHB): green labels with same data as lectotype, except "Sello ..." numbers from 1 to 4 and 5 to 6 (examined).

Diagnosis: This species is distinguished by the lack of any costae in the elytra. From the other species without costae, it is easily differentiated by the shape of the body, strongly convex posteriorly in lateral view, by the metallic blue coloration and by the long and narrow 1st tarsomere on the hind leg.

Description: **Body** with posterior half of elytra notably wider, base of elytra clearly broader than pronotum; elytra notably convex on lateral view; legs more or less slender. BL = 7.03 mm (6.87-7.25 mm), B W = 3.69 mm (3.62-3.87 mm), PL = 1.62 mm (1.62-1.62 mm), PW = 2.23 mm (2.12-2.25 mm), EL = 5.45 mm (5.25-5.62 mm). Color bluish or bluish-black, metallic. **Head** with impressed área behind frontal calli deep; punctation strong; frontal calli rather large, more or less rounded in shape, not touching at midline; frontal carina prominent and sharpened between antennae; transverse carina rather flattened at middle. Orbit broad between inner margin and calli; eyes ovoid, mid-sized to small, inner margin entire. Antennomere

3 = 2.0x of 2. **Thorax** with pronotum smooth, with very small scattered punctures, área posterad of antebasal sulcus smooth with punctures slightly larger; pronotum subquadrangular from above, sides clearly rounded, posterior margin convex; anterior angles blunt, anterior pronotal setae x2; antebasal sulcus deep, slightly sinuous; lateral margins of pronotum narrow; not microsculptured; prosternum sparsely pubescent; prosternal process extends beyond posterior margin of front coxae; metasternum shorter than 1st abdominal ventrite. **Elytra** smooth, densely punctate, with large punctures becoming smaller towards elytral apex, not microsculptured; humeral calli weakly produced, rounded; elytral disc not costate, humeral sulcus absent; setae on posterior margin numerous and long. **Legs** with all tibiae externally costate; 1st tarsomere rather long (particularly in middle and hind legs), hind tarsomeres length: 1 > 2 + 3. **Abdomen** with VI twice the length of V2. **Male genitalia** (figs. 23, 35): aedeagus: AL = 2.38 (2.28 - 2.46) mm, ML = 1.84 (1.80-1.86) mm, BP = 0.54 (0.48-0.60) mm. Aedeagus a little shortened, anterior portion only slightly wider; dorsal depression 1/2 length of median lobe, slightly rugose, length between medial opening and apex equal to its width; median lamella very broad and long, about 5x width of laterals; ventral depression 1/3 of median lobe, without grooves; large sclerite (fig. 35) with connecting piece narrow, arms broadened almost from base; medial sclerite undivided; basal piece 1/5 of aedeagal length; posterior margin of basal foramen not divided externally, thickened and wide; manubrium as long as arms. **Female genitalia** (figs. 46, 58): spiculum with distal end blunt, dilated, proximal end slightly expanded; coxites short, less than T8, apical 1/3 melanized, baculi short, not reaching sclerotized part. Spermatheca (fig. 58): SL = 0.795 mm, (0.780-0.825) mm, PL = 0.420 mm; receptacle thicker than pump and of equal length; distal duct convoluted, with a short neck.

Distribution: Northern Argentina and Southern Brazil.

Other material examined: ARGENTINA: **Misiones:** 5, env. San Ignacio, Villa Lutecia, 1910, Wagner, E.R., MNH. BRAZIL: [no locality]: 6, Sello, ZMHB; 3, FREY; **Mato Grosso:** 1, Morumbi, 7.Ú.1943, Nick, MZSP; 1, Rio Paraná, riacho Herval, xii.1957, Dirings, MZSP; **Paraná:** 1, Curitiba, 1913, Lombard, R., MNHN; 11, Serra do Mar, xi.1941, USNM; 1, Tibagi, x.1956, Dirings, MZSP; **Rio Grande do Sul:** 1, Santa Cruz do Sul, i. 1971, ZMHB; 2, Sao Francisco de Paula, 13.ii. 1941, FREY; **Rio de Janeiro:** 1, Teresópolis, FREY; 1, Michaelis, }, MNHN; 1, 1888, Fruhstorfer, MCZ; **Santa Catarina:** 2, Campo Alegre, x.1946, Maller, A., AMNH; 1, Rio Capivary, 188..., Fruhstorfer, ZMHB; 1, Corupá, xii.1937, Clareteanos, MZSP;

1, ix.1948, Maller, A., AMNH; 1, x.1945, Maller, A., AMNH; 2, x.1948, Maller, A., AMNH; 1, xi.1945, Maller, A., AMNH; 1, xii.1944, Maller, A., AMNH; 2, xii.1945, Maller, A., AMNH; 1, Lajes [Lages], 1887, Michaélis, J., MNHN; 3, Nova Teutónia, vii.1938, Plaumann, R, UCVN; 1, ii.1934, Plaumann, E, ZSMC; 1, 27°U' S, 52°23 W, 8.X.1946, Plaumann, R, AMNH; 2, 9.iv.1948, Plaumann, E, AMNH; 1, Sao Bento do Sul, Dirings, MZSP; 1, iii.1952, Dirings, MZSP; 1, ii.1886, H...[?], FREY; *Sao Paulo*: 110, Campos do Jordao, vii.1957, Lenko, K., UCVN; 5, xi.1957, Lenko, K., ICCM; 143, iii.1957, Lenko, K., ICCM; 1, Sao Paulo, ó.xii.1969, TAMU; 1, MIZT. Total specimens: 318.

***Macrohaltica costata* (Erichson)**

(Figs. 24, 36, 47, 59)

Graptodera costata ERICHSON, 1847:173.

Haltica costata, HAROLD, 1875b: 63 (description); GEMMINGER & HAROLD, 1876:3492 (cat.); Harold, 1877:131; CSIKI & HEIKERTINGER, 1940: 243.

Altica costata, BLACKWELDER, 1946: 699.

Macrohaltica costata, BECHYNÉ, 1956:1000 (invalid combination, genus name *nomen nudum* for new subspecies *M. costata llama* Bechyné).

Macrohaltica costata, BECHYNÉ, 1959: 305 (new combination, for new subspecies *M. costata simplicissima* Bechyné).

Type Material: Lectotype male (ZMHB), here designated: "45258 //Zool. Mus. /Berlin // costata Er.* /Lima v. Winterf." (examined). Condition: both antennae missing antennomeres 9-11; setae on labrum intact. Paralectotypes: 2 males and 2 females (ZMHB): green labels with same data as lectotype, except that "v. Winterf ..." numbers from 2 to 5 (examined).

Diagnosis: This large species can be distinguished by its body size, by the body very broad posteriorly, by the three clearly marked costae on elytral disc, by the carinated tibiae, and by the coloration dull shiny.

Description: *Body* robust and broad, head relatively small, legs thickened; pronotum clearly narrower than elytra at base and elytra very broad posteriorly. BL = 9.01 mm (8.62-9.50 mm), BW = 4.79 mm (4.62-4.87 mm), PL = 1.91 mm (1.80-1.98 mm), PW = 2.53 mm (2.40-2.64 mm), EL = 6.94 mm (6.62-7.50 mm). Color bluish, violet-bluish, more or less dull or with faint metallic tones.

Head with vértex finely microsculptured, coronal suture not visible, few setiferous punctures behind frontal calli and heavier punctation between calli and eyes; frontal calli large, more or less elongate or pyriform, touching at middle; frontal carina more or less sharp between antennal bases, acutely raised. Orbit broad and very conspicuous, eyes slightly oblong, relatively small, inner margin of eye entire. Antennae more or less thickened; antennomeres 3 = 2.0x 2; four

apical antennomeres without metallic reflection. **Thorax** with pronotum with folds, finely punctate, punctation anterad and posterad antebasal sulcus similar; microsculptured; pronotal surface with various depressions and elevated areas; pronotal lateral margins sharp; anterior pronotal angles produced forward, anterior pronotal setae x1; antebasal sulcus deep and sinuous; prosternum sparsely pubescent; prosternal process more or less broad, clearly surpassing coxae posteriorly; mesoepisternum finely setose; metasternum of same length as 1st abdominal ventrite. **Elytra** with small and shallow punctures, microsculptured; humeral calli strongly produced; disc with 3 clearly marked longitudinal costae; humeral costae very strong, sometimes a weak costae is present between humeral and epipleural border (subhumeral); setae on posterior margin numerous and short. **Legs** with procoxae glabrous, mesocoxae sparsely pubescent; tibiae carinate on its exterior aspect, with small excavation at least on front tibiae of males, carinate on females; hind tarsomeres: 1 = 2 + 3. **Abdomen** with VI as long as following V2-V3. **Male genitalia** (figs. 24, 36): aedeagus: AL = 3.57 (3.12 - 3.78) mm, ML = 2.87 (2.52-3.06) mm, BP = 0.69 (0.60-0.72) mm. Aedeagus thick, heavily sclerotized, distal half clearly broader than basal half, more or less flattened in lateral view; dorsal depression 1/2 half of median lobe, grooved transversely at base; apex heavily punctured; medial lamella longer and wider than laterals; ventral depression 1/4 of aedeagus, with medial and lateral keels reduced; large sclerite (fig. 36) with connecting piece large, triangular, arms broad, basal piece as in generic description. Manubrium a little shorter than arms. **Female genitalia** (figs. 47, 59): Ovipositor: T8 clearly distinct; T9 shortened, weakly sclerotized; spiculum very broad on distal end, irregularly emarginate, melanized on edges; coxites short, shorter than 8th tergite, apical half melanized. Spermatheca (fig. 59): SL = 0.832 (0.810-0.870) mm, RL = 0.409 (0.405-0.420) mm, PL = 0.424 (0.405-0.450) mm; pump more slender than receptacle and of equal length.

Distribution: Ecuador, Perú and Bolivia.

Other material examined: [no data]: 1, MCZ; 1, UNT; 7, BMNH. BOLIVIA: [no locality]: 1, BMNH; 1, MCZ; *La Paz*: 3, Yungas (reg), ZMHB; 1, Rowe, ZMHB; 1, Yungas del Palmar, ZMHB. ECUADOR: 3, Molleturo, 7600 ft, 3.VI.1922, Tate, G.H., ANSP. PERÚ: [no locality]: 4, MCZ; *Pasco*: 1, Tarma, 3000 m, 1942, Weyrauch, W, IMLA; *Cuzco*: 1, Alfamayo, 40 Km SE Ouillabamba, 7.U979, Steiner, W.E., USNM; 5, Buenos Aires, 53 Km W. Pilcopata, 2280 m, 3-6.xii.1979, Heppner, J.B., USNM; 2, Machu Picchu, 15.Í.1979, Steiner, W.E., USNM; 1, 12.iv.1938, FREY; *Huánuco*: 3, Carpish, 2800 m, iii.1947, Weyrauch, W, USNM; 8, 2800 m, 1.x.1946, USNM; 1, 2800 m, 7.X.1946, Woytkowski,

E, AMNH; 33, 2750 m, x.1946, Weyrauch, W., IMLA; 7, 2800 m, l.iii.1947, Weyrauch, W., IMLA; 39, 2800 m, l.x.1950, Weyrauch, W., IMLA; 1, 2800 m, iii.1947, Weyrauch, W., USNM; 1, Huánuco, 1900 m, 1940, Weyrauch, W., FREY; 2, 1900 m, 1940, Weyrauch, W., IMLA; 3, 1900 m, 1940, Weyrauch, W., MHNJP; 1, 29.iv.1932, W... [?], INIIA; 4, 2000 m, 1948, Araoz, MHNJP; 29, Panao, 2500 m, III.1947, Weyrauch, W., AMNH; 14, 2500 m, iii.1947, Weyrauch, W., USNM; 2, 2500 m, 3.ÚL1947, FREY; 1, 2500 m, IMLA; *Junín*: 3, Concepción, 27-29.iv.1935, Woytkowski, E., SEMC; 2, 1-15.iv.1935, Woytkowski, F., SEMC; 1, 3260 m, 13-29.iv.1935, SEMC; 2, Pampa Hermosa, l-ll.v.1935, Woytkowski, E., SEMC; 1, San Pedro, 14.V.1935, Woytkowski, E., SEMC; 1, Sani Beni vicinity, 8 Km. E Satipo, 11-18.iv.1935, Woytkowski, E., SEMC; 1, Río Tarma, 2600 m, 14.L.1955, Weyrauch, W., IMLA; 9, Viena vicinity, 18-25.iv.1953, Woytkowski, E., SEMC. Total specimens: 202.

***Macrohaltica gregaria* (Harold), new combination** (Figs. 25, 37, 48, 60)

Haltica gregaria HAROLD, 1875b: 64; HAROLD, 1875a:22; GEMMINGER & HAROLD, 1876:3492; CsiKi & HEIKERTINGER, 1940: 243.

Altica gregaria, BLACKWELDER, 1946: 699.

Type Material: Lectotype male (MNHN), here designated: "[small circular blue label, no data] //Ubaque //Ex. Museo /Steinheil //Museum Paris /ex. Coll. /R. Oberthur /1942 //gregaria /Harold" (examined). Condition: right antenna missing except for basal antennomere. Paralectotypes: 1 male, 2 females (MNHN), same data as lectotype (examined).

Diagnosis: This species is distinguished by the large size, strongly dilated front legs and the number of secondary costae on elytral disc. Both males and females are heavily microsculptured. It can be distinguished from *languida* by the punctation behind the frontal calli, which is heavier in *gregaria*, but lacking in *languida*. The aedeagus has a very long ventral depression and ventral keels.

Description: *Body* large, robust, legs heavily built; thorax, abdomen, legs and antennae densely pubescent. BL = 9.71 mm (8.87-10.75 mm), BW = 4.49 mm (4.12-4.87 mm), PL = 2.01 mm (1.92-2.16 mm), PW = 2.66 mm (2.46-2.82 mm), EL = 7.21 mm (6.75-7.62 mm). Coloration bluish, metallic (dully metallic due to microsculpturing), sometimes with greenish metallic reflections. *Head* with vertex strongly depressed posterior of humeral calli, with numerous setiferous punctures, frontal calli mid-sized, bulging, narrowly separated from antennal sockets, not meeting at midline or just touching at one point; frontal carina non prominent, narrow, somewhat flattened, sometimes continued posteriorly by short coronal

suture, inflexed before reaching transverse carina; transverse carina rather flat or blunt, not prominent. Eyes large and oblong, inner margin entire. Antennomeres length: 3 = 1.5x 2. *Thorax* with pronotum smooth, shiny, with very small and sparse punctures, becoming a little larger posterad antebasal sulcus; sub-quadrangular, with raised lateral margins; anterior pronotal angles strongly produced, anterior pronotal setae x2; antebasal sulcus distinct, narrow and almost straight, depressed areas at sides deep; prosternum densely pubescent, setae long; prosternal process not extending beyond posterior coxal margin; mesoepisternum smooth, microsculptured, sparsely pubescent, setae very fine and short; metasternum with glabrous area in between coxae small; glabrous area length equal to 1st abdominal ventrite. *Elytra* with small, shallow punctures, heavily microsculptured on both males and females; humeral calli prominent and large; humeral costa more developed, with 3-4 secondary costae between humeral costa and middle suture; antebasal sulcus much reduced with medial costa running lengthwise; few short setae on posterior margin of elytra. Legs with procoxa glabrous, mesocoxa more or less pubescent; tibiae strongly dilated at apex in males, as broad as basal tarsomere; male with all tibiae excavated externally, in females the excavation much reduced proximally; anterior spur very small; hind tarsomere 1 = 2 + 3. *Male genitalia* (figs. 25, 37): aedeagus: AL = 3.65 (3.48-3.84) mm, ML = 3.00 (2.88-3.12) mm, BP = 0.65 (0.54-0.72) mm. Aedeagus parallel sided from above, almost straight in lateral view; dorsal depression extending almost entire length of aedeagus, not grooved but with surface slightly rugose; medial lamella basally broad tapering toward dorsal opening, only 1.5x times as broad as laterals; ventral depression 1/3 length of median lobe, with 3 conspicuous keels and faint transverse grooves in between; large sclerite (fig. 37) with connecting piece triangular, weakly sclerotized; arms curved, sclerotized, narrowed in basal 1/3 from connecting piece, broadened distally; middle sclerite divided. Manubrium short with long arms. *Female genitalia* (figs. 48, 60): ovipositor long, T8 rather large and triangular in shape, clearly more sclerotized than in other species but still with central portion membranous, and large setiferous punctures on distal margin; coxites very long, longer than T8, distal 1/3 melanized; baculi almost reaching sclerotized portions of coxites; distal end of spiculum only slightly enlarged anteriorly Spermatheca (fig. 60): SL = 0.784 (0.720-0.825) mm, RL = 0.390 (0.337-0.405) mm, PL = 0.394 (0.360-0.420) mm; pump narrower than receptacle and of equal length; distal duct with few spirals.

Distribution: Colombia and Venezuela.

Other material examined: [no data]: 2, ZMHB; 1, Brasil [!], BMNH; 1, am-mer., BMNH. COLOMBIA: [no locality]: 1, BMNH; 1, 1875, Deyrolle, H., MCSN; 1, MCZ; 5, ZMHB; 1, Pehlke, MCZ; 1, ZSMC; 3, FREY; 7, BMNH; 2, 1877, Harold, D., MCSN; **Cundinamarca:** 1, Bogotá, MCZ; 2, BMNH; 7, 1924, USNM; 1, 1898, MCZ; 5, Choachí, vii.1913, Apollinaire, M., USNM; 4, vi.1940, Otoya, F.J., USNM; 4, Ubaque, ZMHB; **Meta:** 1, Río Meta, MCZ; 6, río Quatonia, xii.1914, BMNH; 2, Villavicencio, xi.1985, USNM; 1, Finca nr. Villavicencio, Río Negro, 5.Ü.1969, Dietz IV, R.V., USNM; **Norte de Santander:** 1, 25 Km S. Chinácota, 2300 m, 10.v.1974, Howden, H. & A., CMEC; 2, Ocaña, Landolt, MCZ; 3, Landolt, MNHN; 8, Prima, 1700 m, 1.vi.1965, Bechyné, J. & B., UCV. VENEZUELA: [no locality]: 2, MCZ; 3, USNM; 3, BMNH; 1, Plason, NHMW; 1, Schneider, R., FREY; 6, 1858, Moritz, NHMW; 4, viii.1964, Paramonor, A.J., BMNH; 6, Mazida, 23.ix.1964, Paramonor, A.J., BMNH; **Lara:** 1, Quibor, 29.X.1980, UCV; **Merida:** 3, Mérida, Briceño, S., USNM; 2, 1884, NHMW; 1, NHMW; 10, FREY; 284, AMNH; 25, 1898, NHMW; 3, 1929, Robinson, W., USNM; 2, La Pedregosa, 2000 m, v.1896, MCZ; **Táchira:** 2, Bramón, 23.xii.1964, Osuna, E., UCV; 2, Carretera Bramón-Delicias, 1860 m, 8-11.xii.1980, Clavijo, I., Chacón, A. & Ayala, J., UCV; 1, Calabozo, 16.Í.1982, UCV; 1, Capacho, 25.xii.1981, UCV; 5, Chorro del Indio, 12.xi.1981, UCV; 1, 13.Í.1981, UCV; 3, 22.xi.1981, UCV; 1, 27.xi.1981, UCV; 1, Coloncito, 10.xi.1981, UCV; 1, 12.X.1982, UCV; 1, Cordero, 27.xi.1981, UCV; 1, 4.XÜ.1981, UCV; 1, 6.XÜ.1981, UCV; 1, 7.XÜ.1981, UCV; 1, Delicias, 24.X.1981, UCV; 12, 29.X.1981, UCV; 5, Pozo Agua Blanca vía Las Delicias, 1850 m, 11.viii.1983, Lattke, J. & Borges, G., UCV; 4, Río Frío, 600 m, 20-24.iv.1982, UCV; 1, Lagrita, 20.Í.1982, UCV; 1, 20.xi.1981, UCV; 1, Lobatesa, 18.Í.1982, UCV; 1, Río Negro, 1.xi.1981, UCV; 1, 29.Í.1981, UCV; 5, 29.xi.1981, UCV; 1, Palmira, 11.xii.1982, UCV; 1, 9.L1982, UCV; 1, Queniquea, 2.XÜ.1981, UCV; 4, Rubio, 10.xi.1981, UCV; 1, San Cristóbal, 10.xi.1981, UCV; 3, 17.xii.1981, UCV; 1, 26.Í.1982, UCV; 36, San Cristóbal, Estancia del Inos, La Parada, 11.xii.1982, UCV; 1, San Paulo, 29.X.1981, UCV; 1, San Pedro del Río, 2.ix.1981, UCV; 8, Táchira (state), 15.vi.1982, UCV; 1, Ureña, 11.ix.1981, UCV; **Trujillo:** 2, los Barriales cr. Trujillo, 12.viii.1966, Terán, J.B., UCV. Total specimens: 546.

***Macrohaltica lánguida* (Harold), new combination** (Figs. 26, 38, 49, 61)

***Haltica lánguida* HAROLD, 1875a: 23; GEMMINGER & HAROLD, 1876: 3492; CSIKI & HEIKERTINGER, 1940: 244. AZÉZ c«Zarcgwtafl, BLACKWELDER, 1946: 699; BECHYNÉ, 1955a: 20; BECHYNÉ, 1955c: 249.**

***Macrohaltica lánguida*, BECHYNÉ, in litt.** (invalid combination).

Type material: Lectotype male (MNHN), here designated: "[small blue circular label, no data] //Fusagasugá //lánguida /Harold //Ex. Museo /E. Steinheil //Museum París /ex. Coll. /R. Oberthur /1952" (examined). Paralectotypes: 1 female (MNHN), same data as lectotype except for identification label; 1 male (MNHN): "Manizales /(Patino) //Ex. Museo /E. Steinheil //Museum París /ex. Coll. /R. Oberthur /1952" (examined). Specimen labeled as "Type" from París not considered part of the type series; although the specimens came from Harold's collection, the locality is Bogotá, and does not indicate Steinheil (material) as in Harold's original description.

Diagnosis: This species is somewhat similar to *gregaria*, but can be distinguished by its smaller size, coarser punctation and frontal calli relatively larger and without punctation posterad.

Description: **Body** elongate, robust, posterior half only slightly wider; legs more or less slender, venter densely pubescent. BL = 7.98 mm (7.75-8.37 mm), BW = 3.58 mm (3.37-3.75 mm), PL = 1.59 mm (1.44-1.74 mm), PW = 2.25 mm (2.10-2.34 mm), EL = 6.02 mm (5.62-6.37 mm). **Head** with setiferous punctures behind frontal calli reduced in number, usually none, only a few punctures between frontal calli and inner margin of orbit; frontal calli more or less enlarged, reaching antennal sockets; frontal carina flattened in between antennal sockets, anterior portion narrow and acute. Eyes oblong, small with inner margin entire. Antennae robust, antennomeres length: 3 = 2.0x 2. **Thorax** with pronotum smooth and shiny, with small punctures, punctation behind antebasal sulcus sparse with larger punctures; pronotum only slightly broader than long, sides slightly rounded; anterior angles prominent, anterior pronotal setae x3; posterior angles small but projecting; lateral margins broad; antebasal sulcus almost straight; pronotum microsculptured in females; prosternal process extends slightly beyond posterior margin of coxae; metasternum length subequal to 1st abdominal ventrite. **Elytra** densely punctured, punctures large, smaller towards elytral apex; elytra microsculptured only in females; humeral calli clearly defined and conspicuous; disc with at least 2 (rarely 3) clearly defined costae, sometimes humeral sulcus conspicuous, humeral costa in females usually acute; setae on posterior margin of elytrae short and few. **Legs** with procoxae sparsely pubescent; tibiae of males and females excavated on all legs; hind tarsomeres length: 1 = 2 + 3. **Male genitalia** (figs. 26, 38): aedeagus: AL = 3.18 (3.02 - 3.32) mm, ML = 2.68 (2.52-2.88) mm, BP = 0.49 (0.42-0.54) mm. Aedeagus weakly sclerotized, distal half a little broadened; dorsal surface slightly

rugóse; dorsal depression extending almost all length of median lobe; medial lamella only a little broader than laterals, lateral lamellae short; ventral depression 1/3 of length of median lobe; shoe sclerite more or less triangular, weakly sclerotized except on upper margin; large sclerite (fig. 38) with connecting piece triangular and very reduced, arms broad; middle sclerite divided and little developed; basal piece reduced to 1/5 of total length; basal foramen small, more or less rounded distally and thickened proximally. Manubrium length equal to arms. **Female genitalia** (figs. 49, 61): Ovipositor: T8 weakly sclerotized at middle, only lightly sclerotized on distal edge; T9 apparently not divided but transverse and with heavier sclerotization at sides; spiculum with distal end more or less pointed and a little enlarged; coxites long, longer than T8, apical 1/3 melanized; baculi not reaching sclerotized portions of coxites. Spermatheca (fig. 61): SL = 0.709 mm, RL = 0.357 mm, PL = 0.352 mm; pump narrower than receptacle, appendix present.

Distribution: Venezuela, Colombia, Bolivia, Brazil, Ecuador and Perú.

Other material examined: [no data]: 3, FREY. BOLIVIA: 1, Santos Marcos, 2000 m, MCZ; **Cochabamba:** 5, Cochabamba, Germain, P., MCZ. BRAZIL: 1, BMNH. COLOMBIA: [no locality]: 25, FREY; 1, BMNH; 17, Santo Antonio, FREY; 3, 14.vii.1908, FREY; **Antioquia:** 13, Amaga, 1100 m, 18.ii.1964, Schneble, FREY; 10, La Estrella, 1700 m, 8.iv.1964, Schneble, FREY; 7, Medellín, 1500 m, 1962, Schneble, FREY; **Boyacá:** 26, Muzo, FREY; **Caldas:** 1, Cauca, FREY; 7, FREY; 4, Manizales, Patino, A.M., MNHN; **Cauca:** 16, Cauca (dept.), FREY; 12, Kraatz, ZMHB; 1, Thal, ZMHB; 1, Río Cauca, FREY; 2, Villa Elvira, FREY; **Chocó:** 3, Río Atrato, 1700 m, iii.1963, Schneble, FREY; **Cundinamarca:** 6, Bogotá, de Wavrin, FREY; 1, Alto de Las Cruces, 2100 m, FREY; 1, Monterredondo, 1400 m, 13.iv.1965, FREY; **Meta:** 2, Río Meta, 25.viii.1933, de Wavrin, ZSMC; 5, 25.viii.1933, de Wavrin, FREY; **Valle:** 3, Cali, 1955, Erwerb, ZSMC; 2, Tocota, FREY; 4, Río Vitaco, FREY. ECUADOR: [no locality]: 2, MCZ; 2, Hacienda Paramba, Rosenberg, BMNH. PERÚ: **Junín:** 1, Río Mishollo, 1200 m, 8.vii.1900, Baer, G.A., MCZ. VENEZUELA: [no locality]: 1, BMNH; 4, vii.1964, Paramonon, A.J., BMNH; **Merida:** 1, Mérida, NHMW; **Táchira:** 2, Bramón, 23-xii.1964, Osuna, F., UCVN; 2, Carretera Bramón-Delicias, 1860 m, 9-11.xii.1980, Clavijo, J. et. al., UCVN; 5, Pozo Agua Blanca vía Las Delicias, 1850 m, 11.viii.1983, Lattke, J. & Borges, G., UCVN; 4, Río Frió, 600 m, 20-24.iv.1982, UCVN; 1, carret. San Cristóbal - Loma de Pío, 1000 m, 21.iv.1982, UCVN; **Trujillo:** 2, Los Barriales cr. Trujillo, 1000 m, 12.viii.1966, Terán, J.B., UCVN. Total specimens: 210.

Macrohaltica patruelis (Harold), new combination (Figs. 27, 39, 50, 62)

Halticapatruelis HAROLD, 1875b: 63; GEMMINGER & HAROLD, 1876: 3493; JACOBY, 1884: 294, pl. 17, fig. 11; CSIKI & HEIKERTINGER, 1940: 244.

Altica patruelis, BLACKWELDER, 1946: 699.

Macrohaltica patruelis, BECHYNÉ, *in litt.* (invalid combination).

Type Material: Lectotype female (ZMHB), heretofore designated: "45275 //México Deppe//Zool Mus. /Berlín //patruelis /Harold [green label]" (examined). Condition: left antenna missing antennomeres 9-11. Note: Although there is no mention of Deppe's material in Harold's paper, Deppe's collection went to Berlín and probably was available to Harold. Paralectotypes: 1 male, 1 female (ZMHB): "HistColl. /Nr. 45275 /Mexico /Deppe Deppe's numbers from 2 to 7.

Diagnosis: This species is easily recognized by its smooth surface devoid of costae, densely microsculptured to give it a dull appearance, **by** its usually violet coloration and by its strongly excavated tibiae.

Description: **Body** elongate, rather compact, leg moderately robust; posterior half of body only a little broader. Head, pronotum and elytra finely microsculptured (mesh-like); venter dense; pubescent with pubescence short, whitish. BL = 7.42 mm (7.25-7.62 mm), BW = 3.59 mm (3.50-3.7 mm), PL = 1.68 mm (1.62-1.80 mm), PW = 2.2 mm (2.04-2.34 mm), EL = 5.72 mm (5.62-6.00 mm); **Head** with vertex with numerous punctures behind calli and in between eye orbit and frontal calli; frontal calli prominent, small, oblique; transverse, approximated at midline and with deep groove in between, not reaching antennal sockets; frontal carina more or less sharply delimited, narrower than interantennal area; transverse carina well developed. Eyes oblong relatively large and prominent, entire. Antenna* antennomeres length: 3 = 1.5 x 2. **Thorax** with pronotum with small punctures, dense and shallow, distributed over entire pronotal surface; more numerous posteriorly; antebasal sulcus: anterior pronotal angles weakly developed; anterior pronotal seta x2; pronotal side slightly rounded from above, lateral margin narrow; antebasal impression slightly sinuate; prosternum with long pubescence; prosternal process extending slightly beyond posterior margin of procoxae; metasternum shorter than 1st abdominal ventrite. **Elytra** densely punctate with small and shallow punctures, small towards elytral apex; elytra microsculptured, dull shiny; humeral calli more or less produced; disc non costate; few short setae on posterior margin of elytra. **Legs** with procoxae with few setae, mesocoxae sparsely pubescent; fore tibiae excavate, apex very broad in males; hind tarsomeres length: 1 = 2 + 3. **Male genitalia** (fig

27,39): aedeagus: AL = 2.85 (2.76 - 3.00) mm, ML = 2.35 (1.92-2.46) mm, BP = 0.51 (0.48-0.54) mm. Aedeagus slender, distal portion only slightly broader in dorsal view, slightly tapering toward apex in lateral view, more or less flattened; dorsal surface smooth, densely punctured at apex; dorsal depression extends almost entire length of median lobe; medial lamella apically narrowed; lateral lamellae broad, 1/2 width of medial; ventral depression 1/3 length of median lobe, medial keel strongly produced; internal sac sclerites weakly sclerotized; large sclerite (fig. 39) with connecting región triangular, bases of arms slender, arms very expanded apically; medial sclerite divided; basal piece as broad as median lobe; proximal margin of basal foramen more or less thickened. Manubrium longer than arms, arms pointed apically. **Female genitalia** (figs. 50, 62): ovipositor: S8 more or less sclerotized at sides; T9 narrowed, lateral lobes sclerotized; spiculum with distal end slightly enlarged and elongate, proximal end dilated and flattened; coxites very long, longer than T8, apical 1/3 melanized; baculi shortened, not reaching sclerotized portion of coxites. Spermatheca: SL = 0.585 (0.570-0.595) mm, RL = 0.305 (0.300-0.310) mm, PL = 0.280 (0.270-0.285) mm. Receptacle thicker than pump and of equal length; distal duct very convoluted, short neck between receptacle and distal duct.

Distribution: México and Guatemala. Costa Rican record is questionable.

Other material examined: [no locality]: 1, MNHN; 1, Dugés, M., USNM; 1, Plason, NHMW. COSTA RICA: 2, Rogers, H., BMNH. GUATEMALA: 5, MNHN. MÉXICO: [no locality]: 6, USNM;

5, MNHN; 8, BMNH; 1, FREY; 11, AMNH; 1, NHMW; 7, Deppe, ZMHB; 1, Flohr, J., ZMHB; 3, Hoege, S., ZMHB; 1, Koltze, FREY; 1, Staudinger, FREY; 2, 1888, NHMW; 3, 1890, Koltze, NHMW; 1, Canelas, ZMHB; 9, reg. de Gordoba [sic] [Córdoba], MNHN; 1, La Parada, Sallé, BMNH; 1, Tepec, Temascal, 1931, Hinton, G.B., UNAM; 6, Truqui, BMNH; 1, Tultenango, 13.vii., Hay, R.H., USNM; 1, Las Vigas, Hoege, S., ANSP; 1, Hoege, S., MCZ; 2, Hoege, S., ZMHB; 2, Hoege, S., NHMW; 2, Hoege, S., AMNH; 2, Hoege, S., BMNH; 3, Hoege, S., USNM; **Distrito Federal:** 2, Distrito Federal, Conradt, L., USNM; 2, Inda, J.R., USNM; 2, Hoffmann, C.C., UNAM; 2, México city, Barrett, O.W., USNM; 5, Flohr, J., ZMHB; 3, Hoge, MCZ; 1, Hóge, ZMHB; 11, env. de México, Méhédin [?], MNHN; 84, San Ángel, vii-viii.1903, AMNH; 17, Temascaltepec, 1831, Hinton, G.B., BMNH; 2, Temascaltepec, Real de Arriba, 6000-7000 ft, v-vii.1933, Hinton, H.E. & Usinger, R.L., BMNH; 1, Temascaltepec, Tejupilco, ca. 4000 ft, 1933, Hinton, H.E. & Usinger, R.L., BMNH; 1, Tlalpám, 25.V.1946, Pallister, J.C. & D., AMNH; **Guanajuato:** 1, Guanajuato, Salle, MCZ; **Guerrero:** 1, Amula, 6000 ft, viii, Smith, H.H., BMNH; 3,

6000 ft, viii, Smith, H.H., MCZ; 1, Atoyac, iv, Smith, H.H., BMNH; 1, Omilteme, 8000 ft, vii, Smith, H.H., MCZ; 5, 10.viii.1937, Roveglia, P., UNAM; 2, Texquitzin nr. Chilapa, x.1929, Schultze, S., ZMHB; **México:** 7, Atlacomulco, 8100 ft, 18.viii.1954, SEMC; 2, Tlalnepantla, vii.1945, UNAM; 1, 14 mi N. Toluca, 9300 ft, 5.VÜ.1973, Murray, M.E. & R.R., TAMU; 2, 24.5 mi NW Toluca, 30.vii.1962, Naumann & Marston, SEMC; **Michoacán:** 1, 15 mi W of Dist. Fed. on Morelia Hwy., 5.ix.1938, Lipovsky, L.J., SEMC; 13, Morelia, 4.ix.1938, Lipovsky, L.J., SEMC; 1, Salozano, M.M., USNM; 44, Patzcuaro, 7.vii.1964, Spangler, P.J., USNM; **Oaxaca:** 3, Oaxaca, ZMHB; 1, 1 mi N El Pacifico, 14.vii.1973, Mastro & Schaffner, TAMU; 1, 1 mi S San José Pacifico, 16.vii.1974, Clark, Murray, Ashe & Schaffer, TAMU; 2, 8 Km S Suchixtepec, Rio Molino, 2200 m, 19.iv.1979, Howden, A. & H., CMEC; **Puebla:** 1, Acatlan, 27.V.1937, Hoffmann, C.C., UNAM; 1, Apulco (N. of Zacapoaxtla), 700 ft, 19.vi.1961, SEMC; 1, Puebla, 1871, Bilimek, NHMW; **Tabasco:**

1, Teapa, Hoege, MCZ; **Veracruz:** 4, Cordova, ZMHB; 1, Huatusco, Salle, BMNH; 14, Jalapa, Schaus, W., AMNH; 8, Smith, USNM; 2, I.vi, Smith, USNM; 1, ZSMC; 5, FREY; 134, AMNH; 2, Hoege, S., BMNH; 1, Trujillo, M., ZMHB. Total specimens: 493.

Macrohaltica transversa (Germar)

(Figs. 28,40, 51, 63)

Altica (*Galénica*) *transversa* GERMAR, 1824: 601.

Macrohaltica violácea (HAROLD, 1875). **New synonymy.**

Haltica violácea HAROLD, 1875b: 64; GEMMINGER & HAROLD, 1876:3494; CSIKI & HEIKERTINGER, 1940: 245.

Altica transversa, GEMMINGER & HAROLD, 1876: 3494.

AZii'cafransütersfl, BLACKWELDER, 1946:699; BECHYNÉ, 1951: 100 (typical form); BECHYNÉ, 1955a: 20; BECHYNÉ, 1955b: 141.

Altica violácea, BLACKWELDER, 1946:699; BECHYNÉ, 1957b: 13.

Altica transversa *áb.frequentissima* BECHYNÉ, 1951: 100 (new aberration, unavailable ñame).

Altica transversa *ab. iricolor* BECHYNÉ, 1951: 100 (new aberration, unavailable ñame).

Macrohaltica transversa, BECHYNÉ, 1957b: 13 (invalid combination, genus ñame *nomen nudum*); BECHYNÉ, 1957a: 61 (invalid combination, genus ñame *nomen nudum*); BECHYNÉ, 1958b: 639 (invalid combination, genus ñame *nomen nudum*).

Macrohaltica transversa transversa, BECHYNÉ, 1959: 306.

Macrohaltica transversa, SCHERER, 1960: 221; BECHYNÉ & BECHYNÉ, 1961:58.

Type material: *Altica transversa* Germar: Lectotype male (ZMHB), here designated: "45279 //Ga. transv /sa Germ /Bun Ayr Dej".

Condition: right antenna missing antennomeres 5 to 11, (examined). Paralectotypes: 5 males, 2 females (ZMHB): "Hist. Coll. /Nr. 45279 /Buen. Ayres /Bescke with Bescke numbers from 2-8. Bescke #3 has label: "purpurascens /Reich. Bu. Ay.", Bescke #5 has label: "A. columbina Dej. /Buen. Ay. Dej." (examined). *Altica transversa* ab. *frequentissima* Bechyné, Type: female (FREY): "Asunción /Paraguay //TYPE /A. transversa /ab. frequentissima m. /Det. Dr. J. Bechyné 1950 /A. transversa /ab. violácea Har. /J. Bechyné det. 19522 (examined). Condition: missing front right tarsus. Note: Two additional specimens from same series, 1 male, 1 female at FREY. *Altica transversa* ab. *znco/or*_Bechyné, Type: female (FREY): "Bs. Aires, 1940 /Escobar, 13.11 /W. Wittmer //Type [pink label] //TYPE /A. transversa /ab. iricolor m. /det. Dr. J. Bechyné 1950" (examined). Condition: tarsal claws missing on right front leg.

Diagnosis: This species can be distinguished by its smaller size, violet or violet-green coloration and the lack of costae on the elytra.

Description: *Body* small, compact and broad, somewhat flattened on lateral view; posterior half clearly broader; venter of thorax and abdomen pubescent, abdominal pubescence sparse. BL = 6.35 mm (6.25-6.37 mm), BW = 3.42 mm (3.25-3.62 mm), PL = 1.38 mm (1.38-1.38 mm), PW = 2.22 mm (2.16-2.34 mm), EL = 4.82 mm (4.62-4.87 mm). Prothorax color blue-blackish with elytra violet with green tones, sometimes entirely coppery; metallic. *Head* with supraorbital punctures large and prominent; punctation behind frontal calli absent; frontal calli large and sub-rounded, touching at middle, only separated by narrow groove, reaching antennal sockets but separated from them by shallow depression; frontal carina raised, blunt, broad in between antennal sockets; transverse carina more or less flattened at middle. Orbit conspicuous between calli and inner margin, eyes large and prominent, oblong, entire. Antennae robust, antennomeres length: 3 = 1.5x 2. *Thorax* with pronotum smooth, small punctures at middle, punctures posterad of antebasal sulcus medium-sized, males non microsculptured, females sometimes microsculptured posterad antebasal sulcus; sides from above gently rounded, narrowed anteriorly; anterior angle of pronotum not prominent, anterior pronotal setae x3; antebasal sulcus sinuose; prosternal process extending beyond posterior margin of procoxae; metasternum shorter than 1st abdominal ventrite. *Elytra* with dense punctation, smaller punctures not deeply impressed, slightly larger anteriorly; elytra microsculptured on males and females; humeral calli weakly developed; disc without costae; setae on posterior margin long and numerous. *Legs* with procoxae with few setae,

mesocoxae sparsely pubescent; tibiae carinated; hind tarsomeres length: 1 = 2 + 3. *Male genitalia* (figs. 28, 40): aedeagus: AL = 2.58 (2.52 - 2.70) mm, ML = 2.10 (2.04-2.22) mm, BP = 0.48 (0.42-0.54) mm. Aedeagus shortened and broad, slightly constricted at middle from above; tapering distally in lateral view, not flattened or only slightly so; dorsal depression 1/2 length of aedeagus, with basal half only weakly ridged; medial lamella broad, 2x width of laterals and longer, only slightly tapering distally, lateral lamellae narrowed; ventral depression small, medial keel weakly developed; shoe sclerite weakly sclerotized; large sclerite (fig. 40) with connecting portion triangular, arms broadly expanded, weakly sclerotized; middle sclerite divided; basal piece narrowed basally; basal foramen triangular distally. Tegmen small, weakly sclerotized, manubrium shorter than arms. *Female genitalia* (figs. 51, 63): Ovipositor with T9 narrowed medially, only slightly sclerotized at sides; spiculum with distal end enlarged; coxites very short, much less than length of T8, apical 1/3 melanized; baculi long. Spermatheca (fig. 63): SL = 0.784 (0.750-0.825) mm, RL = 0.383 (0.360-0.405) mm, PL = 0.401 (0.390-0.420) mm; receptacle thicker than pump and a little longer; neck very reduced, distal duct heavily convoluted, appendix present.

Distribution: Southern Brazil, Northern Argentina, Uruguay, Paraguay and Southern Bolivia. Colombian record is questionable.

Other material examined: [no data]: 2, MACN; 6, BMNH. COLOMBIA: [!], 2, MCZ. ARGENTINA: *Buenos Aires:* Buenos Aires: 2, i.1939, Moriros, USNM; 1, xii.1898, iii.1899, Silvestri, F., MCSN; 1, Pellerano, G., MACN; 1, 22.iv.1903, Deletang, MACN; 1, 3.1.1909, Brethes, J., MACN; 11, 15.U922, Brethes, J., MACN; 17, 20.L1926, Brethes, J., MACN; 2, 20.xii.1921, Brethes, J., MACN; 2, 6.xi.1920, Brethes, J., MACN; 2, 8.L1907, Brethes, J., MACN; 3, 9.Í.1905, Brethes, J., MACN; 2, MCZ; 10, ZMHB; 3, 10.iii.1884, Flores, MCZ; 3, ii.1899, Schimpf, G., BMNH; 1, MCZ; 5, Reitter, FREY; Buenos Aires (prov.): 1, Bosc, J., USNM; 2, 15.vi.1913, Bruch, C, MACN; 3, i.xi.1906, Bruch, C, MACN; 1, 30.xii.1953, Forster, J., ZSMC; 6, i.1956, Forster, J., ZSMC; 4, Mariano Moreno, xii.1939, Hepper, H, USNM; 10, Isla Martín García, 20.iv.1937, AMNH; 10, 20.iv.1937, Viana, M., AMNH; 1, Olivos, 22.xi.1928, Bruch, C, MACN; 2, La Plata, BMNH; 2, Vid, M. [?], BMNH; 1, Quilmes, MACN; 1, iv.1916, Pennington, M.S., MACN; 14, San Fernando, USNM; 4, San Isidro, 10-15.U982, Howden, H. & A., CMEC; 3, xii.1939, Monrós, USNM; 4, 27.xii.1925, Brethes, J., MACN; 6, Río Santiago, ii.1941, Monrós, USNM; 1, Tigre, iv.1956, Daguerre, USNM; 2, i.1950, Prosen, ZSMC; 4, xii.1949, Prosen, ZSMC; 1, Zelaya, 1939, MACN; *Catamarca:* 1, Catamarca

(prov.), 10.x.1908, Bruch, C, MACN; 1, El Rodeo, i.1942, Monrós, USNM; **Chaco**: 1, Colonia Benítez, 1-12.xii.1948, Golbach, R., IMLA; 1, Resistencia, x-xii.1935, Daguerre, J.B., MACN; 1, Borrelli, MIZT; **Córdoba**: 1, Córdoba, Frenzel, J., ZMHB; 3, MACN; **Corrientes**: 1, Corrientes, 1899, Silvestri, R, MCSN; 2, Sauce, x.1951, Wittmer, W., USNM; 3, 26.ix.1951, Wittmer, W, FREY; **Entre Ríos**: 5, Concordia, i.1923, Bosch, J.E., MACN; 5, Entre RÍOS (prov.), Hayward, K.J., ANSP; 3, Entre Rios (lago), i. 1941, Pohl, B., MZSP; 2, Gualeguaychú, Haedo Rossi, J.A., IMLA; **Formosa**: 1, Clorinda, xi.1947, Morel, J., IMLA; **Jujuy**: 3, Cerro Perales, ii.1944, Monrós, USNM; **Misiones**: 3, Candelaria, x.1921, Pellerano, G., MACN; 1, Misiones (prov.), Bruch, C, MACN; 1, env. San Ignacio, Villa Lutecia, 1910, Wagner, E.R., MNHN; **Salta**: 2, Alto de Muñoz, xii.1942, USNM; 1, Salta, Reimoser, NHMW; 1, El Tala, vii.1898, Silvestri, E, MCSN; **Santa Fe**: 1, Gaboto, Stevenin, A., MACN; 1, Rosario, ZMHB; 7, Stevenin, A., MACN; 3, 7.XÜ.1924, Alberdi, MACN; 8, Estancia La Noria, Río San Javier, 18.xii.1911, Bryant, G.E., BMNH; 18.xii.1911, 8, Bryant, G.E., BMNH; 1, Santa Fe, 19.ii.1920, CUIC; 1, Bruch, C, MACN; **Santiago del Estero**: 8, Las Garzas, Río Las Garzas, 1964, Wagner brothers, NHMW; 1, 1964, Wagner brothers, FREY; 1, Santiago del Estero, xi.1928, MACN; **Tucumán**: 2, Horco Molle, 24.vi-27.viii.1968, Porter, C, IMLA; 3, Cumbres de San Javier, 11.i.1948, Willink & Monrós, IMLA; 1, Tucuman (prov.), 1900, Bruch, C, MCZ; 2, San Miguel de Tucumán, 10.ii.1925, Mozzette, G.F., USNM; 1, San Miguel de Tucumán, 1907, Girard, IMLA; 1, ZMHB; 16, Breyer, A., MACN; 3, Isla Apipé Grande, xi.1945, Martínez, USNM; 1, Colonia, Stevenin, A., MACN. BOLIVIA: **Santa Cruz**: 1, Camiri, iii.1949, Daguerre, USNM. BRAZIL: **Rio de Janeiro**: 2, Rio de Janeiro, ICCM; **Rio Grande do Sul**: 3, Cerro Azul, 1944, P. Buck S. J., Padre, FREY; 1, Pelotas, 1.iv.1961, Biezanko, C.M., BMNH; 29.ix.1967, 1, Mantovani, J.L. & Biezanko, C.M., ZMHB; 2, 9.VÍ.1960, Biezanko, C.M., ZMHB; 3, 14.xii.1954, Biezanko, C.M., AMNH; 1, 21.V.1959, Biezanko, C.M., USNM; **Santa Catarina**: 1, Joinville, Rio Bracinho, iii.1955, Dirings, MZSP; 1, ZMHB; 3, Natteter, NHMW. PARAGUAY: 1, ZMHB; 1, MCZ; 3, Fiebrig, C, ZMHB; 1, Schaufuss, L.W., ZMHB; 6, FREY; 6, Asunción, ix.1919, MACN; 1, x.1919, MACN; 1, 9.X.1910, Pellerano, G., MACN; 2, ix.1919, Pellerano, G., MACN; 6, ix.1922-iv.1923, Kent, E.G., BMNH; 1, Caaguazú, Podtiaguin, USNM;

1, Luque, MIZT; 1, San Bernardino, xi.1898, Boggiani, G., MCSN; 1, San Salvador, Bohls, MCZ; 1, Villarica, 16.xi.1949, Schade, R, FREY; 2, iv.1935, Pochon, FREY; 1, 21.ii.1945, Schade, E, ZSMC; 1, x.1936, Koller, ZSMC. URUGUAY: 2, Balzan, MCSN; 4, Montevideo, Schaufuss, L.W., ZMHB; 1, Montevideo Uruguay to Salto

Concordia, Arg., 6-14.iii.1940, Parker, H.L., USNM. Total specimens: 350.

***Macrohaltica weyrauchi* Bechyné, new combination** (Figs. 29, 41, 52, 64)

***Macrohaltica weyrauchi* BECHYNÉ**, 1956: 999 (new species, invalid combination, genus name *nomen nudum*).

Type material: Holotype male (USNM): "Llama, 2200m /N. Perú 12.6.56 /leg. Weyrauch //Type [red label] //WFW /7213 //Holotype /USNM /67014 //Holotype_ /Macrohaltica /weyrauchi m. /J. Bechyné det., 1956" (examined). Allotype female (USNM): same locality label as holotype, additional labels: "Allotype [red label] // WFW /7213 //Allotype _ /Macrohaltica /weyrauchi m. /J. Bechyné det., 1956" (examined). Paratypes: 1 male, 1 female (IMLA), designated by Scherer: same locality and Weyrauch labels as holotype, ID label: "P-TYPE /Macrohaltica /weyrauchi m. /J. Bechyné det., 1956" (examined). Note: additional 23 specimens from same series at FREY, only first one with identification label. Probably part of original series, there is no indication in BECHYNÉ (1956) of the actual number of specimens available to him.

Diagnosis: Its smooth body and elytrae without costae can readily help distinguish this species. From other non-costate species it can be distinguished by the second antennomere which is at least 2/3 the length of the third.

Description: **Body** robust and broad, smaller, pronotum a little narrower than elytra at base, posterior half slightly broader. Venter of body sparsely pubescent. BL = 7.32 mm (7.12-7.50mm), BW = 3.65 mm (3.37-3.75 mm), PL = 1.59 mm (1.50-1.68mm), PW = 2.18 mm (2.10-2.28 mm), EL = 5.35 mm (5.12-5.75 mm). Color metallic-blue, bluish-black. **Head** with punctation behind frontal calli sparse; frontal calli rather small, raised, squared, meeting at midline and reaching antennal sockets; frontal carina not prominent, rather flattened; transverse carina broad, flattened at middle. Orbit wide between inner margin of eye and calli; eyes large, oblong, inner margin entire. **Thorax** with pronotal punctures very small and fine, a little larger and more numerous posterior of antebasal sulcus; non-microsculptured; pronotal sides evenly rounded from above, anterior pronotal angle thickened, anterior pronotal setae x3; lateral margins narrow; antebasal sulcus sinuous and strongly impressed. Prosternum sparsely pubescent, pubescence longer mesally; prosternal process clearly extending beyond posterior margin of coxa. Metasternum length equal to VI. **Elytra** densely punctuated, punctures larger near base; microsculptured on males and females; humeral calli conspicuous and evenly rounded; disc non-costate, humeral sulcus weakly produced;

few short setae on posterior margin. **Legs** with procoxae glabrous, mesocoxae sparsely pubescent; protibia slender and narrowly excavate, middle and hind tibiae costate; hind tarsomeres length: $1 > 2 + 3$. **Male genitalia** (figs. 29, 41): Aedeagus: AL = 3.01 (2.82-3.36) mm, ML = 2.49 (2.28-2.88) mm, BP = 0.52 (0.48-0.54) mm. Anterior portion as wide as posterior when viewed from above, flattened and distinctly tapering towards apex in lateral view; apex heavily punctured, more or less attenuate; dorsal depression almost as long as median lobe, broad except for basal 1/3 which is narrower and heavily rugose; medial and lateral lamellae almost same width, all distinctly tapering; ventral depression 1/3 of median lobe, lateral and median keels conspicuous; shoe sclerite oblong and sclerotized; large sclerite (fig. 41) with connecting piece elongate, arms broadened; middle sclerite divided; basal piece 1/5 of aedeagus length, anterior margin of basal foramen triangular. Manubrium short. **Female genitalia** (figs. 52, 64): Spiculum with distal end broadened; coxites shorter than 8th tergite, distal 1/3 melanized; baculi short and slender. Spermatheca (fig. 64): SL = 0.705 mm, RL = 0.315 mm, PL = 0.390 mm; pump longer than receptacle and slender; distal duct very convoluted and weakly sclerotized, with conspicuous neck.

Distribution: Ecuador and Northern Perú.

Other material examined: ECUADOR: [no locality]: 1, MCZ; 1, MNHN; 7, Barón, MCZ; 1, Fritsche, V., ZMHB; 3, 1882-1883, Semiradski, MNHN; 1, 1920, Gilbert Hammond, BMNH; 3, Balzapamba, Haensch S., R., ZMHB; 1, Baños, Haensch, R., MCZ; 1, Cuenca, 400-800 m, 4.Ú.1965, Pena, FREY; 5, Huairapongo, interandinen Hochland, Ohaus G., R., ZMHB; 11, Loja, AMNH; 11, Ohaus G., R., ZMHB; 7, iii.1965, Pena, FREY; 9, Abbé Gaujon, MNHN; 2, Ohaus G., R., ZMHB; 2, El Oro, 9 Km NW Atahualpa, 1860 m, 5.XI.1987, Rawlins, J., Young, C. & Davidson, R., ICCM; 11, Pallatanga, 4400 ft, 26.iii.1922, Tate, G.H., ANSP. PERÚ: [no locality]: 6, BMNH; **Amazonas:** 29, Chonza, W. of La Peca (nr. Bagua), 5°36'S 78°25'W, 850 m, 22.xii.1990, Santisteban, J., MJPL; 1, Pircapampa, 24.U982, Santisteban, J., MJPL; **Cajamarca:** 2, Huacaray, 21-22.ix.1911, Townsend, C.H.T., USNM; 2, Llama, 2300 m, 11.vi.56, IMLA; 2, 2200 m, 12.vi.1956, Weyrauch, W, IMLA; 2, 2200 m, 12.vi.1956, Weyrauch, W, ZSMC; 23, 2200 m, 12.vi.1956, Weyrauch, W, FREY; 8, San Andrés, NE de Cutervo, 2200 m, 23.I.1959, Weyrauch, W, UCVM; **Lima:** 16, Lima, 2300 m, 10.vi.1956, Weyrauch, W., IMLA. Total specimens: 168.

***Macrohaltica salvadorensis* Bechyné & Bechyné, new status** (Figs. 1-19, 30, 53, 65)
***Altica mexicana* BECHYNÉ**, 1954a: 295, fig. 3 (in part, misidentification).

***Macrohaltica mexicana salvadorensis* BECHYNÉ & BECHYNÉ**, 1960: 52 (new subspecies); WILCOX, 1977: 109.

Type Material: Holotype: Male (DEIC): México, Chiapas, Finca Irlanda, 1050 m, X-XII. 1952, W. Peters. (SMFC 1384) (not seen).

Remarks: Proposed by BECHYNÉ & BECHYNÉ (1960) as subspecies of *Altica mexicana* Jacoby, however it is very different. It is difficult to understand the reasons for Bechyné's decision regarding the subspecific status of this species, as it is clearly distinct from any of the *Biologia* specimens that are available from both MCZ and BMNH.

Diagnosis: This species is distinguished by its large size, by the usually greenish reflection in coloration, by the elytra not having secondary costae, and by the strongly dilated and excavated tibiae.

Description: **Body** large and robust, oblong, posterior half of body only slightly broader, legs robust. Thorax, abdomen, legs and antenna pubescent. BL = 9.41 mm (8.87-10.62 mm), BW = 4.22 mm (4.00-4.37 mm), PL = 1.89 mm (1.80-1.92 mm), PW = 2.58 mm (2.46-2.70 mm), EL = 6.75 mm (6.62-6.87 mm). Color greenish, greenish-blue or bluish, metallic. **Head** with vertex with strong depressed area before frontal calli; punctation posterad frontal calli reduced; frontal calli small, not touching at midline, separated by groove; longitudinal carina narrowed anteriorly; transverse carina flattened at middle. Orbit narrow, less than width of frontal calli; eyes small and oblong, slightly emarginated. Antennae slightly thickened; antennomeres length: $3 = 2.0 \times 2$. **Thorax** with pronotal punctures small, larger and denser posterad antebasal sulcus; antebasal sulcus distinct but not deeply impressed, slightly sinuous; lateral margins sharp; anterior angles of pronotum clearly marked; anterior pronotal setae x1; prosternal process clearly extending beyond posterior margin of procoxae; metasternum densely pubescent, pubescence longer than in other areas of thoracic venter; metasternum as long as 1st abdominal ventrite. **Elytra** with large punctures, densely distributed and deeply impressed; only females microsculptured; humeral calli conspicuous and bulging; only humeral costa rather defined, extending almost all elytral length; secondary costae vestigial between humeral costa and middle suture; humeral sulcus obsolete, but somewhat evident in some specimens; few short setae on posterior margin. **Legs** with tibiae strongly excavated or outer side, central depression almost glabrous tibial setation dense beneath; 1st tarsomere in males strongly inflated and more or less flattened, hind tarsomeres length: $1 = 2 + 3$. **Male genitalia** (figs. 18, 30) with aedeagus: AL = 3.5? (3.18-3.84), ML = 3.05 (2.58-3.18), BP = 0.53 mm. Aedeagus long, nearly parallel sided; media

lamella width about 2x of laterals; coivnecting portion of large sclerite small (fig. 18), weakly sclerotized, arms broadened throughout their length; middle sclerite divided. Manubrium and tegmen arms of equal length. **Female genitalia** (figs. 53, 65) with ovipositor: coxites longer than T8; baculi not reaching sclerotized portion; spiculum with distal end enlarged in majority of specimens studied. Spermatheca with receptacle and pump subequal in length and diameter, distal duct coiled and long, proximal duct opens subapically, valve membranous.

Distribution: Central America, from México to El Salvador. The Ecuador record is questionable.

Other material examined: ECUADOR: 1, Tulcan, MIZT. BELIZE: 1, San Ignacio, l.ii.1992, Blanchot, Ph., MNHN; 4, Uyace peak, 5000 ft, 12.ii.1946, Cockerell, T.D.A., USNM. EL SALVADOR: 1, Ahuachapan, 9.Ú.1926, Salman, K.A., USNM; 38, San Salvador ES, NHMW; 1, Volcán San Salvador, USNM; 5, Santa Ana (dept), 12.xii.1956, Berry, R.A., USNM; 3, 14.viii.1959, Berry, R.A., USNM; 3, Volcán Santa Ana, 30.viii.1956, Berry, R.A., USNM; 1, Santa Cruz Porrillo, 14.X.1956, Berry, R.A., USNM; 2, Santa Tecla, 11.x.1956, Berry, R.A., USNM; 1, Valiano, 5500 ft, Berry, R.A., USNM; 3, Cerro Verde, 7.viii.1964, Vega, J.C., Jr., TAMU; 1, 8.X.1956, Berry, R.A., USNM; 101, 2 mi down from Cerro Verde summit, 20.viii.1972, Hevel, GE & S., USNM. GUATEMALA: [no locality]: 14, USNM; 5, ZMHB; 2, BMNH; 3, AMNH; 7, MNHN; 5, SEMC; 2, Alfaro, A., INBC; 11, Quatrefages, M. de, MNHN; 1, 17.iii.1972, Pearce, R., USNM; 4, 1908, Guérin, R., MNHN; 6, 1955, Angrand, MNHN; 7, Acatenango, ix.1948, Dalmat. H.T., USNM; 1, vi.1948, Dalmat. H.T., USNM; 7, viii.1948, Dalmat. H.T., USNM; 34, Env. de Acuna, 650 m, 1908, Guérin, R., MNHN; 1, Antigua, x.1965, Krauss, N.L.H., USNM; 3, Lago de Atitlán, 20.viii.1965, Spangler, P.J., USNM; 9, Barcenos, 22.vii.1944, Hambleton, E.J., USNM; 1, Capetillo, 5000 ft, 20.vfii.1947, Vaurie, C. & R., AMNH; 1, 5000 ft, 21.viii.1947, Vaurie, C. & R., AMNH; 1, Rodríguez, ZMHB; 4, Chicacao, 6.VÜ.1949, Farr, T.H., USNM; 1, Chichicastenango, 2.VÜ.1956, Mabry, USNM; 9, 6000 ft, 7.viii.1947, Vaurie, C. & R., AMNH; 3, viii.1959, Krauss, N.L.H., USNM; 2, Dept. de Chiquimala, 1908, Guérin, R., MNHN; 1, Comilan, ZMHB; 1, Cunen, 6000 ft, 11.viii.1947, Vaurie, C. & R., AMNH; 1, Dueñas, Champion, G.C., USNM; 69, Escuintla, NHMW; 5, viii.1879, NHMW; 1, 6.3 mi. NE Escuintla, 31.vii.1966, SEMC; 3, Guatemala, vi.1989, ANSP; 1, 1908, Guérin, R., MNHN; 1, 26.vi.1974, Steiner, W.E., USNM; 4, 10 mi E Guatemala city, 8.viii.1965, Spangler, P.J., USNM; 60, Km 25.5 carr. Guatemala-San Salvador, 24.viii.1985, Arias, R., Velasco, H. & Barrera, E., UNAM; 67, 24.viii.1985, Arias, E., Velasco, H. & Barrera, E., MCZ; 2, Malacatan, Viergutz, A., ZMHB; 3, El

Naranjo, 12.vii.1944, Hambleton, E.J., USNM; 26, Nebaj., 6000 ft, 9.viii.1947, Vaurie, C. & R., AMNH; 2, volcan Pacaya, 9.Í.1989, Kondratieff, B.C., USNM; 1, 5 Km N Panajachel, 9-10.ix.1987, Wood, D.M., CMEC; 1, Panajachel, lake Atitlan, 26.vi.1965, Naumann, M.G., SEMC; 8, Pueblo Nuevo, 20.viii.1961, Vogel, Ev., CSUC; 2, Purulhá, Champion, G.C., NHMW; 3, Quezaltenango, 1885, Paganini, MCSN; 5, 1885, Paganini, MNHN; 1, Reunión, 4000 ft, 22.viii.1947, Vaurie, O. & R., AMNH; 20, San José de Pirula, v.1924, Mann, W.M., USNM; 11, 12 km S of St. Cruz, 2060 m, l.iv.1947, Miller, R.R., USNM; 1, Santa María, 12.iii.1932, Ainslie, C.N., USNM; 1, Senahu, Haase, R., USNM; 2, Tapachula, ZMHB; 1, Kausch, S., ZMHB; 1, El Tumbador, Ohaus, R.S., ZMHB; 3, Tumbala, ZMHB; 6, Yepocapa, 13.ii.1948, A.F.M. (?), USNM; 1, 1948-1949, USNM; 11, ix.1948, Dalmat. H.T., USNM; 10, v.1948, Dalmat. H.T., USNM; 2, viii.1948, Dalmat. H.T., USNM; 3, x.1948, Dalmat, H.T., AMNH; 1, xii.1948, Dalmat. H.T., USNM; 5, Yepocapa, Finca Conchita, 16.ii.1948, Dalmat, H.T., USNM; 2, 19.ii.1948, Dalmat, H.T., USNM; 3, Cerro Zunil, Champion, G.C., NHMW. HONDURAS: [no locality]: 5, ZMHB; 3, Central Honduras, ZMHB; 1, San Juancito Mts., 4100-42000 ft, 27.vii.1930, ANSP; 2, 4800-5150 ft, 29.vii.1930, ANSP; 1, 5050-5300 ft, 7.VÜ.1030, ANSP; 3, 5150 ft, 10.vii.1930, ANSP; 1, 5150 ft, 12.vii.1930, ANSP; 1, 5150 ft, 13.viii.1930, ANSP; 1, 5150 ft, 18.vii.1950, ANSP; 1, 5150 ft, 24.vii.1930, ANSP; 2, 5150 ft, 31.vii.1930, ANSP; 3, 5900-6000 ft, 14.vii.1930, ANSP; 5, 6100-6400 ft, 17.vii.1930, ANSP; 3, San Juancito Mts., vicinity of Peña Blanca, 5900 ft, 22.vii.1930, ANSP; 1, 5900 ft, 23.vii.1930, ANSP; I, Sao Pedro, ZMHB; 1, Siguatepeque, Mankins, J.B., USNM; 1, Tegucigalpa, USNM; 2, 37 Km E.Tegucigalpa, 12.vi.1982, Jones, R.W., TAMU; 10, cerro Uyuca, 6000 ft, 7.viii.1948, Hubbell, T.H., USNM. MÉXICO: [no locality]: 2, AMNH; 2, Flohr, J., ZMHB; 2, Hotzen, G., ZMHB; 1, USNM; 18, MNHN; 17, Dugés, M., MNHN; 4, Mozdard [?], MNHN; 2, 1837, Prevost, M.E., MNHN; 9, Tijuca, BMNH; 9, Yolanda, 8.ix., Purpus, S.V., ZMHB; Chiapas: 35, Altamirano, 2500 m, 23.vii.1992, Marshall, C.J., CUIC; 10, Asimajo vel. Chis., 26.xi.1949, UNAM; 1, Cacaohatan, 6.ix.1980, Burke, H.R., TAMU; 6, Chiapas (state), Von Parten, ANSP; 4, USNM; 19, Pueblo Nuevo, arroyo grande, 13.xii.1985, Cervantes, L., UNAM; II, Rancho Nueva, x.1972, Flores, R., TAMU; 2, Rancho Santa Rosa, l.ix.1972, Wind, R., TAMU; 5, 6 mi. S. Rayón, 5300 ft, 16.vi.1965, Burke, Meyer & Schaffner, TAMU; 1, nr. Km 100 on Rt. 195 S of Rayón, 1600 m, 19.ix.1987, Norrbom, A.L., USNM; 19, San Cristóbal de las Casas, 7500 ft, 27.iv.1959, Evans, H.E., CUIC; 1, Simojovel, 28.ix.1961, Bravo M., H., CUIC; 15, El Triunfo, 12.V.1985, Vertiz, M., UNAM; 2, 14.V.1985, Velasco, H., UNAM;

1, Unión de Juárez, 21.xii.1980, Brailowsky, H., UNAM; *Distrito Federal*: 1, Distrito Federal, Inda, C.R., USNM. Total specimens: 910.

***Macrohaltica crypta*, new species**

(Figs. 31, 42, 54, 66)

Type material: Holotype male (USNM): "Costa Rica /San José Hwy 32 /east side tunnel /08 January 1995/ C.L. Staines// Feeding on: / Gunnera /insignis". Allotype female (USNM), same data as holotype. Paratypes: 70 specimens male and female, same data as holotype.

Diagnosis: This species is easy to separate by its coppery (yellow) metallic coloration. The aedeagus is clearly distinct, with ventrolateral keels developed into foliaceous structures.

Description: Body mid-sized, more or less elongate, legs robust. BL = 7.35 mm (6.50-7.87 mm), BW = 3.68 mm (3.25-4.00 mm), PL = 1.63 mm (1.62-1.68 mm), PW = 2.15 mm (2.04-2.28 mm), EL = 5.95 mm (5.75-6.25 mm). Color bronze metallic; sometimes prothorax, legs and antenna with purple tones. **Head** with área behind frontal calli rugóse, almost without punctation; punctures numerous between inner margin of eye and calli; frontal calli prominent, bulging, mid-sized, sub-rounded; frontal carina narrow; transverse carina strongly produced at middle. Eyes oblong, large and prominent, inner margin entire. Antennomeres: 3rd > 1.5x 2nd. **Thorax** with pronotum distinctly punctured, punctures small, denser posterad antebasal sulcus; lateral margins narrow, slightly rounded from above; anterior pronotal angles weakly developed, anterior pronotal setae 1x; antebasal sulcus sinuous; prosternal process extends beyond posterior margin of fore coxa. **Elytra** large and densely punctate; not microsculptured; humeral calli strongly produced; humeral costa variable, weakly defined on males and usually sharp and raised on females; humeral sulcus distinct; secondary costae obsolete; few short setae on posterior margin. **Legs** with pro- and mesocoxae sparsely pubescent; tibiae of males excávate with apex broadened, those of females narrowly excávate; hind tarsomeres length: 1 < 2 + 3. **Male genitalia** (figs. 31, 42) with aedeagus: AL = 3.07 (2.94 - 3.12) mm, ML = 2.51 (2.46-2.52) mm, BP = 0.55 (0.48-0.60) mm. Aedeagus slightly broader anteriorly; ventral depression with lateral keels strongly developed, medial keel conspicuous; large sclerite with connecting piece triangular, slightly elongate, arms broadened entire length; middle sclerite divided; Basal Piece thickened posteriorly. Tegmen arms longer than manubrium. **Female genitalia** (figs. 54, 66): spiculum with distal apex slightly enlarged; coxites with proximal portion a little wider than distal end, apical pigmentation about 1/3; baculi not reaching darkened área. Spermatheca:

SL = 0.738 (0.705-0.795) mm, RL = 0.345 (0.330-0.375) mm, PL = 0.393 (0.375-0.420) mm; pump about same length but narrower than receptacle; appendix inconspicuous or absent; distal spermathecal duct with a clear neck.

Distribution: Costa Rica and Panamá. There is a single record outside this range, Sierra de Durango in México.

Other material examined: MÉXICO: Durango: 2, Sierra de Durango, USNM. COSTA RICA: 8, Costa Rica, BMNH; 1, ANSP; 14, BMNH; 1, Schaus, MNHN; 5, Werckele, C, AMNH; 14, 1897, Pittier, BMNH; 1, 1920, Serré, R, MNHN; 10, El Ángel Falls 9 Km N Varablanca, 9.V.1964, Eickwort, G.C., SEMC; 1, Barrio Dent., xii.1968, Gómez R, L.D., INBC; 6, P.N. Braulio-Carrillo, Sector Carrillo, 12.vi.1988, Chacón, A.M., INBC; 2, Finca Cafrosa, Est. Las Mellizas, P. N. Amistad, 1300 m, xi.1989, Ramírez, M. & Mora, G., INBC; 1, Río Caratitas, 10.V.1985, Chacón, A.M. & Chavarría, M.M., INBC; 2, Carrillo, Schild & Burgdorf, USNM; 2, Cartago, 9.Í.1974, Barfield, C, USNM; 16, Chiriquí, MNHN; 1, Chomogo área, 10°18' -NO[N] 84°47'—N[W], 1620 m, 13.vi.1973, Hevel, G.F., USNM; 2, Coronado, 1400-1500 m, 21.iv.1928, Nevermann, E, USNM; 32, Embalse el Llano, Río Macho, 1600 m, 2.iv.1990, Lezama, Stinner & Flores, FAMU; 4, La Hondura road Rt. 220, N of Alto La Palma, 1550 m, 18.ii.1978, Snyder Hodges, R.E., USNM; 7, Irazú, Reimoser, E., NHMW; 1, Irazú, 6000-7000 ft, Rogers, H, USNM; 11, Juan Viñas, 26.viii.1935, Ballou, C.H., UCVM; 1, Finca Las Cruces 4 mi S San Vito de Java, 1260 m, 11-19.viii.1969, DHJ, USNM; 1, Monteverde, 1430 m, 23.ii.1978, Snyder Hodges, R.E., USNM; 46, 20.L.1976, Reed, H.C., TAMU; 92, 1300-1600 m, 6.vi.1974, Barfield, C, TAMU; 1, 1400-1700 m, 6-14.vi.1973, Erwin & Hevel, USNM; 2, Monteverde Reserve, 1500 m, 19.viii.1987, Howden, H. & A., CMEC; 4, 1500 m, 24.V.1979, Howden, H. & A., CMEC; 22, nr. Monteverde, 10°17'N 87°47'W, 4800 ft, 23.iii.1982, Kirby, R.J. & Speight, S.A., BMNH; 1, Orosí, 1500 m, MNHN; 5, Pacayas, Werckele, C, AMNH; 1, La Pacífica, 6.Í.1978, DeVries, P.J., INBC; 5, La Palma, 30.iv.1928, Valerio, M., USNM; 17, 1500 m, 6.v., Maxon, W.R., USNM; 5, 1600 m, 1900, Biolley, R, BMNH; 1, i.1919, INBC; 7, Patarra Guatuso, cerro El Espino, 1800 m, 29.X.1985, Chacón, A.M., INBC; 24, nr. Salitral nr. San José, 3100 ft, 4.Í.1982, Kirby, R.J. & Speight, S.A., BMNH; 17, San Isidro CR, 8.V.1928, Tristan, J.F., USNM; 80, Reimoser, E., NHMW; 6, San Isidro de Coronado, 4300-4400 ft, 6.VÍ.1927, Rehn, ANSP; 4, San José, Valerio, M., USNM; 1, 5.VÍ.1976, Fernandez M., E, UCVM; 20, San José, El Túnel, P.N.B.C., 6.Ü.1986, Solis B., A., INBC; 71, San José, Hwy 32 east side tunnel, 8.U995, Staines, C.L., (C. Staines); 19, San Pedro de Montes de Oca, 13.ix.1935, Ballou, C.H., USNM; 4, 30.viii.1934, Ballou, C.H., UCVM; 3,

9.V.1954, USNM; 1, 13.ix.1935, Ballou, C.H., UCVM; 1, 2.í.1935, Ballou, C.H., UCVM; 1, 29.xi.1936, Ballou, C.H., UCVM; 1, 4.11.1932, Ballou, C.H., UCVM; 1, Río Sucio, Rogers, H., USNM; 3, Tapantí, 28.iii.1978, Bierzychudek, R., USNM; 7, Reserva Tapantí, 1400 m, 29.V.1985, Solis B., A., INBC; 23, 1500 m, 20.vii.1985, Solis B., A., INBC; 9, La Ventana, 1550 m, 14.vi.1983, Lindeman, D.H., CMEC. PANAMÁ: 2, Panamá, Doqneh [?], ZMHB; 10, Bambito, Volcán, xii.1946, Krauss, N.L.H., USNM; 5, Barro Colorado, Canal Zone, 13.iii.1936, Gertsch, Lutz & Wood, AMNH; 63, 15.iii.1936, Gertsch, W.J., AMNH; 6, 16.ii.1936, Gertsch, W.J., AMNH; 2, 17.ii.1936, Gertsch, Lutz & Wood, AMNH; 13, 20.ii.1936, Gertsch, Lutz & Wood, AMNH; 1, Boquete, xii.1946, Krauss, N.L.H., USNM; 1, 12.í.1940, Wood, G.C., AMNH; 48, 4 Km N. Boquete, cerro Pate Macho, 1000 m, 25.iv.1981, Brooks, R.W., SEMC; 1, 1 Km E. Candelas, 1800 m, 7.vi.1977, Howden, H. & A., CMEC; 1, Chiriquí, 10.xii.1937, Funaro, C.W., AMNH; 1, Chiriquí, MNHN; 16, Chiriquí, El Volcán, 4000-10000 ft, vii-viii.1937, Worth, C.B., ANSP; 5, 18.ii.1936, Gertsch, Lutz & Wood, AMNH; 10, iii-v.1938, White, R., AMNH; 1, Fortuna, 13-15.vi.1985, Riley, E. & Rider, D., LSCU; 86, 4 rd.Km.N Cont. Div. on Gualaca-Chir. Gr. Hwy, 14.vi.1985, Riley, E. & Rider, D., LSCU; 2, Las Lagunas, 4 Km W Hato del Volcán, 22-23.V.1977, Howden, H. & A., CMEC; 1, 26-27.V.1977, Howden, H. & A., CMEC; 1, 2 Km W. Cerro Punta, 8°51'N 82°36'W, 1720 m, 1-7.vi.1977, Howden, H. & A., CMEC; 34, 2 Km W. Cerro Punta, 8°51'N 82°36'W, 1720 m, 19-23.V.1977, Howden, H. & A., CMEC. Total specimens: 961.

Macrohaltica jamaicensis (Fabricius)

Galleruca jamaicensis FABRICIUS, 1792: 16; SUFFRIAN, 1868: 196.

Galleruca plebeja OLIVIER, 1807: 626 pl. 2, fig. 27; HAROLD, 1875b: 66 (synonymy); JACOBY, 1884: 295; CSIKI & HEIKERTINGER, 1940: 244.

Altica amethystina, OLIVIER, 1807: 687 pl. 2, fig. 31. Unavailable name, *nomen nudum*.

Haltica plebeja, SUFFRIAN, 1868: 195.

Haltica amethystina, HAROLD, 1875a: 24; HAROLD, 1875b: 67; GEMMINGER & HAROLD, 1876: 3490 (cat.); JACOBY, 1884: 295 pl. 17, fig. 12; JACOBY, 1889: 271; CALVERT, 1917: 257, fig.; CSIKI & HEIKERTINGER, 1940: 242.

Haltica jamaicensis, HAROLD, 1875b: 66 (new combination); GEMMINGER & HAROLD, 1876: 3492; JACOBY, 1884: 295, pl. 17, fig. 15; CSIKI & HEIKERTINGER, 1940: 243.

Altica amethystina, BLACKWELDER, 1946: 699; BECHYNÉ, 1955b: 142.

Galleruca [?] plebeja, BLACKWELDER, 1946: 699; WILCOX, 1977: 109.

Altica jamaicensis, BLACKWELDER, 1946: 699; BLAKE, 1981: 63, fig. 4.

Macrohaltica amethystina, BECHYNÉ, 1958a: 23 (invalid combination, generic name *nomen nudum*).

Macrohaltica jamaicensis, WILCOX, 1977: 109 (new combination).

Macrohaltica amethystina, WILCOX, 1977: 109; LESAGE, 1993: 96 (designation as *nomen nudum*); LESAGE, 1994: 131 (correction for designation as *nomen dubium* [?]).

Type Material: *Galleruca jamaicensis* Olivier. Lectotype male (ZMUC), here designated. Only one rectangular label with the following data: "Var. antea jamaicensis" (examined). Condition: left antenna glue to left side of head, with glue covering most of left side of head; right antenna with only three basal antennomeres remaining; left protarsus missing two apical tarsomeres; right pro- and mesotarsus missing three apical tarsomeres; left mesotarsus missing apical tarsomere; missing both metathoracic legs. ZIMSEN (1964) indicates that two of Fabricius types of *Galleruca jamaicensis* are at ZMUC. The specimen examined agrees well with material from the Dominican Republic and Haiti that I have studied. BLAKE (1981) apparently studied this specimen but did not take any action regarding its status (O. Martin pers. comm.). It is therefore here designated as lectotype for *Galleruca jamaicensis* Fabricius. Type material of *Galleruca plebeja* was not found after an extensive search at MNHN. The type specimen of *Altica amethystina* is supposed to be a specimen from the MNHN from the Bosc collection, which status has already been considered by LESAGE (1993, 1994). The 1994 note was intended as a correction from *nomen nudum* to *nomen dubium*. Here, LESAGE (1993) designation of *nomen nudum* is accepted.

Diagnosis: This species is very similar to *M. salvadorensis*, but can be distinguished from it by its clearly smaller size, by the relatively large frontal calli, by the elytral punctation larger and denser, by the coloration usually deep blue metallic, by the elytral disk rugose or with vestigial costae, and by the medial keel in the aedeagus which is weakly developed and not visible beyond the lateral keels on lateral view.

Description: Body elongate, mid-sized, legs robust, body sides subparallel or only slightly broader posteriorly. Venter of thorax and abdomen, legs and antennae densely pubescent. Coloration variable, usually deep metallic blue, but some specimens can have violaceous coloration. **Head** with vertex with strong depressed area before frontal calli; punctation behind frontal calli very reduced; frontal calli rather large, bulging and prominent; frontal carina narrow, elevated; transverse carina developed at middle. Eye orbit narrow, less than width of frontal calli; eyes small and oblong, entire, slightly emarginated on

posterior margin. Antennae slightly thickened; antennomeres length: 3 = 2.0x 2. **Thorax** with pronotal punctures small, larger and denser posterior of antebasal sulcus; antebasal sulcus clear but not deeply impressed, slightly sinuous; lateral margins of pronotum narrow; anterior angles of pronotum produced forward; anterior pronotal setae x2; prosternal process narrowed, with dense and long pubescence, extending a little beyond posterior margin of procoxae; metasternum densely pubescent, as long as 1st abdominal ventrite. **Elytra** with large punctures, densely distributed and deeply impressed basad, getting a little smaller towards apex; females microsculptured; humeral calli conspicuous and bulging; elytral costae weakly developed or only vestigial, humeral costa more developed on females; humeral sulcus absent, elytra not smooth; few short setae on posterior margin of elytra. **Legs** with tibiae strongly excavated on all legs; hind tarsomeres: 1st < 2nd + 3rd. **Male genitalia**: aedeagus: AL = 3.19 (2.94-3.54) mm, ML = 2.70 (2.46-3.00) mm, BP = 0.49 (0.42-0.54) mm. Aedeagus long, nearly parallel sided and slender; medial lamella width about 2 times width of laterals, distally tapering; ventral depression only 1/3 length of median lobe, medial keel weakly developed, not visible beyond lateral keels on lateral view; connecting portion of large sclerite short and transversal, arms broad; middle sclerite divided. Tegmen Y-shaped, manubrium short. **Female genitalia**: coxites longer than T8, apical 1/3 sclerotized; baculi not reaching sclerotized portion of coxites; spiculum with distal end notably enlarged. Spermatheca with receptacle and pump subequal in length and diameter, distal duct coiled and long, proximal duct opens subapically, valve membranous.

Remarks: This species is very variable in terms of body size and coloration. Jamaican specimens studied are usually deep metallic blue, but sometimes individuals in a series may exhibit violet coloration; the blue form seems to be more abundant. Except for color, male and female genitalia are indistinguishable from each other and very similar *M. salvadorensis* except for the relative size and development of the ventral keels. Larger specimens identified as *Graptodera plebeja* may key out to *M. salvadorensis* because of the difference in size and coloration. The old name *Altica amethystina* has been used most often for the violaceous form, in particular Central American material. Specimens from Haiti and the Dominican Republic (Santo Domingo) are undistinguishable from other specimens found throughout the range. Genital morphology for both male and female in this color form are identical, as in typical, bluish *jamaicensis* specimens. It was not possible to find a unique character state combination to allow diagnosis

of these populations in a consistent manner. Furthermore, coloration seems to be greatly influenced by the degree of hardening of the cuticle at the time of capture and by manipulation prior to study. Typical bluish specimens seem violaceous after hot water treatment or after rehydration and subsequent drying. Differences in the cuticle may be responsible for this apparent polymorphism. Until a very detailed study of these local populations can be made, these two seemingly different forms are considered conspecific here. Application of molecular techniques to this problem would be highly recommended, as gross morphology was of limited value to resolve this complex.

Distribution: Widespread species, Caribbean region, Central and South America.

Other material examined: MÉXICO: 1, México (country), BMNH; **Chiapas**: 2, Chiapas (state), BMNH; 33 Chiapas (state), 800-1000 m, 1919, Hotzen, L., USNM; 2, San Cristóbal, 635 [m?], UNAM; **Morelos**: 1, Cuernavaca, vi-1943, Hinton, H.E., BMNH; **Puebla**: 1, Las Chapas, 1844, Sallé, BMNH. GUATEMALA: [no locality]: 1, Sallé, BMNH; 1, BMNH; 1, Capetillo, Champion, BMNH; 1 Capetillo, Champion, MCZ; Purulhá: 1, Champion, ANSP; 1, Champion, BMNH; 1, Champion, AMNH; 1, San Jerónimo, Champion, BMNH; 1, San Miguel de Dueñas, Champion, MCZ; 1, San Miguel de Dueñas, Champion, ANSP; 1, Senahu, Champion, BMNH; 1, Volcán Zunil, 4000 ft, Champion, ANSP; 1, Volcán Zunil; Champion; AMNH; 1, Zapote, Champion, BMNH; 1, V. de Sta. María, Pacific Slope, Richardson, ANSP; 2, V. de Sta. María, Pacific slope; Richardson; BMNH. BELIZE: 1, Blancaneau, BMNH; 1, BMNH; 1, Río Sarstún, Blancaneau, MCZ; 2, Río Sarstún, Blancaneau, BMNH. HONDURAS: 1, BMNH; 15, Balfate, Van Hyning, G.W., CUIC; 5, Cedros, 21.X.1976, White, E.A., LSCU. NICARAGUA: 3, Chontales (dept.), Jason, BMNH; 1, Chontalés (dept.), Belt, T., BMNH. COSTA RICA: 6, Van Patten, ANSP; 6, BMNH; 46, Van Patten, BMNH; 3, 1897, Pittier, BMNH; 1, Van Patten, MCZ; 4, NHMW; 2, Van Patten, NHMW; 5, 1911, Peters, H., NHMW; 6, Van Patten, AMNH; 1, 6 Km. S. San Vito, 19-21.iii.1967, ZSMC; 1, Cachi, Rogers,

H, BMNH; 1, Peralta, 9.viii.1909, Calvert, P.P., BMNH; 4, río Sucio, Rogers, H., BMNH; 1, Volcán Irazú, 6-7000 ft, Rogers, H., MCZ; 1 Volcán Irazú, 6-7000 ft., Rogers, H., ANSP; 8, Volcán Irazú, 6-7000 ft., Rogers, H., BMNH; 3, San José, 1161 m, 1900, Bioley, R., BMNH; 3, La Palma, 1600 m, 1900, Biolley, R., BMNH; 5, La Palma, Biolley, R., InBio; 2, San Pedro, 13.vii.1979, Cock, M.J.W., BMNH; 1, Juan Viñas, 26.viii.1935 VIII; UCVM; I, San Isidro del General, 24.viii.1935, Retana, L., UCVM. PANAMÁ: 1, Bugaba, Champion, BMNH; 1, San Félix, Champion, BMNH. CUBA: Cuba (country): 3, ANSP; 1, BMNH; 2, Habana,

Baker, MCZ; 3, Habana, 15-18.Í.1905, Cook, M.T., AMNH; 1, Habana, 6.Ü.1905, Cook, M.T., AMNH; 4, Havana, Cotorro, vii.1924, ANSP; 4, 7 K. N. of Vinales, 16-23.ix.1913, AMNH, 1, P. de R., Pinar del Río, 9-24.ix.1913, AMNH; 29, Santiago de Cuba, AMNH. JAMAICA: 1, Jamaica (country), BMNH; 2, St. Mary, 4.ix.55, James, H.C., BMNH; 1, St. Andrew, Constant Spring, ca. 650 ft., 25.Í.1920, AMNH; 1, St. Andrew, Kings House Dist, 4.Ü.1920, AMNH; 4, Trelawney PK, 16-30.iii.1931, AMNH; 1, Trelawney, 17.iii.1931, AMNH, 1, B.W.I., AMNH; 1, Kingston, AMNH; 1, Kingston, Liguanea plain, 5.vii.1820, Masón, F.R., ANSP; 1, Montego Bay, 6.Ü.1911, AMNH. HAITÍ: 2, Saint Michel de l'Atalaye, xi.1925, Leonard, E., USNM. DOMINICAN REPUBLIC: 2, Dominican Republic (country), BMNH; 2, Bolboche, ii.1928, Miller, G.S., USNM; 1, Samana, 2-6.vi.1915, AMNH; Sánchez: 3, 11-16.V.1915, AMNH; 1, 13-18.vi.1915, AMNH; 2, 17-21.V.1915, AMNH; 5, 22-27.V.1915, AMNH. PUERTO RICO: 2, Puerto Rico (country), i.1930, I Peña, M., USNM; 1 Adjuntas, 26.vi.1915 VI, AMNH; 2, Adjuntas, 8-13.vi.1915, AMNH; 5, Adjuntas, USNM; 4, Cabo Rojo, 1. vi.1975, Micheli, J., USNM; 2, Aibonito, 10.xi.1925, AMNH; 149, Aibonito, 14-17.vii.1914, AMNH; 1, Aibonito, 9.ii, AMNH; 10, Barros, 4.vi.1915, AMNH; 1, Caguas, 28-29.V.1915, AMNH; 1, Coamo Springs, 5-7.vi.1915, AMNH; 1, Coamo Springs, 11.ii, AMNH; 1, Coamo Springs, 25.vii.1919, AMNH; 1, Coamo Springs, 17-19.vii.1914, AMNH; 4, San Juan, 9-12.vii.1914, AMNH; 42, San Turce, 26.xii.1914, AMNH. COLOMBIA: Colombia (country): 6, BMNH; 2, BMNH; 1, MCZ; **Caquetá**: 4, Parque de las Papas, 10000 ft, 21.ii, 3.iv. CUIC; **Cauca**: 2, Cauca (dept.), Jayne, MCZ; **Cundinamarca**: 1, Bogotá, BMNH. VENEZUELA: 2, Venezuela (country), BMNH; **Aragua**: 1, Cata, 10.ii.1964, Bechyné, J. & B., UCVN; 1, Colonia Tovar, 16.viii.1966, Ascoli, A.D., UCVN; 4, El Limón, 450 m, 13.viii.1976; Clavijo, J. & Hernández, Z., UCVN; 1, Rancho Grande, 1100 m, 24.ix.1989, Rosales, C.J. & Savini, V., UCVN; 1, Rancho Grande, 1100 m, 29.xii.1958, García E., G. & Lozano, J.R., UCVN; 27, Rancho Grande, 1200 m, 25.L.1972, Scherer, G. & E., ZSMC; 1, Rancho Grande, 1100 m, vi.1965, Romero, R., UCVN; 1, Rancho Grande, 1100 m, 19.ii.1965, Romero, R., UCVN; **Carabobo**: 1, Yuma, 4.viii.1977, UCVN; 4, Agua de Obispo Montalbán, 8.VÜ.1983, Aponte, O. & Doreste, E., UCVN; D.F.: 1, Caracas, 3.vi.1950, Fernández Y, R., UCVN; 1, Cortada del Guayabo, 15.ix.1974, UCVN; 2, El

Avila, 1.vü.1972, UCVN; **Mérida**: 2, Sta. Cruz de Mora, 16.viii.1980, Manrique, R., UCVN; **Táchira**: 3, Río Frío, 600 m, 20-24.iv.1982, UCVN; **Trujillo**: 1, La Laguna, carret. Bocono-Guaracamal, 1750 m, 11-13.xii.1973, Rosales, C.J. & García, J.L., UCVN. ECUADOR: 1, Hacienda Guachala, 9217 ft, Whympfer, Ed., MCZ; Hacienda Paramba, 3500 ft, iv.1897, Rosenberg, MCZ; 3, Machachi, 9-10,000 ft, Whympfer, Ed., MCZ; 2, Quito, BMNH; 1, Río Pescado, 1500 ft, 17.V.1922, Tate, G.H., BMNH. PERÚ: 22.15.V.1961, Scukup, J., fr., USNM; **Lima**: 12, Chosica, 1951, Pilhaca, O., MJPL; 5, Chosica, 1951, MJPL; 4, Cieneguilla, 13.vii.1968, Ortiz, M., UAST; 1, La Molina, 20.iv.1968, del Valle, L.; UAST; 4, Laguna Villa, 4.xi.50, Weyrauch, W, IMLA; 1 Lima, 4.Ü.1950, Fernández, R., IMLA; 3, Lima, 4.xi.1950, Weyrauch, W, USNM; 2, Lima, ii.1952, Weyrauch, W, USNM; 1, Lima, xi.1870, Ransont, NHMW; 5, Lima, 28.vii.1969, Carrión, M.J., UAST; 1, Lima, 5.XÜ.1970, Toledo, J., Molina; 1, Lurín, 3.xi.1968, Sarmiento, J. & García, U, Molina; Río Lurín, 1000 m, 27.Í.1955, IMLA; 2, Río Lurín, 20 m [?], 30.xi.58, Weyrauch, W, IMLA. BRAZIL: **Bahía**: 1, Bahía, v.1847, MZSP; 1, Bahía, D. Nedly [17], BMNH; **Espírito Santo**: 1, Espírito Santo, Fruhstorfer, MCZ; Río de Janeiro: 1, Praia de Grumari, xii.1952, Grumari, MZSP; 1, Teresópolis, Michaelis, J., Paris; **Santa Catarina**: 4, Gotzelmann, ZSMC; 1, MCZ; 1, Lunderwaldt, MCZ; 1, Blumenau, Reitter, MCZ; 1, Nova Teutónia, 2.1935, Pohl, B., MZSP; 1, Rio Benedito, Dirings, MZSP; **Sao Paulo**: 1, Amparo, 15.Í.1939, Lañe, F, MZSP; 1, Capivari, ii.1955, Dirings, MZSP; 1, Cantareira, 21.vii.1914, UCVN. BOLIVIA: 2, Santos Marcos, 2000 ft, MCZ. FRENCH GUIAN A: 1, Cayenne, BMNH. Total specimens: 667.

Acknowledgments.- This study could have not been possible without the assistance and cooperation of a large number of individuals and institutions who provided specimens for study and who are listed under the "Collections" section. To all of them I wish to express my gratitude for their assistance and help in procuring this material. I would also like to thank J. K. LIEBHERR, Q. D. WHEELER, K. C. NIXON and D. G. FURTH for reading and commenting on earlier versions of this manuscript. Finally, I would like to acknowledge the financial support of the Grace Griswold Fund, Cornell University Graduate School, and Ernst Mayr Fund.

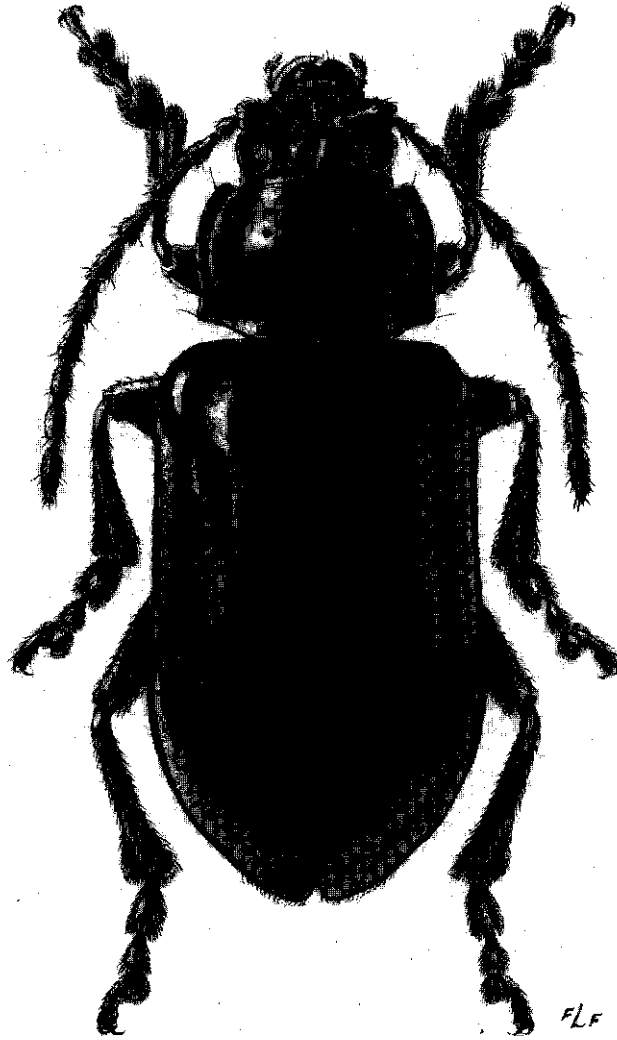
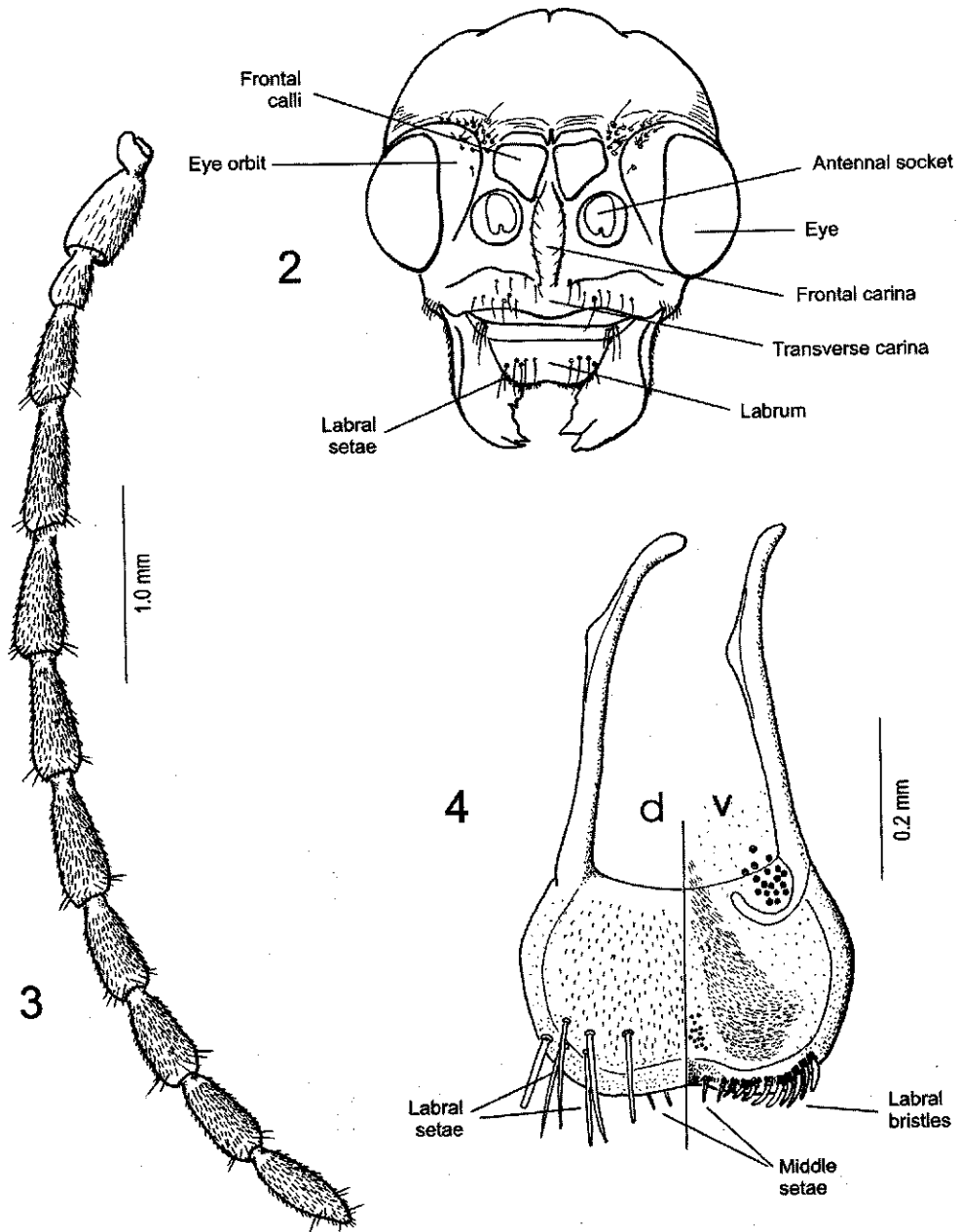
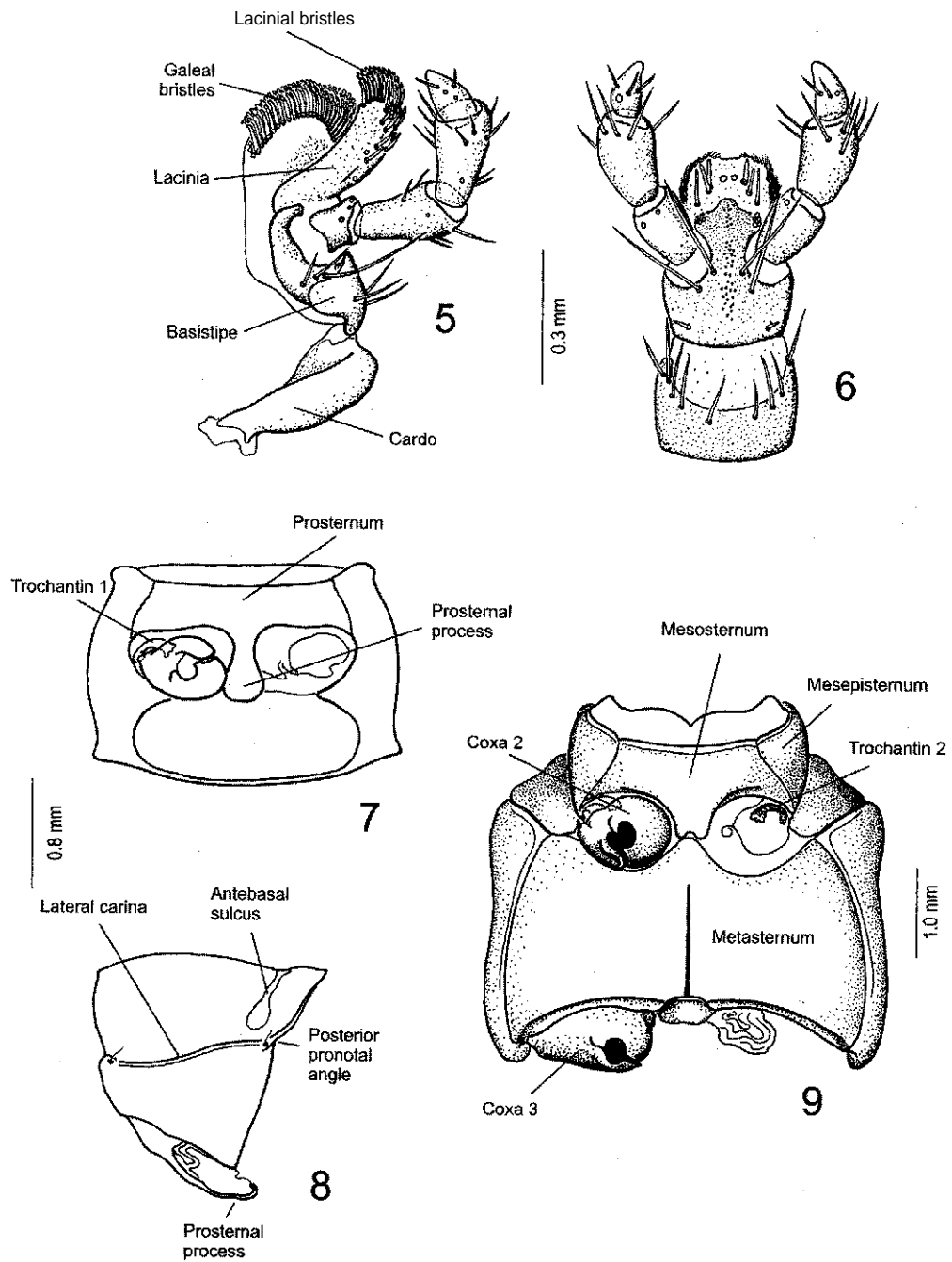


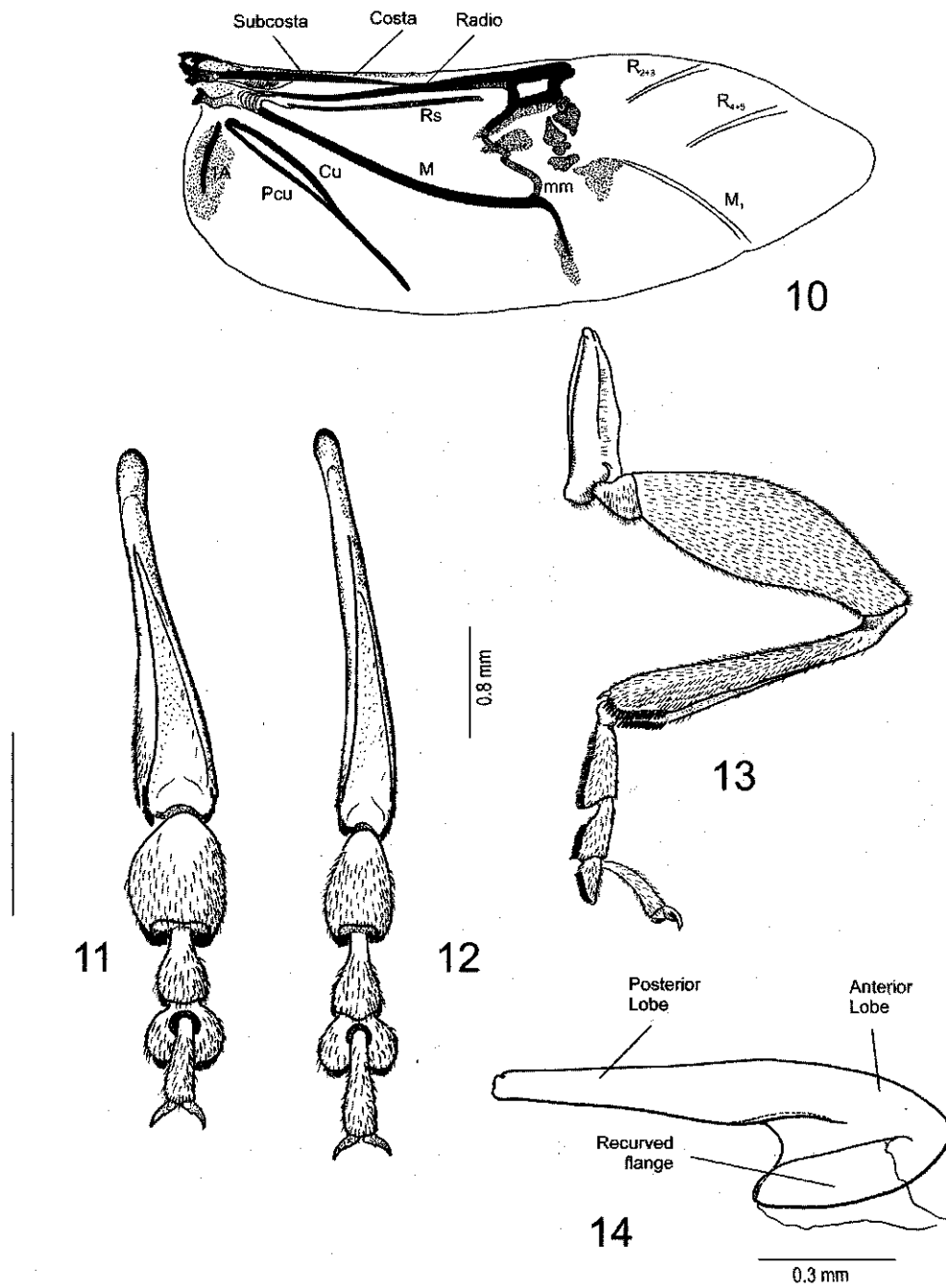
FIGURA 1.- *Macrohaltica salvadorensis* Bechyné, habitus.



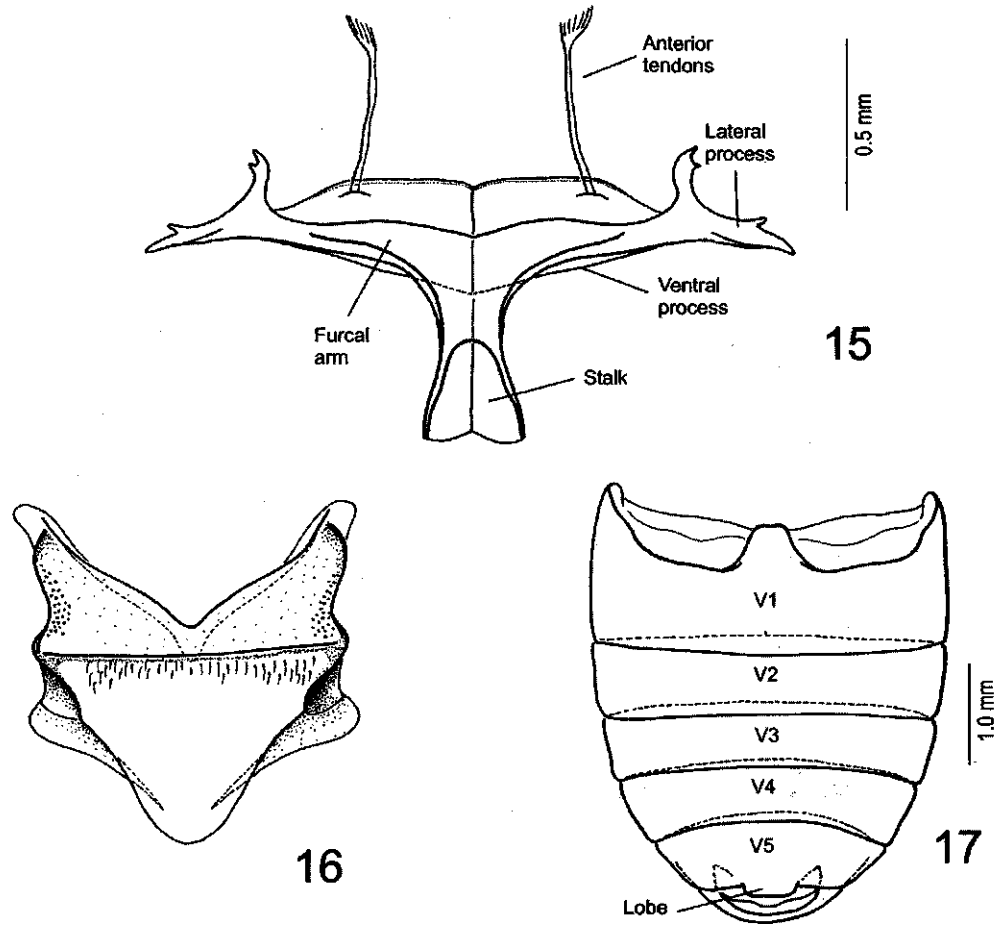
FIGURES 2-4. *Macrohaltica salvadorensis* Bechyné. 2, head, frontal view; 3, antenna; 4, labrara, dorsal (d) and ventral (v) views.



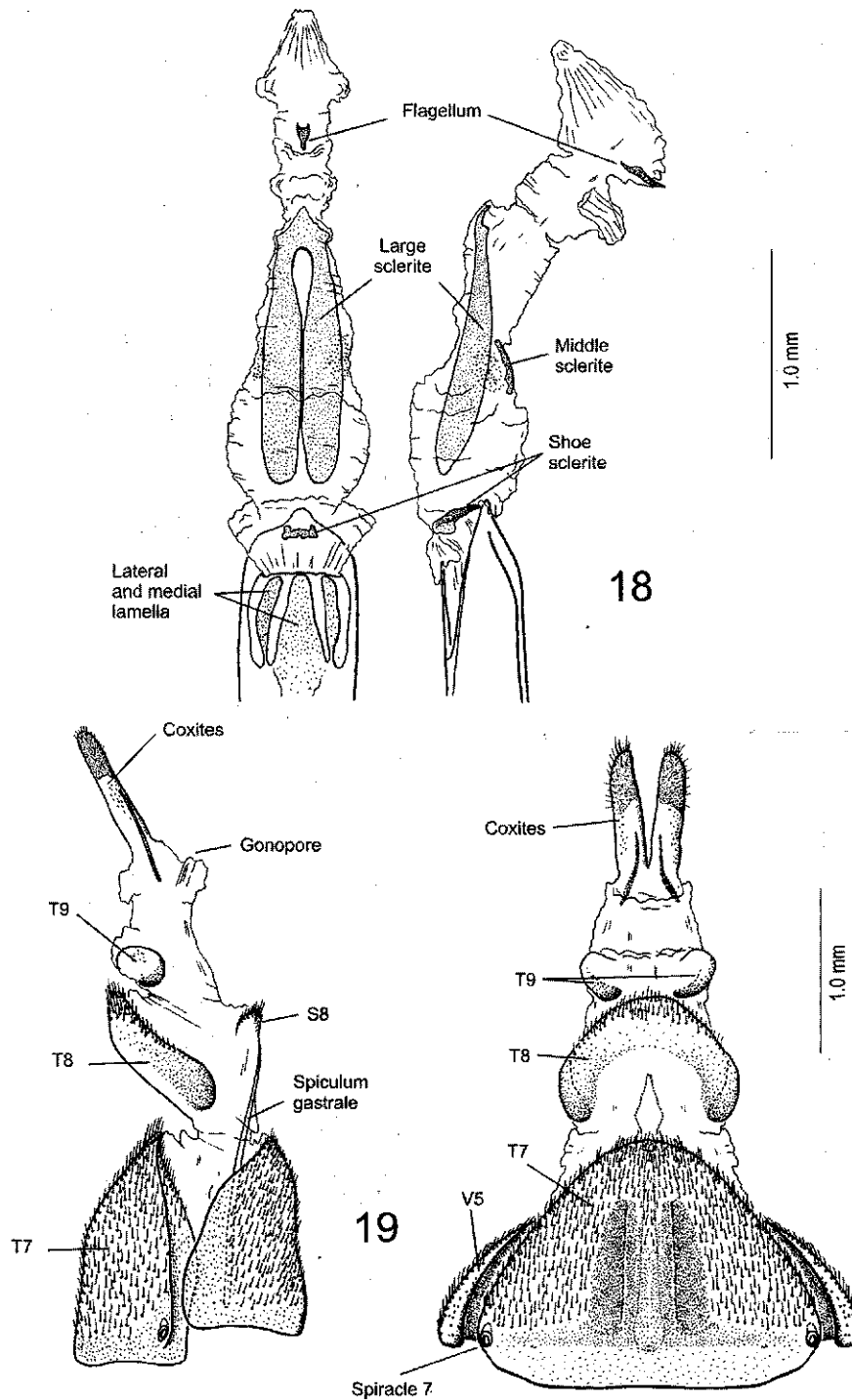
FIGURES 5-8. *Macrohaltica salvadorensis* Bechyné. 5, maxilla; 6, labium; 7, prothorax, ventral view; 8, prothorax, lateral view.



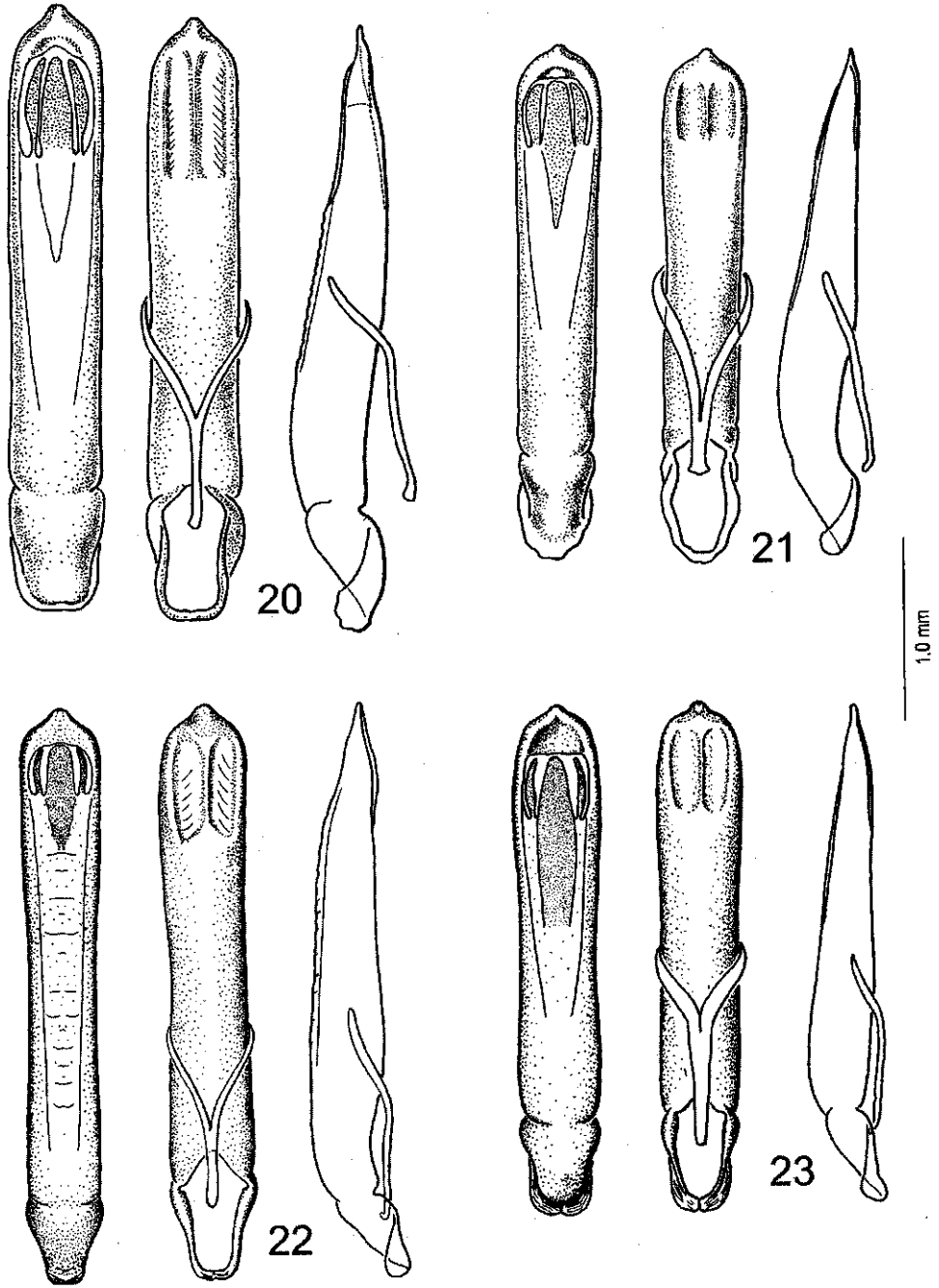
FIGURES 1(XI4. *Macrohaltica salvadorensis* Bechyné. 10.hmdwing; 11, front tibia abdtarsus, male; 12, front tibia and tarsus, female; 13,hindleg; 14, metafemoral spring.



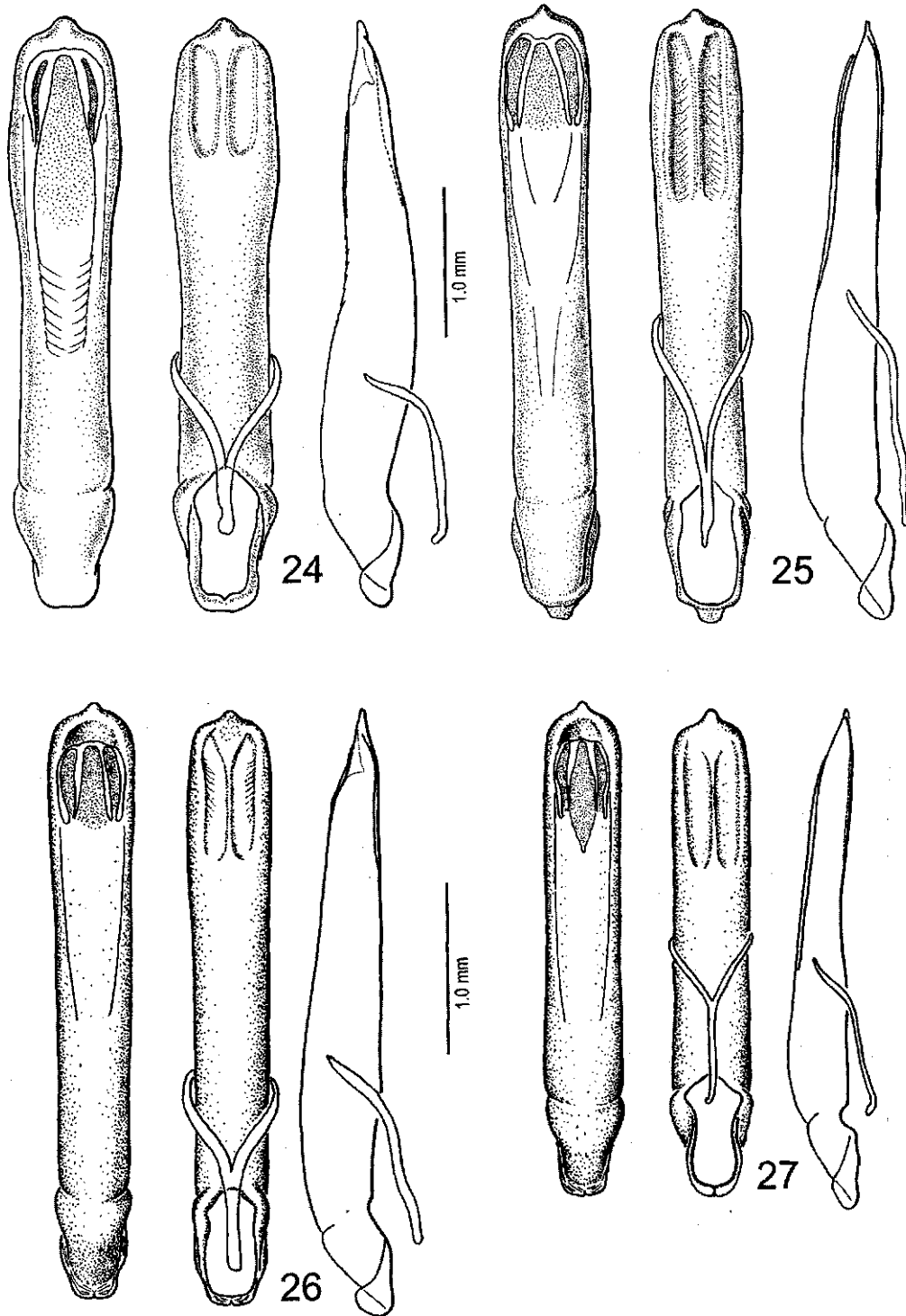
FIGURES 15-17. *Macrohaltica salvadorensis* Bechyné. 15, metendosternite, antero-ventral view; 16, mesoscutellu, dorsal view; 17, abdomen, ventral view.



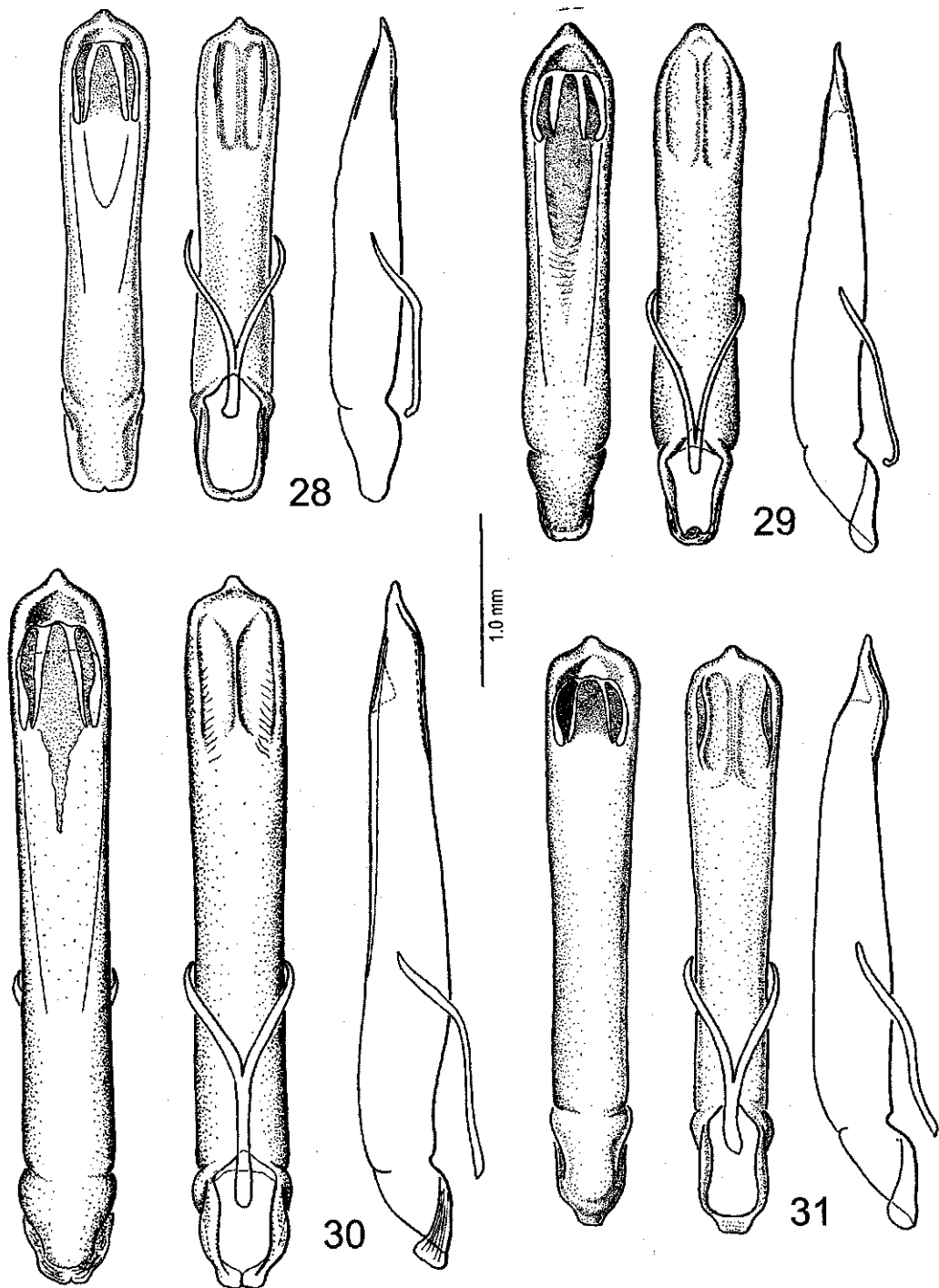
FIGURES 18.19. *Macrohaltica salvadorensis* Bechyné. 18, interbal sac of aedeagus, everted, dorsal and lateral views; 19, female genitalia, coxites extended, lateral and dorsal views.



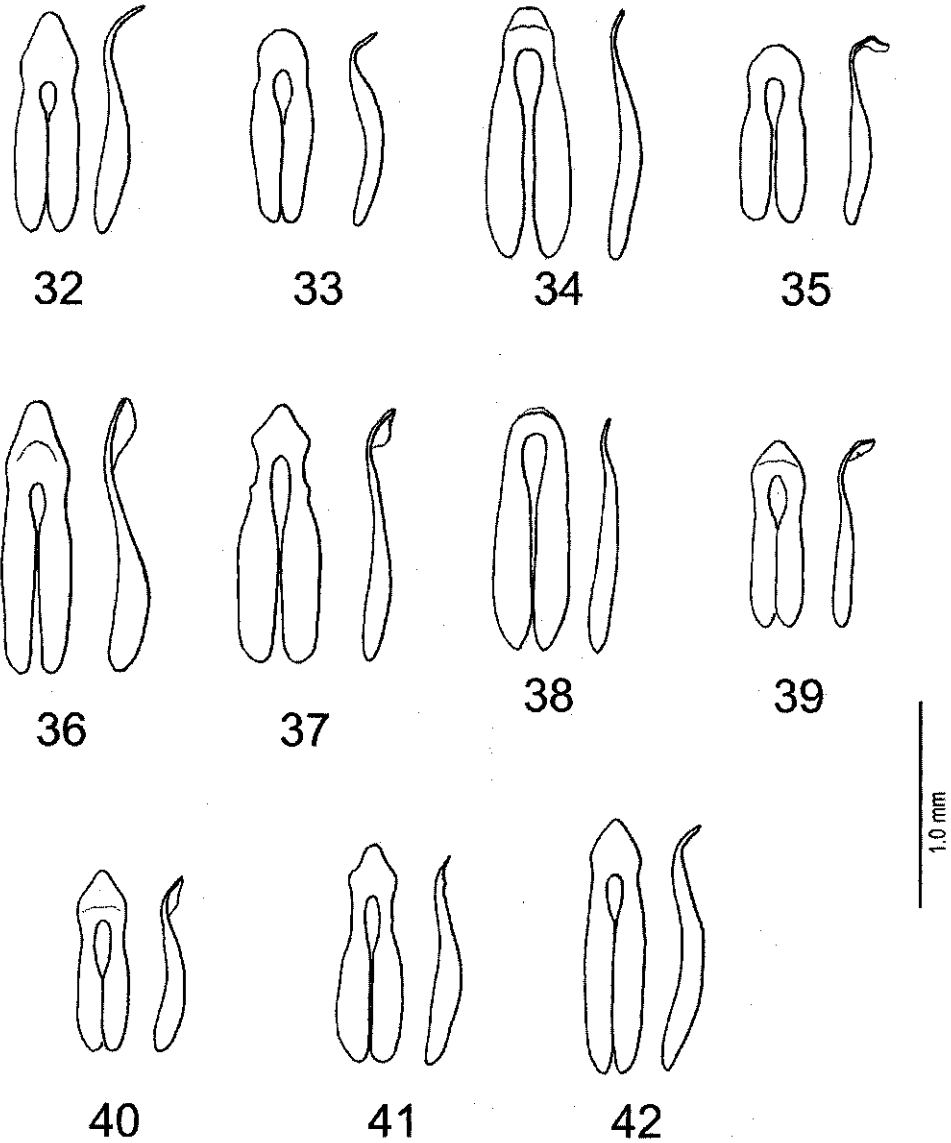
FIGURES 20-23. Aedeagus, dorsal, ventral and lateral views. 20, *Macrohaltica plicata* (Erichson); 21, *Macrohaltica aequifacta* Bechyné & Bechyné; 22, *Macrohaltica complicata* (Harold); 23, *Macrohaltica convexicollis* (Harold)



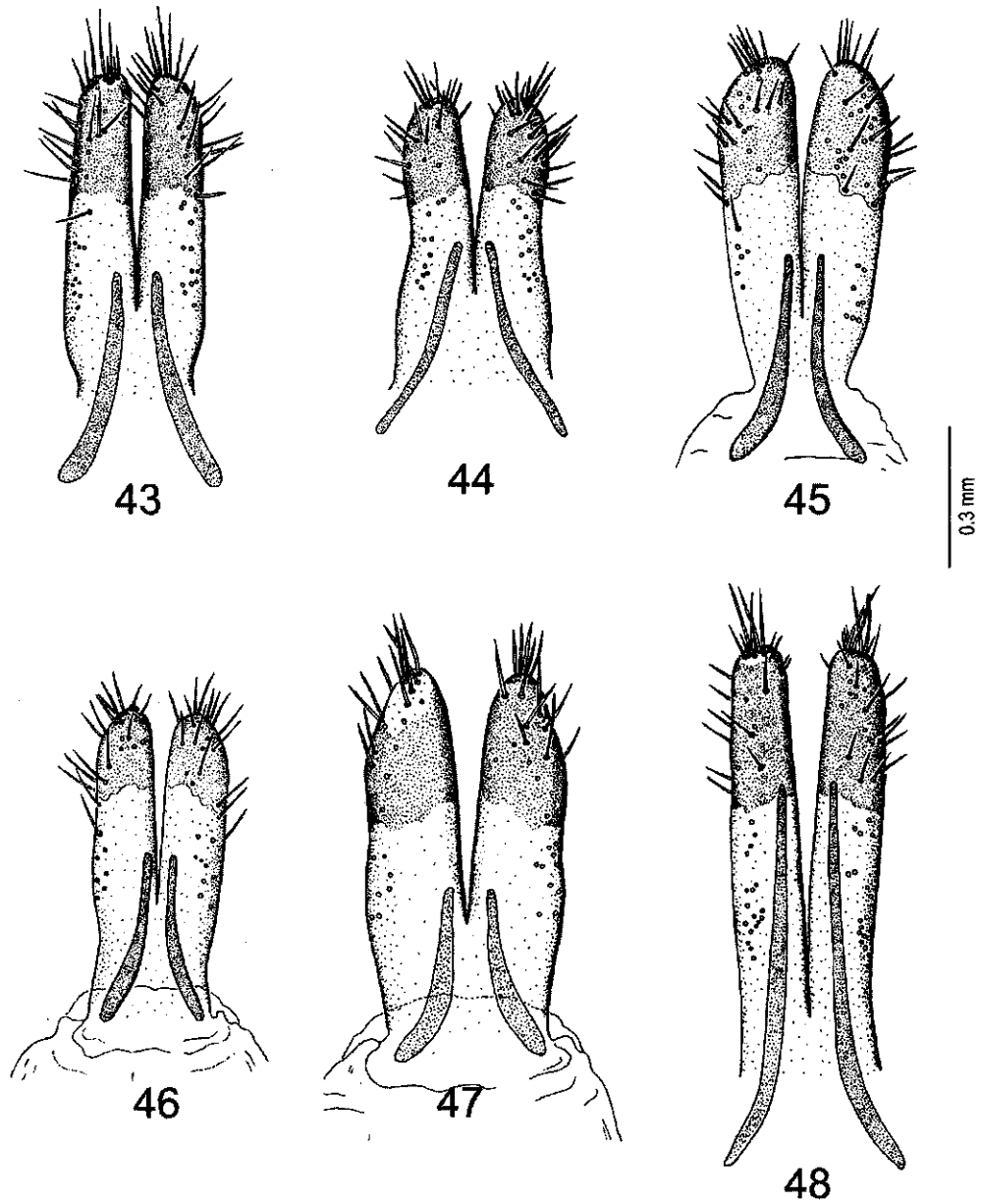
FIGURES 24-27. Aedeagus, dorsal, ventral and lateral views. 24, *Macrohaltica costata* (Erichson); 25, *Macrohaltica gregaria* (Harold); 26, *Macrohaltica lánguida* (Harold); 27, *Macrohaltica patruelis* (Harold)



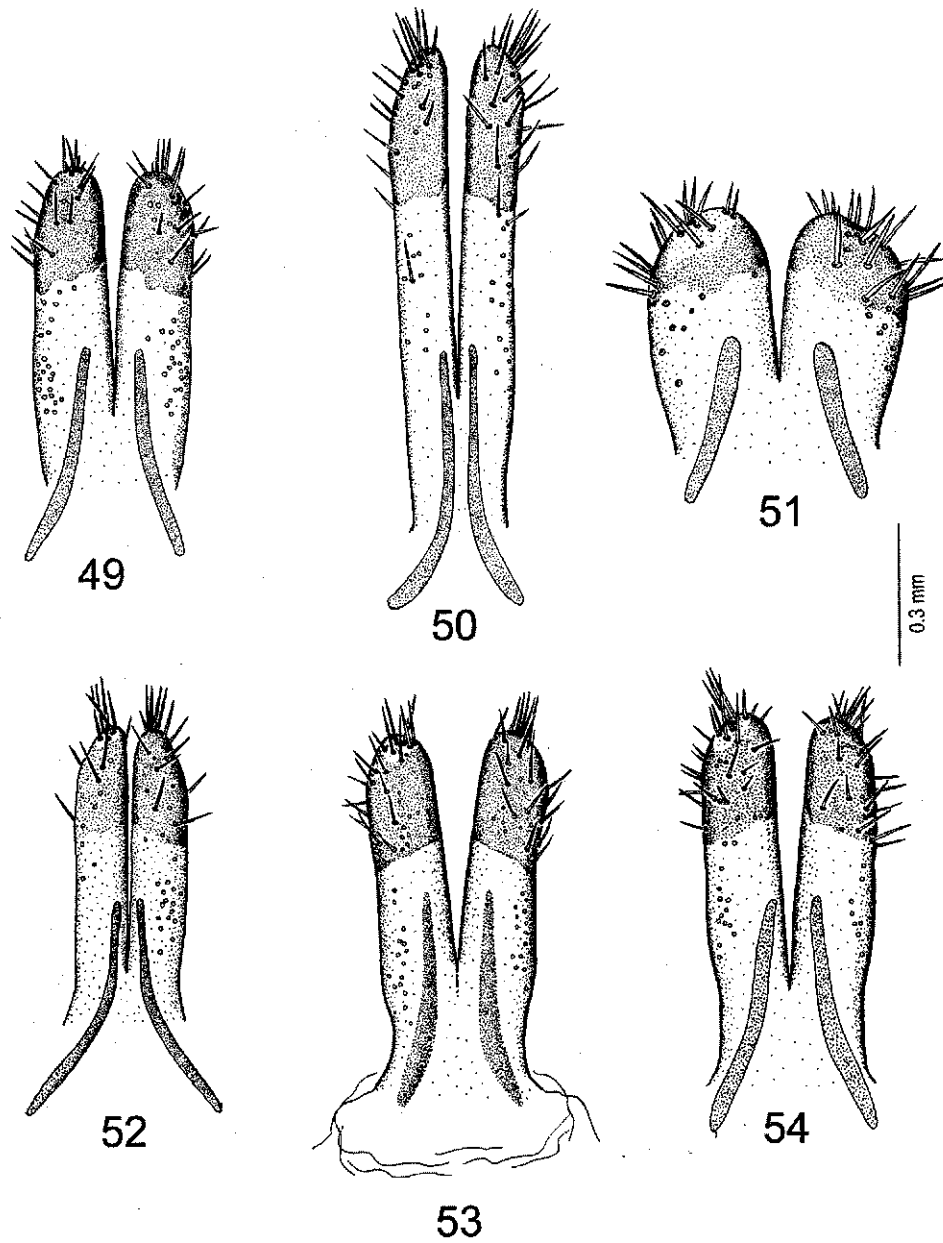
FIGURES 28-31. Aedeagus, dorsal, ventral and lateral views. 28, *Macrohaltica transversa* (Germar); 29, *Macrohaltica weyrauchi* Bechyné; 30, *Macrohaltica salvadorensis* Bechyné; 31, *Macrohaltica crypta* NEW SPECIES.



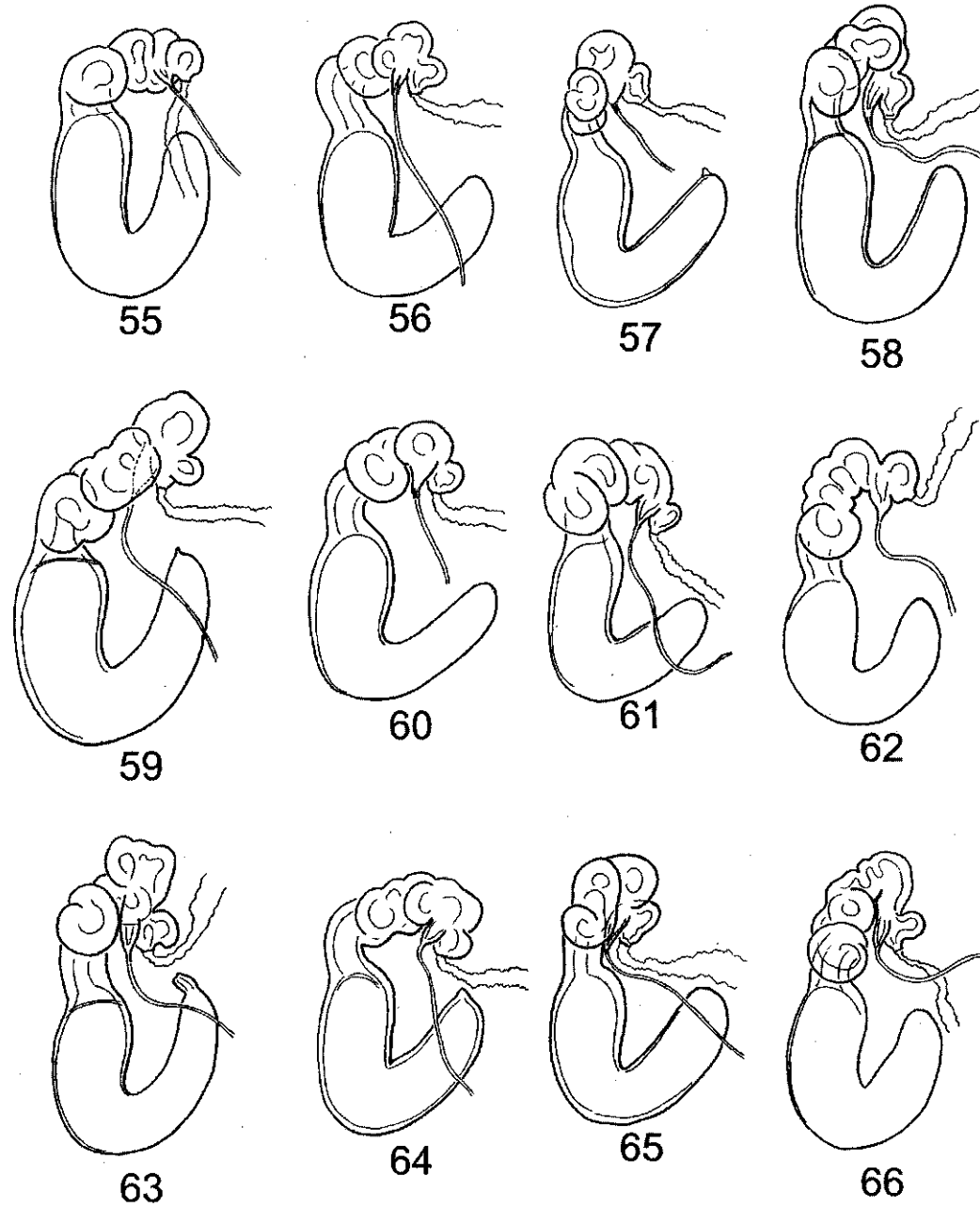
FIGURES 32-42 Middle sclerite, dorsal view when internal sac is everted . 32, *Macrohaltica plicata* (Erichson); 33, *Macrohaltica aequifacta* Bechyné & Bechyné; 34, *Macrohaltica complicata* (Harold); 35, *Macrohaltica convexicollis* (Harold); 36, *Macrohaltica costata* (Erichson); 37, *Macrohaltica gregaria* (Harold); 38, *Macrohaltica lánguida* (Harold); 39, *Macrohaltica patruelis* (Harold); 40, *Macrohaltica transversa* (Germar); 41, *Macrohaltica weyrauchi* Bechyné; 42, *Macrohaltica crypta* NEW SPECIES.



FIGURES 43-48. Female coxites, dorsal (right) and ventral (left) views.. 43, *Macrohaltica plicata* (Erichson); 44, *Macrohaltica aequifacta* Bechyné & Bechyné; 45, *Macrohaltica complicata* (Harold); 46, *Macrohaltica convexicollis* (Harold); 47, *Macrohaltica costata* (Erichson); 48, *Macrohaltica gregaria* (Harold)



FIGURES 49-54. Female coxites, dorsal (right) and ventral (left) views..49, *Macrohaltica lánguida* (Harold); 50, *Macrohaltica patruelis* (Harold); 51, *Macrohaltica transversa* (Germar); 52, *Macrohaltica weyrauchi* Bechyné; 53, *Macrohaltica salvadorensis* Bechyné; 54, *Macrohaltica crypta* NEW SPECIES.



FIGURES 55-66. Spermatheca, lateral view. 55, *Macrohaltica plicata* (Erichson); 56, *Macrohaltica aequifacta* Bechyné & Bechyné; 57, *Macrohaltica complicata* (Harold); 58, *Macrohaltica convexicollis* (Harold); 59, *Macrohaltica costata* (Erichson); 60, *Macrohaltica gregaria* (Harold); 61, *Macrohaltica lánguida* (Harold); 62, *Macrohaltica patruelis* (Harold); 63, *Macrohaltica transversa* (Germar); 64, *Macrohaltica weyrauchi* Bechyné; 65, *Macrohaltica salvadorensis* Bechyné; 66, *Macrohaltica crypla* NEW SPECIES.

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