Acta zoologica cracoviensia, **47**(3-4): 211-228, Kraków, 31 December, 2004

The New World species of *Ataenius* HAROLD, 1867. IV. Revision of the *A. strigicauda*-group (Coleoptera: Scarabaeidae: Aphodiinae: Eupariini)*

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Received: 15 May 2004
Accepted for publication: 5 Sept. 2004

STEBNICKA Z. 2004. The New World species of *Ataenius* HAROLD, 1867. IV. Revision of the *A. strigicauda*-goup (Coleoptera: Scarabaeidae: Aphodiinae: Eupariini). *Acta zoologica cracoviensia* **47(**3-4): 211-228.

Abstract. The *strigicauda*-group of the six New World species of *Ataenius* HAROLD is revised. A lectotype of *Ataenius vexator* HAROLD is here designated, the following new synonyms are proposed*: Ataenius columbicus* HAROLD, 1880 (= A. tesari BALTHASAR, 1947, **syn. n**.); *A. heinekeni* WOLLASTON, 1854 [(= *A. rhyticephalus* (CHEVROLAT, 1864) **syn. n**., = *A. vexator* HAROLD, 1869, **syn. n**.] and *A. strigicauda* BATES, 1887 (= *A. aspericollis* PETROVITZ, 1973, **syn. n**.). The taxonomic history of the species-complex, diagnostic characters and key are provided, available biological information and distribution data are given.

Key words: Scarabaeidae, Aphodiinae, *Ataenius strigicauda*-group, taxonomy, New World.

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I. INTRODUCTION

The present paper is the fourth in a series in which the New World species of *Ataenius* HAROLD are revised and deals with *A. strigicauda*-group. The group is composed of six very similar and closely allied species including the "*heinekeni (=rhyticephalus)-columbicus-strigicauda*" complex. The taxonomy of this complex has been embroiled in confusion due to a series of mistakes that were repeated and compounded through the extensive literature (see References). Several historical authors have fancied the specific epithet "*stercorator*" for various species in the genera *Auperia* and *Ataenius*. The species of FABRICIUS, 1775, *Scarabaeus stercorator* was the first euparine taxon described from South America (Brazil, Rio de Janeiro). A misidentification of that species was initiated by JACQUELIN DU VAL (1856) in her contribution to the Coleoptera of Cuba, and followed by CHEVROLAT (1864) and HAROLD (1867, 1875). In the course of over hundred years, most authors have applied FABRICIUS' name to the very common species *Ataenius strigicauda* BATES, 1887 de-

*This project was supported by Grant No 3P04C 089 22 received from the Committee of the Scientific Researches in Poland.

scribed from Mexico, to *A. strigatus* (SAY, 1823) described from Pennsylvania, to *Auperia denominata* and *A. rhyticephala* CHEVROLAT, 1864, both described from Cuba as well as to *Oxyomus heinekeni* described by WOLLASTON, 1854 from Madeira. The latter species has been synonymized with "*stercorator*" by HAROLD (1875) and it made it possible to forget until now. For a more extensive discussion on the use of "*stercorator*", see the "Taxonomic background" section by STEBNICKA (2002) and comments associated with description of *A. stercorator* F. by STEBNICKA (2003).

This study provides a revision of species in the group with all synonymical notes concerning. There are some widespread and prevalent species which occur in most of the countries and sufficient data were available to outline the major pattern of their distribution. Of the six species considered, three species are hitherto known only from South America, one species occurs in USA, Central America, West Indies and Madeira and two species are widely distributed in the continent, including one anthropogenic species invading several oceanic archipelagos and Australia.

II. MATERIAL AND METHODS

Approximately 2850 specimens representing six species assigned to the *strigicauda*-group were selected from New World material hitherto identified, including all available type specimens. A diagnosis of the *strigicauda*-group is given below, followed by keys and descriptions. Since the species are not clearly differentiated, their descriptions include mainly: exceptions to the usual conditions mentioned in the diagnosis of the group, the state of characters varying widely and unique features.

The following institutions and private collections kindly contributed material for this study. The abbreviations cited below are used in all text citations

AMNZ	Auckland Institute and Museum, Auckland, New Zealand
CMNO	Canadian Museum of Nature, Ottawa, Canada
DEIE	Deutsches Entomologisches Institut, Eberswalde, Germany
FSCA	Florida State Collection of Arthropods, Gainesville
FVMC	Fernando Vaz-de-Mello Collection, Viçosa, Brazil
HAHC	Henry & Anne HOWDEN Collection, Ottawa, Canada
HNHM	Hungarian Natural History Museum, Budapest
ISEA	Institute of Systematics and Evolution of Animals PAS, Krakow, Poland
MCZC	Museum of Comparative Zoology, Harvard University, Cambridge
MHNG	Muséum d'histoire naturelle, Geneva, Switzerland
MNHN	Museum National d'hitoire naturelle, Paris, France
MSNUP	Museo di Storia Naturale, Universita di Pisa, Calci, Italy
MZUSP	Museu de Zoologia Universidade de São Paulo, Brazil
NHML	The Natural History Museum, London, U.K., England
NMPC	National Museum, Prague (includes BALTHASAR's collection), Czech Rep.
NZAC	N.Z. Arthropod Collection, Mt Albert Res. Centre, Auckland, New Zealand
PSC	Paul SKELLEY Collection, Gainesville, Florida
SAMA	South Australian Museum, Adelaide, South Australia
SMNS	Staatliches Museum für Naturkunde, Stuttgart, Germany
SMTD	Staatliches Museum für Tierkunde, Dresden, Germany
TMP	Transvaal Museum, Pretoria, South Africa
UNSM	University of Nebraska State Museum, Lincoln, Nebraska
USNM	United States National Museum of Natural History, Washington DC

ZMHB Zoologische Museum Museum der Humboldt Universität, Berlin, Germany

ZMS Zoologische Staatssammlung, Munich, Germany

A c k n o w l e d g e m e n t s. I wish to express my cordial thanks to the following persons for lending me the materials from their institutions and private collections: D. AHRENS (Dresden), H. HOWDEN and F. GËNIER, (Ottawa), H. & A. HOWDEN (Ottawa), O. MERKL (Budapest), L. ZERCHE (Eberswalde), A. TERÀN (Tucuman), F. VAZ-DE-MELLO (Viçosa), B. MERZ, G. CUCCODORO and I. LÖBL (Geneva), Y. CAMBEFORT (Paris), C. COSTA (São Paulo), C. FLECHTMANN (Brasilia), B. VIKLUND (Stockholm), P. SKELLEY, J. MORRIS, R. TURNBOW and J. WAPPES (Gainesville), W. SCHAWALLER (Stuttgart), †S. ENDRÖDY-YOUNGA (Pretoria), N. ADAMS, D. FURTH and G. HOUSE (Washington DC), W. WARNER (Arizona), H. WENDT, J. SCHULZE (Berlin) and M. BAEHR (Munich). I would like also to thank Marek KOPEĆ (ISEA) for making the photographs of beetles.

III. TAXONOMY

The *Ataenius strigicauda*-group

D i a g n o s t i c c h a r a c t e r s. Approximate length 4.5- 6.0 mm, body (Figs 7, 16, 18) elongate oblong, moderately convex, black or piceous, in some species or specimens microreticulate. Head moderate in size, clypeal margin in most species rounded on each side of median emargination, in one species denticulate; clypeal surface in most species weakly transversely rugulose, middle of head finely to scabrously punctured, vertex with scattered punctures or with band of closer punctures. Pronotum transverse, surface punctate, sides and base margined, margin more or less deeply grooved, lateral margin fringed with short to moderate in length, thin setae. Scutellum trangular. Elytra slightly arcuate or parallel-sided with basal bead and fine humeral denticles; elytral striae distinctly impressed, in most species coarsely punctate, intervals convex or flat, rarely eroded posteriorly, lateral intervals in some species different. Ventral surface shining or subopaque; abdominal sternites glabrous, finely fluted along sutures and punctate in most species. Profemur shining, punctate, meso- and metafemora shining, metafemur in all species with incomplete posterior line; meso- and metatibiae slender, subcylindrical, apex with accessory spine, slender spurs and fringe of few setae; tarsi slender, basal tarsomere of metatarsus subequal to following four tarsomeres combined. Epipharyngeal structures specifically not differentiated, similar to those in the other species-groups of Ataenius.

External sexual differences slight, apparent in the length of abdominal sternites 5-6. Male genitalia (Figs 2-6, 10-15) moderately sclerotized, parameres of aedeagus equal in length and width to phallobase, nearly parallel-sided, rounded apically, internal sac membranous, fine.

A f f i n i t y. The *Ataenius strigicauda*-group is most closely allied to the *A. strigatus*-group (revision in press) sharing with some species of that group an overall similarity, the shape and sculpture of the head, sculpture of the body and characters of the middle and hind legs. The differences include principally the characters of the male genitalia with laterally wide and flattened parameres, while those of *strigatus*-group are cylindrical and apically narrowed. Externally, the species of the *strigicauda*-group may be easily confused with five species of the *strigatus*-group, namely with *A. apicalis* HINTON, *A. strigatus* (SAY), *A. spretulus* (HALDEMAN), *A. wenzelii* HORN and *A. cognatus* (LECONTE). However, in most cases the distribution of species in both groups is allopatric and may be helpful in identification. In addition, the male genitalia are rather well differentiated and may be used to distinguish the species satisfactorily.

It should be noted, that within all the species considered, there is a great deal of intraspecific variation, however, constancy of combined characters indicates that individuals are part of the same species lineage. I caution the user to be aware that variation is found even in the form of the male genitalia.

Key to the species of *Ataenius strigicauda*-group

1. Disc of metasternum at mesocoxae with group of 8-10 coarse punctures; basal tarsomere of metatarsus equal in length to the following four tarsomeres combined 2
– Disc of metasternum smooth, without group of coarse punctures at mesocoxae; basal tarsomere of metatarsus shorter than following four tarsomeres combined 5
2(1) Clypeal margin denticulate on each side of median emargination. Amazon basin . . . . . *A. crenaticollis* PETR.
– Clypeal margin smootly rounded on each side of median emargination. 3
3(2) Head strongly alutaceous, often scabrously punctured on each side of median gibbosity; elytral intervals in apical fourth more or less eroded on each side, discal intervals 1-4 strongly crenate by punctures. Central and South America, West Indies . . . . . *A. strigicauda* BATES
– Head microreticulate, finely to moderately punctured on each side of median gibbosity; elytral intervals not eroded apically, discal intervals 1-4 with moderately crenating punctures 4
4(3) Body black, shining, rarely microreticulate; head not strongly gibbose medially, clypeal median emargination moderately deep. Mexico, West Indies, southeastern USA, Madeira . . . . . *A. heinekeni* (WOLL.)
– Body mostly dark brown to piceous, shining; Head strongly gibbose medially, clypeal emargination deep. South America . . . . . *A. columbicus* HAR.
5(1) Body robust, subopaque; clypeal surface withouth transverse rugulae, genae rounded, weakly prominent; abdominal sternites smooth, impunctate. Southern South America. . . . . *A. opatroides* (BURM.)
– Body slender, shining; clypeal surface with transverse rugulae, genae right-angled, prominent; abdominal sternites punctate from side to side. Central and South America, southeastern USA, West Indies, New Caledonia, Fiji, Vanuatu, Australia, New Zealand . . . . . *A. picinus* HAR.

Ataenius strigicauda BATES

(Figs 1, 2-3)

Ataenius strigicauda BATES, 1887: 96, pl.VI, fig.24.- ARROW 1903: 511 (in part); CHAPIN 1940: 31-32 (in part); CHALUMEAU & GRUNER 1974: 810-811; CARTWRIGHT & CHALUMEAU 1978: 13, fig. 8; CHALUMEAU 1980: 90-91; 1983: 81-82; DELLACASA 1988: 226 (catalogue); STEBNICKA 1998: 200-201; GALANTE & STEBNICKA & VERDÚ 2003: 297.

Auperia stercorator CHEVROLAT, 1864: 415 (in part), (non FABRICIUS, 1775).

Ataenius stercorator: HAROLD, 1875: 70 (non FABRICIUS, 1775); HORN 1887: 83 (non FABRICIUS, 1775); SCHMIDT, 1922: 422 (non FABRICIUS,, 1775); PETROVITZ 1973: 179 (non FABRICIUS,, 1775); BARAUD, 1994: 58 (non FABRICIUS,, 1775).

Ataenius aspericollis PETROVITZ, 1973: 178-179.- DELLACASA 1988: 272 (catalogue), **syn. n.**

Material examined. *A. strigicauda*: described from Mexico, Cordoba. Lectotype (NHML) designated by CARTWRIGHT (1964). *A. stercorator*: described from Brazil, Rio de Janeiro. Lectotype (NHML) designated by LANDIN (1956). *A. aspericollis*: Holotype female (MHNG) labelled 'Brasilien, Acre Feijo xii.1956, leg. WERNER', '*Ataenius aspericollis* PETROVITZ'.

Other specimens (750). **Argentina** – Prov. Misiones, Iguaçu; Prov. La Rioja, Rosario. **Bolivia** – Santa Cruz; Buena Vista; Guayaramirim. **Brazil** – (SC) Santa Catarina, Nova Teutonia; (Ba) Bahia, Encruzilhada; (Ro) Rondonia, Ariquemes; (MS) Selviria; Três Lagoas; (SP) Mirante do Paranapanema; Piracicaba; Agudos; (MG) Cordisburgo; Ipatinga; Paracatu; (Go) Goías, Goíania; Bela Vista de Goías. **Chile** – Nuble Rio Pinto. **Colombia** – Cartago; Ibaque; Cali; Tame; Leticia, Amazonas. **Costa Rica** – Alajuela, Volcan Casao; Turrialba; Puntarenas, Monte Verde Forest Res. **Ecuador** – El Oro, Machala; Rio Palenque; Pichinda; Santo Domingo. **Guatemala** – Zacapa, Panzos. **Honduras** – Yuscaran; Cerro Azul, Cortes Nat. Park; Atlantida, Salado Barra; Cerro Uyuca. **Mexico** – Puebla, Zapotitlan Salinas; Veracruz, Barranca de Metlac, Fortin de las Flores. **Panama** – Canal Zone, Chiriqui, El Llano Corti, Bocas d. Toro, Miramar, Fl Gulick, Rio Changuinda; Soberania NP.; Prov. Colon, Fl. Sherman, Pavon Hill. **Paraguay** – San Pedro, Villarica; Puerto P. Stroessner; Paraguari; Carapegua. **Peru** – Tingo Maria; Ayacucho La Mar, Santa Rosa; Puerto Maldonado;

Cuzco, Rio Urubamba, Rio Cosnipata; Loreto. **West Indies** – Trinidad, George Co., Arima Ward; Santa Lucia; Guadeloupe.

Collected throughout the year. Specimens are in all collections studied except those of AMNZ, NZAC, and SAMA.

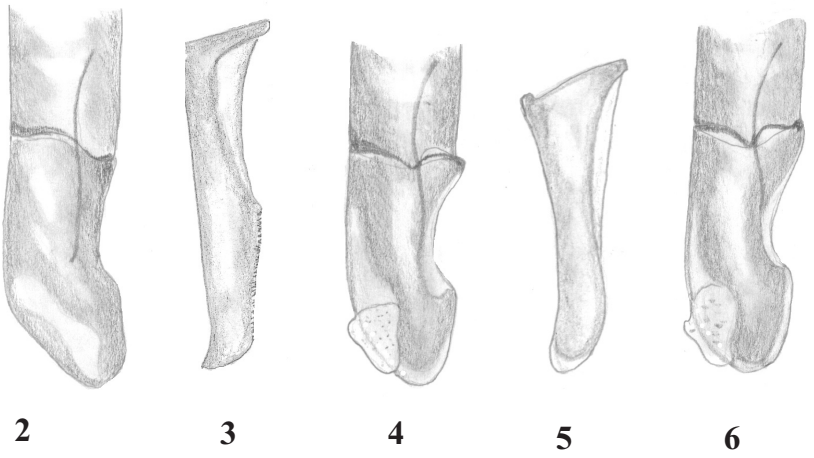
D i s t r i b u t i o n. Central and South America, West Indies (Fig. 1).

D i a g n o s t i c c h a r a c t e r s. Length 4.5.-5.5 mm. Body piceous to carbon black, more or less shining, often distinctly microreticulate, subparallel-sided. Head moderately convex, strongly alutaceous, clypeus rounded or obtuse on each side of median emargination, genae right-angled; clypeal surface along anterior margin with slight wrinkles, closely punctate medially between wrinkles and transverse band of close, coarse punctures of vertex, lateral area of head with very variable, rough sculpture, most often a large area between gena and median convexity roughly punctured, in some specimens entire surface scabriculate. Pronotum convex, sides and base strongly margined, finely crenate-fimbriate; surface with mixed punctures, very fine and coarse punctures variably spaced, in most specimens on disc separated by 1-3 diameters, on sides close, sometimes contiguous, their size variable. Elytra more than twice of pronotal length, humeral denticles moderate in size; striae strong, punctures deep, close, usually strongly crenating inner margins of intervals; discal intervals flat to convex, minutely to finely punctate or impunctate, lateral intervals 7-9 alutaceous, strongly closely punctate, punctures posteriorly minutely setigerous, setae visible under high magnification; in most specimens, each interval in apical fourth or fifth of elytra narrowly eroded, alutaceous, in some specimens erosion visible only at extreme apex. Metasternal

Fig. 1. Distribution of *Ataenius strigicauda* BATES.

midline deep, disc smooth with minute scattered punctures and group of 6-10 coarse punctures at mesocoxae; abdominal sternites finely fluted along sutures and coarsely, closely punctate from side to side, in some specimens punctures at middle finer and less close than those on sides. Profemur with deep perimarginal groove, surface posteriorly coarsely punctate; meso- and metafemora smooth, posterior line of metafemur incomplete; metatibia apically with strong accessory spine and fringe of four short setae; basal segment of metatarsus longer than upper tibial spur and equal to following tarsomeres combined. In male, abdomen slightly flatter and disc of pygidium longer than in female; genitalia as in Figs 2-3; parameres ventrally inconspicuously serrate when viewed under high magnification.

R e m a r k s. *Ataenius strigicauda* is one of the most variable species of *Ataenius.* The degree of alutaceousness of body, the strength of the punctures on the head and pronotum and the elytral sculpture are extremely variable without reference to geography. Further, each of the characters varies independently of the other, overlapping with those of *A. heinekeni* and *A. columbicus* (see Remarks under these species). Due to taxonomic confusion, most early records of this species were given under the name "*stercorator*". It was recorded from many localities in South America and from many West Indian islands by ARROW (1903) and CHAPIN (1940), but it is not possible to state which of the records apply to the true *A. strigicauda*. The specimens of *strigicauda* from various populations can be also easily confused with some species of the *A. strigatus*-group (revision in press), but these species can be distinguished by the characters of the male genitalia. *A. strigicauda* is one of the commonest species in Central and South America, collected throughout the year mainly to light traps, occasionally found in cattle excrements. The species is represented in a great number of specimens in all collections listed in the following parts of the *Ataenius* revision. Larval stages were described by VERDÚ & GALANTE (1999).



Figs 2-6. Male genitalia: 2-3 – *Ataenius strigicauda* BATES, 2 – parameres in lateral view, 3 – left paramera in ventral view; 4-6 – *A. heinekeni* (WOLLASTON), 4,5 – specimen from Madeira, 4 – parameres in lateral view, 5 – left paramera in ventral view, 6 – specimen from Cuba, parameres in lateral view.

Ataenius heinekeni (WOLLASTON)

(Figs 4-6, 7, 8)

Oxyomus heinekeni WOLLASTON, 1854: 228.-

Oxyomus Heineckeni (sic!): HAROLD, 1875: 71 (as synonym of *stercorator*).

Oxyomus heinekeni: SCHMIDT 1922: 422 (as synonym of *stercorator*).

Auperia rhyticephala CHEVROLAT, 1864: 413.

Fig. 7. Habitus of *Ataenius heinekeni* (WOLLASTON).

Ataenius rhyticephalus: GEMMINGER & HAROLD 1869: 1067; SCHMIDT 1922: 440 ; WOODRUFF 1973: 127-128; CARTWRIGHT 1974: 86; DELLACASA 1988: 326 (catalogue), **syn. n.**

Ataenius vexator HAROLD, 1869: 103.- SCHMIDT, 1922: 459 (ex HAROLD); DELLACASA, 1988: 282 (catalogue), **syn. n.**

Ataenius solitarius BLATCHLEY, 1928: 69.- CARTWRIGHT, 1974: 86 (as synonym of *rhyticephalus*).

Ataenius floridanus BROWN, 1930: 3.- Fall 1930: 97; CARTWRIGHT 1974: 86 (as synonym of *rhyticephalus*).

Ataenius stercorator: PAULIAN 1937: 76 (non FABRICIUS, 1775); BARAUD 1994: 58 (non FABRICIUS, 1775).

Ataenius strigicauda: CARTWRIGHT 1948: 149 (as synonym of *rhyticephalus*)

T y p e d a t a. *Oxyomus heinekeni*: described from Madeira Island, Ascension. Holotype (unique) in NHML. *Auperia rhyticephala*: described from Cuba. Lectotype (SMTD) designated by CARTWRIGHT (1973). *Ataenius solitarius*: described from Florida, Royal Palm Park. Location of type unknown. *A. floridanus*: described from "Florida". Holotype in CMNO.

M a t e r i a l e x a m i n e d. *Ataenius vexator*: Lectotype male (here designated), labelled 'St Thomas', [Virgin Islands] 'Coll. C. FELSCHE Kauf 20 1918' (green labels), '*Ataenius vexator* H. St Thomas' (white label), in SMTD . Lectotype (SMTD) of *Auperia rhyticephala* (Cuba) designated by CARTWRIGHT, 1973. Specimens (ISEA) of *A. heinekeni* from the type-locality (Madeira).

Other specimens (75). **Bahamas –** Andros Isl,. Forfar Field Sta. Stafford Creek, 2-8.VI.2001, M. C. THOMAS (FSCA). **Cuba** – Prov. Santiago, 5 km NE Siboney, Rio Jaragua 150 m, 16.XII.1995, S. PECK (HAHC); **Hispaniola –** Dominican Rep., Prov. Barahona nr Filipinas, Mt Tutu, 16.VI-7.VII.1992; Larimar Mine, 26.VI-7.VII.1992, WOODRUFF & SKELLEY (FSCA); Cazabita 1250 m, 26.XI.1971, J.& S. KLAPPERICH, San Cristobal 35 m, 6.VIII.1972, J. & S. KLAPPERICH (CMNO). **Madeira –** (no additional data) (ISEA). **Mexico** – (no additional data) (SMTD, ZMHB); Nayarit, Ixtapa, coll. LUDECKE; Veracruz, Los Tuxtlas (ZMHB). **Puerto Rico** - (no additional data) coll. MORITZ (ZMHB); Cambalache St. Far. 3.VIII.1999, W. O'BRIEN & P. KOVARIK (ISEA). **USA** – South Carolina, Yemassee, 22.VII.1945, O. L. CARTWRIGHT (identified. as *A. floridanus*); Florida, Gainesville (ISEA). **Virgin Islands** – St Thomas Isl., leg KRIECHELDORF (ISEA).

D i s t r i b u t i o n. Southern United States (Florida, South Carolina, Texas; see Cartwright 1974, fig. 16 under the name *rhyticephalus*), Mexico, West Indies, Madeira (Fig. 8).

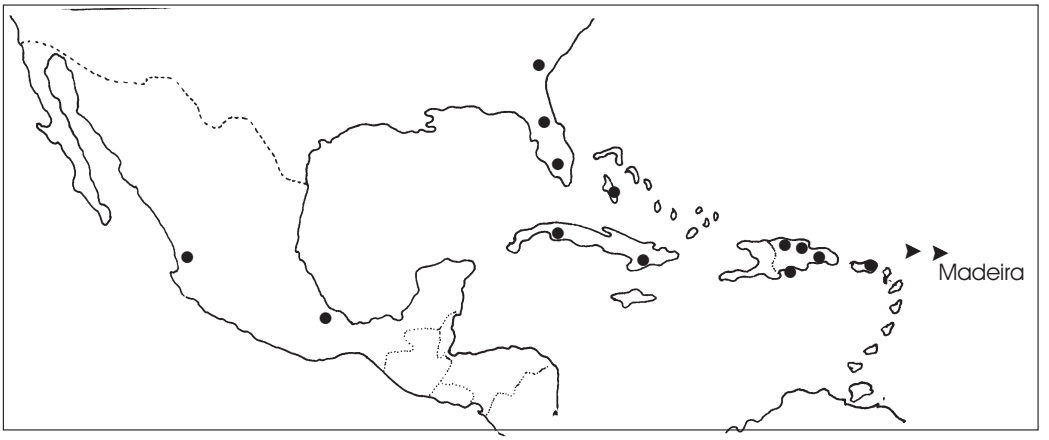


Fig. 8. Distribution of *Ataenius heinekeni* (WOLLASTON).

D i a g n o s t i c c h a r a c t e r s. Length 4.3.-5.5 mm. Body (Fig. 7) piceous to black, moderately shining, often microreticulate, parallel-sided. Head moderately convex medially, clypeus rounded on each side of median emargination, genae right-angled; clypeal surface along anterior margin with slight rugulae, finely punctate between rugulae and transverse, irregular band of closer punctures of vertex, punctures very variable in depth and spacing, in some specimens clypeal surface smooth, impunctate, in some slightly alutaceous near genae and finely punctate. Pronotum convex, sides and base strongly margined, finely crenate-fimbriate; surface with mixed punctures, very fine and coarse punctures variably spaced, in most specimens disc with finer punctures separated by 2-4 diameters, sides with coarse, close punctures, their size variable. Elytra more than twice of pronotal length, humeral denticles moderate in size; striae deep with close punctures crenating inner margins of intervals, punctures of discal striae 1-4 usually finer than those in lateral striae; discal intervals flat to convex, minutely punctate or impunctate, lateral intervals 7-9 alutaceous, more or less closely punctate, punctures posteriorly minutely setigerous, setae visible under high magnification; apical intervals convex to subcarinate, with no trace of erosion. Metasternal midline deep, disc smooth with minute scattered punctures and group of 6-8 coarse punctures at mesocoxae; abdominal sternites finely fluted along sutures and closely punctate, in most specimens punctures at middle finer and less close than those on sides. Profemur with deep perimarginal groove, surface posteriorly coarsely punctate; meso- and metafemora smooth, posterior line of metafemur incomplete; metatibia apically with strong accessory spine and fringe of four short setae; basal segment of metatarsus longer than upper tibial spur and equal to following tarsomeres combined. In male, abdomen slightly flatter and disc of pygidium longer than in female; genitalia as in Figs 4-6.

R e m a r k s. The present study reveals that *A. heinekeni*, *A. rhyticephalus* and *A. vexator* are conspecific. The material examined from Madeira, Cuba, Virgin Islands, Florida and Mexico does not offer any indication that different species are involved (see drawings of the male genitalia). *A heinekeni* is closely related to *A. strigicauda* and *A. columbicus* and has intermediate character states. It is very variable, some individuals are similar to those of *A. columbicus*, others are easily distinguishable. The ranges of *A. heinekeni* and *A. columbicus* seem to be allopatric (Figs 8, 9), however, this picture may change in a result of future collecting. The specimens of *A. heinekeni* found in USA can be also easily confused with those belonging to the *strigatus*-group, e.g. with *A. strigatus*, *A. spretulus* and *A. wenzelii*, but they are distinguishable by invariable character of metasternum with group of coarse punctures at mesocoxae.

Data from literature and label data indicate, that the specimens of *A. heinekeni* were beaten from leaves, collected under leaves and logs on hard ground, under live-oak trees, on old rice-field dams, under roadside debris and at coastal coppice trap. JERATH (1960) described the larva under the name *A. strigicauda* BATES.

C o m m e n t o n g e o g r a p h y. HAROLD (1869) in his original description of *A. vexator* placed its type-locality in Brazil, while St Thomas Island belongs to the Virgin Islands archipelago in the West Indies. In Brazil (Rio de Janeiro state) is Cape of Saõ Tomé, the headland on Atlantic formed by sediments of the Paraíba River.

Ataenius columbicus HAROLD

(Figs 9, 10-11)

Ataenius columbicus HAROLD, 1880: 39-40.- SCHMIDT 1922: 440 (ex HAROLD); DELLACASA 1988: 314 (catalogue); CHALUMEAU 1992: 203.

Ataenius laterigranosus BALTHASAR, 1947: 51.- CHALUMEAU, 1992: 203 (as synonym of *columbicus*).

Ataenius tesari BALTHASAR, 1947: 50.- CHALUMEAU, 1992: 200 (as valid species), **syn. n.**

Ataenius fastus PETROVITZ, 1970: 236.- CHALUMEAU, 1992: 200 (as synonym of *tesari*).

T y p e d a t a. *Ataenius columbicus*: described from Colombia. Lectotype (MNHN) designated by CARTWRIGHT (1973). *A. laterigranosus*: described from Argentina, La Plata. Type material in coll. BALTHASAR (NMPC). *A. tesari*: described from Paraguay, Asuncion. Type material in coll. BALTHASAR (NMPC). *A. fastus*: described from Brazil, Rio Grande do Sul, Porto Alegre. Type material in MHNG, ZMS.

M a t e r i a l e x a m i n e d. Lectotype of *A. columbicus*, holotype of *A. fastus* and specimens compared by CHALUMEAU (1992) with holotypes of *A. laterigranosus* and *A. tesari* (MHNG).

Other specimens (140). **Argentina** – Prov. Misiones, Jardin America, Salto Tabay, 22.XII.1990, S.& J.PECK; Iguaçu Nat. Park, 25.XII.1990, S.& J. PECK (HAHC); Prov. Cordoba, Tegua, 5.IX.1967, coll. MARTINEZ (CMNO): Piquecito; Norte Lago San Roque, I.1990, M. ARCHANGELSKY (MZUSP); Prov. Formosa, Pilaga; Prov. Entre Rios, Concordia, 1975, coll. MARTINEZ (CMNO); Prov. Corrientes, 10 km E Corrientes, 11.XII.1990, S.& J. PECK; Prov. Salta, El Rey NP 870 m, Arroyo los Noques; Prov. Jujuy, Callilegua NP 900 m, Aguas Negras, 18.XII.1987, S.& J. PECK (CMNO); Prov. Buenos Aires, Buenos Aires, XI.1946, coll. MARTINEZ (CMNO). **Bolivia** – Villa Montes near Rio Pilcomayo, S.G. EISENSTRAUT (ZMHB); **Brazil** – (MS) Mato Grosso do Sul, Campo Grande, 10.XI.1994, leg. KOLLER (ISEA); (Sc) Santa Catarina, Theresopolis, S. FRUHSTORFER (ZMHB), Santa Catarina, Nova Teutonia; Rio Capivary XII.1938, F. PLAUMANN (MZUSP); (SP) Saõ Paulo, Cipo, XI.1971, F. PLAUMANN, 16.XI.1965, V.N. Alin; Pelotas, X.1972, F. PLAUMANN (USNM); (MG) Minas Gerais, Viçosa, XII.1982, F. VAZ-DE-MELLO (FVMC); (RS) Rio Grande do Sul, Morro Route (USNM); (Ba) Bahia, Encruzilhada, XI.1972, M. ALVARENGA (FSCA); (RJ) Rio de Janeiro, coll. KESSEL (ISEA, SMTD); (Pa) Para, Palmeira, V.1971, F. PLAUMANN (USNM); Faz. do Iguaçu, I.1971, F. PLAUMANN (USNM). **Chile** – Prov. Tarapaca nr Azapa, leg. MAHUNKA & ZICSI (HNHM). **Colombia** – Bogota 1877, coll. THIEME, Savanna nr Bogota, coll. THIEME (ZMHB); Badenfurt (SMTD). **Guyana Fr**. – Mt Grand Matoury, 5-14.IX.1995, M. KOCIAN (ISEA). **Panama** – Canal Zone, Panama Diablo Heights, 4.I.1977, E. RILEY (FSCA). **Paraguay** – Villarica, Independentia, 2 km E, 21.I.1991, S. ENDRÖDY-YOUNGA (TMP); near Asuncion, 25.XII.1965, leg. MAHUNKA; Puerto P. Stroessner, 5-6.I.1966, leg. MAHUNKA (HNHM); San Pedro, Bario San Pedro, 2.X.1982, K. HOHENSTEIN (SMNS); Itapua, 17 km N Hohenau, 2-4.II.1983, E. RILEY (FSCA). **Peru** – Tingo Maria 670 m, X.1948, F. BLANCAS (USNM). **Surinam** – Paramaribo, Bezirk, C. HELLER (HNHM). **Uruguay** – 90 km SW Artigas, Pampa del Lavalleja, 27-30.IX.2001, Z. LINEK (MSNUP).

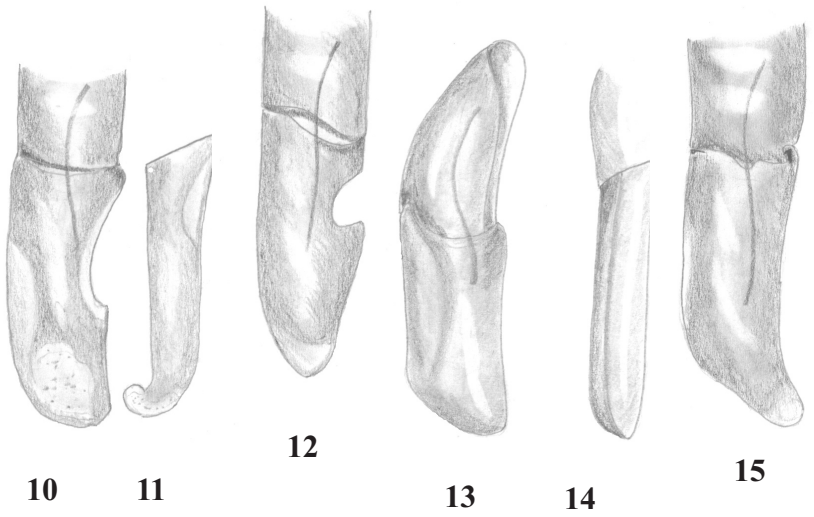
D i s t r i b u t i o n. South America (Fig. 9).

D i a g n o s t i c c h a r a c t e r s. Length 4.3.-5.5 mm. Body dark brown to piceous, more or less shining, subparallel-sided. Head strongly gibbose medially, clypeus rounded on each side of rather deep median emargination; clypeal surface with slight transverse rugulae, finely punctate between rugulae and transverse band of close punctures of vertex, punctures very variable in depth and spacing, in some specimens slightly scabriculate on each side of gibbosity. Pronotum convex, sides and base strongly margined, finely crenate-fimbriate; surface with mixed

punctures, very fine and coarse punctures variably spaced, in most specimens on disc separated by 2-4 diameters, on sides close, their size variable. Elytra more than twice of pronotal length, humeral denticles moderate in size; striae deep with close punctures crenating inner margins of intervals; discal intervals flat to convex, minutely punctate or impunctate, lateral intervals 7-9 more of less alutaceous, closely coarsely punctate, punctures posteriorly minutely setigerous, setae visible under high magnification, in most specimens 10th interval flattened with row of small granules medially; apical intervals convex to subcarinate, with no trace of erosion. Metasternal midline deep, disc smooth with minute scattered punctures and group of 6-10 coarse punctures at mesocoxae; abdominal sternites finely fluted along sutures and closely punctate from side to side, in some specimens punctures at middle finer and less close than those on sides. Profemur with deep perimarginal groove, surface posteriorly coarsely punctate; meso- and metafemora smooth, posterior line of metafemur incomplete; metatibia apically with strong accessory spine and fringe of four short setae; basal segment of metatarsus longer than upper tibial spur and equal to following tarsomeres combined. In male, abdomen slightly flatter and disc of pygidium longer than in female; genitalia as in Figs 10-11.

R e m a r k s. *Ataenius columbicus* is very similar to *A. strigicauda* and to *A. heinekeni* and is difficult to distinguish. It differs from *A. heinekeni* only slightly by having a little lighter body and more strongly gibbose head with deeper clypeal emargination. Judging from the present pattern of its distribution (Fig. 9), *A. columbicus* seems to be a vicarious species replacing *A. heinekeni* to the south of the 20th latitude (see Remarks under *heinekeni*). As indicated on the labels, the specimens were collected in subtropical scrub forest, under logs, on *Lophophytum* plants, in cattle dung and to light traps.

Fig. 9. Distribution of *Ataenius columbicus* HAROLD.



Figs 10-15. Male genitalia: 10-11 – *Ataenius columbicus* HAROLD, 10 – parameres in lateral view, 11 – left paramera in ventral view; 12 – *A. crenaticollis* PETROVITZ, parameres in lateral view; 13-14 – *A. opatroides* (BLANCHARD), 13 – parameres in lateral view, 14 – left paramera in dorsal view; 15 – *A. picinus* HAROLD, parameres in lateral view.

Ataenius crenaticollis PETROVITZ

(Figs 12, 16, 17)

Ataenius crenaticollis PETROVITZ, 1973: 158-160.- DELLACASA, 1988: 274 (catalogue).

M a t e r i a l e x a m i n e d. Holotype male (MZUSP), labelled 'Manaos', 'Amazon. HUEBNER', '*Ataenius crenaticollis* PETROVITZ'. Paratype, (MHNG) same data as holotype. Other specimens (2). **Peru** - Loreto, 50 km NE Iquitos, Explorama Lodge 1 km up Rio Yanamono from Amazon River, 25-28.VIII.1992, P. SKELLEY (ISEA, PSC).

D i s t r i b u t i o n. Amazon basin (Fig. 17).

D i a g n o s t i c c h a r a c t e r s. Length 4.5-5.0 mm. Body (Fig. 16) elongate, moderately convex, piceous, shining . Head moderately gibbose medially, clypeal margin finely reflexed, finely denticulate on each side of shallow median emargination, sides slightly arcuate towards nearly right-angled gena; surface distinctly transversely wrinkled over anterior two-thirds, middle of head with fine punctures separated by about one diameter, punctures on vertex slightly larger and closer. Pronotum convex, side and base strongly margined, margin widely grooved at posterior angles, edge finely crenate- fimbriate, crenations noticeable at anterior angle; surface with mixed punctures throughout, very fine punctures evenly spaced, separated by about twice their diameters, larger punctures slightly irregularly spaced, gradually finer and less numerous over median anterior third of disc, on sides separated by about one diameter or less. Elytra parallel-sided and slightly narrowed before apex with small humeral denticle; striae deep, strial punctures strongly crenating inner margins of moderately convex intervals; intervals with minute punctures, lateral intervals not different. Mesosternum shagreened, alutaceous with fine appressed hair, carinate between coxae; metasternum smooth, shiny, midline long and deep, surface with minute scattered punctures and group of 6-7 coarser punctures at mesocoxae, lateral metasternal triangle deep, smooth, extreme side of metasternum with group of close punctures at epipleural edge; abdominal sternites strongly and closely punctate from side to side, first visible sternite with posterior marginal line, following sternites fluted along anterior margin; pygidium with strong, shiny apical lip and roughly eroded disc. Legs moderate in length; profemur with perimarginal groove, surface shiny with fine, scattered punctures in posterior half; meso- and metafemora similarly punctate apically

Fig. 16. Habitus of *Ataenius crenaticollis* PETROVITZ.

Fig. 17. Distribution of *Ataenius crenaticollis* PETROVITZ (rectangles) and *A. opatroides* (BLANCHARD) (circles).

with strong posterior marginal line over outer half; posterior apical fringe of metatibia with group of four setae and strong accessory spine; basal tarsomere of metatarsus subequal in length to upper tibial spur and to following four tarsomeres combined. In male, penultimate abdominal sternite shorter than in female, disc of pygidium longer; genitalia as in Fig. 12.

R e m a r k s. *Ataenius crenaticollis* is most closely related to *A. picinus* and very similar in overall appearance but it may be easily recognised by its denticulate clypeus. The species is apparently very rarely collected, most probably confined in distribution to the Amazon basin. Nothing is known about its habitats.

Ataenius opatroides (BLANCHARD)

(Figs 13-14, 17, 18)

Oxyomus opatroides BLANCHARD, 1843: 185.

Ataenius opatroides: GEMMINGER & HAROLD, 1869: 1066; 1876: 97; SCHMIDT, 1910: 108, t.2, fig. 53; 1922: 428; DELLACASA, 1988: 278 (catalogue).

T y p e d a t a. Described from „Montevideo, Uruguay". Holotype probably in MNHN.

M a t e r i a l e x a m i n e d. Specimens (202). **Argentina** - Prov. Cordoba, Fanti, Sierra de Cordoba, 11.I.1966, leg. MAHUNKA (HNHM, ISEA); Prov. Buenos Aires, Cantin Temuco; Capilla del Seòor, 3.XII.1978, WOODRUFF & DUTIE (FSCA). **Chile** – Linares, 23.II.1940, P.A. BERRY; Curico El Coiqual, X-XI.1955, F.H. WALZ; Arauco Caramavida, 17-19.X.1969, FLINT & BARRIA; Angol, 8.I.1941, P.A. BERRY, 10-27.II.1944, H.L. PARKER; Santiago de Chile, 26.II.1946, R. GUTIERREZ; Nuble, Rio Pinto E of Chillan, 24.X.1969, FLINT & BARRIA; Prov. Santiago, Pilay, Rio Peuco 45 km S of Santiago, 800 m, 23-24.XI.1981, D.R. DAVIS; San Bernardo, 27.II.1940, (ex pupa) P.A. BERRY (USNM); Reg. del Maule, Cauquenes, 15 km E, 36.01S,

Fig. 18. Habitus of *Ataenius opatroides* (BLANCHARD).

72.14W, 9.XII.1990, leg. ENDRÖDY-YOUNGA (TMP); Reg. Araucania, Ercilla 38.05S, 72.21W, 22.X.1990, leg. ENDRÖDY-YOUNGA (TMP); Prov. Valdivia, road to Caymapu, 25.X.1965, leg. BALOGH & MAHUNKA (HNHM, ISEA). **Uruguay** - Montevideo, 2.VII.1941, P.A. BERRY (USNM); Strand near Montevideo; Colonia, La Estanzuela (INIA), 12.IX.1995, J.R. VERDÚ (ISEA).

D i s t r i b u t i o n. Southern South America (Fig. 17).

D i a g n o s t i c c h a r a c t e r s. Length 5.0-5.2 mm. Body (Fig. 18) oblong oval, subopaque, piceous black or rusty brown in freshly emerged indivduals. Head gibbose, clypeal margin obtusely rounded on each side of narrow, deep median emargination, genae small, rounded; surface smooth, almost impunctate, transverse rugulae lacking or very weakly indicated. Pronotum transverse, sides and base margined, setae of lateral fringe very short and fine; surface punctures mixed minute and moderate, the latter shallow, widely scattered on disc, on sides separated by about 2-3 times their diameters. Elytra relatively short, arcuate with strong basal bead, humerus with conical epipleural denticle; striae finely impressed, strial punctures fine, weakly crenating inner margins of intervals; intervals generally flat only lateral 3 intervals slightly elevated, surface of intervals microreticulate, impunctate of with very few minute punctures. Ventral surface subopaque, mesosternum shagreened, minutely piliferous, meso-metasternal carina fine, short; metasternum convex, relatively short, midline with deep pits at ends, lateral metasternal triangle regular, smooth; abdominal sternites glabrous, impunctate, fluting along sutures of sternites 1-4 very fine, nearly invisible, pygidium finely shagreened. Profemoral surface with very few punctures, meso- and metafemora smooth; meso- and metatibiae slender, setaceous, metatibia apically with fringe of 5 short setae, accessory spine and slightly sinuate spurs; metatarsus slender, joints setaceous, basal tarsomere subequal to upper tibial spur and shorter than following four tarsomeres combined. In male, terminal spur of protibia slightly bent downwards; genitalia as in Figs 13-14.

R e m a r k s. *Ataenius opatroides* bears the character states found either in some species of the *A. imbricatus*-group, e.g. the shape of head (STEBNICKA 2003) and in those of the *strigicauda*-group, sharing with the latter species a similar type of the male genitalia. This Patagonian species is easy to distinguish from the other species in the group by having a number of autapomorphic characters such as suboval, robust body, the small rounded genae, the elytral intervals very weakly crenate by strial punctures and the femora and abdominal sternites smooth, impunctate. The specimens were collected in soil and in horse and cattle excrements. Numerous specimens were taken in Chile (San Bernardo) in the pupal stage.

Ataenius picinus HAROLD

(Figs 15, 19)

Ataenius picinus HAROLD, 1867: 281.- SCHMIDT 1922: 422-433; CARTWRIGHT 1964: 103; WOODRUFF 1973: 124-125; CARTWRIGHT 1974: 84-85; DELLACASA 1988: 279 (catalogue); STEBNICKA & HOWDEN 1997: 740, 746-748, figs 4, 5, 22, 99; STEBNICKA 2001: 28-29, figs 11, 40, 52.

Ataenius duplopunctatus LEA, 1923: 6 .- CARTWRIGHT 1964: 103 (as synonym of *picinus*).

Ataenius salutator FALL, 1930: 99.- CARTWRIGHT 1948: 149; 1964: 103 (as synonym of *picinus*)

Ataenius queroisii PAULIAN, 1934: 219.- CARTWRIGHT 1964: 103 (as synonym of *picinus*)

Ataenius boucomontii PAULIAN, 1937: 41.- CARTWRIGHT 1964: 103 (as synonym of *picinus*).

Ataenius darlingtoni HINTON, 1937: 179.- CARTWRIGHT 1945: 47; 1948: 149; 1964: 103 (as synonym of *picinus*)

Ataenius alegrus BALTHASAR, 1947: 50.- CARTWRIGHT 1970: 226 (as synonym of *picinus*). CHALUMEAU 1992: 201.

Saprosites rugosus RICHARDS, 1959: 41 fig. 3.- WATT 1984: 11-12 (as synonym of *picinus*).

Ataenius paracognatus BALTHASAR, 1961: 123.- CHALUMEAU 1992: 202 (as synonym of *picinus*).

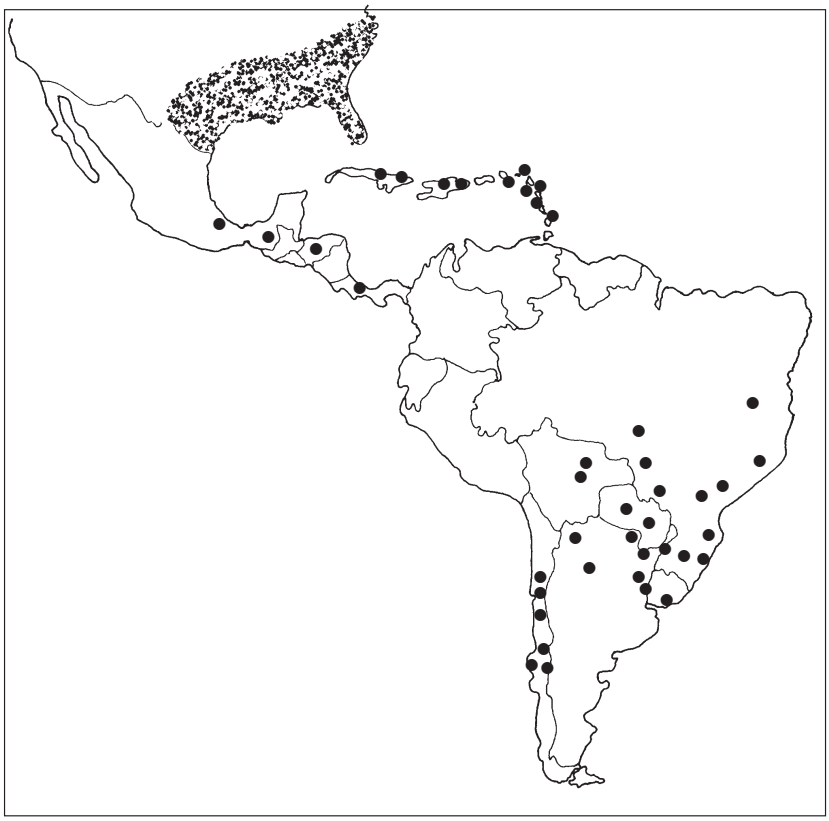


Fig. 19. Distribution of *Ataenius picinus* HAROLD in America.

T y p e d a t a. *Ataenius picinus*: described from Chile. Lectotype (MNHN) designated by CARTWRIGHT (1964).

A. duplopunctatus: described from Australia, Parkerville. Lectotype and paralectotypes (SAMA) designated by STEBNICKA & HOWDEN (1997*). A. salutator*: described from Florida, Pensacola. Lectotype (MCZC) designated by CARTWRIGHT (1964). *A. queroisii*: described from New Hebrides (Vanuatu). Lectotype (USNM) designated by CARTWRIGHT (1964). *A. boucomonti*: described from Australia, Sydney. Type material in DEIE. *A. darlingtoni*: described from Puerto Rico. Type material in USNM. *A. alegrus*: described from Brazil, Porto Alegre. Type material in NMPC. *A. paracognatus*: described from Bolivia, Rio Yacuma Espiritu. Type material in NMPC. *Saprosites rugosus*: described from New Zealand, Auckland. Type material in AMNZ, NZAC.

M a t e r i a l e x a m i n e d. Most of the type-material plus **1645** specimens from the whole area of distribution. New World specimens (505). **Argentina** – Prov. Misiones, Dos de Mayo; Posadas, Jardin America; Prov. Corrientes, Ituzaingo; Prov. Formosa, 50 km NW Clorinda; Prov. Jujuy, 6 km W Yuto. Prov. Entre Rios, Route 124, Concordia; Prov. Stgo del Estero, Colonia Dora. **Bolivia** – Santa Cruz, 5 km ESE Warnes; Santa Cruz, Buena Vista. **Brazil** - (ES) Espirito Santo, Linhares; (Sc) Santa Catarina, Nova Teutonia; (SP) Saõ Paulo; Piracicaba; Fatima Paulista; Porto Alegre; (MG) Minas Gerais, Paracatu; (MT) Mato Grosso, Corúmba; Varzea Grande Co. Cuíaba; (MS) Mato Grosso do Sul, Selviria; (RG) Rio Grande do Sul, Cachoeira. **Chile** – Araucania, Ercilla; Los Lagos, Osorno, Maulin; Isla de Chiloe; Reg. del Maule, Cauquénes. **Costa Rica** – Alajuela, Volcan Cacao 700 m. **Honduras** – Cerro Uyuca. **Mexico** – Veracruz; Chiapas. **Paraguay**

– Paraguari 35 km N Carapegua; S. Bernardino. **Uruguay** – Montevideo. **West Indies** – Cuba: Guantanamo Bay; Sto Domingo, Villa Clara; Dominican Rep. : Prov. La Vega, Jarabacoa; 2 km E Manabao; Guadeloupe; Antigua, Big Buers; Martinica; Dominica; Marie Galante.

D i s t r i b u t i o n. Southern United States (see WOODRUFF 1973, figs 266, 267 and CARTWRIGHT 1974, fig. 18), Australia (see STEBNICKA & HOWDEN 1997, fig. 99), New Zealand (see STEBNICKA 2001, fig. 11), New Caledonia, Fiji, Vanuatu, Central and South America, West Indies (Fig. 19). The species has a peculiar disjunct distribution in South America, occurring throughout the middle part west to central Chile on the coast, then disappearing in the entire northwestern area and reappearing in Mesoamerica, West Indies and southeastern United States.

D i a g n o s t i c c h a r a c t e r s. Length 4.8-6.0 mm, greatest width 1.8-2.5 mm. Body elongate, moderately convex, shiny; colour black, or reddish in freshly emerged specimens. Head moderately gibbose medially, clypeal margin finely reflexed, broadly rounded on each side of moderate median emargination, sides slightly arcuate towards nearly right-angled gena; surface finely transversely wrinkled over anterior two-thirds, vertex with band of fine punctures. Pronotum convex, side and base strongly margined, edge finely crenate, fimbriate, crenations noticeable at anterior angle; surface with mixed punctures throughout, very fine punctures evenly spaced, separated by about twice their diameters, larger punctures slightly irregularly spaced, gradually finer and less numerous over median anterior third of disc. Elytra with very small humeral denticle, striae deep, strial punctures crenating inner margins of moderately convex intervals; intervals with minute punctures, 9th interval finely, densely punctate. Mesosternum shagreened, alutaceous with fine appressed hairs, carinate between coxae; metasternum smooth, shiny, midline long and deep, surface with close, minute punctures; lateral metasternal triangle deep, smooth; abdominal sternites strongly and closely punctate from side to side, first visible sternite with posterior marginal line, following sternites fluted along anterior margin; pygidium with strong, shiny apical lip and roughly eroded disc. Legs moderate in length; profemur with perimarginal groove, surface shiny with fine, scattered punctures and occasional coarse, crescent-shaped punctures apically; meso- and metafemora similarly punctate with strong posterior marginal line over outer half; posterior apical fringe of metatibia invariably with group of four setae and strong accessory spine; basal tarsomere of metatarsus equal in length to upper tibial spur and subequal to following three tarsomeres combined. Male genitalia as in Fig. 15.

R e m a r k s. *Ataenius picinus* is one of the most widely distributed species in the world, described several times under various names. It can be confused with some species of the *A. strigatus*-group, but it differs by the shape of aedeagus. Ecologically very diverse, it has some potential as a minor pest; larvae were noted damaging seedlings, adults damaging strawberries, potatoes, and beans. The specimens were commonly collected at light, found in pitfall traps, in cow and sheep dung, leaf litter samples, compost heaps and soil, under carrion and stones, sometimes in decaying fruits and mashrooms.

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