

SYSTEMATIC AND ZOOGEOGRAPHIC NOTES
ON APOTOMINI, AN OLD WORLD FAUNAL
ELEMENT NEW TO THE WESTERN HEMISPHERE
LIST, WITH A DESCRIPTION OF A NEW SPECIES
FROM BRAZIL (COLEOPTERA: CARABIDAE)

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ABSTRACT

A new species of *Apotomus*, *A. reichardti* is described from Jacare, (near the former Xingu National Park), Mato Grosso, Brazil. The discovery of this species records the tribe Apotomini in the New World for the first time. Plesiotypic character states and the occurrence of the species in interior Brazil indicate that it is an old relict rather than a recent introduction. Preliminary character state analysis indicates old relationships with Ethiopian and Australian species. A modern revision of the tribe is needed to provide a basis for phylogenetic and zoogeographic hypotheses.

RESUMO

Uma nova especie de *Apotomus*, *A. reichardti* e descrita, procedente de Jacare (perto do antigo parque nacional do Xingu) Mato Grosso, Brasil. Essa especie registra, pela primeira vez a ocorrencia da tribu Apotomini no novo mundo. O estado plesiotipico dos caracteres, bem como a sua ocorrencia no interior do Brasil indicam uma especie relictual e nao a introducao recente. A analise preliminar dos estados dos caracteres indicam antigas afinidades com especies etiopicas e australianas. Para as hipoteses zoogeograficas e filogeneticas se torna imperativo uma eventual e futura revisao da tribu que provera a necessaria base morfotaxonomica.

The tribe Apotomini, heretofore known only from the eastern hemisphere, was recently discovered by Mocar Alvarenga in the Brazilian state of Mato Grosso. Specimens were sent by him to the museums at Sao Paulo and Harvard for those respective collections. Hans Reichardt and I discovered these specimens independently and began to compare them with Old World forms to determine whether their occurrence constituted a recent introduction or a natural disjunct distribution. Discovery of each others research came about during preparation of the First International Symposium of Carabidology (Erwin *et al.* 1979), and we planned to do a joint paper on the subject. Reichardt's unfortunate death left the task to me; as the species is new, I have named it in honor of my deceased colleague.

The apotomines are a peculiar little group of relatively primitive carabid beetles with pedunculate body and globose prothorax, long maxillary palpi, cleaning organs on all legs (Erwin 1978), and mandibular (scrobal) setae,

and they are pubescent overall. They are common in the Ethiopian and Oriental Regions, and also occur in the southern Palaearctic (Jeannel 1942) and Australia (Britton 1970).

Traditionally, the apotomines were placed near the scaritines and bembidiines in classifications (Jeannel 1942); more recently Britton (1970) regarded them as a separate subfamily near Broscinae.

Their discovery in South America is exciting in terms of zoogeography with important implications. It is the purpose of this paper to make the discovery known and to encourage a revision of the genus as a whole.

Apotomus reichardti Erwin, new species
(Figures 1, 2, 3)

TYPE LOCALITY.—Jacare (near the former Xingu National Park), Mato Grosso, Brazil, ca. 11°50' S, 053°22' W.

TYPE SPECIMENS.—The holotype male is in Museu de Zoologia, Universidade de Sao Paulo, Brazil. One paratype is in each of the following: MCZ, USNM, Museu de Zoologia, Sao Paulo.

DIAGNOSIS.—From all other species studied, members of *A. reichardti* can be recognized by the, 1) presence of upper spur of antennal comb; 2) greatly enlarged prothorax which is fully two-thirds the width of the elytra and nearly twice the width of the head, 3) long frontal area with deeply sulcate furrows and enlarged lateral flanges, 4) absence of lateral prothoracic setae.

DESCRIPTION.—*Form* (Figure 1): Large, broad, and robust, more so than any other species seen; elytra broad, rectangulate, convex; prothorax broadly globose; head elongate with large eyes.

Color: Body dark rufous, legs slightly paler; tarsi, palpi, basal 2 and distal 4 antennal articles rufotestaceous.

Head: Larger, longer than other members of the genus, and with large microsetiferous eyes; frontal furrows sulcate, lateral flanges broad and bicarinate; one supraorbital seta each side; entire surface pubescent, mentum concave; maxillary palp elongate, nearly twice length of head; antennae long, reaching beyond humerus, all articles subequal except 2 which is half length of 3, all articles pubescent; clypeus with usual 6 setae along anterior margin and with several discal setae; mandible long, falcate, scrobe multisetiferous, one seta long and in usual position of "scrobal seta".

Prothorax: Globose, basally constricted to peduncle; all sutures obliterated; surface anterior to coxal cavity deeply, coarsely punctate; entire surface pubescent; mid-laterally with umbilicate setal pore (setae absent from all specimens studied).

Elytra: Broad, with obtuse humeri sloping to peduncle, base nearly vertical to peduncle; interneurons entire, coarsely punctate basally, more finely punctate apically; setal pattern (Figure 1); surface with finely decumbent pubescence and erect setae; with well developed plica.

Microsculpture: Effaced except transverse meshes on scutellum.

Legs: Hind tibia (Figure 2). Middle tibia same except with single comb.

Genitalia: Male (Figure 3). Endophallus without sclerotization or pigment; parameres unequal, setose.

Size: Length, 4.36 to 4.66 mm; width, 1.42 to 1.51 mm; 4 specimens measured.

NATURAL HISTORY.—Little has been written on the habits of *Apotomus* species. Andrewes (1935) reports they occur on mud flats of rivers. The four specimens of *A. reichardti* were collected at light, thus they can fly. They were all found in November, none were teneral.

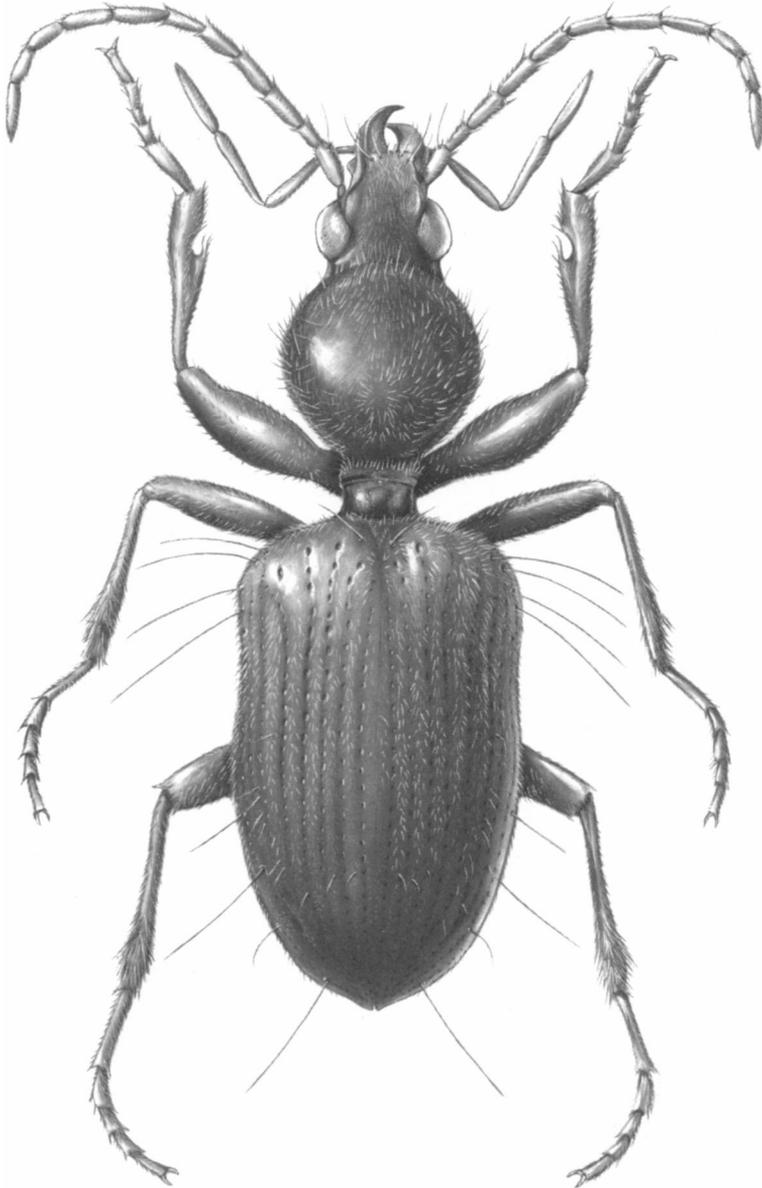


Fig. 1. *Apotomus reichardt* Erwin, new species, dorsal aspect, paratype female, Jacare, Mato Grosso, Brazil.

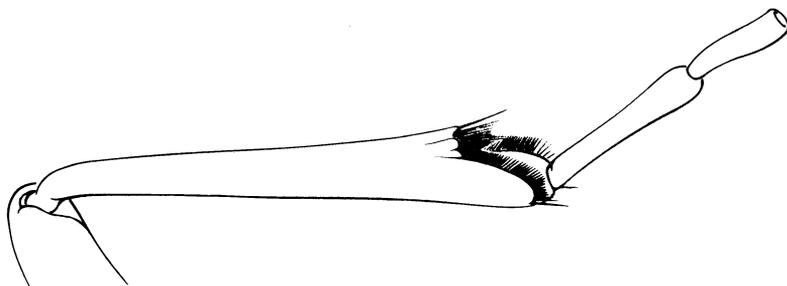


Fig. 2. *Apotomus reichardti* Erwin, new species, oblique mesal aspect of hind tibia.

DISTRIBUTION.—This species is known only from the type locality in the interior of Brazil. The Xingu area is on the northern edge of the Mato Grosso Plateau south of the Amazon Basin in the upper reaches of the Xingu River. The area is reached by small boat traffic, but is not a major shipping lane.

ZOOGEOGRAPHIC AND PHYLOGENETIC CONSIDERATIONS

Although my original supposition was that *A. reichardti* was an introduced species into Brazil (Reichardt 1979), I have now concluded that it is not. Its character states and locality have convinced me that this species is an old relict, separated from its congeners since early Tertiary at least, and belongs to that group of Brazilian taxa Reichardt (1979) called "Inabresien" along with *Neodrypta*, *Salcedia*, *Enceladus*, and *Neohiletus*.

A. reichardti is unique in the genus because of its possession of a stout upper spur above the antennal comb; its head is not foreshortened and is more characteristic of normal carabids; its vestiture is not appressed and scalelike; and its clypeus is setiferous. Retention of the first 3 plesiotypic attributes (ex-group comparison) and occurrence in interior Brazil indicate possible long-time isolation. The only evidence of relationship I discovered is that *A. australis* Castelnau shares with *A. reichardti* erect elytral setae plus pubescence and *A. reichardti* shares with *A. sp.* (Liberia) similar coarseness of the elytra setae and presence of upper spur of the antennal comb (although in *A. sp.* "Liberia" the "spur" is almost seta-like). Thus possible relationships are indicated as transantarctica and African/South America. The genus as a whole is in need of revision; until this is accomplished no more can be said of the position of *A. reichardti* in the evolutionary history of the group.

For those inclined to undertake a modern study of the group there will be ample material in museums of the world, as these beetles are commonly collected at lights. The known distribution now makes the group one of interest (and potential rewards) should it be thoroughly revised.

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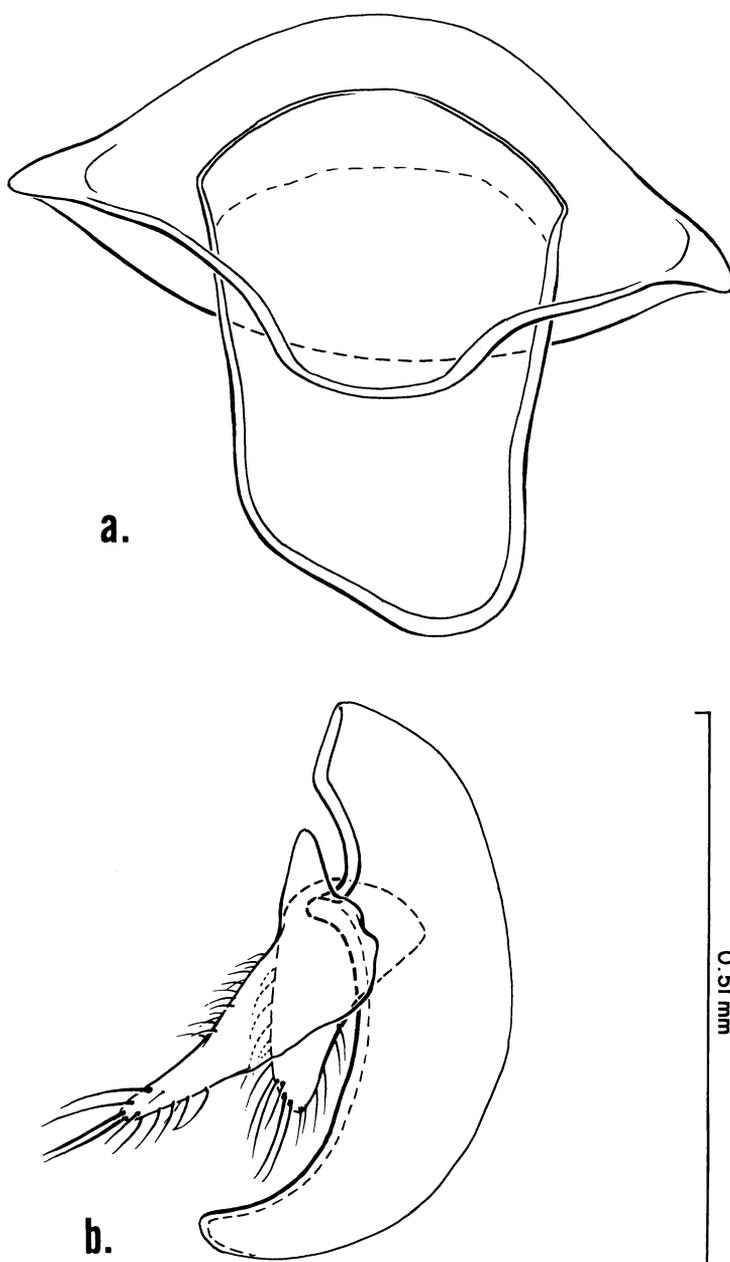


Fig. 3. *Apotomus reichardt* Erwin, new species: a. ring sclerite of genitalia, dorsal aspect, b. male aedeagus, right lateral aspect.

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