

# Updating the Pacific, Indomalayan and Neotropical *Rhantus*-fauna (Coleoptera: Dytiscidae)

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## Abstract

Four new species of *Rhantus* DEJEAN, 1833 (Coleoptera: Dytiscidae) are described: *R. guadalcanalensis* sp.n. [Guadalcanal, Solomon Islands]; *R. leuser* sp.n. [N Sumatra]; *R. andinus* sp.n. [Colombia; ? Venezuela] and *R. franzi* sp.n. [Equador; Colombia]. New island records from the Sunda Archipelago for *R. suturalis* (MACLEAY, 1825) s.l. are: Borneo, Flores, Sumbawa and Timor. *Rhantus remator* SHARP, 1882 is suggested to be a junior subjective synonym of *R. discicollis* AUBE, 1838. Examination of the holotype of *R. obscuricollis* AUBE, 1838 confirms the redescriptions of TREMOUILLES (1984) and MORONI (1988). Synonyms of *R. signatus* (F., 1775) are re-examined.

**Key words:** Coleoptera, Dytiscidae, *Rhantus*, taxonomy, faunistics.

## Introduction

Four new species of the genus *Rhantus* DEJEAN, 1833 are described herein. I also take this opportunity to provide taxonomic and faunistic notes on other species of the genus.

## Material and Methods

Specimens studied are deposited in several collections which are abbreviated in the text as follows, giving corresponding curators last:

AMNH American Museum of Natural History, New York, USA, Dr. L. Herman.  
 BMNH The Natural History Museum, London, England, Mr. S.J. Hine.  
 BPBM Bernice P. Bishop Museum, Honolulu, Hawaii, Dr. G.A. Samuelsson.  
 CAS California Academy of Sciences, San Francisco, USA, Dr. D.H. Kavanaugh.  
 FMNH Field Museum of Natural History, Chicago, USA, Dr. P.P. Parillo.  
 FSCA Florida State Collection of Arthropods, Gainesville, Florida, USA, Mrs. B. Beck.  
 IRSN Institut Royal de Sciences Naturelles, Bruxelles, Belgium, Dr. K. Desender, Dr. L. Baert.  
 LACM Los Angeles County Museum of Natural History, Los Angeles, USA, Dr. C. Hogue.  
 LUZ Lund University Zoological Museum, Sweden, Dr. R. Danielsson.  
 MNHN Museum national d'Histoire Naturelle, Paris, France, Dr. H. Perrin.  
 NMW Naturhistorisches Museum Wien, Austria, Dr. M.A. Jäch.  
 NRS Naturhistoriska Riksmuseet, Sektionen for Entomologi, Stockholm, Sweden, Dr. P. Lindskog.  
 USNM United States National Museum of Natural History, Washington D.C., USA, Dr. P.J. Spangler.

Other abbreviations are: hw - handwriting; TL - maximum length of beetle; TL-h - same but without head; TW - maximum width of beetle.

Measurements were taken with specimens in a horizontal position.

### *Rhantus guadalcanalensis* sp.n.

**TYPE LOCALITY:** Suta, Guadalcanal, Solomon Islands.

**Holotype** ♂: "Solomon Is.: Guadalcanal Is. Suta 27.vi.1956"/ "E.S. Brown B.M. 1957-201" (BMNH). **Paratypes** (5 exs.): 2 ♂♂, 2 ♀♀, same label data (BMNH); 1 ♂, "Guadalcanal, Sutakiki R., 700 m, 5.iv.1963, P. Greenslade" (BMNH, NMW).

**COLOUR:** Head black, clypeus with reddish colour reaching eyes; head with a broad reddish patch on frons which is convex anteriorly and posteriorly, patch connected with pale colour of clypeus by a narrow reddish band in some specimens (Fig. 1a). Pronotum reddish with black anterior and basal patches which are broadly fused medially; patches not fused in one specimen (Fig. 1b). Elytra yellowish with black speckles. Ventral surface dark castaneous brown to blackish.

**SURFACE SCULPTURE:** Head densely punctate; microreticulation along hind margin only. Pronotum densely punctate, puncturation getting sparser toward lateral margins; laterally with obsolescent microreticulation. Elytra densely punctate; with microreticulation of small cells within larger polygonal meshes; microreticulation absent from an almost triangular area antero-medial.

**STRUCTURES:** Pronotum with lateral margins rebordered; border rather broad but obsolescent anteriorly. Metasternal wings broad and tongue-shaped; outer margin slightly sinuate (Fig. 11). Prosternal process lanceolate, rather flat.

**MALE:** Pro- and mesotarsal claws simply and continuously curved, shorter than preceding tarsomere (BALKE 1993b: Fig. 66). Pro- and mesotarsomeres 1-3 only slightly expanded laterally. Median lobe of aedeagus and parameres as in Figs. 5, 6. Parameres with distally acute hairs only, trumpet-shaped suction hairs not visible.

**FEMALE:** Metatarsus with both, dorsal and ventral row of swimming hairs.

**AFFINITIES:** This species belongs to the *pacificus*-group as defined by BALKE (1993b) and is within this group most similar to *R. vitiensis* BALFOUR-BROWNE, 1944 [Fiji Islands] (for re-description see BALKE 1993b). It is, however, well characterized by the features described and illustrated here. The *pacificus*-group is most probably not monophyletic but characterized by a set of plesiomorphies (BALKE 1993b). Similar species are known from South Africa and the Neotropical region, suggesting a Gondwana origin. This, however, remains to be evaluated based on a phylogenetic analysis of the Colymbetini.

**ETYMOLOGY:** Named after Guadalcanal Island.

**DISTRIBUTION:** Known from Guadalcanal only.

### *Rhantus leuser* sp.n.

**TYPE LOCALITY:** Mount Leuser, Aceh, Sumatra, Indonesia.

**Holotype** ♀: "INDONESIA: Sumatra - Aceh Gg. Leuser, 3100 m Bewak Kaki Leuser 03 46'20''N 97 11'19''E" / "24.2.1997 16/97 leg. Ploessl & Tarmann" (NMW). **Paratype:** 1 ♂, same label data as holotype (NMW).

**DIAGNOSIS:** This species closely resembles *R. suturalis* s.l., which has been adequately described by BALKE (1993b). Deviating features are: 1) Pronotum slightly darker (Fig. 2) and 2) beetle distinctly smaller (Table 1). This is the smallest species in the Indomalayan region and the small size means it can be easily recognized even in the absence of males.

Taxon	TL	TL-h	TW
<i>R. guadalcanalensis</i>	10.1 - 10.7	9.1 - 9.7	5.3 - 5.6
<i>R. leuser</i>	8.1 - 8.5	7.6 - 7.7	4.1 - 4.2
<i>R. suturalis</i> s.l.	9.9 - 12.8	9.3 - 12.0	5.2 - 7.0
<i>R. andinus</i>	12.2 - 12.9	11.5 - 12.0	6.4 - 6.7
<i>R. chibcha</i>	10.8 - 11.7	10.0 - 10.9	5.5 - 6.3

Table 1: Measurements for *Rhantus* spp.

**ETYMOLOGY:** Named after the peak from which this species was collected, i.e. Mount Leuser (= Gunung Losir).

**DISTRIBUTION:** Known from the type locality only.

**HABITAT** (Figs. 17, 18): Collected from a small, exposed waterhole in a high-altitude flat peat bog. Vegetation at the edge consisted of moss and grass. Most waterholes on Mt. Leuser are man-made to gain drinking water, probably by local hunters. Primary freshwater habitats in the region appear to be scarce (G. Tarmann, pers. comment).

***Rhantus suturalis* (MACLEAY, 1825), s.l.**

Selected reference: BALKE 1993b: 59.

I here add new island records for several Sunda Islands:

**MALAYSIA: BORNEO: SABAH:** 1 ♀, Mt. Kinabalu (BMNH).

**INDONESIA: FLORES:** 1 ♂, 1 ♀, Ranamese Lake, between Ruteng and Mborong, 1200 m, 28.VIII.1991, leg. M.

Balke (NMW). **SUMBAWA:** 9 exs., Tambora, 600 m, 9.XI.1941, leg. R. Blomberg (NRS). **TIMOR:** East

Timor: 7 exs., Ermera, 1200-1500 m, 29.XII.1963, leg. J. Sedlacek (BPBM).

***Rhantus andinus* sp.n.**

**TYPE LOCALITY:** "? Bogota", Colombia.

**Holotype** ♂: "52"/ "Bogota ? COLOMBIA Lett. ix.6'1936, LMMurillo USNMI 140810"/ "Rhantus calidus F. det. '61, F.N. Young" (USNM). **Paratypes** (2 exs.): 1 ♀, same as HT but "22" instead of "52" (NMW); 1 ♀, "Choachi 1921"/ "3"/ "Colombie Choachi .1917. Fe. Apoll. Marie" (Coll. Peschet in MNHN).

**COLOUR:** Head black, clypeus with reddish colour almost reaching the eyes; head with a narrow reddish patch on frons which is connected with pale colour of clypeus by a conspicuously broad reddish band (Fig. 3a). Pronotum reddish laterally, medially blackish patch over the entire pronotal length, patch laterally expanded to at least level of inner margin of eyes (Fig. 3b). Elytra yellowish with black speckles. Ventral surface dark castaneous brown to blackish.

**SURFACE SCULPTURE:** Head with deeply impressed, hardly defined meshes and double punctation; larger punctures densest laterally. Microreticulation present along eyes only. Pronotum with deeply impressed, irregular polygonal meshes and double punctation; microreticulation not visible. Elytra with rather regular, only slightly impressed polygonal meshes and double punctation of numerous small and few larger punctures; microreticulation visible posteriorly within the polygonal meshes.

**STRUCTURES:** Pronotum with lateral margins rebordered; border rather broad but obsolescent anteriorly; lateral pronotal sides convex from base almost to anterior angle where the curvation changes to concave (Fig. 3b). Metasternal wings broad and tongue-shaped; outer margin sinuate (Fig. 12). Prosternal process lanceolate, with distinct ridge.

**MALE:** Pro- and mesotarsal claws as in Fig. 14. Pro- and mesotarsomeres 1-3 only slightly expanded laterally. Median lobe of aedeagus and parameres as in Figs. 7, 8.

**FEMALE:** Metatarsus without ventral row of swimming hairs.

**AFFINITIES:** This species cannot be confused with any of the known species based on the characters described and illustrated here.

**NOTE:** One female may also belong to this species: "Merida, Venezuela"/ "Rhantus n.sp." (hw Régimbart) (MNHN). This specimen differs from the type by: 1) Elytra rather dark due to fusion of most of the black speckles; 2) dorsal surface, especially elytra matt because the meshes are deeply impressed; 3) base of pronotum distinctly narrower than base of elytra; 4) metasternal

wings slightly narrower. This individual may represent a high altitude form of *R. andinus*, or a closely related species.

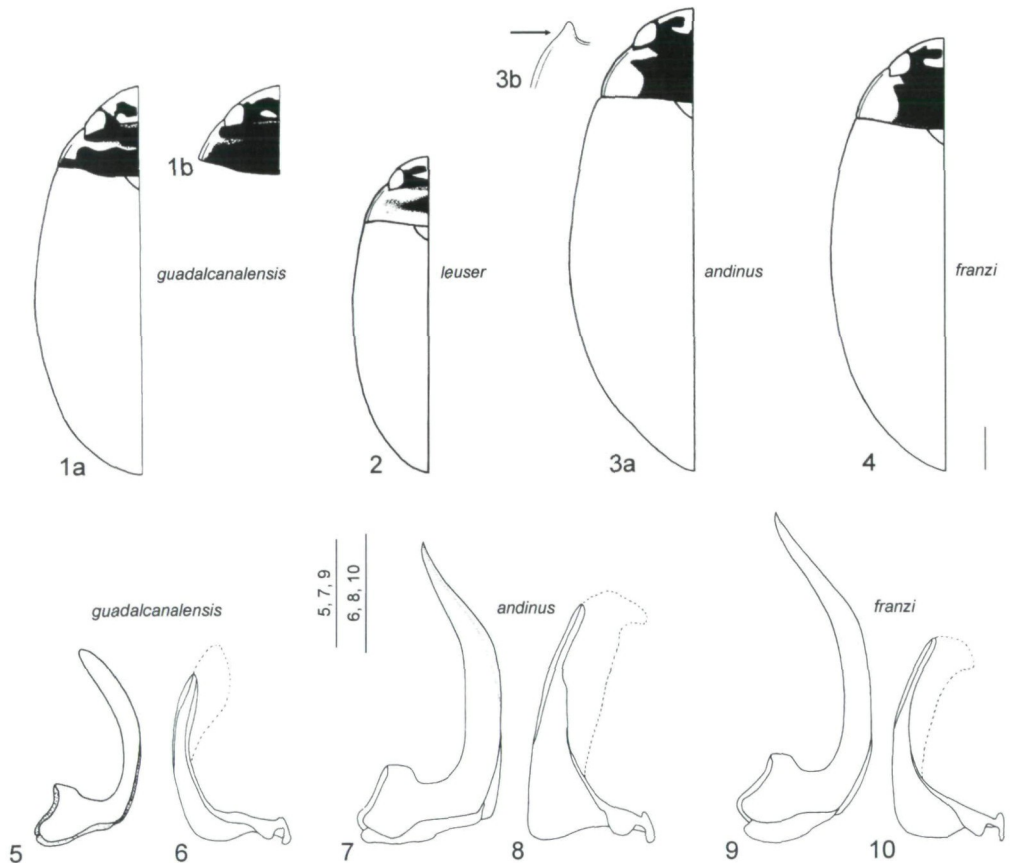
**ETYMOLOGY:** Named after the major mountain range from which this species was collected, i.e. the Andes.

**DISTRIBUTION:** Colombia, ? Venezuela.

***Rhantus franzi* sp.n.**

**TYPE LOCALITY:** Cauca Valley, Colombia.

**Holotype** ♂: "Cauca Vall. Colombia"/ "H.B. Leech collection"/ "Rhantus sp. not in BMNH J. Balfour-Browne det. 1945" (CAS). **Paratypes** (3 exs.): 1 ♀, same label data as holotype; 1 ♂, "Equateur"/ "obscuricollis AUBE" (MNHN); 2 ♀♀, "Manizales, A.M. Patino" (MNHN).



Figs. 1 - 4: *Rhantus* spp., habitus and coloration of head and pronotum, 1a) pale form, 1b) dark form, 3b) lateral pronotal margin, arrow points on the changing curvature in front of anterior angle. Scale = 1 mm.

Figs. 5, 7, 9: *Rhantus* spp., median lobe of aedeagus. Scale = 1 mm.

Figs. 6, 8, 10: *Rhantus* spp., paramere. Scale = 1 mm.

**COLOUR:** Head black, clypeus with reddish colour almost reaching the eyes; head with a broad sinuate reddish patch on frons which is connected with pale colour of clypeus by a narrow broad reddish band (Fig. 4). Pronotum reddish laterally, medially large blackish patch which almost reaches base and foremargin in most specimens and does reach these margins in the holotype, laterally expanded to at least level of inner margin of eyes (Fig. 4). Elytra yellowish with black speckles. Ventral surface dark castaneous brown to blackish.

**SURFACE SCULPTURE:** Head with moderately deeply impressed, more or less defined meshes and double punctation. Microreticulation present along eyes only. Pronotum with deeply impressed, irregular polygonal meshes and double punctation; microreticulation not visible. Elytra with rather regular, only slightly impressed polygonal meshes and double punctation of numerous small and few larger punctures; microreticulation visible posteriorly within the polygonal meshes.

**STRUCTURES:** Pronotum with lateral margins rebordered, border rather broad but obsolescent anteriorly. Metasternal wings broad and tongue-shaped; outer margin sinuate (Fig. 13). Prosternal process lanceolate, with distinct ridge.

**MALE:** Foreclaws as in Fig. 15, mesotarsal claws similar to Fig. 15. Pro- and mesotarsomeres 1-3 only slightly expanded laterally. Median lobe of aedeagus and parameres as in Figs. 9, 10.

**FEMALE:** Metatarsus without ventral row of swimming hairs.

**AFFINITIES:** This species cannot be confused with any of the known species based on the characters described and illustrated here.

**ETYMOLOGY:** Named for Prof. H. Franz on the occasion of his 90th birthday.

**DISTRIBUTION:** Colombia, Equador.

### *Rhantus signatus* (FABRICIUS, 1775)

*Dytiscus signatus* FABRICIUS 1775: 234 (orig. descr.), 1781: 296, 1787: 192, 1792: 197, 1801: 270.

? *Dytiscus irroratus* FABRICIUS 1775: 233 (orig. descr.), 1781: 295, 1792: 194, 1801: 266, species incognitus.

*Rantus* [sic!] *bonairensis* DEJEAN 1833: 54 (cat.), 1836: 62 (cat.), nom. nudum.

*Dytiscus* (*Colymbetes*) *irroratus* BRULLE 1838: 49 (orig. descr.) (nec FABRICIUS, 1775), nom. praeocc.

*Dytiscus* [sic!] (*Colymbetes*) *irroratus* BRULLE: AUBÉ 1838: 242, 243 (?= *irroratus* F.).

? *Colymbetes trilineatus* AUBÉ 1838: 244, 245, (orig. descr.), species incognitus.

*Colymbetes suturalis* BABINGTON 1841: 6 (orig. descr.) (nec MACLEAY, 1825), nom. praeocc.

*Colymbetes signatus* BABINGTON 1841: 7, 8 (orig. descr.) (nec FABRICIUS, 1775), nom. praeocc.

*Colymbetes darwinii* [sic!] BABINGTON 1841: 8, 9 (orig. descr.); WATERHOUSE 1881: 81; ENDERLEIN 1912: 142.

*Rhantus signatus* (F.): ZIMMERMANN 1920: 206 (cat.); SPANGLER 1980: 203 (ecol., faun.); TREMOUILLES 1984: 11-13 (tax., faun.); MORONI 1988: 53-57 (tax., faun.).

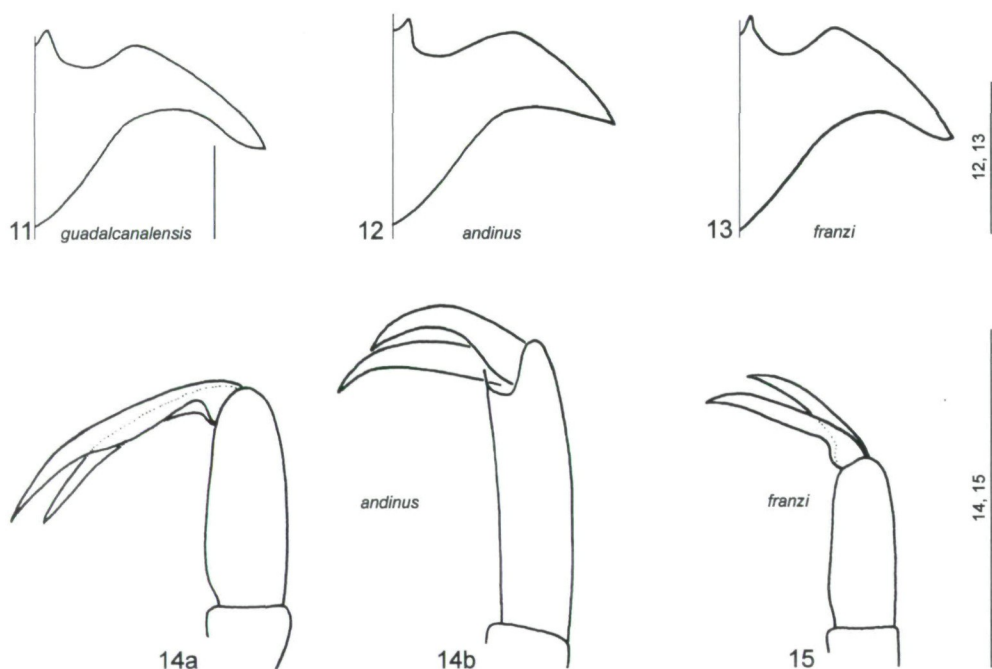
**TYPE LOCALITIES:** *D. signatus* F.: "Habitat in Patagoniae aquis" (Chile); *D. irroratus* BRULLE: "Monte Video"; *C. suturalis* BABINGTON: "Valparaiso" (Chile); *C. signatus* BABINGTON: "Monte Video" (Argentina); *C. darwinii* BABINGTON: "Tierra del Fuego" (Argentina).

**Lectotype** of *D. signatus* F. (present designation) ♂: "Dytiscus signatus Fab. Entom. p. 234. n.23"/ "Drawer 6. Banks Collection, Holotype Dytiscus signatus Fab." (BMNH).

**Lectotype** of *D. irroratus* BRULLE (present designation) ♂: "5288-34"/ "Irroratus Brulle"[hw Aube], and, in the drawer "Voy. Orbigny, Monte Video" (MNHN). **Paralectotypes** (7 exs.): from "Monte Video", "Patagonia", and "M. Gaudicho, Bresil" (original locality labels all in drawer, I subsequently attached locality labels to beetles) (MNHN).

**Lectotype** of *C. suturalis* BABINGTON (present designation) ♂: "Type H.T." (BMNH label)/ "Valparaiso, Chile, C. Darwin"/ "63.44"/ "5. suturalis bab., Valparaiso S.A., C. Darwin"/ "5. Col. suturalis Bab., Valparaiso" (BMNH).

**Lectotype** of *C. signatus* BABINGTON (present designation) ♂: "Type H.T." (BMNH label)/ "63.44"/ "Monte Video., Uruguay, C. Darwin"/ "8. signatus Bab., 1. Monte Video, C. Darwin"/ "8. Col. signatus Bab., 1. Monte Video. 2. Tierra del Fuego." (BMNH).



Figs. 11 - 13: *Rhantus* spp., metasternal wing. Scale = 1 mm.

Figs. 14, 15: *Rhantus* spp., male claws, 14a) and 15) fore claws, 14b) middle claws. Scale = 1 mm.

NOTES: See ZIMMERMANN (1920: 206), TREMOUILLES (1984: 11), and MORONI (1988: 55) for more references. Various authors (e.g. ZIMMERMANN (1920), TREMOUILLES (1984), and MORONI (1988)) neglected that BRULLE (1838) described a species he named *Dytiscus irroratus*. He did not note that FABRICIUS (1775) already named *Dytiscus irroratus*. Thus, *D. irroratus* BRULLE is a junior homonym of *D. irroratus* FABRICIUS. *Colymbetes suturalis* BABINGTON is a junior homonym of *C. suturalis* MACLEAY (an Old World species). Both of these junior homonyms are junior subjective synonyms of *Dytiscus signatus* F., and must consequently not be replaced (ICZN, Art. 60 a.). BABINGTON (1841) did not interpret *Dytiscus signatus* FABRICIUS (as suggested by ZIMMERMANN 1920 and TREMOUILLES 1984) but described a species he named *D. signatus*. The latter is nevertheless a junior subjective synonym of *D. signatus* F., as was correctly noted by MORONI (1988).

#### ADDITIONAL MATERIAL EXAMINED:

ARGENTINA: Buenos Aires (FSCA, USNM), Rio Negro (FSCA, LACM); CHILE: Chiloe Island (FSCA), Valdivia (FSCA), Juan Fernandez (FSCA), and others (AMNH, FMNH, USNM); BOLIVIA: Santa Cruz (USNM); BRASIL: Parana (USNM), Rio Grande do Sul (FSCA, USNM), Santa Catherina (LACM), Ponta Grossa (USNM); URUGUAY: Canelones and Maldonado Departments (FMNH).

#### *Rhantus obscuricollis* (AUBE, 1838)

*Colymbetes obscuricollis* AUBE 1838: 251, 252 (orig. descr.).

*Rhantus obscuricollis* AUBE: SEVERIN 1892: 474 (cat.); ZIMMERMANN 1920: 204 (cat.); TREMOUILLES 1984: 13, 14 (tax., faun.); MORONI 1988: 57-59 (tax., faun.); BALKE 1993a: 22 (cat.).

TYPE LOCALITY: "Chili".

**Holotype** ♂: "Chili Coll. Chevrolat det. Sharp '82"/ "Rantus, Colymbetes obscuricollis Aube sp. 25 type Chili R. Gay"/ "Colymbetes obscuricollis mihi"/ "Type"/ "det. Rhantus obscuricollis Aube" (Coll. Mouchamps in IRSN).

**DISTRIBUTION**: S Chile (MORONI 1988), SW Argentina (TREMOUILLES 1984).

**NOTES**: The holotype is seriously damaged as was already noted by SEVERIN (1892). Examination of the holotype however confirms the correctness of the redescrptions by TREMOUILLES (1984) and MORONI (1988).

### *Rhantus discicollis* (AUBE, 1838)

*Colymbetes discicollis* AUBE 1838: 250 (orig. descr.).

*Rhantus discicollis* (AUBE): SHARP 1882: 759 (tax.); REGIMBART 1899: 306 (tax.); ZIMMERMANN 1920: 206 (cat.); VAZIRANI 1977: 70 (cat.); BALKE 1993a: 23 (cat.), 1993b: 65 (tax.).

*Rantus* [sic!] *discicollis* AUBE: J. BALFOUR-BROWNE 1939: 110 (tax.).

*Rhantus remator* SHARP 1882: 611 (orig. descr.); ZIMMERMANN 1920: 205 (cat.); BALKE 1993a: 22 (cat.); PECK & BALKE 1993: 264 (tax.), syn. n.

**TYPE LOCALITIES**: *R. discicollis*: "Java", Indonesia; *R. remator*: "Peru".

**Holotype** (of *R. discicollis*) ♂: "124"/ "67-56"/ "Colymbetes discicollis Aub Gehin Java"/ "Rhantus discicollis J. Balfour-Browne det" (BMNH). I have marked this specimen as the holotype.

**SYNONYMY**: **Lectotype** (of *R. remator*, present designation) ♂: "876"/ "Co Type"/ "Peru"/ "Peru"/ "Sharp Coll. 1905-313" (BMNH). **Paralectotypes** (4 exs.): 1 ♂, "Syntype"/ "Type"/ "Peru"/ "Sharp Coll. 1905-313"/ "Peru"/ "Peru"/ "Type 876, Rhantus remator" (BMNH); 1 ♂, "Type"/ "♂, Rhantus remator, 2nd.typ., D.S., ?Chili, Chevrolat"/ "Sharp Coll. 1905-313"/ "The 'type' label on this specimens appears to be an error, M.E. Bacchus det. 1981" (BMNH); 1 ♂, "Perou"/ "Coll. Chevrolat, det. Sharp '82"/ "Paratype"/ "Rhantus remator Sharp"; 1 ♀, same but without "Perou" (Coll. Mouchamps, in IRSN).

This species was redescrbed and illustrated by BALKE (1993b) who already noted that the type locality "Java" for *R. discicollis* must be erroneous. Having studied the types of *R. remator*, and additional material from South America, I have little doubt that *R. remator* is a junior subjective synonym of *Colymbetes discicollis*. *Rhantus discicollis* is most similar to *R. signatus* and *R. galapagoensis* BALKE & PECK, 1993 (see PECK & BALKE 1993 for a differential diagnosis).

#### ADDITIONAL MATERIAL EXAMINED:

2 ♂♂, 2 ♀♀, "Lima Peru Woytkowski"/ "Rh. remator Sharp (det. Gschwendtner)" (NMW); 1 ♂, "Peru Lima ii.1944 leg. Sonkup" (LUZ); 5 exs., "Peru" (AMNH).

**DISTRIBUTION**: Peru.

### Acknowledgements

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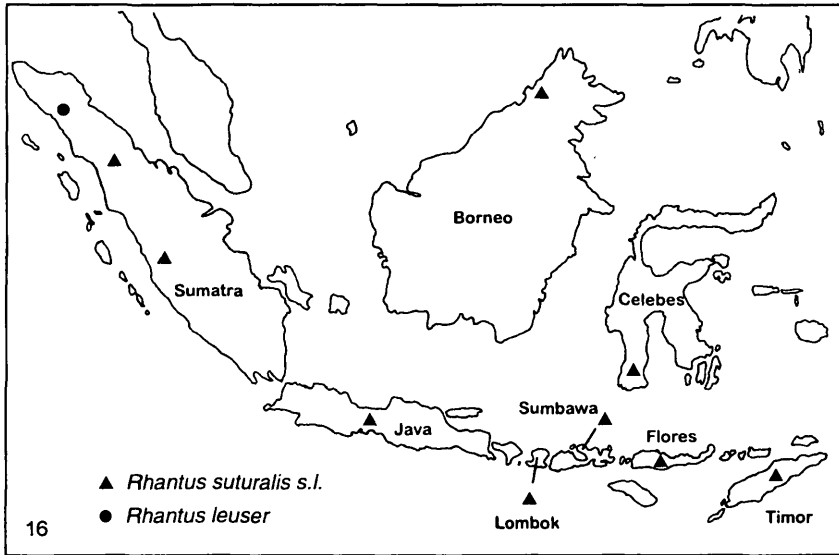


Fig. 16: Distribution of *R. leuser* and Indomalayan range of *R. suturalis s.l.*

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Figs. 17, 18: Habitat of *R. leuser*, 17) summit of Mt. Leuser and high altitude grassland just in front of it, 18) waterhole within the grassland from which the types have been collected.

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