

# A new species of *Trox* from the Amazon Basin with new distributional records for Central American *Trox* (Coleoptera: Scarabaeidae)

Brett C. Ratcliffe (\*)

## Abstract

*Trox juglans* is described as new from the Amazon Basin in Brazil, and new distribution records are given for *Trox fuliginosus* Robinson, *T. loxus* Vaurie, *T. punctatus* Germar, *T. tomentosus* Robinson, and *T. variolatus* Melsheimer.

Only two species of *Trox* (*T. suberosus* (Fabr.) and *T. batesi* Harold) are known to occur in the forests of Brazil's Amazon Basin. *Trox* spp. are not well established there possibly because the continual, very humid forest conditions are not suitable or because they have been out-competed in their ecological role in these humid forests by other animals such as ants, for example. The specimens described as new here were taken at INPA's Reserva Ducke, near Manaus, in an area of tropical humid forest (*terra firme*; primary forest) and were collected by using baited pitfall traps. The bait for these traps consisted of a small amount of fish suspended above either a 5% chloral hydrate solution or a 25% picric acid solution. Eight specimens were taken with the two combinations over a nine month period in a system using ten traps spaced 50 meters apart and collected weekly. This same area was also sampled with black light traps, but *Trox* sp. were not taken.

## *Trox juglans*, new species (Figs. 1-4)

**TYPE MATERIAL** — Holotype male, labeled "BRASIL: Amazonas, Reserva Ducke, 26 km NE Manaus, IX-27-1977, B. C. Ratcliffe." Allotype female with same data as holotype. Four male and two female paratypes with same locality data but with dates of XI-1-1977, I-3-1978, I-17-1978, II-14-1978, and V-2-1978. Types deposited at the Instituto Nacional de

Pesquisas da Amazônia (INPA). Paratypes deposited at the Museu de Zoologia da Universidade de São Paulo (MZSP), in the Brett C. Ratcliffe collection (BCRC), and at the American Museum of Natural History (AMNH).

**HOLOTYPE** — Male. Length 8.0 mm; greatest width 4.5 mm. Color light brown. **Head:** Frons bituberculate. Clypeus with apex triangular, deflexed, anterior edge distinctly emarginate in dorsal view. Scape of antenna piceous with fulvous hairs; club ferruginotestaceous. **Pronotum** (Figs. 1-2): Length width ratio 3:4. Base drawn backward in obtuse lobe. Sides bulbous in front of middle, strongly emarginate in front of basal angle, basal angle acutely lobed; margin with small, sparse hairs. Center of pronotum with 2 strongly elevated, longitudinal ridges; ridges extend from apex to base, constricted mesad just below middle; ridges at mesal constriction appear subtuberculate in dorsal view; a shallow

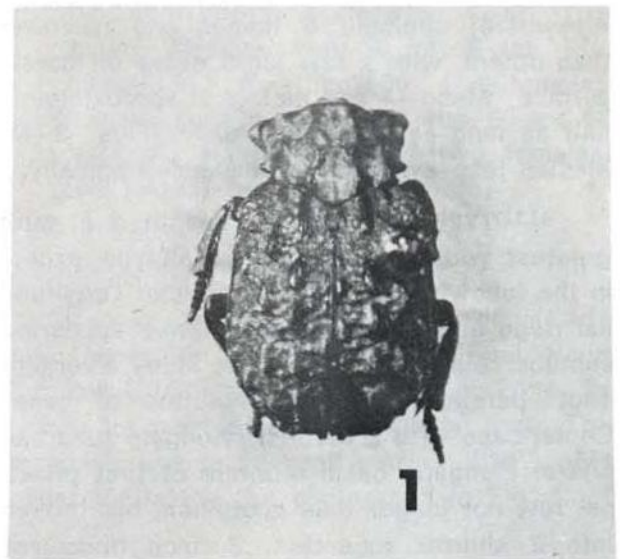


Fig. 1 — *Trox juglans*, dorsal view.

(\*) — Instituto Nacional de Pesquisas da Amazônia, Manaus.

fovea on each ridge just anterior of mesal constriction. Surface moderately punctate; punctures small, shallow, non-setigerous. *Scutellum* (Fig. 2): Scutellum about twice as long as wide, sides slightly convergent to middle, divergent to apical third quarter, then convergent to apex. *Elytra*: Each elytron with 4 rows of 4-6 tubercles from base to subapical declivity, first 2 rows on disc, last 2 rows across and behind humerus and on side below humerus; tubercles bulbous, elevated, impunctate, round in smaller tubercles, elongate in larger tubercles, tomentose on top; basal tubercle in first principal row longer than scutellum; tubercles large in discal and post-humeral rows, smaller in side row. Intervals between principal rows with small tubercles; suture and marginal interval with tubercles subequal in size to those of 4th principal row. Humeral callus large, bulging. Lateral margin with sparse, very small setae. Surface with punctures obscured on disc due to coating, visible laterally; punctures moderate in density, large, moderately deep. *Legs*: Outer edge of tibia smooth, a few short setae present. Tarsal segments 1-4 on second and third pairs of legs smooth (not ridged), subequal, about as long as wide; apex of each with several setae, setae ventrally nearly as long as segment, half as long as segment elsewhere; segment 5 longer and narrower than others, with a few short setae on dorsal surface. Meso- and metatarsi approximately half as long as tibia. *Genitalia* (Figs. 3-4): Median lobe symmetrical, expanded apically.

**ALLOTYPE** — Female. Length 9.5 mm; greatest width 6.0 mm. As holotype except in the following respects: *Pronotum*: Longitudinal ridge at mesal constriction not appearing subtuberculate in dorsal view; sides divergent (not parallel) from constriction to base. Center-base with a distinct, elongate tubercle. *Elytra*: Elongate, basal tubercle of first principal row not longer than scutellum, but broken into 2 shorter tubercles. Surface punctures clearly visible on disc and sides.

**VARIATION** — Males (4 paratypes): Length 8.5-9.0 mm; greatest width 5.0-5.5 mm. *Pronotum*: Longitudinal ridges with basal part

subparallel, then slightly convergent at base. *Elytra*: Elongate, basal tubercle of first principal row entire to divided into 2 shorter tubercles. Disc and sides with punctures partially obscured to clearly visible; punctures moderate in density, large, moderately deep.

Females (2 paratypes): Length 9.0 mm; greatest width 5.2-5.5 mm. *Pronotum*: Longitudinal ridges with basal part slightly to distinctly convergent at base. *Elytra*: Elongate, basal tubercle of first principal row entire to divided into 2 shorter tubercles. Punctures partially obscured by coating.

**DISCUSSION** — *Trox juglans* is included in Vaurie's (1962) *brevicollis* group of South American *Trox* because of the deflexed clypeal apex, large and bulbous eyes, long wings, and form of the genitalia. It most closely re-

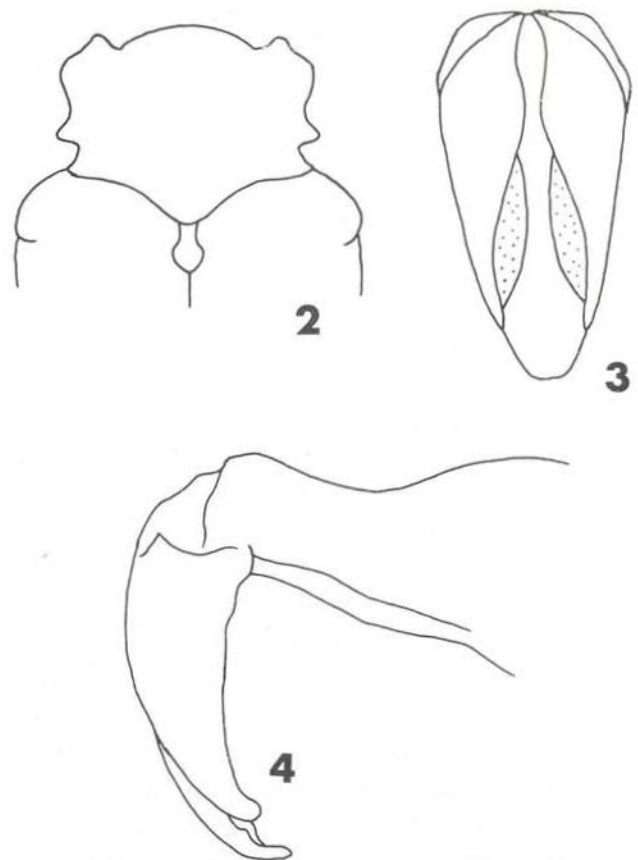


Fig. 2 — *T. juglans*. Form of pronotum and scutellum; Fig. 3-4 — *T. juglans*. Lateral and caudal views of male genitalia.



sembles *Trox bifurcatus* Vaurie and, except for the genitalic character, will key to *T. bifurcatus* in Vaurie's revision of the South American species. However, *T. bifurcatus* possesses genitalia with a very distinctive, forked median lobe whereas *T. juglans* has genitalia with the median lobe entire and expanded apically, much like those of *T. brevicollis* Eschscholtz. *Trox brevicollis* is unlike *T. juglans* in that it has black antennal hairs, a differently shaped pronotum and scutellum, and longer hind tibiae. Although all three of the above species are found in Brazil, *T. juglans* is the only species to be found in the Amazon Basin.

**ETYMOLOGY** — The color and moulding of the dorsal surface of this species are reminiscent of a walnut, *Juglans regia*, hence the appellation *Trox juglans*.

#### NEW DISTRIBUTION RECORDS

The following records are new for Mexico and Central America; these records supplement the data accumulated by Vaurie (1955, 1958, 1962). Collection abbreviations given below are those of Arnett & Samuelson (1969).

*Trox fuliginosus* Robinson. **Mexico**: "Jalisco, 11.5 mi NW Barra de Navidad, 14-IX-71 A. Newton" (1 male, 1 female); "San Luis Potosi, 3 mi. W El Naranjo, 10-18-VI-71, A. Newton, 1100'" (one male) (new state records). **El Salvador**: "20 km E La Libertad, 3-V-71, H. F. Howden" (four males, two females); "3 km S Santa Tecla, 11-V-71, H. F. Howden" (one female) (new country records). **Costa Rica**: "Guanacaste, Finca Pacifica Canas, 17-VII-66, S. Peck, carrion" (two males, two females) (new country record). All above in HAHC.

*Trox loxus* Vaurie. **Panamá**: "Dist. Chepo, Altos de Majé, 17-V-75, Stockwell-Engleman, at lights" (three males, three females) (Stockwell collection, BCRC, HAHC); "Majé, 9°10'N, 70°45'W, 18-V-74, Engleman, light trap" (one female) (HAHC) (new country records). Vaurie (1962) suggested,

based on material from southern Brazil and Argentina, that *Trox loxus* is a truly South American species, and that the single female specimen (holotype) from Mexico was probably "carried to the port of Veracruz by chance". While this may be the case, I believe the new Panamanian records indicate more of a continuum in the distribution than was previously known and, therefore, makes plausible the possibility of an established population in Mexico. In view of this further data, I would now discount Vaurie's explanation for the previously known Mexican record. *Trox loxus* may occur in other areas of Central America but, like *Trox juglans*, is rare and not commonly encountered.

*Trox punctatus* Germar. **Mexico**: "Coahuila, Rte. 57, 66.8 km S Sabinas, VII-26-75, G. E. Ball & H. E. Franía, U. V." (two females) (HAHC) (new state record).

*Trox tomentosus* Robinson. **Mexico**: "Jalisco, 26 mi. NW Barra de Navidad, IX-13-71, A. Newton, 300'" (one male, one female) (HAHC, BCRC) (new state record).

*Trox variolatus* Melsheimer. **Mexico**: "Durango, 4 mi. W El Salto, 15-17-VI-71, S. Peck, 9000'" (one male); "Hidalgo, 4 mi. W Tullancingo, VIII-71, A. Newton, 7600'" (one male); "Nuevo Leon, 16 mi. S Jct. Rts. 60 and 68, A. Newton, 7600'" (one female); "Nuevo Leon, 18 mi. S Jct. Rts. 60 and 68, V-71, A. Newton, 8000'" (two females) (all HAHC) (new state records).

#### ACKNOWLEDGEMENTS

I am grateful to Henry F. Howden (Carleton University, Ottawa, Canada, and Henry Stockwell (Gorgas Hospital, Canal Zone, Panamá) for permitting me to study their *Trox* material, and to Jorge R. Arias (INPA, Manaus) for taking the photograph in Fig. 1.

#### Resumo

É descrita uma nova espécie de Troginae — *Trox juglans* (Coleoptera: Scarabaeidae) da Bacia Amazônica brasileira. Foram encontradas novas localidades de

distribuição para as espécies *Trox fuliginosus* Robinson, *T. loxus* Vaurie, *T. punctatus* Germar, *T. tomentosus* Robinson, e *T. variolatus* Melsheimer.

#### LITERATURE CITED

ARNETT, JR., ROSS H. & SAMUELSON, G. A. (eds.)

1969 — **Directory of Coleoptera Collections of North America (Canada through Panama)**. Dept. Ent., Purdue Univ., Lafayette, 123 p.

VAURIE, PATRICIA

1955 — A revision of the genus *Trox* in North America (Coleoptera, Scarabaeidae). **Bull. American Mus. Nat. Hist.** 106 (1): 1-89.

1958 — New distribution records of North American *Trox* (Coleoptera, Scarabaeidae). **Coleop. Bull.** 12: 43-46.

1962 — A revision of the genus *Trox* in South America (Coleoptera, Scarabaeidae). **Bull. American Mus. Nat. Hist.** 124 (4): 101-168.

(Aceito para publicação em 08/05/78)