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DYSCINETUS FROM THE WEST
INDIES AND SOUTH AMERICA
(COLEOPTERA: SCARABAEIDAE:
DYNASTINAE)

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TWO NEW SPECIES OF *DYSCINETUS* FROM THE
WEST INDIES AND SOUTH AMERICA (COLEOPTERA:
SCARABAEIDAE: DYNASTINAE)

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ABSTRACT

Dyscinetus imitator is described as new from Grand Cayman Island, West Indies, and *D. ornaticaudus* is described as new from Colombia.

The New World genus *Dyscinetus* Harold was last revised by Endrödi (1966) wherein he listed 13 valid species. Since that time, Chalumeau (1982) described one additional species. Great reliance is placed on the form of the parameres of the male genitalia to distinguish *Dyscinetus* species. This is necessary because the body form and external sculpturing are often so similar between certain taxa that reliable separation based on these characters is impossible. Both of the new species described below are such "cryptic species" and will key to their putative sister species in Endrödi's key. The form of the parameres and, in the case of females of *D. imitator*, place of origin are then necessary for a correct identification.

Dyscinetus imitator Ratcliffe, new species
(Figs. 1, 2, 8, 10)

TYPE MATERIAL. Holotype labeled "Grand Cayman, Cayman Islands, W.I., XII-11-1980, Savannah, Trap I, M.E.C. Giglioli Colr." Allotype labeled "Grand Cayman, Cayman Islands, W.I., X-31-1980, Bodden Town, Trap L, M.E.C. Giglioli Colr." Thirty-one male paratypes from Grand Cayman Island with the following data: Prospect, IV-10-1981 (2), V-11-1981 (2); Bodden Town, II-10-1982 (3), II-16-1982 (1), III-22-1982 (1), IV-6-1981 (4); Georgetown, IV-7-1981 (2), XII-4-1980 (1), XII-24-1981 (9); Savannah, III-17-1982 (1), III-28-1982 (1), XI-24-1981 (3); no locality, III-18-1982 (1). Forty-six female paratypes from Grand Cayman Island with the following data: Prospect, II-10-1982 (4), III-15-1982 (2), III-24-1983 (1), IV-10-1981 (2), V-11-1981 (4); Bodden Town, II-16-1982 (3), III-21-1982 (1), III-22-1982 (2), IV-6-1981 (7), X-2-1981 (1), XI-17-1981 (1); Georgetown, IV-7-1981 (2), XII-24-1981 (7); Savannah, II-15-1981 (1), III-28-1982 (2), V-14-1982 (1), XI-24-1981 (3); no locality, III-18-1982 (1), XI-18-1981 (1).

Holotype and allotype deposited at the University of California, Davis. Paratypes deposited in the collections of the American Museum of Natural History (New York), United States National Museum (Washington, D.C.), Field Museum of Natural History (Chicago), California Academy of Sciences (San Francisco), University of Nebraska State Museum (Lincoln), Florida State Collection of Arthropods (Gainesville), Canadian National Collection (Ottawa), British Museum of Natural History (London), Museum National d'Histoire Naturelle (Paris), Museum für Naturkunde (Berlin), Henry Howden (Ottawa),

Miguel Morón (Mexico City), Fortuné Chalumeau (Guadeloupe), Antonio Martínez (Argentina), Michael Ivie (Columbus), and Brett Ratcliffe (Lincoln).

HOLOTYPE MALE. Length 18.7 mm; width across humeri 7.9 mm. Color black, legs piceous on inner/ventral surface. *Head:* Frons moderately densely punctate, punctures large. Frontoclypeal suture a smooth, barely noticeable line. Clypeus sparsely punctate, punctures small; apex broadly truncate, weakly emarginate; sides converging slightly to front; sides and apex with marginal bead. Interocular width 3.75 times transverse eye diameters. *Pronotum:* Surface minutely shagreened, moderately punctate; punctures moderately large becoming a little larger and ocellate on sides. Anterior margin at center produced; sides with marginal bead, base lacking bead. *Elytra:* Widest just behind meta-femora. Surface minutely shagreened, disc with 7 rows of punctate striae; punctures moderate to large, most ocellate. Sutural stria unilinear, striae 2-3 closely adjacent as are striae 4-5 and 6-7. Intervals flat with moderate to large, mostly ocellate punctures; punctures arranged irregularly; first interval broad, remaining intervals narrower than first, subequal in width to one another. Sides with similar punctation and with indistinct double row of punctures behind humerus. *Pygidium:* Shape weakly convex (nearly flat) in lateral view. Surface densely, finely rugose with setigerous punctures; punctures small, virtually concealed by rugosity, sparser at middle; setae tawny, very short. *Legs:* Foretibia with 3 subequally spaced teeth. Foretarsus (Fig. 8) with inner claw only slightly larger than outer claw and with apex subequally biramous. *Parameres:* Figs. 1, 2.

ALLOTYPE FEMALE. Length 18.2 mm; width across humeri 8.1 mm. As in holotype except in the following: *Head:* Frontoclypeal suture more distinct. Clypeus a little more distinctly and densely punctate. *Legs:* Foretarsus with claw not enlarged or split.

VARIATION. Males (31 paratypes): Length 15.9-18.3 mm; width across humeri 7.2-8.6 mm. The male paratypes do not differ appreciably from the holotype.

Females (46 paratypes): Length 15.4-18.8 mm; width across humeri 6.8-8.2 mm. The paratypes do not vary significantly from the allotype.

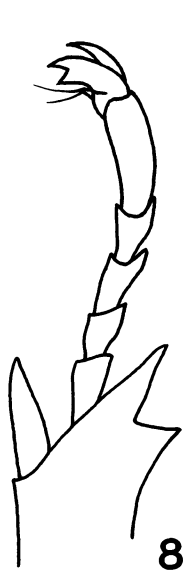
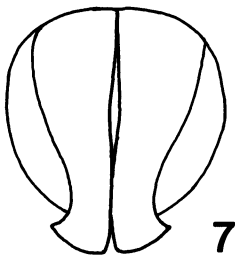
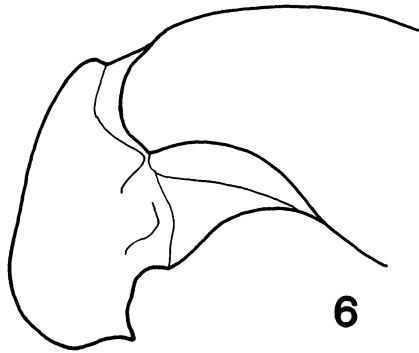
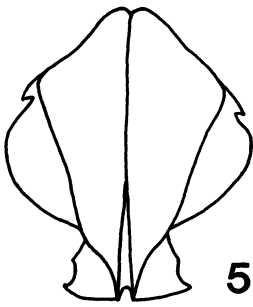
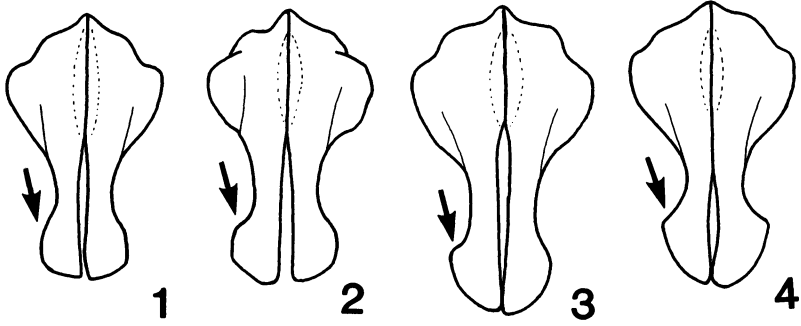
REMARKS. *Dyscinetus imitator* closely resembles *D. laevipunctatus* Bates. The two species cannot be separated based on external characters. Comparison of the parameres should reliably distinguish these two species even though the parameres are somewhat similar (Figs. 1-4). The apical expansion of the parameres is almost regularly curved in *D. imitator*, whereas in *D. laevipunctatus* there is a distinct angle on the lateral expansion. The expanded apex is also proportionately larger in *D. laevipunctatus*. Females of *D. imitator* may best be distinguished by their place of origin inasmuch as it is generally unreliable to identify most female *Dyscinetus* (unaccompanied by males) on the basis of external characters.

Dyscinetus imitator occurs on Grand Cayman Island in the West Indies (Fig. 10). *Dyscinetus laevicollis* Arrow occurs in nearby Jamaica and Hispaniola (Endrödi 1966), but this species differs greatly from *D. imitator*. *Dyscinetus laevipunctatus* is probably the most closely related species and is found from Vera Cruz, Mexico to Panama. Khudoley and Meyerhoff (1971), among others, observed that faunal and floral similarities between Central America and the Greater Antilles suggest former connections via western Cuba or the Cayman

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Figs. 1-7 *Dyscinetus* spp., parameres. 1, *D. imitator*, holotype. 2, *D. imitator*, paratype. 3, *D. laevipunctatus*, Costa Rica. 4, *D. laevipunctatus*, Mexico. 5, 6, *D. ornaticaudus*, caudal and lateral view respectively. 7, *D. dubius*, Brazil, caudal view.

Figs. 8, 9. *Dyscinetus* spp., right foretarsus. 8, *D. imitator*. 9, *D. ornaticaudus*.



Ridge or Nicaraguan Rise. They hypothesize that the connection may have been in the form of closely spaced island stepping stones that would enable the mechanisms of a partial "land bridge" and short distance waif dispersal to operate. Conversely, Coney (1982), among others, indicated that there has been considerable fragmentation of the ancestral Greater Antilles through post-Eocene strike-slip faulting between the North American and Caribbean tectonic plates that produced the vicariance event of "proto-Greater Antilles" island arc sweeping northeast into the gap between North and South America. Dispersal from Middle America or "in-place" ancestors being carried along on drifting tectonic plates both necessitate an ability to cope with widely separated and shifting island habitats to insure survival of non-marine life forms (Coney 1982). The historical geology (either routes of dispersal or vicariance as exemplified by continental drift) suggesting Central American biotic linkage to the Greater Antilles helps to explain the phyletic similarity observed between these two regions. Either scenario is also congruous with, and supportive of, *D. imitator* as a putative sister species of *D. laevipunctatus* rather than with a South American species of *Dyscinetus*. For further animated discussion on the two opposing hypotheses for the origin of the Caribbean biota see Briggs (1984), Gill (1978), Hedges (1982), MacFadden (1980, 1981), Pregill (1981), and Rosen (1975).

ETYMOLOGY. From the Latin *imitator* meaning mimic or imitator, in reference to its close similarity to *D. laevipunctatus*.

Dyscinetus ornaticaudus Ratcliffe, new species

(Figs. 5, 6, 9, 10)

TYPE MATERIAL. Holotype labeled "Colombia: Nariño, Tumaco, III-8-1976, Engleman." Type deposited at the University of Nebraska State Museum.

HOLOTYPE MALE. Length 19.4 mm; width across humeri 8.5 mm. Color black above; elytra with faint tinge of olive green (when under bright light and low magnification); legs and thoracic sternites reddish brown. *Head:* Frons and clypeus sparsely punctate, punctures small. Frontoclypeal suture weakly impressed, median area around suture distinctly depressed. Clypeus with apex broadly truncate, weakly emarginate; sides converging slightly to front; sides and apex with marginal bead. Interocular width 4.0 transverse eye diameters. *Pronotum:* Surface minutely shagreened, finely aciculate, sparsely punctate; punctures small, but becoming larger in posterior angles. Anterior margin at center produced. Sides with marginal bead, base lacking bead. *Elytra:* Widest at meta-femora. Surface minutely shagreened, weakly aciculate; disc with 7 weakly impressed punctate striae; punctures of striae small to moderate, most ocellate. Sutural stria a single row of punctures; rows 2-3 closely adjacent as are rows 4-5 and 6-7. Intervals flat with moderately large, irregularly arranged shallow punctures; first interval broad, remainder narrower than first, subequal in width to one another. Sides with similar punctation and one double row of punctures behind humerus. *Pygidium:* Shape regularly convex in lateral view. Surface densely, finely roughened with moderately dense, setigerous punctures; punctures small, setae tawny, short. *Legs:* Anterior tibia with 3 subequally spaced teeth. Foretarsus (Fig. 9) with median claw enlarged, nearly twice thickness of lateral claw, strongly bent; enlarged claw split at apex unequally. *Parameres:* Figs. 5, 6. Subapex with small tooth, and apex with larger tooth in caudal view.

REMARKS. *Dyscinetus ornaticaudus* is most similar to *D. dubius* (Olivier) and will key to this species in Endrödi's (1966) key. *Dyscinetus ornaticaudus* is more finely punctate on the head and especially on the pronotum and elytra. Although somewhat variable in expression, the punctation of *D. dubius* is

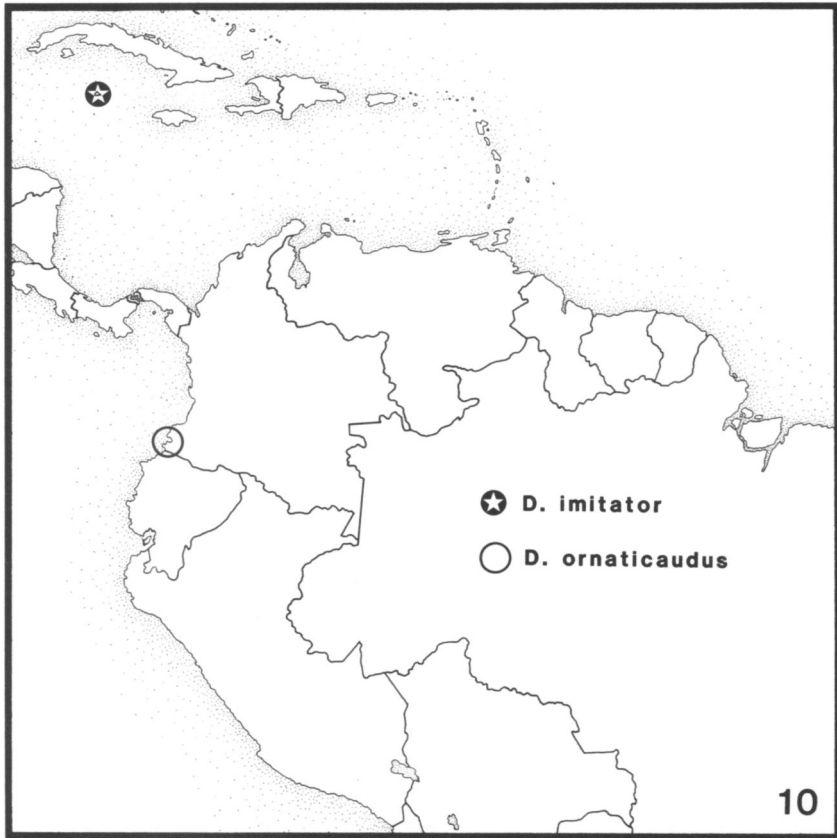


Fig. 10. Distribution map for *Dyscinetus imitator* and *D. ornaticaudus*.

always more coarse. Additional specimens of *D. ornaticaudus* will prove if this distinction in surface sculpturing between these two species is consistent. The enlarged claw of the foretarsus in the male is proportionately a little larger in *D. ornaticaudus*. Lastly, the parameres of the male genitalia are different: their overall shape differs as seen in caudal view (Figs. 5, 7), and the apical region in *D. ornaticaudus* has a subapical tooth that is absent in *D. dubius*.

Dyscinetus dubius occurs widely from Mexico to Argentina. *Dyscinetus ornaticaudus* is found in a coastal area that is surrounded by the Cordillera Occidentale in Colombia and neighboring Ecuador (Fig. 10). These mountains may have formed an effective barrier isolating the ancestral stock of *D. ornaticaudus* from that of the *D. dubius* lineage in the remainder of South America.

Based on the number of shared character states, I surmise that *D. ornaticaudus* and *D. dubius* are sister species.

ETYMOLOGY. From the Latin *ornatus* meaning ornate and *cauda* meaning tail, a loose reference to the ornate parameres relative to those of *D. dubius*.

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LITERATURE CITED

- BRIGGS, J. C. 1984. Freshwater fishes and biogeography of Central America and the Antilles. *Syst. Zool.* 33:428-435.
- CHALUMEAU, F. 1982. Contribution à l'étude des Scarabaeoidea des Antilles (III). *Nouv. Rev. Ent.* 12:321-345.
- CONEY, P. J. 1982. Plate tectonic constraints on the biogeography of Middle America and the Caribbean region. *Ann. Missouri Bot. Gard.* 69:432-443.
- ENDRÖDI, S. 1966. Monographie der Dynastinae (Coleoptera, Lamellicornia). I. Teil. *Ent. Abh. Mus. Tierk.* 33:1-460.
- GILL, F. B. (ED.). 1978. Zoogeography in the Caribbean. *Acad. Nat. Sci. Philadelphia Spec. Pub. No.* 13:1-128.
- HEDGES, S. B. 1982. Caribbean biogeography: implications of recent plate tectonic studies. *Syst. Zool.* 31:518-522.
- KHUDOLEY, K. M., AND A. A. MEYERHOFF. 1971. Paleogeography and geological history of the Greater Antilles. *Geol. Soc. America Mem.* 129:1-199.
- MACFADDEN, B. J. 1980. Rafting mammals or drifting islands?: biogeography of the Greater Antillean insectivores *Nesophontes* and *Solenodon*. *J. Biogeogr.* 7:11-22.
- . 1981. Comments on Pregill's appraisal of historical biogeography of Caribbean vertebrates: vicariance, dispersal, or both? *Syst. Zool.* 30:370-372.
- PREGILL, G. K. 1981. An appraisal of the vicariance hypothesis of Caribbean biogeography and its application to West Indian terrestrial vertebrates. *Syst. Zool.* 30:145-155.
- ROSEN, D. E. 1975. A vicariance model of Caribbean biogeography. *Syst. Zool.* 24:431-464.

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LITERATURE NOTICES

- ANGELINI, F., AND L. DE MARZO. 1985. Reports of *Agathidium* from Central Nepal and North India: expeditions 1979 and 1981 of Geneva Natural History Museum (Coleoptera, Leiodidae). *Revue suisse Zool.* 92:33-76.
- PERKINS, P. D., AND P. J. SPANGLER. 1985. *Quadryops*, new genus, and three new species of arboreal Dryopidae (Insecta: Coleoptera) from Panama and Ecuador. *Proc. Biol. Soc. Wash.* 98:494-510.
- ROBINSON, G. S. 1984. Insects of the Falkland Islands: a checklist and bibliography. *Brit. Mus. Publ. No.* B2 0955. London, 38 pp.
- SCHUSTER, J., AND L. B. SCHUSTER. 1985. Social behavior in passalid beetles (Coleoptera: Passalidae): cooperative brood care. *Florida Entomol.* 68:266-272.