

Variability of *Zophobas rugipes* Kirsch (Coleoptera: Tenebrionidae: Tenebrionini) in Cuba.

Orlando H. Garrido
and
Esteban Gutierrez
Museo Nacional de Historia Natural
Capitolio Nacional
La Habana, Cuba

Abstract

The blind click-beetles are the larger tenebrionids of Cuba. In our territory there are two species described, *Zophobas rugipes* Kirsch with a wide distribution in other West Indies, Central and South America, and *Z. cubanus* Marcuzzi, endemic to Cuba. Other authors had exposed the variability of *Z. rugipes*. We have compared all the available material from Cuban collections and have reached the conclusion that the diagnostic characters exposed for *Z. cubanus*, based on a small series, are not valid. Therefore, we consider this taxon as an individual variation of *Z. rugipes*, and synonymize *Z. cubanus* under *Z. rugipes*.

Introduction

Beetles of the genus *Zophobas* are known in Cuba as the blind Click-beetles. They are found in the wild in woods and caves as well as in antropical facilities in urban and rural zones.

They hide during the daytime under rocks in the wild, or under wood, boards, or trash in urban zones. These beetles, together with *Tauroceras*, contain the largest individuals in the family Tenebrionidae in our territory.

Zophobas is represented by two species: *Zophobas rugipes* Kirsch 1866, and *Zophobas cubanus* Marcuzzi 1976. The first is well distributed on other West Indian islands and on the continent (Puerto Rico, Guadalupe, Lesser Antilles, México, Nicaragua, Costa Rica, Panamá, Colombia, Brazil, and Ecuador). *Zophobas cubanus* is endemic to Cuba (Marcuzzi 1976, 1984).

Other *Zophobas* in the West Indies are: *Zophobas batavorum* Marcuzzi 1959; (Bonaire, Curacao, Aruba); *Z. Iaticollis* Motschulsky 1872 (México, Nicaragua, Panamá, Brazil, Perú, and Surinam); *Z. atratus* Fabricius 1775 (Tropics of the world, introduced in Santa Elena, San Vincent,

Guadalupe, Dominica, Martinica, Trinidad, Puerto Rico, Paraguay) (Marcuzzi 1959, 1984).

A synonym of *Z. rugipes* is *Z. morio* Kratz 1880, which was the name used in Cuba during the past century and beginning of the present one (Marcuzzi 1984). In the private collection of the late entomologist, Ing. Fernando de Zayas, these beetles were treated as *Z. atratus*.

Zophobas rugipes was reported in Cuba for the first time by Marcuzzi (1962:3 and 1977:42) based on some specimens from Pinar del Río; and by Ardoin (1977: 381-385) from the Eastern provinces of Guantánamo and Santiago de Cuba. *Zophobas cubanus* was described by Marcuzzi (1976: 128) from only two specimens without locality. Subsequently, he examined another two specimens from Aguada de Pasajeros that were identified as *Z. cubanus* (pers. comm.). Champion (1884-1893) discussed the morphological variation of *Z. atratus* and although he recognized *Z. rugipes*, he was induced to think that this taxon was nothing but a morphological variety of *atratus*.

Even though the number of available specimens is small (35 specimens without considering

Zayas'), there is notable individual variation in both sexes of *rugipes* and *cubanus*. This variation includes both size and coloration. Marcuzzi, in his original description of *Z. cubanus*, pointed out that the dull color of one specimen could be an age artifact. In reality there are three variants of black color and one of brownish: lustrous, not lustrous, and completely dull. Dull is the usual state. With *Z. rugipes* occurs the same situation; although the predominant variant is the half-lustrous condition. Size also varies in both species. *Zophobas cubanus* is not smaller than *Z. rugipes* as stated in the original description, and both are practically identical in other measurements.

The females of these taxa can not be separated, although the males can be distinguished by the emargination of the clypeus. The clypeal emargination is more conspicuous in *rugipes* (Fig. 1). These variations are not correlated with geography. Both forms can be found together in Sierra de los Organos, San Antonio de los Baños, and Santiago de las Vegas. Due to the scant collecting *Z. cubanus* has not been found in the Eastern provinces of Holguín, Santiago de Cuba, and Granma, but it has been found at Guantánamo (but see Discussion).

Both sexes of *Z. rugipes* illustrated by Marcuzzi (1962), are indistinguishable from *Zophobas cubanus*. The aedeagus is more pigmented or different in size in some specimens, but this size is correlated with the length of the animals. Triplehorn examined 3 specimens from O. H. Garrido private collection that represented the three color variants, considering all as *Z. rugipes* (pers. comm.).

One male of *Z. rugipes* deposited in the senior author's collection with the number OHG-1140 from Camagüey deserves mention. This specimen is the most lustrous of all, and is also the only one that has the clypeus and gena brown instead of black, completely lacking punctures. The buccal parts are also ferruginous. It is interesting to point out that clypeal shape is not exactly as *Z. cubanus*, it is distinctly emarginated. There are some proportional differences in some of the buccal structures. The aedeagus is the most pigmented of specimens studied. Unfortunately we do not know the locality where it was found, nor the opposite sex.

Discussion

The emargination of the male clypeus of this genus is very variable, being more pronounced in typical *rugipes* and less so in the specimens assigned to *cubanus*; with intermediate variation

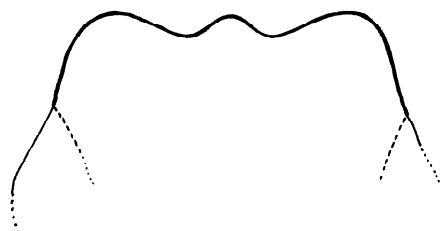


Figure 1. Clypeus of *Zophobas rugipes* Kirsch. MNHN -53. Cueva de los bichos, Patana Abajo, Maisí. 31 - VII - 89. Col. Emilio Alfaro.

occurring. This character, together with the notable variation in size, the differences in color and lustre, the similarity found in the aedeagus of the males of both taxa, and the similar morphology found among the females, induce us to consider as a partially differentiated form, and that the differences found among the individuals of their popula-

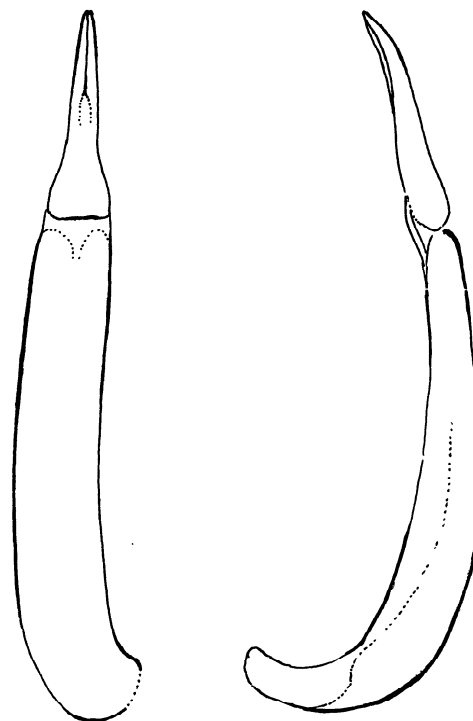


Figure 2. Dorsal and lateral view of the male genitalia of *Zophobas rugipes* Kirsch. MNHN - 530. Cueva de los bichos, Patana Abajo, Maisí. 31 - VII - 89. Col. Emilio Alfaro.

tions fall within the variations of *Z. rugipes*. Therefore, we considered *Z. cubanus* as a synonym of *Z. rugipes*.

Acknowledgements

We are grateful to "RARE CENTER" for supplying equipment and materials necessary to undertake these investigations; to Professor Giorgio Marcuzzi and Dr. Charles Triplehorn for the identification of some of the material and for providing pertinent literature. We are also grateful to Paul Skelley from the staff of Florida State Collection of Arthropods for revising and correcting the manuscript.

Resumen

Los "cocuyos ciegos", junto al género *Tauroceras* constituyen los tenebriónidos de mayor talla del territorio cubano. En Cuba se reportan dos especies del género *Zophobas*: *Z. rugipes*, de amplia distribución en otras islas del Caribe, Centro y Suramérica, y *Z. cubanus*, endémico de Cuba. Se revisó todo el material disponible del género en colecciones cubanas y se determinó que la especie *rugipes*, como ya habían expuesto otros autores, muestra bastante variación individual. La especie endémica *Z. cubanus* descrita de muy pocos individuos no mostró caracteres diagnósticos válidos

y constituye una variación individual de *Z. rugipes*. Por lo tanto, recomendamos incluir a *Z. cubanus* bajo sinonimia de *Z. rugipes*.

References

- Ardoin, P.** 1977. Tenebrionidae (Coleoptera) recoltés en 1969 dans les grottes de Cuba par l'expédition biospeleologique Cubano-Roumaines a Cuba. Ed. Acad. Rep. Soc. Romania: 383-385.
- Champion, C .C.** 1884 - 1893. Coleoptera. In Biología Centrali- Americana, 4 (1): V - XXXII and 1- 572, 23 plates.
- Marcuzzi, G.** 1962. Tenebrionid beetles of the West Indies. Stud. Fauna Curacao and other Carib. Isl. 13: 21-48, plates.
- Marcuzzi, G.** 1976. New Species of Neotropical Tenebrionidae (Coleoptera). Ann. Hist. Nat. Mus. Nat. Hung, 68 : 116 -139.
- Marcuzzi, G.** 1984. A Catalogue of Tenebrionid beetles (Colcoptera: Heteromera) of the West Indies. Folia Entomologica Hungarica 45(1): 69-108.

