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TWO NEW TIGER BEETLES FROM YUCATÁN, MEXICO

(Studies on Tiger Beetles, LXIV)

(COLEOPTERA, CICINDELIDAE)

After the well-known, comprehensive revision made by MONT A. CAZIER in 1954, one could have believed that the Mexican fauna would not have much more to offer to the tiger beetle student. Cazier's work, in fact, listed from Mexico 78 species of *Cicindelina* (45 monotypic and 33 polytypic, with a total of 110 geographical races), all but three of which, significantly, had been described by Nineteenth Century entomologists, with only two newly described by Cazier himself. The few papers have been subsequently published have just added new locality records or range extensions for some of these taxa (CAZIER 1960, ROTGER 1975, BROUERUS VAN NIDEK 1978, MURRAY 1978 and 1979), or new subspecies at most (MANDL 1970, BROUERUS VAN NIDEK 1978, SHOOK 1989); and two new species only - two small *Brasiella* from the southern tropical region of Chiapas - have been described so far, after the Cazier's ones, by BROUERUS VAN NIDEK (1978, 1980). Moreover, MATEU (1974) described a new *Amblychila* from San Luis Potosí, and WIESNER (1981) a new race of an *Oxychila* species (Megacephalini).

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However, Mexico is a huge country of great biological diversity, ranging from the northern arid Sonoran deserts to the southern luxuriant tropical forests, and moreover it harbours both Nearctic and Neotropical elements, which may considerably overlap within its territory. Future research, especially in poorly collected regions such as the southern ones, is therefore likely to lead to further new exciting discoveries.

As a matter of fact, among some Mexican materials sent to the second author by Mr. E.C. Welling M. (Merida, Yucatàn), we had the great surprise of finding two different new species, whose descriptions are given below. Significantly enough, both species come from Yucatàn, which accordingly to CAZIER (1954) is one of the three areas of greatest frequency of geographical differentiation in the tiger beetles in Mexico. Significantly again, they belong to two different genera of completely separate origins, i.e. the Nearctic genus *Habroscelimorpha* Dokhtouroff, 1883, ranging with a dozen species from southern United States to Columbia and Venezuela, and the Neotropical genus *Brasiella* Rivalier, 1954, which includes over thirty very small species distributed from Argentina and Paraguay to Mexico (RIVALIER 1954, 1955; FREITA G & BARNES 1989). Our two new species appear therefore to be a confirmation that Mexico is an area of extensive Nearctic/Neotropical faunal interdigitation.

***Habroscelimorpha wellingi* n. sp.**

DIAGNOSIS. Medium sized, bronze green coloured, with a very broad white elytral margin from shoulders to the apical end. Cheeks covered with white decumbent pubescence; forehead and vertex glabrous, a single white hair just above each antenna. Eyes large and prominent. Pronotum broader than long, rounded at sides.

DESCRIPTION. Head bronze green, with some coppery reflections especially on clypeus and margins of eyes; a small brilliant cupric green area just above each antenna. Surface glabrous, only two juxta-orbital setigerous punctures near both eyes, each puncture bearing a very fine, erect, sensorial seta; a single white decumbent hair (sometimes rubbed off) just above each antenna. Frons and vertex covered with fine longitudinal striae, which are somewhat irregular in the middle, and effaced near the orbital edges; back of vertex with coarse, undulate,

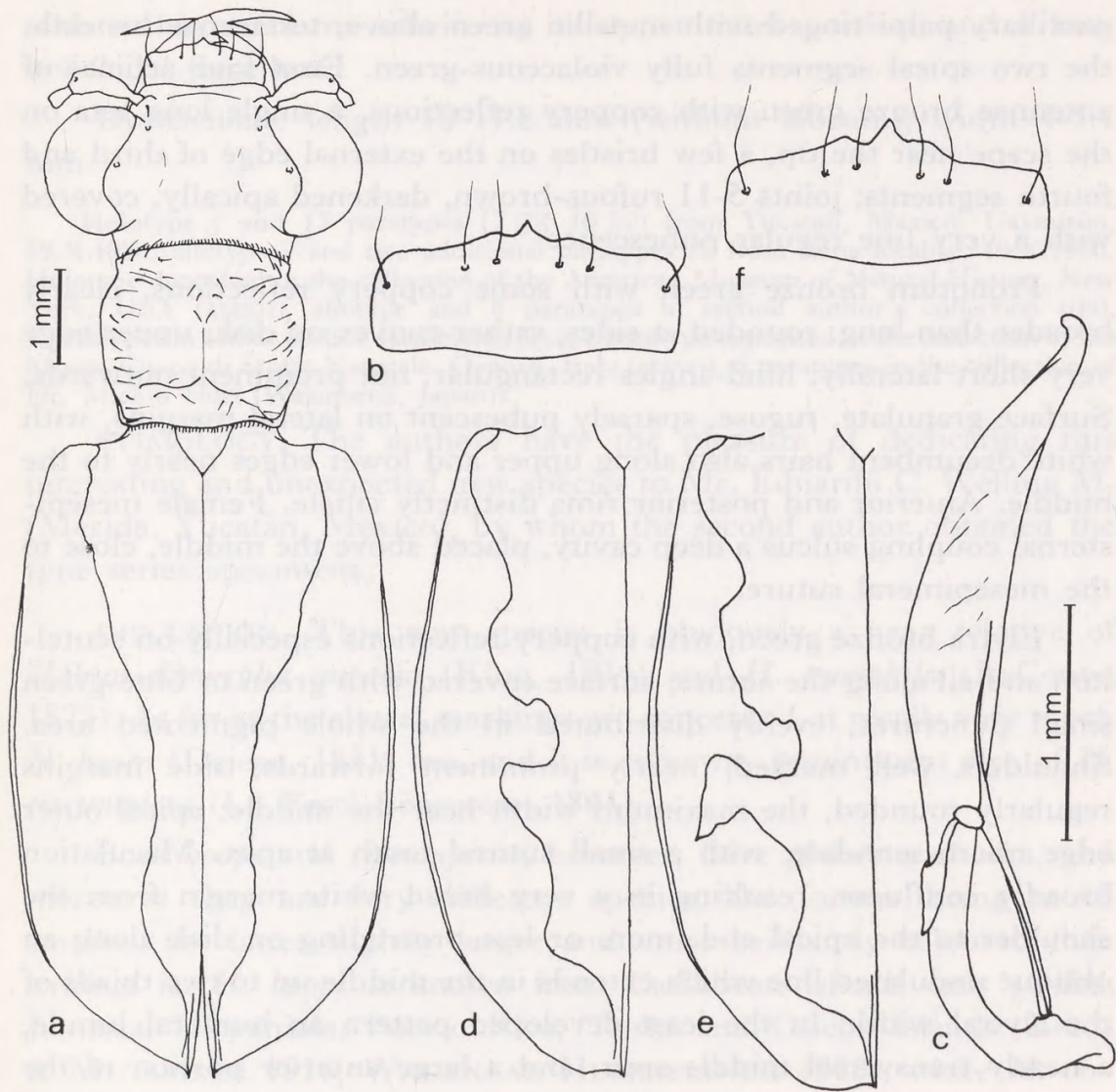


Fig. 1 - *Habroscelimorpha wellingi* n. sp., holotype ♂: habitus (a), labrum (b), aedeagus (c); paratype ♀: left elytron (d); paratype ♀: left elytron (e), labrum (f).

transversal wrinkles. Cheeks bright cupric red, pilose, covered with rather dense, decumbent white hairs. Gular area dark greenish, the tooth of mentum rufous, sharp, fairly long. Eyes very large and prominent, the vertex being rather excavated between them.

Labrum short, transverse, similar in both sexes, feebly tridentate, the central tooth sharply prominent forwards; colour white, narrowly darker on front edge, six setigerous punctures near forward edge. Mandibles testaceous at base, metallic dark green apically, with some coppery reflections. Maxillae and labial palpi testaceous, the last joint of the latter metallic green with violaceous reflections; basal joints of

maxillary palpi tinged with metallic green above, testaceous beneath, the two apical segments fully violaceous-green. First four articles of antennae bronze green with coppery reflections, a single long seta on the scape near the tip, a few bristles on the external edge of third and fourth segments; joints 5-11 rufous-brown, darkened apically, covered with a very fine regular pubescence.

Pronotum bronze green with some coppery reflections, clearly broader than long, rounded at sides, rather convex on disk; upper edge very short laterally, hind angles rectangular, not prominent outwards. Surface granulate, rugose, sparsely pubescent on lateral margins, with white decumbent hairs also along upper and lower edges nearly to the middle. Anterior and posterior rims distinctly ciliate. Female mesepisternal coupling sulcus a deep cavity, placed above the middle, close to the mesepimeral suture.

Elytra bronze green, with coppery reflections especially on scutellum and all along the suture; surface covered with green or blue-green small punctures, evenly distributed in the whole pigmented area. Shoulders well marked, nearly prominent forwards; side margins regularly rounded, the maximum width near the middle; apical outer edge micro-serrulate, with a small sutural tooth at apex. Maculation broadly confluent, resulting in a very broad white margin from the shoulder to the apical end, more or less protruding on disk along an oblique undulated line which extends in the middle up to two thirds of the elytral width; in the least developed pattern an humeral lunule, a nearly transversal middle spur, and a large anterior portion of the apical lunule, emerge from the lateral band. Outer edge of elytra narrowly coppery bronze; epipleura metallic bronze under the shoulders, testaceous behind.

Underside greenish bronze, metallic, with strong coppery reflections on episterna, coxae, and sides of first sternites. Episterna, mesepimera, front and middle coxae, side corners of hind coxae, and outer third of abdominal sternites clothed with rather dense long white recumbent hair. The last two sternites more or less rufescent. Legs bronze green with coppery reflections; trochanters rufescent, tinged with metallic bronze. Long white bristles on femora, especially in the front part of fore ones; numerous shorter spiniform hairs on tibiae and tarsi.

Male aedeagus long, slender, slightly twisted apically, with the tip curved upwards. Internal sac typical of the genus, narrow and elongate,

with a thin arciform sclerite in its upper outer portion, and a long helicoidal flagellum.

Dimensions: length 10-11.8 mm (without labrum), width 4-5.1 mm.

Holotype ♂ and 17 paratypes (7 ♂♂ 10 ♀♀) from Yucatàn, Mexico: Uaymitùn, 19.X.1986; allotype ♀ and two additional paratypes ♀♀ from same locality, 10.X.1986. Holotype deposited in the collection of the American Museum of Natural History, New York, USA (AMNH), allotype and 8 paratypes in second author's collection (HS), 4 paratypes in senior author's collection (FC), 1 paratype deposited in the collection of the Museo Civico di Storia Naturale, Genova, Italy (MSNG), 6 paratypes in the collection of Dr. Michio Hori (Wakayama, Japan)).

ETIMOLOGY. The authors have the pleasure of dedicating this interesting and unexpected new species to Mr. Eduardo C. Welling M. (Merida, Yucatàn, Mexico), by whom the second author obtained the type series specimens.

DISCUSSION. This new species is obviously a near relative of *Habroscelimorpha auraria* (Klug, 1834) and *H. pamphila* (LeConte, 1873). As far as the elytral markings are concerned, it recalls very much *H. boops* (Dejean, 1831) too, and it is someway reminiscent also of *H. circumpicta* (La Ferté-Sénectère, 1841).

Both *boops* and *circumpicta*, however, have glabrous cheeks, and moreover they are very different species, the former being much smaller, the latter slightly larger and more brilliantly coloured than *wellingi* is. *H. boops* is known from Caribbean islands only (Cuba, Jamaica, Hispaniola, Puerto Rico, Turks and Caicos Islands: LENG & MUTCHLER 1916, WAGENAAR HUMMELINCK 1983), while *H. circumpicta* is an halophilic species which inhabits salty situations in the central United States (WILLIS 1967), and which has been recorded also from Tamaulipas and Coahuila, Mexico (CAZIER 1954, MURRAY 1979).

H. auraria is a Central American species, known to occur along ocean beaches and lagoons of Venezuela, Lesser Antilles (Aruba, Curaçao, Bonaire), Columbia, and Panama (JONGE POERINK 1953, WAGENAAR HUMMELINCK 1983), with its subspecies *euryscopa* Bates, 1890, and *bechyneiorum* Mandl, 1961, having been described from widely separated, northernmore localities of the Pacific coast, i.e. respectively from Mazatlan, Sonora, Mexico, and El Salvador (BATES 1890, CAZIER 1954, MANDL 1961). *H. auraria* has as densely pilose cheeks as *wellingi* has, but it is smaller, with shorter and more transverse pronotum, and with the lateral sides of elytra abruptly turning off to the apex and distinctly curved inwards, ending in a rather

sharply projected spine. The shape of penis is also different, being larger and more spatulate apically.

H. pamphila is definitely the closest species, but it clearly differs from *wellingi* by a number of characters, such as the vertex less excavated between the eyes, the hind angles of pronotum more prominent outwards, the strongly dilated elytra in females, the much thicker cheek and underside pubescence, the different labrum and elytral markings, and a distinctive small cluster of 10 or more white decumbent hairs in front of the eyes, just above each antenna. It is a saltwater seacoast species, found along the shores and inlets of the Gulf of Mexico, and primarily known from the coast of Texas and from Tamaulipas, Mexico (CAZIER 1954, GRAVES & PEARSON 1973).

With regard to the elytral markings, *H. wellingi* is also somewhat reminiscent of *Eunota togata* (La Ferté-Sénectère, 1841), but this is a very different species, easily recognizable by its head sparsely hairy in front and above. For generic differences see RIVALIER (1954). *E. togata* occurs in central and south-eastern United States, and it is known from Tamaulipas, Mexico, as well.

The discovery of a distinctive, medium-sized, new species from Yucatàn, Mexico, is an exciting one. It demonstrates that the Mexican tiger beetle fauna can still have in store unexpected surprises. The exact range of *H. wellingi* has still to be defined, as well as its habitat. Presumably it is an halophilic species, inhabiting saline inland situations, where such habitats can exist.

Brasiella maya n. sp.

DIAGNOSIS. Similar to *B. hemichrysea* (Chevrolat, 1835) but smaller, with longer labrum and stronger striation of head and pronotum. Background colour of elytra dark blackish brown, with many small bluish-green dots. Markings merely reduced to three or four small roundish spots on disk, the central ones sometimes connected by a fine, hardly visible, medium band, obliquely bent in the middle.

DESCRIPTION. Head coppery bronze, with some green reflections just above each antenna and at base of mandibles. Surface glabrous, only two juxtaorbital sensorial setae near both eyes. Supra-ocular and interocular striation rather strong, made up of 17-19 longitudinal striae from the middle to the orbital edge, the striae being concentric on

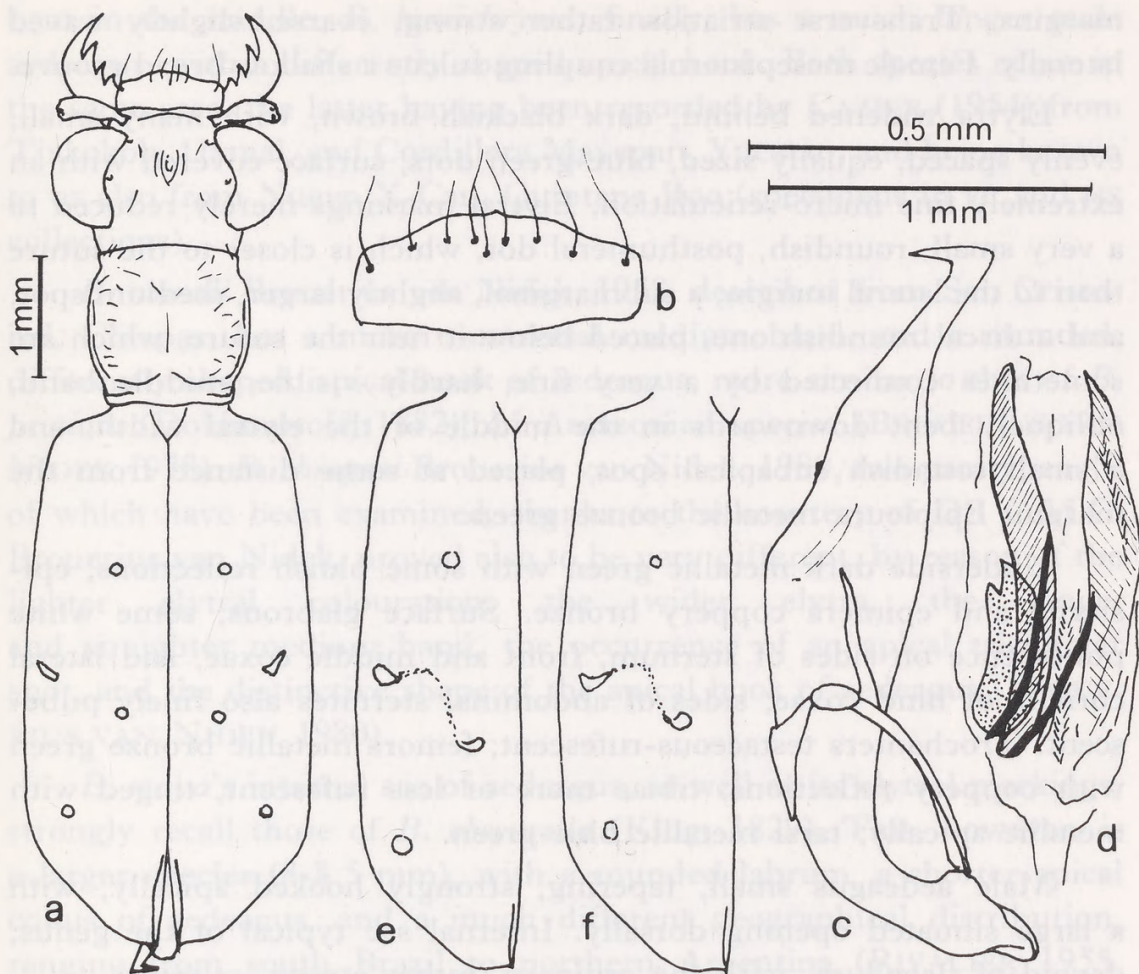


Fig. 2 - *Brasiella maya* n. sp., holotype ♂: habitus (a), labrum (b); paratype ♂: aedeagus (c), internal sac of aedeagus (d); allotype ♀: left elytron (e); paratype ♀: left elytron (f).

vertex; frons with slightly finer longitudinal ridges. Cheeks glabrous, longitudinally striated. Labrum testaceous, transverse, advanced in the middle, slightly unidentate in both sexes, with 6-9 setae near forward edge. Mandibles testaceous, metallic brown-green on the teeth. Maxillary and labial palpi testaceous, the last joint dark metallic green with coppery reflections. Articles 1-4 of the antennae coppery bronze, metallic, glabrous, a single long seta on the scape near the tip, 2-3 spiniform bristles on the external edge of third and fourth segments; joints 5-11 dark-brown, finely and regularly pubescent.

Pronotum coppery bronze with some greenish reflections, subsquared, nearly parallel-sided, slightly restricted at base, rather convex on disk. Surface glabrous in the middle, sparsely haired on lateral

margins. Transverse striation rather strong, coarse, slightly waved laterally. Female mesepisternal coupling sulcus a shallow broad groove.

Elytra widened behind, dark blackish brown, with many small, evenly spaced, equally sized, blue-green dots; surface covered with an extremely fine micro-reticulation. Elytral markings merely reduced to a very small, roundish, posthumeral dot, which is closer to the suture than to the lateral margin; a submarginal, slightly larger, medium spot, and a discal roundish one, placed below it near the suture, which are sometimes connected by a very fine, hardly visible, middle band, obliquely bent downwards in the middle of the elytral width; and a small roundish subapical spot, placed at some distance from the margin. Epipleura metallic bronze green.

Underside dark metallic green with some bluish reflections; episterna and epimera coppery bronze. Surface glabrous, some white pubescence on sides of sternum, front and middle coxae, and lateral corners of hind coxae; sides of abdominal sternites also finely pubescent. Trochanters testaceous-rufescent; femora metallic bronze green with coppery reflections; tibiae more or less rufescent, tinged with metallic apically; tarsi metallic blue-green.

Male aedeagus small, tapering, strongly hooked apically, with a large sinuated opening dorsally. Internal sac typical of the genus, devoid of flagellum, with the ordinary, rather strong, sclerites.

Dimensions: length 6.5-7.5 mm (without labrum), width 2.2-2.8 mm.

Holotype ♂, allotype ♀ and 11 paratypes (6 ♂♂ 5 ♀♀) from Yucatàn, Mexico: Yokdzonot-Mpio-Yaxcabà, 16-30.VII.1988; two additional paratypes ♂♀ from the same area: Piste-Mpio-Tinum, VI.1979 and VI.1980. Holotype deposited in the collection of the American Museum of Natural History, New York, USA (AMNH), allotype and 7 paratypes in second author's collection (HS), 5 paratypes in senior author's collection (FC), 1 paratype deposited in the collection of the Museo Civico di Storia Naturale, Genova, Italy (MSNG).

ETIMOLOGY. This species name was given with reference to the ancient Maya people, whose major and most famous centre of civilization, Chichén Itzà, was just close to the new species type locality.

DISCUSSION. *Brasiella maya* n. sp. is obviously a near relative of *B. hemichrysea* (Chevrolat, 1835), which it resembles very much by reason of the dark elytra contrasting with the coppery bronze head and pronotum. However, *B. maya* is clearly smaller, and moreover it has much stronger striation of head and pronotum. Its elytral markings, when fully developed, have a more descending medium band, abruptly

bent in the middle. *B. hemichrysea*, finally, has a much longer male aedeagus, with a differently shaped apical hook. Both species occur in the same area, the latter having been recorded by CAZIER (1954) from Tixkokob, Uxmal, and Cordillera Mayapan, Yucatàn, and being known to us also from Nuevo X-Can, Quintana Roo (specimens in FC and HS collections).

B. mandli Brouerius van Nidek, 1978, described from San Cristobal, Chiapas, has a more transversal medium band, and a rounded, differently shaped, apical hook of aedeagus, more similar to that of *B. pretiosa* (Dokhtouroff, 1882), an Amazonian species (BROUERIUS VAN NIDEK 1978). *B. chiapasi* Brouerius van Nidek, 1980, two paratypes ♂♀ of which have been examined, thanks to the courtesy of Dr. C.M.C. Brouerius van Nidek, proved also to be very different, by reason of the lighter elytral colouration, the wider elytra, the longer and straighter medium band, the occurrence of an apical triangular spot, and the distinctive shape of the apical hook of aedeagus (BROUERIUS VAN NIDEK 1980).

B. maya's internal sac of aedeagus, as well as its elytral markings, strongly recall those of *B. obscurella* (Klug, 1829). This, however, is a larger species (8-8.5 mm), with a rounded labrum, a shorter apical collus of aedeagus, and a much different geographical distribution, ranging from south Brazil to northern Argentina (RIVALIER 1955, FREITAG & BARNES 1989).

The habitat of *B. maya* is unknown to us. However, some *Brasiella* species are known to occur in moist open areas in grassy vegetation (FREITAG & BARNES 1989), and moreover MURRAY (1979) collected *B. hemichrysea* on bare dry areas along trails and dirt roads, and in dry roadside ditches.

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ABSTRACT

Two new tiger beetle species, *Habroscelimorpha wellingi* n. sp. and *Brasiella maya* n. sp., are described from Yucatàn, Mexico. The genera they belong to have respectively Nearctic and Neotropical origins and distribution, thus clearly confirming Mexico as an area of considerable faunal overlapping.

RIASSUNTO

Due nuove Cicindele dello Yucatàn, Messico (Coleoptera, Cicindelidae).

In questa nota vengono descritte due nuove specie di Cicindele dello Yucatàn (Messico), *Habroscelimorpha wellingi* n. sp. e *Brasiella maya* n. sp., appartenenti a generi d'origine e distribuzione diverse, rispettivamente Neartico e Neotropicale. Le due nuove specie costituiscono quindi un'ulteriore conferma della larga interpenetrazione di faune che si riscontra nel Messico.



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