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Three new species of *Chrysina* Kirby (Coleoptera: Scarabaeidae;
Rutelinae) from Guatemala and Mexico

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Three new species of *Chrysina* Kirby (Coleoptera: Scarabaeidae; Rutelinae) from Guatemala and Mexico

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Abstract. Three **new species** of *Chrysina* Kirby are described: *C. baileyana* from Guatemala, and *C. hawksii* and *C. giesberti* from Guatemala and Mexico. Also the females of *C. centralis* (Morón), *C. guatemalensis* (Monzón, Cano and Bailey) and *C. tecunumani* (Cano and Morón) are described.

Resumen. Se describen tres **especies nuevas** de *Chrysina* Kirby: *C. baileyana* de Guatemala, y *C. hawksii* y *C. giesberti* de Guatemala y México. Se describen las hembras de *C. centralis* (Morón), *C. guatemalensis* (Monzón, Cano y Bailey) y *C. tecunumani* (Cano y Morón).

Introduction

Currently the genus *Chrysina* Kirby is composed of 100 species (Monzón 2006). Addition of the three species described here, brings the total number to 103. The genus is distributed from the southern United States (Arizona, New Mexico, and Texas) through Mexico, Central America to Colombia and Ecuador. The countries with more described species are Mexico with 54 species, Guatemala and Costa Rica with 23 species each.

***Chrysina giesberti* Monzón, new species**

(Figure 1, 2, 13, 21, 29, 32)

Type material. Holotype male (Universidad del Valle de Guatemala Collection of Arthropods (UVGC)) labeled "GUATEMALA, Huehuetenango, Barillas, Malpais. 1263 m., 15.847869 -91.223434, JUNIO 1998, Enio B. Cano, Cristina Bailey y José Monzón Sierra Col.". Allotype female (UVGC) labeled as holotype. Paratypes (27 males and 10 females) with data as follows: Same data as holotype (1 male); same data except "15.87330 -91.22285, 1-5 AGOSTO 2008, F. Camposeco y J. Monzón" (1 male); same data except "Aldea San José Maxbal, 1396 m., 23 JULIO 2008, 15.95805 -91.31645" (1 male and 1 female); same data except "Unión Las Palmas. 1444 m., 15.9311000 -91.2993100, 8 JUNIO 2010, Camposeco y Monzón Col." (10 males and 4 females); same data except "San Pedro Soloma, Arriba aldea Crinolina, Cerro Tzucancá, Cruz Maltín, 1600 m., 20 JUNIO 2006" (4 males and 1 female); same data except "15 JULIO 2006" (6 males); same data except "Nentón, Yalambojoch, Ixcansán, 1650 m., 15.847869 -91.223434, Col. J. Monzón y V. Becker (1 female); "GUATEMALA, Quiché, Uspantán, Norte de Laj Chimel, Cuatro Chorros, 1500 m., Col. E. Cano y J. Monzón" (1 male); "MEXICO, Veracruz, Sierra de los Tuxtlas, Volcán Santa Marta, 1200 m., Santos Leal Col." (3 males and 2 females); same data except "Catemaco, Bastonal, 1000 m., 3 JUNE 2009, Santos Rodríguez Coll." (1 female). Paratypes deposited in the UVGC, Florida State Collection of Arthropods (FSCA), M.T. James Entomological Collection (WSUC) at Washington State University and the private collections of David Robacker (Texas, U.S.A.), William B. Warner (Arizona, U.S.A.), Howard Romack (New York, U.S.A.), Maishe Dickman (Connecticut, U.S.A.), Thierry Porion (France) and José Monzón (Guatemala).

Description. Holotype male. Length 29.0 mm; width at elytral humeri 13.0mm; maximum width (middle of elytra) 15.5 mm. Color of dorsum yellowish green; ocular canthi and scape green; antennal club reddish brown; pronotal and internal elytral margins yellowish green, external elytral margins orange. Color of sternites and pygidium slightly duller green with weak golden green reflections. Legs yellowish

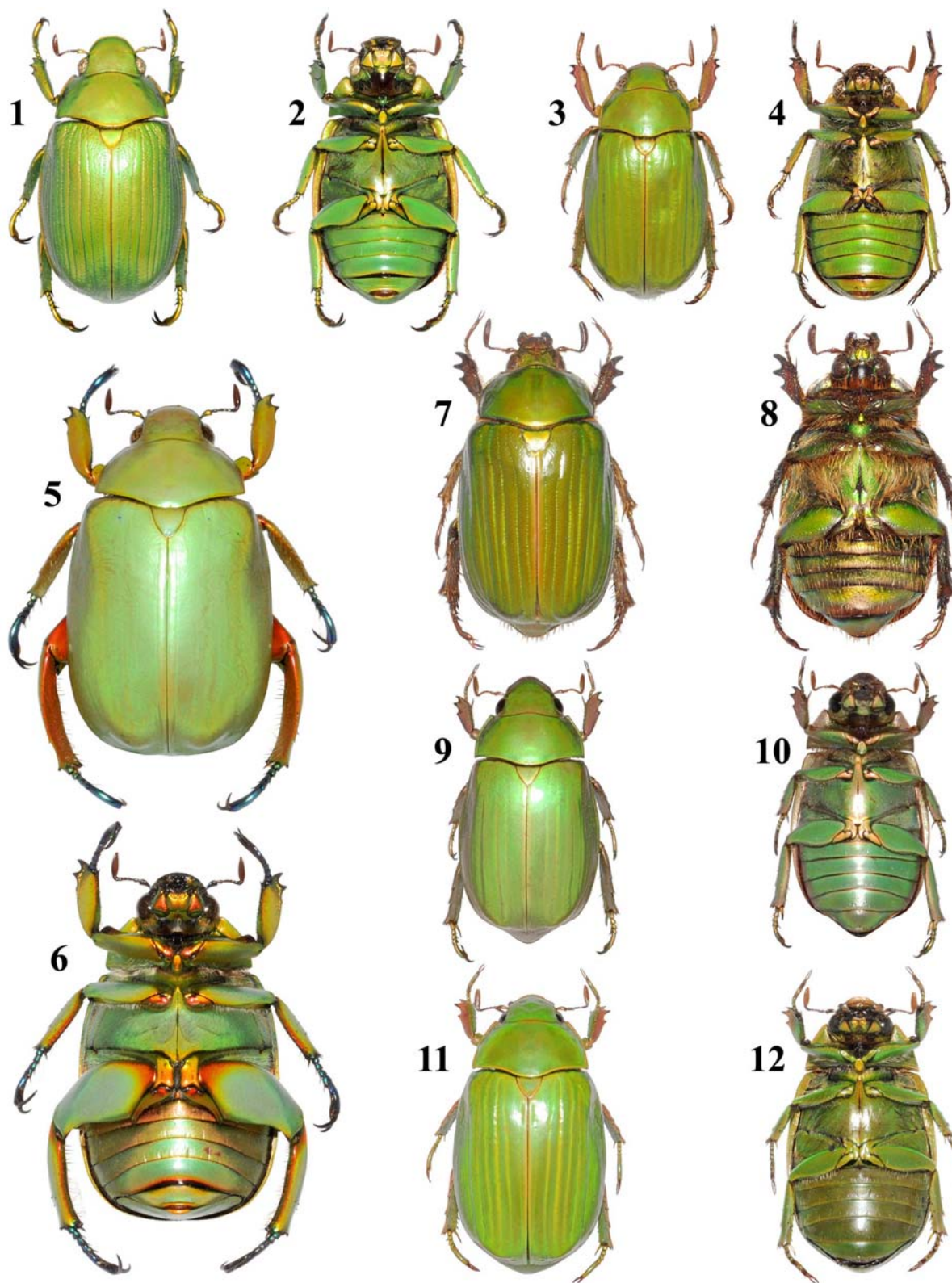


Figure 1-12. Dorsal and ventral habitus of adult *Chrysina* specimens. 1-2) *C. giesberti* male paratype from Cerro Cruz Maltín, Huehuetenango. 3-4) *C. hawksii* male paratype from Bulej, Huehuetenango. 5-6) *C. baileyana* male paratype from Chiantla, Huehuetenango. 7-8) *C. centralis* female from La Fraternidad, San Marcos. 9-10) *C. guatemalensis* female from Bojonal, San Marcos. 11-12) *C. tecunumani* female from Cerro Pinalón, El Progreso.

green similar to sternites; trochanter and tarsi brighter yellow. Head dorsal surface slightly convex, finely and densely punctate, denser, wider and deeper towards anterior margin. Clypeus (Fig. 13) free margins semiparabolic in dorsal view, surface slightly depressed along weakly reflexed margins; interocular distance 2.7 times wider than antennal club length. Mentum (Fig. 21) wide; anterior depression wide and irregular; lateral depressions wide and deep; posterior margin widely sinuated; surface setigerously punctate, punctures sparse. Pronotum at base twice as wide as interocular distance; surface similar to frons except punctures denser, deeper and wider towards lateral margins. Lateral margin completely beaded; basal margin in front of scutellum and anterior margin between inner border of eyes effaced. Elytra punctate striate; striae well marked with deep punctures; interstriae 1, 3 and 8 with multiple rows of deep punctures merging towards back. Elytron 19.0 mm long and 3.2 times as long as pronotum; lateral margin with complete bead. Pygidium completely rugose; apical margin with few and scattered pale setae; surface convex and prominent before apex. Venter with mesometasternal protrusion slender and long, not reaching anterior coxae, apex slightly depressed and sharp. Metasternum sides densely setigerously punctate, setae dense, fine, long and pale colored. Legs with protibia clearly tridentate; dorsal and ventral area of protibia with rugose punctures. Genitalia distinct, symmetrical, apical one third narrow ending in a sharp two point fork; ventral plates long sharp at the apex, slightly divergent; length of genital capsule 11.0 mm (Fig. 29).

Allotype female. Similar to male except as follows: length 30.0 mm; width at elytral humeri 14.0 mm; maximum width (middle of elytra) 17.0 mm; clypeal apex parabolic; interocular distance 2.5 times wider than antennal length; pronotum at base 2.6 times as wide as interocular distance; dorsal surface more convex; tarsi less robust; epipleural border wide; abdomen convex, last sternite without apical depression. Inferior genital plates slightly asymmetrical and convex with sparse long thin tan setae; surface rugosely punctate (Fig. 32).

Variation. Males length 24.5 to 29.0 mm; width at elytral humeri 12.5 to 14.5 mm; maximum width (middle of elytra) 14.0 to 16.0 mm. Females length 24.0 to 30.0 mm; width at elytral humeri 13.0 to 14.0 mm; maximum width (middle of elytra) 15.0 to 17.0 mm. Except for size, all the specimens form a uniform series.

Etymology. It is a great honor to name this species after Edmund F. Giesbert, my mentor, friend and one of the best field workers and taxonomists of modern times.

Diagnosis. This species is a green *Chrysina* in the Peruviana group (*sensu* Hawks 2001). It can be distinguished from other members of the group by the following combination of characters: dorsal color not shiny, deep punctures, and unique male genital capsule.

Distribution and remarks. *Chrysina giesberti* has an unusual distribution pattern. It has been found in two different regions, on the Sierra de los Tuxtlas in Veracruz (Mexico) and in the Cuchumatán mountains in the departments of Huehuetenango and Quiché in Guatemala. It is known from altitudes from 1000 to 1650 meters above sea level and to fly from June to August as follows: June 28 specimens, July 10 specimens and August 1 specimen. It is one of the few species of the Peruviana group (*sensu* Hawks 2001) found south of the Isthmus of Tehuantepec (Mexico). It is also atypical in that it is found on both sides of this isthmus. Specimens from both populations are impossible to distinguish from each other. *Chrysina alfredolau*i (Hawks) is another species that has this strange distribution pattern. Other species, such as *C. diversa* (Ohaus) and *C. chloreis* (H. W. Bates), occur on both sides of the isthmus but are species well known to occur in lowland tropical jungle and in species groups that go further south into Central America and even to South America. In Guatemala it flies with *C. rodriguez*i (Boucard), *C. alfredolau*i (Hawks) and *C. purulhensis* (Monzón and Warner).

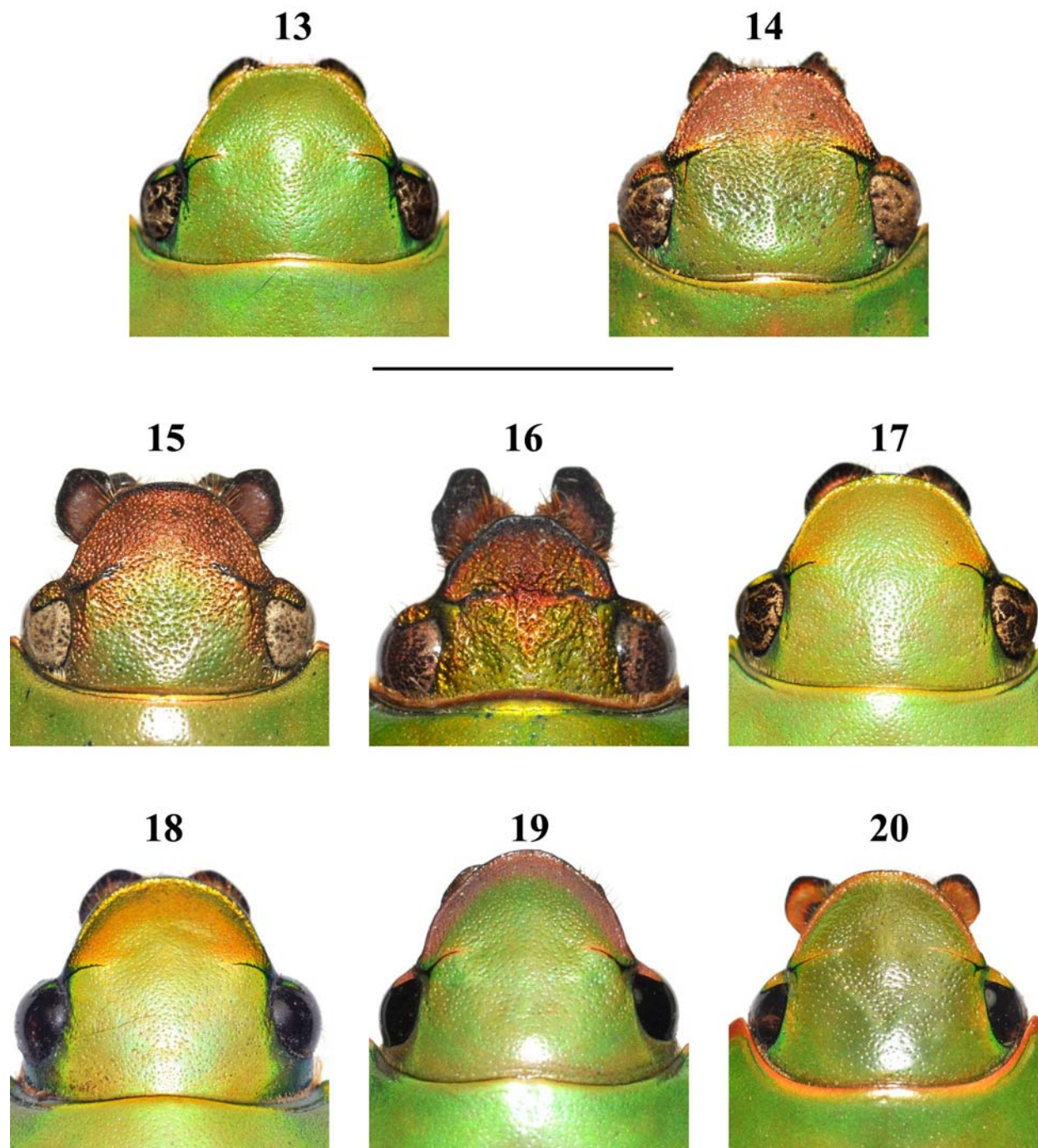


Figure 13-20. Clypeus of *Chrysina* spp. **13)** *C. giesberti*. **14)** *C. hawksii*. **15)** *C. pohlkei* male from Cerro Alúx, Sacatepéquez. **16)** *C. centralis*. **17)** *C. baileyana*. **18)** *C. triumphalis* from Bojonal, San Marcos. **19)** *C. guatemalensis*. **20)** *C. tecunumani*. Length of line 7 mm.

***Chrysina hawksii* Monzón, new species**

(Figure 3, 4, 14, 22, 30, 33)

Type material. Holotype male (UVGC) labeled “GUATEMALA, Baja Verapáz, cerca de Purulhá, Tres Cruces. 1500 m., 20 AGOSTO 1993, Colector José Monzón S.”. Allotype female (UVGC) labeled as holotype. Paratypes (59 males and 16 females) with data as follows: Same data as holotype (8 males); same

data except "Purulha, Hotel Ranchitos del Quetzal, 1656 m., 13 AGOSTO 1993, 15.215747 -90.219087, Colector José Monzón S." (1 female); same data except "1 AGOSTO 2008, Col. David Robacker" (1 male); same data except "9 AGOSTO 2005, J. Monzon y Bob Woodruff" (1 male); same data except "14 MAYO 2008" (1 female); "GUATEMALA, Huehuetenango, San Mateo Ixtatán, 2 km Norte de Bulej, 10 OCTUBRE 1990, 1990 m., Bosque nuboso, 15.960728 -91.569280, Col. J. Monzón y C. Bailey" (8 males and 1 female); same data except "27 JULIO 1998" (2 males and 1 female); same data except "22 SEPTIEMBRE 1998" (10 males and 8 females); same data except "22 AGOSTO 2004, Col. Monzón y Camposeco" (26 males and 3 females); same data except "25 JULIO 2000, Col. J. Monzón y V. Becker" (1 male); "GUATEMALA, Zacapa, Usumatlán, Sierra Minas, Finca Santa Clara, 21 AGOSTO 1998, 2700 m., Col. J. Monzón y E. Cano" (1 male and 1 female); "MEXICO, Chiapas, San Cristobal de las Casas, 2470 m., 27 JUNE 2006, N16 41.261 W92 32.343, Col. David Robacker" (1 male). Paratypes deposited in the UVGC, FSCA, WSUC and the private collections of D. Robacker (Texas, U.S.A), William B. Warner (Arizona, U.S.A.), Howard Romack (New York, U.S.A.), Maishe Dickman (Connecticut, U.S.A.), Thierry Porion (France) and José Monzón (Guatemala).

Description. Holotype male. Length 24.0 mm; width at elytral humeri 11.0 mm; maximum width (middle of elytra) 13.0 mm. Color of dorsum shiny yellowish green; anterior half of clypeus brown with metallic gold on anterior margin, ocular canthi iridescent brown with iridescent green close to clypeus; antennal club brown, scape with yellowish iridescence; pronotal margins iridescent brown; elytra with external margins gold, humeri and apical umbone greenish gold. Color of venter yellowish green with golden and reddish iridescence and reflections. Legs with tibia reddish brown, coxae, trochanter and ventral surfaces metallic greenish gold; mesometasternal protrusion gold. Clypeus (Fig. 14) free margins semicircular in dorsal view, slightly reflexed; surface coarsely, densely rugopunctate, less coarse on frontal disc; interocular distance 1.67 times wider than antennal club length. Mentum (Fig. 22) wide, anterior margin arched; lateral depressions shallow; surface setigerously punctate, punctures sparse. Pronotum at base twice as wide as interocular distance; sculpture similar to frons becoming denser towards lateral margins. Lateral margin completely beaded with basal margin slightly effaced between inner border of eyes. Elytra punctate striate; punctures in striae moderate in size, deep. Intervals weakly convex. Elytron 16.0 mm long and 2.9 times as long as pronotum; lateral margin with bead complete. Pygidium completely rugulose with many pale setae; surface convex and prominent before apex. Fifth and apical sternite with depression. Venter with mesometasternal protrusion short and stout, apex rounded and slightly depressed. Metasternum and femora densely setigerously punctate, setae dense, long and pale. Legs with protibia clearly tridentate; dorsal and ventral area of protibia with rugose punctures. Genitalia with parameres asymmetrical, apically constricted, fused except for narrowly bidentate apex, left paramere constricted medially; length of genital capsule 8.0 mm (Fig. 30).

Allotype female. Similar to male except as follows: length 24.5 mm; width at elytral humeri 11.5 mm; maximum width (middle of elytra) 13.0 mm; interocular distance 1.7 times wider than antennal length; pronotum at base 2.2 times as wide as interocular distance; tarsi less robust; fifth and apical sternite without depression. Genital plates slightly asymmetrical, medioapically with a spine like protrusion; setae moderately abundant apically (Fig. 33).

Variation. Males length 23.5 to 26.0 mm; width at elytral humeri 11.0 to 13.0 mm; maximum width (middle of elytra) 12.0 to 14.5 mm. Females length 25.0 to 27.5 mm; width at elytral humeri 11.5 to 13.0 mm; maximum width (middle of elytra) 13.5 to 15.0 mm. One specimen is a reddish brown form in which the yellowish green has been completely replaced; most of the series has a little reddish tint giving the specimens a little variety in color.

Etymology. It is my great pleasure to name this species for David C. Hawks, a great taxonomist and good friend.

Diagnosis. *Chrysina hawksi* is a green species of the Adelaida group (*sensu* Hawks 2001). It is externally similar to *C. pehlkei* (Ohaus) from which it can be easily separated by the male genitalia. It is also similar to *C. centralis* (Morón) from which is easy to differentiate because it has the elytral humeri and apical umbone the same color as the rest of the elytra (metallic greenish gold on *C. pehlkei* and *C. hawksi*).

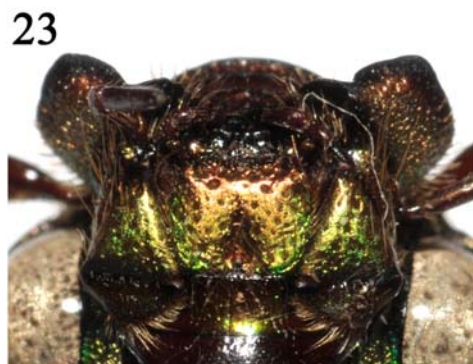


Figure 21-28. Mentum of *Chrysina* spp. 21) *C. giesberti*. 22) *C. hawksi*. 23) *C. pehlkei*. 24) *C. centralis*. 25) *C. guatemalensis*. 26) *C. baileyana*. 27) *C. triumphalis*. 28) *C. tecunumani*. Length of line 4 mm.

Chrysina hawksi also has the pronotal marginal bead slightly effaced between the inner border of eyes while *C. pehlkei* and *C. centralis* has it complete.

Distribution and remarks. *Chrysina hawksi* is currently known to inhabit the wet oak forests around San Cristobal de Las Casas (Chiapas, Mexico) and mountains north of the Selegua and Motagua rivers in Guatemala at elevations between 1500 and 2700 meters above sea level. It has been found flying during the months from May to October as follows: May one specimen, June one specimen, July 4 specimens, August 44 specimens, September 18 specimens and October 9 specimens. The distribution of *C. hawksi* and *C. pehlkei* follow in general the areas of endemism of Passalidae (Schuster et al. 2000) in which the Motagua and Selegua rivers are the main biogeographic barriers in Mesoamerica.

***Chrysina baileyana* Monzón, new species**

(Figure 5, 6, 17, 26, 31, 35)

Type material. Holotype male (UVGC) labeled “Guatemala, Huehuetenango, Huehuetenango, Ruinas de Zaculeu. 1870 m., 16 JUNIO 1993, 15.332394 -91.492040, Col. José Monzón S.”. Allotype female (UVGC) labeled as holotype. Paratypes 115 (78 males and 35 females) with data as follows: Same data as holotype (3 males and 2 females); same data except “29 MAYO 1992” (2 males); same data except “Ciudad. 1900 m., 20 MAYO 1990, 15.321393 -91.49204, Col. I. Ovalle” (1 male); same data except “10 JUNIO 2001, Col. José Monzón S.” (1 male); same data except “Hotel Cuchumatanes. 1930 m., 28 JUNIO 2008, 15.308034 -91.458406, Col. David Robacker” (1 male and 1 female); same data except “Chibacabé. 1890 m., 6 JUNIO 1997, 15.313288 -91.546911, Col. L. Estrada” (3 males and 1 female); same data except “26 JULIO 2000, Col. Enio B. Cano” (3 males); same data except “7 JUNIO 1997, Col. J. Schuster” (2 males and 1 female); same data except “Chiantla, Turicentro El Valle. 2000 m., 10 JULIO 1995, 15.343155 -91.433485, Col. Enio B. Cano.” (1 female); same data except “4 JULIO 2000, Col. José Monzón S.” (16 males and 1 female); same data except “5 MAYO 2005, Col. Monzón y Goemans” (6 males); same data except “Camino a Aguacatán. 2220 m., 30 MAYO 2000, 15.352216 -91.396553, Col. José Monzón S.” (4 males); same data except “Buenos Aires. 1980 m., 20 MAYO 2003, 15.347968 -91.453499, Col. José Monzón S.” (5 males and 2 females); same data except “26 MAYO 2004” (7 males and 6 females); same data except “1 JUNIO 2004” (4 males); same data except “Aldea Chiaque, Malacatancito, 8 km de CA-1, 2035 msnm., 20-25 Abril 2010, 15.169699 -91.500115, Colector Don Fabian Pérez” (10 males and 10 females); same data except “10-15 Mayo 2010” (10 males and 10 females). Paratypes deposited in the UVGC, FSCA, WSUC and the private collections of D. Robacker (Texas, U.S.A.), William B. Warner (Arizona, U.S.A.), Howard Romack (New York, U.S.A.), Maishe Dickman (Connecticut, U.S.A.), Thierry Porion (France) and José Monzón (Guatemala).

Description. Holotype male. Length 34.0 mm; width at elytral humeri 16.5 mm; maximum width (middle of elytra) 18.5 mm. Dorsal surface of head, pronotum, and elytra bright yellowish green; lateral sides of clypeus yellowish; antennal club dark brown with bluish hues, scape and first segment dorsally green; pronotal margins and scutellum golden green; ultimate and penultimate abdominal tergites iridescent reddish orange; pygidium same slightly darker with apical margin reddish gold. Color of venter mostly yellowish green; labium and ventral surface of mandibles reddish orange; trochanter reddish orange; internal surface of tibiae and femora reddish orange, external surfaces green with reddish orange margins; abdominal sternites shiny reddish orange; tarsi light blue; mesometasternal protrusion gold. Clypeus (Fig. 17) free margins semicircular in dorsal view, slightly reflexed; surface with fine punctures; interocular distance 2.0 times wider than antennal club length. Mentum (Fig. 26) quadrate; anterior depression divided in two wide segments; lateral depressions faint; posterior margin widely sinuate; surface punctate, punctures medium and widely scattered. Pronotum at base 2.3 times as wide as interocular distance; sculpture similar to frons. Lateral margin completely beaded, slightly effaced between inner border of eyes and in front of scutellum. Elytra smooth, striae with sparse and fine punctures. Intervals weakly convex. Elytron 25.0 mm long and 1.8 times as long as pronotum; lateral margin completely beaded. Pygidium finely punctate with 2 or 3 rows of sparse, fine, pale long setae along external margin; surface moderately convex and prominent before apex. Fifth and apical sternite with depression. Venter

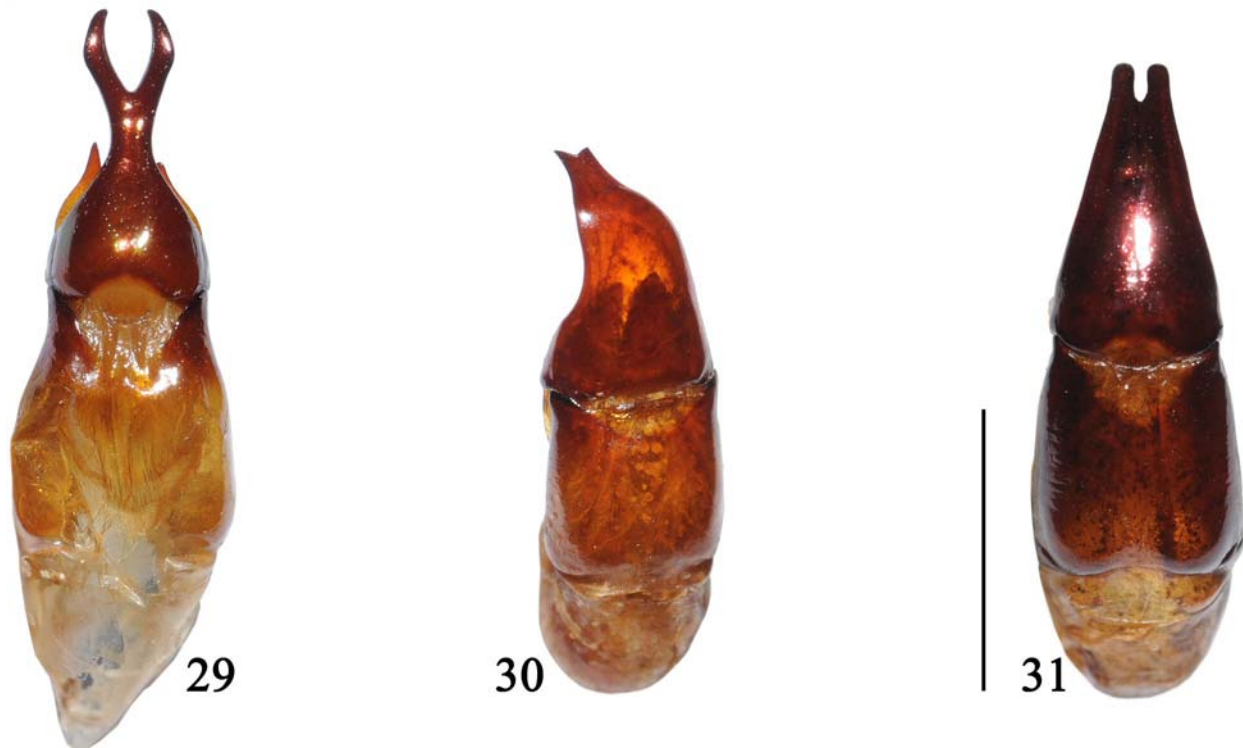


Figure 29-31. Male genital capsule of *Chrysina* spp. **29)** *C. giesberti*. **30)** *C. hawksi*. **31)** *C. baileyana*. Length of line 4 mm.

with mesometasternal protrusion short, blunt and rounded, slightly depressed. Metasternum expanded (maximum height at coxa 15.0 mm), punctate, setae dense, long and pale. Legs with protibia tridentate, apical teeth long curved, second one obvious and third one small. Metatrochanter apex protruding beyond metafemoral margin; hind femora enlarged and widened (5.5 mm maximum width); apical spine moderately produced; hind tibia elongated and recurved. Genitalia dark brown with parameres symmetrical, apically constricted and recurved, fused except for narrowly bidentate apex; length of genital capsule 9.5 mm (Fig. 31).

Allotype female. Similar to male except as follows: length 36.0 mm; width at elytral humeri 17.0 mm; maximum width 21.0 mm (at epipleural fold); interocular distance 2.4 times wider than antennal length; pronotum at base 5.8 times as wide as interocular distance; body more convex; tarsi less robust; clypeus semiparabolic; epipleural fold wide, terminating in sulcus; hind tibia not curved; apical sternite not depressed. Genital plates simple (Fig. 35) slightly asymmetrical, left one with basal indentation; setae long, pale and sparse along apical margin.

Variation. Males length 27.0 to 38.0 mm; width at elytral humeri 14.0 to 18.5 mm; maximum width (middle of elytra) 15.0 to 22.0 mm. Females length 30.0 to 37.0 mm; width at elytral humeri 14.5 to 18.0 mm; maximum width (epipleural fold) 18.0 to 22.5 mm. Color in the type series is homogeneous in general except in the intensity of the reddish orange in general and the light blue tarsi vary in intensity. Two males have irregular blue spots on elytra and pronotum.

Etymology. I am proud to name this species for my loving wife Anna Cristina Bailey whose support is invaluable for my field work.

Diagnosis. In Guatemala and Chiapas there are four other species in the same *Macropus* complex (*sensu* Hawks 2001) as *Chrysina baileyana*. *Chrysina karschi* Nonfried, *C. prototelica* (Morón and Howden) and *C. halffteri* (Morón) can be easily distinguished by not having the metatrochanter apex protruding beyond the metafemoral margin. Although *C. prototelica* might sometimes have some pinkish red in some parts

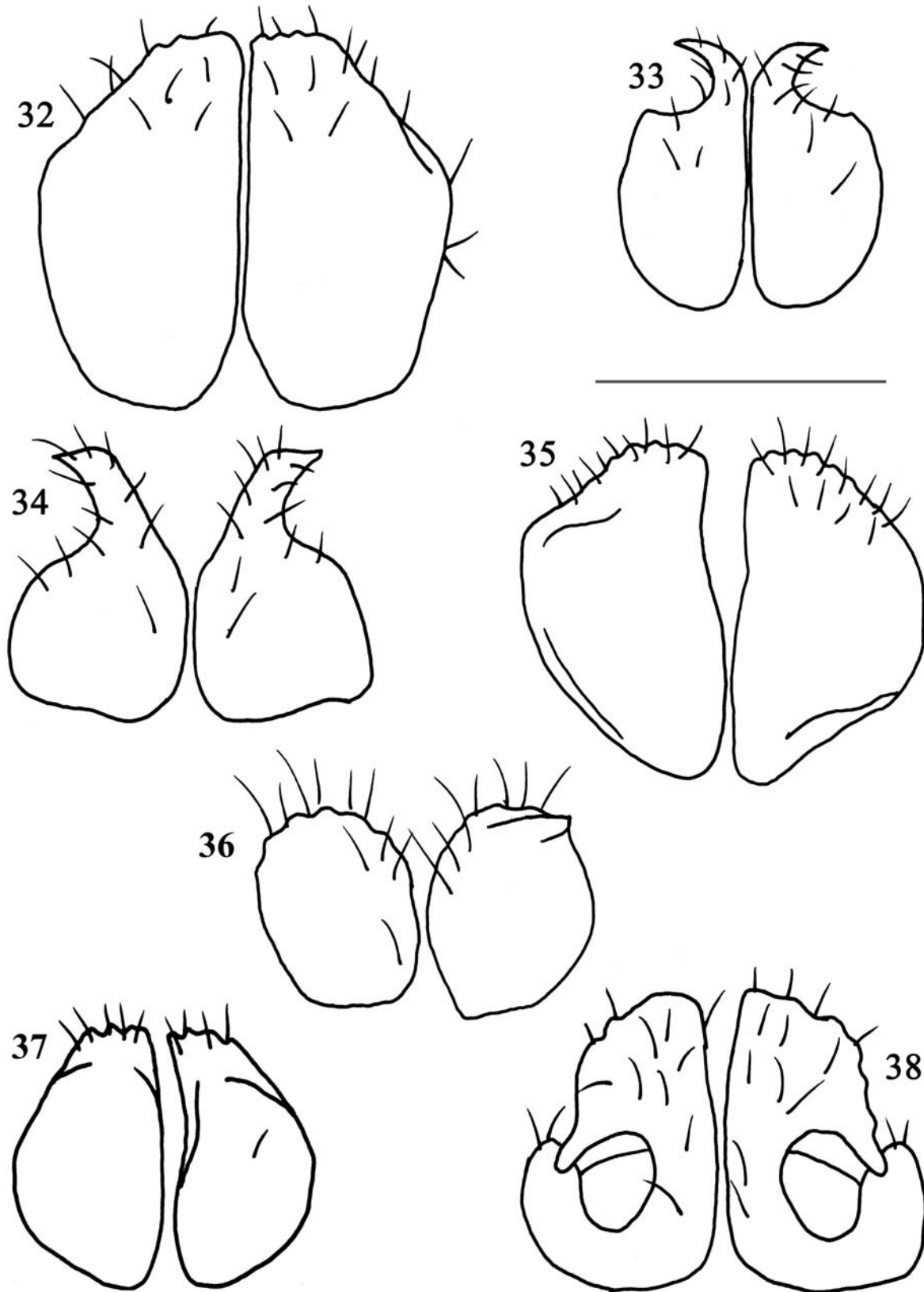


Figure 32-38. Female inferior genital plates of *Chrysina* spp. **32)** *C. giesberti*. **33)** *C. hawksii*. **34)** *C. pehlkei*. **35)** *C. baileyana*. **36)** *C. centralis*. **37)** *C. guatemalensis*. **38)** *C. tecunumani*. Length of line 2.5 mm.

(specially femora and tibiae), these three species never have the reddish orange coloration in the venter and legs. *Chrysina halffteri* is the easiest to separate because of its different genital shape and purplish venter. *Chrysina triumphalis* Morón has a similar color pattern but has steel blue tarsi compared to light blue and is a much more robust species.

Distribution and remarks. *Chrysina baileyana* is currently known to inhabit pine and oak forests around the city of Huehuetenango and the town of Chiantla in the department of Huehuetenango (Guatemala) at elevations between 1870 and 2220 meters above sea level. It has been found flying during the months from April to July as follows: April 20 specimens, May 53 specimens, June 21 specimens and July 21 specimens. The *Macropus* species complex (*sensu* Hawks 2001) in Guatemala is complicated; there are various populations in different localities. More collecting and research is needed in the western part of Huehuetenango department, where at least three populations of *Chrysina* in this group occurs. Other places of importance to work are the volcanic chain and cloud forests of Baja Verapaz.

***Chrysina centralis* (Morón, 1990)**

(Figure 7, 8, 16, 24, 36)

Female description. Length 27.0 mm; width at elytral humeri 13.0 mm; maximum width (middle of elytra) 15.0 mm. Color of dorsum dark yellowish green; anterior margin of clypeus and fronto-clypeal suture black; frons disc with triangular depression greenish gold and reddish brown, lateral margins and ocular canthi greenish gold with some metallic red; antenna brown, scape with slight greenish cast; pronotal margins golden; scutellum lateral margins golden; elytral margins golden and striae yellowish green with greenish golden punctures; pygidium iridescent golden green. Color of venter iridescent yellowish green; sternites with anterior half metallic greenish gold and posterior half reddish gray; posterior coxae iridescent gray with reddish reflections; tibiae grayish or greenish brown; tarsi reddish brown with green shine; mesometasternal protrusion dark brown. Pygidium iridescent gray with golden, greenish and reddish reflections. Clypeus (Fig. 16) free margins subtrapezoidal in dorsal view, margined and raised; surface with coarse and dense punctures; frons irregularly depressed and punctuated, punctures dense and deep, forming a triangular shape; fronto-clypeal suture complete; interocular distance 1.6 times wider than antennal club length. Mentum (Fig. 24) narrow; anterior depression wide and deep; lateral depressions faint; posterior depression triangularly shaped; surface with few large setigerous punctures, setae very long. Pronotum at base 2.8 times as wide as interocular distance; surface moderately punctate, punctures deep and circular. Lateral margin completely beaded. Elytra punctate striate; striae well defined and with punctures moderate in size and depth; intervals convex. Elytron 19.0 mm long and 2.7 times as long as pronotum; lateral margin with bead complete. Pygidium moderately rugopunctate, apical margin with long sparse tan setae; surface convex and slightly prominent towards apex. Venter with mesometasternal protrusion short and stout. Metasternum sides setigerously punctate; punctures small and moderately deep; setae abundant, long and tan colored. Legs with protibia clearly tridentate, teeth long and with a longitudinal row of deep and wide setigerous punctures, setae stout and moderately long; surface rugose. Inferior genital plates (Fig. 36) asymmetrical, subcircular and convex; left one rounded with irregularly emarginated distal margin; right one with a lateral acute apex.

Material examined. One female with the following data: "GUATEMALA, San Marcos, Aldea La Fraternidad, 1900 m., 3 JULIO 2004. Local collector".

Remarks. *Chrysina centralis* is an intriguing species as I have been looking for it in many places in the Guatemalan highlands and middle elevations of the central and western volcanic chain (including the type locality) and only have found *C. pehlkei*. The latter species I have collected long series that show it is a fairly variable species, which lead David Hawks (personal communication) to think *C. centralis* was just a variation of *C. pehlkei*. The female specimen described here was collected by a local person, thus it is possible that the specimen didn't come exactly from the cited collecting locality. Local people usually walk to gather firewood up higher in the volcanoes and I believe this specimen could have come from a colder, higher forest. In both of the localities where these species have been found there are higher forests

which are characterized by having *Abies guatemalensis* Rehder (Pinaceae), which haven't been explored because of difficult access. Although similar in general appearance, the females of *C. centralis* can be differentiated from *C. pehlkei* easily by their different genital inferior plates (Fig. 34 and 36). The female here described has the following characters that make it different from *C. pehlkei* females: clypeus semitrapezoidal (semicircular in *C. pehlkei* Fig. 15); mentum (Fig. 23 and 24); pronotal marginal bead complete; protibial teeth long; abdominal sternites metallic greenish gold; pygidium iridescent golden green; mesometasternal protrusion dark brown. This female specimen matches most of the description of the species (Morón 1990) except for the coloration of the tibiae and pygidium. Morón also doesn't mention the metallic coloration of the sternites present in this female that could be attributed to the exposure of the holotype to alcohol, which he mentions and also is obvious in his picture of the holotype (Morón 1990: fig. 4). Another possibility is that this female is a color variant like some specimens of *C. orizabae* Bates, another member of the same Adelaida group (*sensu* Hawks 2001).

***Chrysina guatemalensis* (Monzón, Cano and Bailey, 1999)**

(Figure 9, 10, 19, 25, 37)

Female description. Length 24.0 to 26.0 mm; width at elytral humeri 11.0 to 12.0 mm; maximum width (middle of elytra) 13.5 to 14.0 mm. Color of dorsum shiny yellowish lime green; anterior of clypeus pink, lateral margins including ocular canthi pink, antenna including club brown, scape and first segment with dorsum pink; lateral pronotal margins faint pink; elytral margins yellowish and pinkish green. Color of venter green with weak golden green streaks; legs with apex of femora and external sides of tibiae pink; tarsi golden green; mesometasternal protrusion iridescent yellow green with pink reflections. Clypeus (Fig. 19) free margins semiparabolic in dorsal view, free margins slightly reflexed; surface with fine moderately dense punctures; interocular distance 2.3 times wider than antennal club length. Mentum (Fig. 25) quadrate; anterior depression irregularly emarginated; lateral depressions wide and deep; posterior depression absent; surface with very scattered setigerous punctures. Pronotum at base 2.3 times as wide as interocular distance; sculpture similar to frons. Lateral margin completely beaded, effaced between inner border of eyes and in front of the scutellum. Elytra punctate striate; punctures in striae moderate in size; intervals convex. Elytron 16.0 to 17.0 mm long and 2.9 to 3.4 times as long as pronotum; lateral margin with complete bead. Pygidium with surface completely rugose, apical margin with few and scattered pale setae; surface convex and prominent before apex. Venter with mesometasternal protrusion slender and long, apex rounded and slightly depressed. Metasternum sides setigerously punctate; punctures becoming ring like towards basal margin; setae fine, long and buff colored. Legs with protibia tridentate, basal tooth small to barely visible. Inferior genital plates (Fig. 37) simple, rounded in profile and convex; apex with short pale setae.

Material examined. Three females with data as follows: "GUATEMALA, San Marcos, San Rafael Pie de La Cuesta, camino Fraternidad-Bojonal, 28-31 agosto 2005, 1600 m., Colector José Monzón S"; same data except "10 MAYO 2008, 14.9459 -91.8806, Monzón y Camposeco"; same data except "27 AGOSTO 2008, Col. Monzón y Camposeco".

***Chrysina tecunumani* (Cano and Morón, 1995)**

(Figure 11, 12, 20, 28, 38)

Female description. Length 28.8 mm; width at elytral humeri 14.0 mm; maximum width (middle of elytra) 15.0 mm. Color of dorsum shiny yellowish green; anterior and lateral margins of clypeus including ocular canthi yellow; antennal club brown, antennal segments dark brown except half of first and scape with iridescent yellowish brown; pronotal margins yellow, lateral and anterior margins reddish; scutellum yellowish green with margins reddish yellow; elytral margins reddish yellow and striae yellowish green; pygidium darker green. Color of venter mostly darker green with some yellow reflections; labium and ventral surface of mandibles greenish gold; trochanter, coxae and legs green with yellow and golden reflections, external side of tibia and apical femora pinkish brown; tarsi golden green; mesometasternal

protrusion gold. Clypeus (Fig. 20) free margins semiparabolic in dorsal view, free margins slightly reflexed; surface with fine moderately sparse punctures; interocular distance 2.0 times wider than antennal club length. Mentum (Fig. 28) subquadrate; anterior depression wider and irregular; lateral depressions wide; posterior depression long and deep; surface with scattered setigerous punctures. Pronotum at base 2.2 times as wide as interocular distance; sculpture similar to frons. Lateral margin completely beaded, effaced between inner border of eyes and in front of scutellum. Elytra punctate striate; punctures in striae moderate in size; intervals convex. Elytron 19.5 long and 3.0 times as long as pronotum; lateral margin with bead complete. Pygidium completely rugose, apical margin with long sparse golden setae; surface convex and prominent towards apex. Venter with mesometasternal protrusion long, and thin, apex sharp and slightly depressed. Metasternum sides setigerously punctate; punctures small and moderately deep; setae abundant, slender, long and pale. Legs with protibia clearly tridentate, with a longitudinal row of deep, wide setigerous punctures; setae long and pale. Inferior genital plates (Fig. 38) conspicuously inverted anchor shape.

Material examined. One female with the following data: "GUATEMALA, El Progreso, Cerro Pinalon, Cabañas, 2568 mnm., 1 MAYO 2009, 15.084070 -89.942770, Col. Monzón y Camposeco".

Remarks: *Chrysina tecunumani* is similar to *C. quiche* (Morón), even the female inferior genital plates have the same strange and unique inverted anchor shape. It can be differentiated mainly by the male genitalia which in *C. tecunumani* has only one apical tooth while *C. quiche* has two.

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Literature Cited

- Cano, E. B., and M. A. Morón. 1994.** Una nueva especie guatemalteca de *Plusiotis* Burmeister del grupo *Lacordairei* (Coleoptera: Melolonthidae, Rutelinae). *Folia Entomológica Mexicana* 91: 1-8.
- Hawks, D. 2001.** Taxonomic and nomenclatural changes in *Chrysina* and a synonymic checklist of species (Scarabaeidae: Rutelinae). *Occasional Papers of the Consortium Coleopterorum* 4: 1-8.
- Monzón, J. 2006.** El Género *Chrysina* Kirby (Coleoptera: Scarabaeidae) en Guatemala. p. 393-401. *In*: E. B. Cano (ed.). *Biodiversidad de Guatemala Volume I*. Universidad del Valle de Guatemala; Guatemala. vi + 674 p.
- Monzón, J., E. B. Cano, and A. C. Bailey. 1999.** Notes on Guatemalan *Plusiotis* (Coleoptera: Scarabaeidae: Rutelinae). *Insecta Mundi* 13(3-4): 183-188.
- Morón, M. A. 1990.** The beetles of the World. Vol. 10: Rutelini 1. *Sciences Nat*; Venette, France. 145 p., 32 pl.
- Schuster, J. C., E. B. Cano, and C. Cardona. 2000.** Un método sencillo para priorizar la conservación de los bosques nubosos de Guatemala, usando Passalidae (Coleoptera) como organismos indicadores. *Acta Zoologica Mexicana (n.s.)* 80: 197-209.

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