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The review of two Mexican species-groups of *Agrilus* (Coleoptera: Buprestidae: Agrilinae)

C. L. BELLAMY *
H. A. HESPENHEIDE **

Resumen. Dos grupos de especies mexicanas del género *Agrilus* Curtis 1825 (Buprestidae), se delimitan de la manera siguiente: dentro del grupo *Agrilus biplagiatus* quedan *Paradormorphus biplagiatus* Waterhouse, *P. carissimus* Waterhouse y *A. clytrinoide* sp. nov., y en el grupo *Agrilus coatlycuei* quedan *A. coatlycuei* Fisher y *A. bicoloropsis* sp. nov. Ambos grupos se comparan con *Agrilus* (s. str. fide Alexeev 1998). Las especies de cada grupo se separan en dos claves y se incluye una ilustración de vista dorsal de cada una de las cinco especies y fotografías digitales con caracteres diagnósticos y genitales del macho.

Palabras clave: *Agrilus*, grupos de especies *A. biplagiatus* y *A. coatlycuei*, Buprestidae, México.

Abstract. Two Mexican species-groups of the large buprestid genus *Agrilus* Curtis 1825 are defined as follows: the *Agrilus biplagiatus*-group contains: *Paradormorphus biplagiatus* Waterhouse, *P. carissimus* Waterhouse and *A. clytrinoide* sp. nov.; the *Agrilus coatlycuei*-group contains: *A. coatlycuei* Fisher and *A. bicoloropsis* sp. nov. These species-groups are briefly contrasted to *Agrilus* (s. str. fide Alexeev 1998) and the species of each group are distinguished in two short keys. A dorsal habitus illustration is given for each of the five species and digital photographs illustrate diagnostic features and male genitalia.

Key words: *Agrilus*, species-groups *A. biplagiatus* and *A. coatlycuei*, Buprestidae, Mexico.

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Introduction

In the recent summary discussion about the Buprestidae of Mexico, Hespénheide (1996a) listed 281 described species of *Agrilus* Curtis 1825 and an incredible 343+ further species awaiting description. In an earlier paper on the agriline and trachyne buprestids from Estación de Biología Chamela, Jalisco (Instituto de Biología, UNAM), Hespénheide (1990) recorded 72 species of *Agrilus*, with 25 new species described therein. The only other *Agrilus* species to be added to the Mexican fauna since that time have come from the paper by Westcott & Noguera (1995). Obviously the many additional undescribed species await the time and resources by those interested to publish the new names. This paper represents a small contribution to that end.

The agriline genus *Paradormorphus* Waterhouse (1887) was established “for *Agrilus frontalis* Gory & Laporte and some allied species, which differ from *Agrilus* in having the basal segment of the posterior tarsi comparatively short.” This statement was followed by the description of *P. albicollis* from Jamaica; *Agrilus frontalis* is from northern South America. A few years thereafter, Waterhouse (1889) discussed *Paradormorphus*, stating that the character he had utilized to distinguish species recognized in *Paradormorphus*, was “scarcely of generic importance, as intermediate forms exist.” Hespénheide (1974) recognized the need to synonymize *Paradormorphus* under *Agrilus*, following his examination of the type of *P. albicollis*. An examination of the original description and text figures of *A. frontalis* convince us that this species is also better placed in *Agrilus*, awaiting the possible further splitting of this enormous genus (see Bellamy 1996).

Considering the consensus that is developing by contemporary buprestid workers, especially those studying the genus *Agrilus* (see Alexeev 1998; Bellamy 1996, 1997; Curletti 1993, 1994, 1998a, 1998b, 2001) an eventual subgeneric scheme, in line with the work emerging from studies on the Old World fauna, may be necessary to better classify the large number of species in Mexico and Central America. However, to place just a few in formal subgenera, while leaving the majority of the species outside such definition, is not terribly informative and is thus premature. This has happened with the definition of a number of mostly Holarctic subgenera of *Agrilus* that contain both Palearctic and Nearctic, and some Asian, species by Alexeev (1998); some species are placed, but many other species are not included. For the purpose of this paper and comparisons made herein, Alexeev's definition of *Agrilus* (s. str.) is used, which included the generic type species *A. viridis* (L.), widespread in Europe, and the widespread North American *A. politus* (Say). With the transfer of all species of *Paradormorphus* to *Agrilus* (see Hespénheide 1974), there remain three Mexican species (*A. carissimus* (Waterhouse), *A. biplagiatus* (Waterhouse), and one new species) that we recognize as belonging to a distinct species-group. A second species-group containing *A. coatlycuei* Fisher and one new species, is defined herein due to divergent morphology and similarity to Old World taxa.

For borrowed specimens and new typical specimens deposited to various collections, the collection codens are as given at the Bishop Museum website (www.bishopmuseum.org/bishop/ento/codens-r-us.html). During the course of this study, not all specimens were dissected to determine gender and those are listed as “spm” (= specimen) under the respective species below.

***Agrilus* Curtis 1825**

Agrilus Curtis 1825: No. 67; Obenberger 1936: 935-1246; Blackwelder 1944: 323-331. Type species: *Buprestis viridis* Linnaeus 1758 (original designation).

***Agrilus biplagiatus* species-group**

Description. *Agrilus* with the following parameters: head with circum-ocular groove not confluent with supra-antennal groove; supra-antennal groove reduced to small, well-defined fovea; pronotum transverse, even; posterior margin finely striate; lateral carinae: dorsal entire, arcuate; ventral not reaching posterior margin; metatarsomere 5 as long as 2 and 3 together; tarsal claws appendiculate; female ovipositor very short, with well differentiated apico-lateral lobes.

Discussion. This species-group can be separated from *Agrilus* (s. str.), which is rarely mimetic in color, has the circum-ocular groove confluent with supra-antennal groove, the pronotum is depressed laterally and the posterior margin is entire, the tarsal claws are bifid, and the ovipositor is elongate to short, without well-differentiated apico-lateral lobes. The lateral carinae of the pronota of species in these groups are of completely different origins and probably serve different internal functions for muscle attachments.

A key to the species of *Agrilus biplagiatus* species-group

1. Dorsal surface blue-black with single orange-red pubescent spot on each elytron; second pubescent spot on ventral surface overlapping a small region each of the mesosternum, mesepisternum and metacoxal plate.....*A. clytrinoidea* sp.nov.
- Surface similarly colored to above, generally pubescent, but without brightly colored, pubescent spots on elytra or ventral surface..... 2
2. More robust, length about 3x maximum width; head, pronotum, underside and one pre-apical and one apical elytral vittae with silvery pubescence; post-humeral metallic vitta short, widening from base, becoming contiguous across suture *P. carissimus* (Waterhouse)
- More slender, length more than 4.5x maximum width; elytra with single broad apical patch of silvery setae; post-humeral metallic vitta elongate, narrowing at either end, not contiguous across suture *P. biplagiatus* (Waterhouse)

Agrilus biplagiatus (Waterhouse)
(Figs. 1, 10)

Paradormorphus biplagiatus Waterhouse 1889:55; Kerremans 1892:243; 1903:264; Obenberger 1934:915; Blackwelder 1944:323.

Agrilus biplagiatus: Hespeneide 1974:49; 1996b:235.

Description. Female: Moderately robust, broad, transversely convex below, shallowly convex longitudinally above; black and strongly shining, especially on front, elytra dark blue at base with elongate oval coppery red patch at lateral margins and becoming black on apical third; densely, conspicuously covered with appressed silvery setae beneath, setae shorter and sparser on head and apical fourth of elytra, and very sparse on pronotum; 5.0 mm long, 1.6 mm wide.

Head with front moderately convex, two broad, shallow depressions along midline above and below middle of front, surface imbricate-punctate, faintly shagreened; epistoma shallowly angulate-emarginate along base; antennae short, antennomere 4 somewhat triangular, serrate from antennomere 5.

Pronotum slightly narrower than elytra at base, sides shallowly sinuate, gradually widening and then rounded and narrowing, widest at apical two thirds; marginal and submarginal carinae narrowly separated for apical two thirds when viewed from side; from above median lobe of anterior margin shallowly rounded-angulate; basal angles subquadrate, basal margin very shallowly angulate-emarginate at middle of each elytron, nearly transverse before scutellum; disk shallowly convex with slight, shallow transverse depression at midline beyond the middle and along base, oblique and deeper beyond prehumeral carinae; prehumeral carinae short, distinct; surface finely, concentrically imbricate-punctate; four small pores along basal margin at corners of scutellum and lateral to middle of each elytron. Scutellum shagreened, transversely carinate, narrowly rectangular anterior to the carina, acuminate posteriorly.

Elytra widest at apical two thirds, sides nearly parallel behind humeri, tips narrowly, separately rounded, sparsely toothed; disk convex, each elytron with shallow oval depression at base and almost obsolete depression along suture; surface coarsely imbricate-punctate, transversely rugose in reddish areas.

Prosternum with short semi-erect setae on prosternal process, process broadly rectangular with sides nearly parallel between coxae, then apically truncate, prosternal lobe transverse. Posterior coxae with posterior margin shallowly bisinuate, upper angle acute. Abdomen with suture between sterna 1 and 2 more strongly indicated at sides. Tarsal claws cleft with short, broad inner tooth.

Type (BMNH). Holotype, S. Miguel del Río, Mexico, Salle Coll., 21/61, 673, *Paradormorphus biplagiatus* (Type) Waterhouse; gender unknown. This locality was not located by Selander & Vaurie (1962). According to google.com, San Miguel del Río is in central Oaxaca, 35 km NNE of Oaxaca de Juárez, 6 km from San

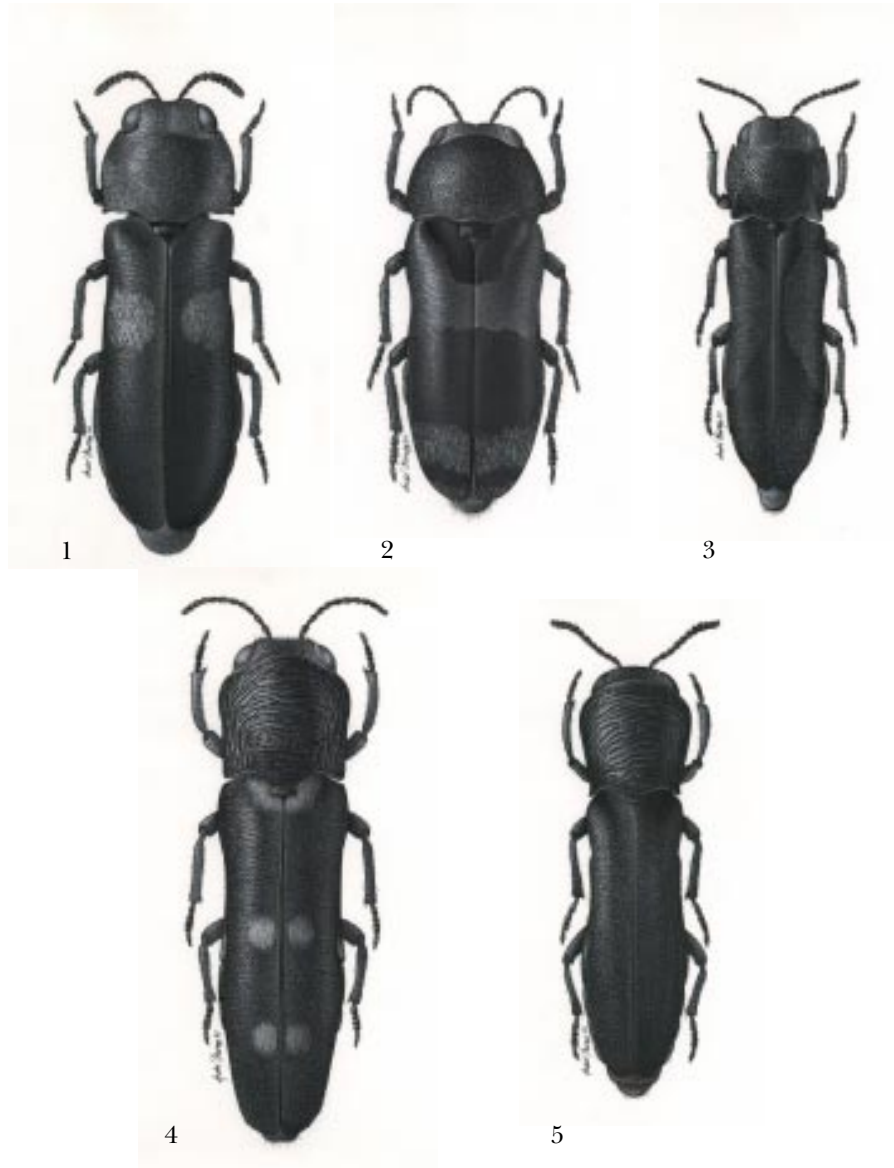


Fig. 1-5. Dorsal habitus. 1. *Agrilus clytrinoides* sp. nov. 2. *A. carissimus* (Waterhouse). 3. *A. biplagiatus* (Waterhouse). 4. *A. coatlycuei* Fisher. 5. *A. bicoloropsis* sp. nov.

Pablo Guelatao, 17°19'N: 96°33'W. Mountainous; elev. 1400 m; it is the birthplace of Benito Juárez.

Specimens examined. MÉXICO: 1 spm. "Mexique," s. loc. (MNHN); 1 spm. OAXACA, Huajuapán, 13 mi SE Oaxaca, 6000 ft, 04.VII.1963, Univ. Kans. Mex. Expedition (SEMC); 1 spm. Sierra de Ixtlán, 6.7 km N El Punto, Hwy 175, 2100 m, 29.vi.1989, J. Rifkind (WFBC); 1 spm. 7 km NNW Díaz Ordaz, 1661 m, 17°02'N: 96°27' W, Bellamy, Barrera & Brailovsky (CLBC); 1 spm. Hwy 175, 4 km W Calpulalpan, 2000 m, 13.VI.1979 H. & A. Howden (CHAH); 1 spm. PUEBLA, 5 km W Esperanza, Volkovitsh (ZMAS).

Discussion. The redescription was made from the specimen from 4 km W Calpulalpan, Oaxaca.

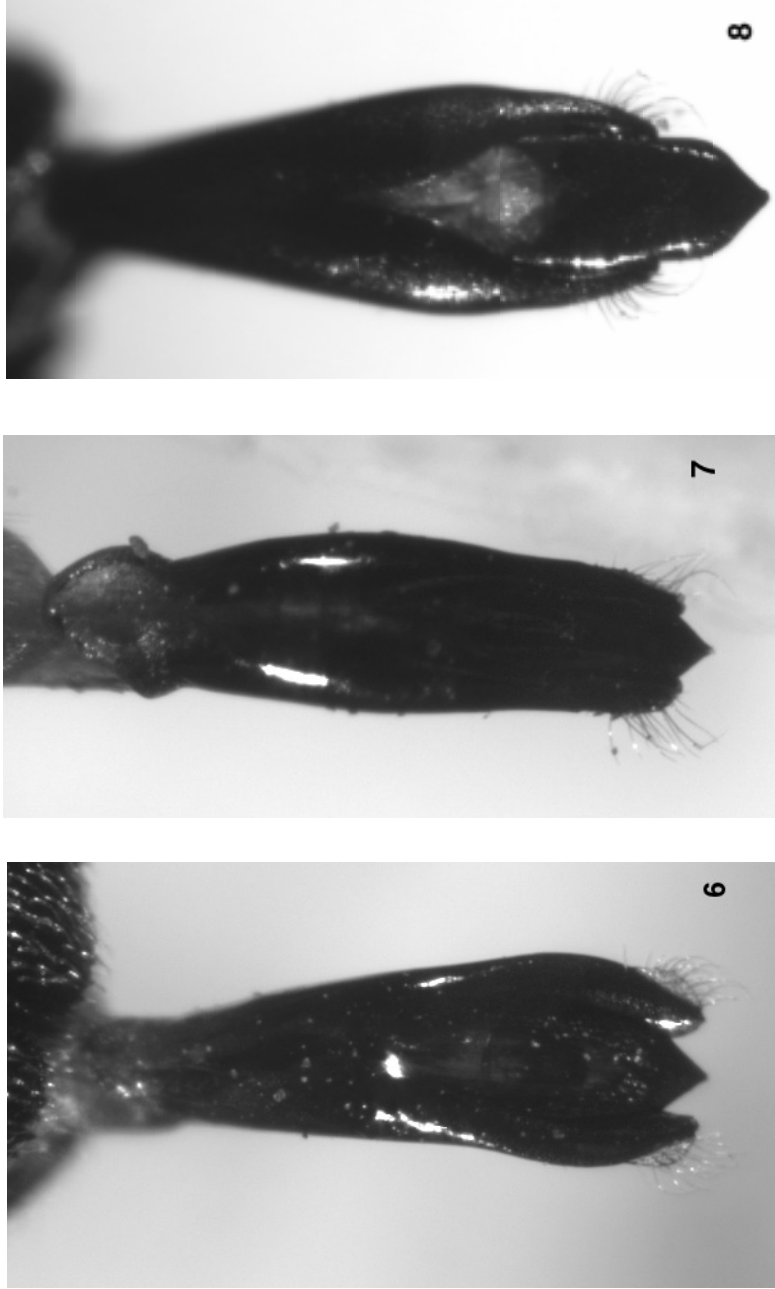
Agrilus carissimus (Waterhouse)
(Figs 2, 6, 9)

Paradormorphus carissimus Waterhouse 1889:187, color figure: plate 9, fig. 16; Kerremans 1892:243;1903:264; Obenberger 1934:915; Blackwelder 1944:323.
Agrilus carissimus: Hespénheide 1974:49; Westcott *et al.* 1989:224; Hespénheide 1996b: 235.

Description. Female: Robust, broad, transversely convex below, shallowly convex longitudinally above; black, moderately shining, except bluish reflections on front, elytra dark blue with anterior third coppery red except for triangle at base including scutellum; conspicuously covered with appressed silvery setae on head and pronotum and more densely so beneath; elytra glabrous except for narrow terminal and broader subterminal band of silvery setae; 5.5 mm long, 1.9 mm wide.

Head with front moderately convex, shallowly depressed along midline from middle of front to epistoma, surface coarsely punctate, faintly rugose; epistoma shallowly emarginate along base; antennae short, serrate from antennamere 4.

Pronotum slightly narrower than elytra at base, sides shallowly arcuate, widening and then narrowing; marginal and submarginal carinae narrowly separated for apical three fourths when viewed from side; from above median lobe of anterior margin shallowly rounded-angulate; basal angles obtuse or subquadrate, basal margin very shallowly angulate-emarginate at middle of each elytron, shallowly emarginate before scutellum; disk shallowly, regularly convex with slight, shallow transverse depression at base; pre-humeral carinae lacking; surface coarsely, shallowly punctate, somewhat rugose toward margins; four small pores along basal margin at corners of scutellum and lateral to middle of each elytron. Scutellum shagreened, transversely carinate, broadly rectangular anterior to the carina, acuminate posteriorly.



Figs. 6 - 8. Male genitalia. 6. *Agrilus carissimus* (Waterhouse), dorsal aspect. 7. *A. clytrnoides* sp. nov., ventral aspect. 8. *A. coatlycui* Fisher, dorsal aspect.

Elytra widest at apical two thirds, sides nearly parallel behind humeri, tips very broadly, nearly conjointly rounded, minutely toothed; disk convex, each elytron with shallow triangular depression at base and almost obsolete depression along suture; surface finely imbricate-punctate, almost reticulate in blue areas, transversely rugose in reddish areas.

Prosternum with semi-erect setae on prosternal process, sides of process nearly parallel between coxae, then apically subtruncate, prosternal lobe angulate emarginate. Posterior coxae with posterior margin shallowly emarginate, upper angles rounded-subquadrate. Abdomen with suture between sterna 1 and 2 more strongly indicated at middle. Tarsal claws cleft with short inner tooth.

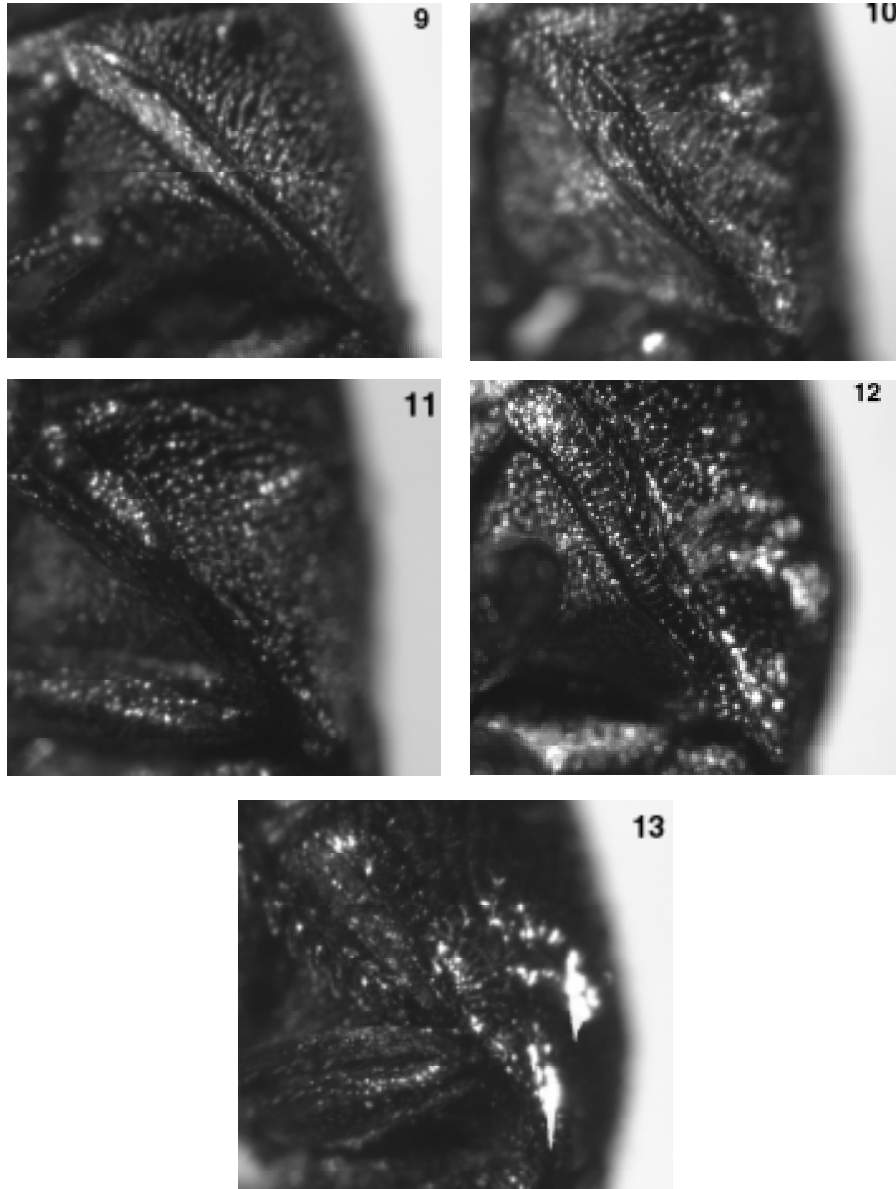
Types (BMNH). 2 syntypes, (1) Amula, Guerrero, 6000 ft., Aug. H. H. Smith, *Paradormorphus carissimus*, (Type) Waterhouse; (2) Amula, Guerrero, H. H. S.

Specimens examined. MÉXICO. 2 spms. (CHAH, RLWE). GUERRERO. 10.7 km SW Xochipala, 1753 m, 05.VII.1987, R. Anderson; 1 spm. (CEAM). ESTADO DE MÉXICO. Chapingo, 29.VII.1962, F. Pacheco M. 1 ♀ (CLBC). Presa, Valle de Bravo, 19.VII.1991, J. Rifkind; 1 spm. (UNAM). OAXACA. km 14, carr. Huajuapán de León-Tehuacán, 15.VIII.92, E. Barrera, C. Mayorga; 1 spm. (DSVC). PUEBLA. 7 mi S Izúcar de Matamoros, 09.VIII.1962, D.S. Verity; 3 ♂♂ (CLBC). 11 km SE I. de Matamoros, 4.VII.1992, C. L. Bellamy; 1 spm. (EMEC); 16 km SE Izúcar de Matamoros, 13.X.1978, E. Giesbert; 1 spm. (CEAM). Oriental, 2370m, T.H. Atkinson & A. Equihua, Hosp: Compositae; 1 ♀ (CHAH). Tepenene, km 216, 01.07.1969, H.A. Hespenheide, *Cassia*?

Discussion. The redescription was made from the specimen from Tepenene, Puebla, that was compared with the lectotype (Hespenheide 1974). This strikingly beautiful insect is considered part of the group of at least 14 agrilines that mimic clytrine chrysomelids (Hespenheide 1996).

***Agrilus clytrinoides* sp. nov.**
(Figs 3, 7, 11)

Description. Holotype ♂. Relatively robust, broad, transversely convex below, shallowly convex longitudinally above; black, rather strongly shining with bluish reflections, especially pronotum, except front becoming narrowly coppery and then green below middle and elytra dark blue; conspicuously covered with appressed silvery setae on head and pronotum and densely so beneath, setae dense and orange on upper posterior corner of metasternum, posterior half of metepimeron and upper half of posterior coxae; elytra glabrous except oval spot of dense orange setae at margin at basal third; 5.8 mm long, 1.6 mm wide.



Figs. 9-13. Lateral aspect of pronotum. 9. *Agrilus* (*Vinnulagrilus*) *carissimus* (Waterhouse). 10. *A.* (*Vinnulagrilus*) *biplagiatus* (Waterhouse). 11. *A.* (*Vinnulagrilus*) *clytrinoidea* sp. nov. 12. *A.* (*Mexikamosia*) *coatlycuei* Fisher. 13. *A.* (*Mexikamosia*) *bicoloropsis* sp. nov.

Head with front moderately convex, depressed along midline from occiput broadening to epistoma, surface imbricate-punctate; epistoma shallowly emarginate along base; antennae short, serrate from antennomere 4.

Pronotum slightly narrower than elytra at base, sides slightly emarginate, widening and then narrowing; marginal and submarginal carinae narrowly separated when viewed from side; from above median lobe of anterior margin shallowly rounded; basal angles acute, basal margin shallowly angulate-emarginate at middle of each elytron, nearly transverse before scutellum; disk shallowly convex with slight ridge along midline at base, broad, shallow transverse depression at base, extending to lateral margins; pre-humeral carinae lacking; surface nearly smooth, faintly imbricate-punctate, four small pores along basal margin at corners of scutellum and lateral to middle of each elytron. Scutellum shallowly depressed, acuminate posteriorly.

Elytra widest beyond middle, shallowly emarginate behind humeri, tips very broadly, conjointly rounded, minutely toothed; disk convex, each elytron with shallow depression at base and almost obsolete depression along suture; surface finely imbricate-punctate, almost reticulate.

Prosternum with denser, semi-erect setae, prosternal process narrowing between coxae then rounded, acute; prosternal lobe broadly emarginate. Semi-erect setae extending along ventral midline to middle of first abdominal sternum. Posterior coxae with posterior margin shallowly emarginate, upper angles rounded, subquadrate. Abdomen with suture between sterna 1 and 2 indicated only at middle, abdominal sterna 4-5 with narrow, glabrous area. First metatarsomere equal in length to next three combined, tarsal claws cleft with short inner tooth. Genitalia as in Figure 7, with 3 ventral backward-directed teeth at apex of each lateral lobe.

Allotype ♀. As male, except broader, front black; prosternum and ventral midline without denser, semi-erect setae; 5.9 mm long, 2.1 mm wide.

Holotype ♂. (UNAM). MÉXICO. PUEBLA. 2.5 km SW Zapotitlán Salinas (Hwy 125), 1515m, 18°18'N:97°31'W, 13.VII.1999, C. L. Bellamy.

Allotype ♀. (CLBC). Same data as holotype.

Paratypes. MÉXICO. 1♀. PUEBLA. 12 mi S Actatlan [sic], Hwy 190, 20.VII.1979, E.P. Case ♀ D.B. Thomas (GHNC); 1♂, 1♀ (RLWE). 3 mi SE Acatlán, 3800', 01.VI.1974, O'Brien & Marshall; 1 spm.(UCDC). 3 mi N Petlalcingo, 03.VII.1963, F.D. Parker & L.A. Stange; 3 spms (FSCA). 2.5 mi W ♀ 8 mi N I. de Matamoros, 05.VII.1992, B.K. Dozier; 1 spm. (ZMAS). 11 km SE Izúcar de Matamoros, 04.VII.1992, Volkovitsh; 1♂ (CLBC). 12 km SE Izúcar de Matamoros, 18°32'N:98°25'W, 28.VI.1996, Bellamy, Barrera, Brailovsky, 1♀ (CLBC). 2.5km SW Zapotitlán Salinas (Hwy 125) 5100ft, 18°20'N: 97°30'W, 4.VII.1996, C. L. Bellamy; 1♀ (RLWE). 2.3 km E Calipán, 1250 m, 16.VI.2000, A. Equihua Martínez, beating *Prosopis* sp; 1♂(RLWE). 2.7 km NW

Petlalingo, 18°05'49"N: 97°56'49"W, 4900', 7.VII.2001, R. L. Westcott. 1 ♂ (RLWE). MORELOS. Cañón de Lobos, km 19 E Cuernavaca, 1220-1375m, 3.VII.1992, R. L. Westcott; 2 spms (NMPC). Canyon de Lobos, 1300m, 3.VII.1992, S. Bílý.

Discussion. The specific epithet reflects the fact that this species participates in a large mimicry complex whose models are members of the chrysomelid subfamily Clytrinae (Coleoptera: Chrysomelidae), as previously discussed by Hespheide (1976, 1996). All three species described here have a black head, pronotum and venter. The elytra are more or less strongly shining, usually with dense silvery setae, darkly hued with a red post-humeral spot. This species is unique among agriline buprestids in having the orange or red post-humeral spot produced by setae. In all other agrilines, the spot is produced by metallic coloration. This suggests that the mimetic pattern has evolved independently at least twice.

***Agrilus coatlycuei* species-group.**

Description. *Agrilus* with the following parameters: circum-ocular groove extends along inner margin of eye; not confluent with supra-antennal groove; supra-antennal groove reduced to small, well-defined fovea; fronto-clypeal disc projecting, margin somewhat ventro-posteriorly deflexed; genal lobe acute; pronotal disc laterally compressed, strongly transversely gibbose; pronotal disc punctation transversely carinate as in African *Parakamosia* Obenberger; fourth metatarsomere pulvillus small, not bilobed distally; tarsal claws appendiculate.

A key to the species of *Agrilus coatlycuei* species-group

1. Dorsal coloration dark; elytra with three yellow pubescent spots (Fig. 4) *A. coatlycuei* Fisher
- Dorsal coloration metallic, head and pronotum green, elytra red cupreous; no elytral pubescent spots *A. bicoloropsis* sp. nov.

Note. This green/coppery coloration occurs in a number of unrelated Mexican *Agrilus* (e.g. *corrugatus* Waterhouse, *delicatulus* Waterhouse, *latifrons* Waterhouse, etc.) and is probably also mimetic.

***Agrilus coatlycuei* Fisher
(Figs 4, 8, 12)**

Agrilus coatlycuei Fisher 1938:137; Blackwelder 1944:325; Westcott *et al.* 1989:224.

Original description. "Elongate, subcylindrical, rather narrow, strongly flattened above, moderately shining, uniformly brownish cupreous, the head more greenish, and the elytra ornamented with golden yellow pubescent spots.

Head with the front broad, subequal in width at the top and bottom, nearly flat, without depressions; sides parallel; surface coarsely, deeply, irregularly rugose, sparsely clothed with long, semi-erect, white hairs; epistoma narrow and strongly elevated between the antennae, depressed anteriorly, broadly, feebly, angularly emarginate in front. Antenna moderately long, serrate from the fifth segment. Pronotum slightly longer than wide, wider at apex than at base, widest near apex; sides obliquely narrowed from near apex to base; marginal and submarginal carinae feebly sinuate, widely separated anteriorly, connected near base, with an additional long, vague carina along the marginal carina; anterior margin strongly sinuate, median lobe feebly produced and broadly rounded; base arcuately emarginate on each side, median lobe strongly produced and broadly rounded; disc strongly convex, with a round depression on each side along lateral margin, without median depressions or prehumeral carinae; surface coarsely, very deeply, transversely rugose, the rugae strongly interrupted, vaguely pubescent. Scutellum transversely carinate. Elytra strongly, arcuately constricted near middle; tips separately narrowly rounded and feebly dentate; surface broadly depressed along sutural margins, coarsely, densely imbricate-punctate, sparsely, uniformly clothed on lateral halves with short, recumbent, white hairs; each elytron ornamented with three golden yellow pubescent spots, one in basal depression, one in front of middle, and one at apical third. Abdomen narrowly exposed above, strongly convex beneath, flattened at middle of first sternum; surface densely granulose, coarsely, transversely rugose, rather densely, uniformly clothed with long, semi-erect, white hairs, the third sternum at sides and vertical portions of first sternum ornamented with a round, yellow pubescent spot. Prosternum finely punctate or rugose, sparsely clothed with semi-erect, white hairs; prosternal lobe broadly, subangularly emarginate in front; prosternal process rather narrow, sides parallel, truncate at apex. Length, 8-10.25 mm; width, 2-2.5 mm.

Types (USNM 51567) and five paratypes from Tejupilco, Temascaltepec, Mexico, June 1933, Hinton & Usinger”.

Specimens examined. **MÉXICO.** GUERRERO. 5 km S Ocotito, 550 m, 01.VII.1975, E.M. Fisher (RLWE); 5 mi NW El Ocotito, 2500-3200 ft, 07.VII.1989, R. Wharton (TAMU); 5 mi NW El Ocotito, 760-975 m, 07.VII.1987, R. Wharton (RLWE); Hwy 95, 9 km N El Ocotito, 2900 ft, 07.VII.1990, J. Rifkind & P. Gum (WFBC). JALISCO. 10 mi S El Tuito, 24.VI.1983, B.K. Dozier (FSCA, CHAH); 7 km S El Tuito, 1600 ft, 21.VII.1983, E. Giesbert (EMEC); 16 km S El Tuito, 1.VIII.1991, C. L. Bellamy (CLBC); 40 km S Chamela, 14-17.VII.1986, J. Cope (CLBC); 5 km S La Huerta, 1800 ft, 7.VII.1991, J. Rifkind (CLBC).

Discussion. This species can be separated from the new species described below by the short single couplet of the key.

Agrilus bicoloropsis sp. nov.

(Figs 5, 13)

Description. Holotype female: Narrowly oblong, subcylindrical, head and pronotum bright metallic green, pronotum more golden and coppery on sides, elytra coppery red, more golden on sides and blue in sutural depressions beyond basal fourth to near apices, beneath black with greenish reflections; inconspicuously setose; 5.7 mm long, 1.35 mm wide.

Head with front very shallowly, regularly convex, surface rugose, more coarsely so above middle; epistoma ventral, faintly emarginate along base with carinate margins, situated below strongly raised, protuberant narrow shelf between antennal insertions; eyes small, oval, slightly emarginate on inner margins; antennae serrate from triangular antennomere 5, antennomeres 6-11 oval.

Pronotum slightly narrower than elytra at base, with sides diverging, widest just before apex; marginal and submarginal carinae relatively indistinct, narrowly separated from base when viewed from side; from above anterior margin regularly shallowly rounded; basal margin slightly emarginate at middle of each elytron, nearly transverse before scutellum; disc strongly, regularly convex, with faint oblique depressions along lateral margins; prehumeral carinae short, indistinct; surface very coarsely transversely rugose; two small pores along basal margin just medial to prehumeral carinae. Scutellum pentagonal with transverse ridge.

Elytra subequal in width at humeri and beyond middle, lateral margins shallowly emarginate between, tips narrowly, separately rounded, minutely toothed; disc convex, each elytron with narrow oblique depression at base and broader, shallow one along suture; surface transversely imbricate-punctate, short setae on apical half.

Prosternum with inconspicuous appressed setae, prosternal process with sides slightly convergent between coxae, acute at apex, prosternal lobe nearly transverse. Posterior coxae conspicuously setose on dorsal half, posterior margin shallowly bisinuate, upper angles broadly acute. Abdomen with suture nearly obsolete between sterna 1 and 2, posterior dorsal portion of sternum 1 and anterior vertical portion of sternum 3 with oval patch of setae. Legs relatively short, femora somewhat swollen, first metatarsal sternum equal in length to next three combined, tarsal claws cleft with short inner tooth.

Male. Unknown.

Holotype. **MEXICO.** NAYARIT. Mesa del Nayar, 21.VII.1955, B. Malkin (EMEC).

Paratypes. 1 ♀ (GHNC). Same data as holotype; 1 ♀ (GHNC). NAYARIT, 18 mi S Tepic, 16.VII.1982, A. J. Gilbert.

Other specimens examined. **MEXICO.** GUERRERO. 15 mi W Chichihualco, elev. approx. 5000 ft, 15.VII.1984, J. B. Woolley 84/034A (TAMU).

Discussion. The specimen from Guerrero differs in being larger, having a shallow depression along the midline of the front, and lacking the blue coloration in the sutural depressions of the elytra. This new species can be separated from *A. coatlycuei* by the following couplet. In addition to these two species, two other unique specimens are known, each representing undescribed species.

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Literature cited

- ALEXEEV, A. V. 1998. K podrodovoi klassifikatsii zlatok roda *Agrilus* Curtis (Coleoptera, Buprestidae) fauny Palearktiki. *Entomologicheskoe Obozrenie* 77(2):367-383. [in Russian with English summary] English translation: To the subgeneric classification of the buprestid genus *Agrilus* Curtis (Coleoptera, Buprestidae) of the Palaearctic fauna. *Entomological Review* 78(4):423-436.
- BELLAMY, C. L. 1986. Studies in the African Agrilinae, Agrilini I. (Coleoptera, Buprestidae). *Revue de Zoologie Africaine* 100: 229-235.
- BELLAMY, C. L. 1996. Comments on the genus *Agrilus* Curtis, 1825: Where do we go now and do we go together? (Coleoptera: Buprestidae: Agrilinae). *Elytron* 9 (1995): 77-86.
- BELLAMY, C. L. 1997. Authorship of *Agrilus*: the final comment (Coleoptera: Buprestidae). *The Coleopterists Bulletin* 51(3):284.
- BLACKWELDER, R. E. 1944. Checklist of the coleopterous insects of Mexico, Central America, The West Indies, and South America, Part 2. *United States National Museum, Bulletin* 185, iv + 189-341.
- CURLETTI, G. 1993. First contribution to the revision of the genus *Agrilus* of the Ethiopic region (Coleoptera, Buprestidae). *Lambillionea* 93:421-444.
- CURLETTI, G. 1994. Deuxième contribution à la révision des *Agrilus* de la région éthiopienne. Le sous genre *Personatus* Curletti 1993 (Coleoptera, Buprestidae). *Lambillionea* 94:477-486.
- CURLETTI, G. 1998a. Notes on metatarsal morphology in the genus *Agrilus* and a proposed redefinition of its subgenera in the afrotropical region (Coleoptera Buprestidae). *Bollettino della Società Entomologica Italiana* 130(2):124-134.

- CURLETTI, G. 1998b. Nuovi *Agrilus* delle regioni Africane e della penisola Arabica (Coleoptera, Buprestidae). *Rivista Piemontese di Storia Naturale* 19:89-149.
- CURLETTI, G. 2001. The genus *Agrilus* in Australia (Coleoptera, Buprestidae). *Jewel Beetles* 9:1-45, 45 color photos, 37 figures, 26 maps.
- CURTIS, J. 1825. *British entomology*; being illustrations and descriptions of the genera of insects found in Great Britain and Ireland: containing coloured figures from nature of the most rare and beautiful species, and in many instances of the plants upon which they are found. London, printed for the author, Vol. 2, plates 51-98 with text, not paginated.
- FISHER, W. S. 1938. New neotropical Buprestidae. *Acta Entomologica Musei Nationalis Pragae Cechoslovakensis* 16 (158): 111-145.
- HESPENHEIDE, H. A. 1974. Nomenclatural notes on the Agrilinae (Coleoptera, Buprestidae): II. *Agrilus*. *Entomological News* 85(3): 48-53.
- HESPENHEIDE, H. A. 1976. Reversed sex-limited mimicry in a beetle. *Evolution* 29: 780-783.
- HESPENHEIDE, H. A. 1990. Buprestidae of the subfamilies Agrilinae, and Trachyinae from the Chamela Biological Station, Jalisco. *Folia Entomologica Mexicana* 77 (1988): 141-210.
- HESPENHEIDE, H. A. 1996a. Chapter 26. Buprestidae (Coleoptera). In: J. Llorente B., A. N. García Aldrete & E. González S. (eds.). *Biodiversidad, taxonomía y biogeografía de artrópodos de México: Hacia una síntesis de su conocimiento*. Instituto de Biología, Universidad Nacional Autónoma de México, pp. 411-421.
- HESPENHEIDE, H. A. 1996b. Chrysomelidae of the subfamily Clytrinae as models for mimicry complexes. p. 227-239. In: P. H. A. Jolivet & M. L. Cox (Eds.). *Chrysomelidae Biology. vol. 2: Ecological studies*. SPB Academic, Amsterdam.
- KERREMANS, C. 1892. Catalogue synonymique des Buprestides décrits de 1758 à 1890. *Mémoires de la Société Entomologique de Belgique* 1: 1-304.
- KERREMANS, C. 1903. Coleoptera. Fam. Buprestidae. In: P. Wytsman (ed.). *Genera Insectorum*, Fasc. 12b; 12c; 12d. Verteneuil & Desmet, Bruxelles, pp. 49-338.
- OBERBERGER, J. 1934. Buprestidae. 4. In: W. Junk, S. Schenkling (eds.). *Coleopterorum Catalogus* 143: 782-934. OBERBERGER, J. 1936. Buprestidae. 5. In: W. Junk, S. Schenkling (eds.). *Coleopterorum Catalogus* 152: 935-1246.
- SELANDER, R. B. & P. VAURIE. 1962. A gazetteer to accompany the "Insecta" volumes of the "Biologia Centrali-Americana". *American Museum Novitates* 2099:1-70.
- WATERHOUSE, C. O. 1887. New genera and species of Buprestidae. *The Transactions of the Entomological Society of London* 1887: 177-184.
- WATERHOUSE, C. O. 1889. *Biologia Centrali-Americana*. Insecta, Coleoptera, Buprestidae, vol. 3, part 1, pp. 49-192.
- WESTCOTT, R. L., T. ATKINSON, H. A. HESPENHEIDE & G. H. NELSON. 1989. New country and state records, and other notes for Mexican Buprestidae (Coleoptera). *Insecta Mundi* 3 (3): 217-232.
- WESTCOTT, R. L. & F. A. NOGUERA. 1995. Six new species of Buprestidae (Coleoptera) from Mexico. *Folia Entomologica Mexicana* 89 (1993): 35-54.

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