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TWO NEW SPECIES OF ACMAEODERA ESCHSCHOLTZ AND TWO NEW SPECIES OF MASTOGENIUS SOLIER (COLEOPTERA: BUPRESTIDAE) FROM MEXICO

RICHARD L. WESTCOTT

Plant Division, Oregon Department of Agriculture, Salem, Oregon 97301, U.S.A.
E-mail: rwestcot@oda.state.or.us


ABSTRACT. Four new species of Buprestidae from Mexico are described and figured. They are Acmaeodera chamelensis sp. nov., A. rodriguezae sp. nov. and Mastogenius aliciae sp. nov. from Jalisco, and M. cyanelytra sp. nov. from the state of Mexico.

KEY WORDS: Coleoptera, Buprestidae, Acmaeoderini, Haplostethini, Acmaeodera, Mastogenius, Taxonomy, Mexico.


RESUMEN. Se describen e ilustran cuatro nuevas especies de Buprestidae de México. Las especies son: Acmaeodera chamelensis sp. nov., A. rodriguezae sp. nov. y Mastogenius aliciae sp. nov. de Jalisco, y M. cyanelytra sp. nov. del Estado de México.

PALABRAS CLAVE: Coleoptera, Buprestidae, Acmaeoderini, Haplostethini, Acmaeodera, Mastogenius, Taxonomía, México.

Approximately 145 described species of Acmaeodera have been recorded from Mexico, and I am aware of approximately 20 others, most from Baja California Norte. I recognize 25-30 more that are new species, two of which I describe in this paper. Therefore, I offer my conservative estimate of 200 species for Mexico. Hespenheide (1996) gave 153 as his estimate, including new species, some of which have since been described (e.g. Westcott, 1998, 2002). By contrast, there is only one described species of Mastogenius known from Mexico, that being M. impressipennis Fall, 1906 from the Cape Region of Baja California Sur (Bellamy, 2002). The following new species are but distantly related to it and are among “a number, yet undetermined” (they are few) mentioned by that author which “await description”. I am describing them not only to further our general knowledge and interest of Mexican Buprestidae, but to make the names available for other works in progress, including a review of the genus for Mexico (Bellamy, pers. com.) and a study of insects associated with oak nearby where one of the species was collected (A. Equihua, in litt.). Collection codens used in the text follow the “Insect and Spider Collections of the World” web site: www.bishopmuseum.org/ bishop/ento/codens-r-us.html.
Acmaeodera chamelensis sp. nov.
(Figures 1, 7)

Holotype male: 7.00 mm long, 2.46 mm wide, strongly convex and moderately shining black above, strongly shining black below; each elytron with four dull orange markings similar to Figure 1, which extend to lateral margin, and an orange spot near humeral angle. Head weakly convex, flattened above, with a vague median depression that is more pronounced above, surface coarsely shallowly reticulate-punctate, the punctures larger above, vestiture setiform, moderately long and dense, white, subrecumbent; clypeus depressed on base, front margin very broadly, shallowly emarginate; antennae reaching to mesocoxae, serrat from segment 4, segments 5-11 much wider. Pronotum widest along basal half then sides gradually, arcuately converging to bluntly triangular apical angles, basal angles obliquely quadrate; anterior margin deeply arcuately emarginate, with a distinct median lobe; sides constricted at base, lateral margins broadly arcuate, entire, not visible from above; posterior margin subtruncate, laterally deflexed at about a 90° angle; disc very strongly convex, with three well defined, depressed basal submarginal foveae, surface coarsely, rather evenly reticulate-punctate, vestiture setiform, moderately long and recumbent, light brownish on disc, white laterally. Elytra at base slightly wider than pronotum, narrowly transversely depressed behind front margin; umbones prominent, strongly shining, punctate below; humeral angles very strongly, triangularly projecting; lateral margins abruptly arcuate below humeri, finely serrat along apical half, the serrations becoming coarser apically then finer at apex; suture flattened basally, distinctly elevated along middle, less so apically; surface coarsely densely punctate, striae distinct, punctures smaller apically, intervals narrow on about basal half of disk, wider apically and laterally, uniformly flattened except 9th and 10th elevated for a short distance immediately behind umbone, punctures of intervals very fine, mostly indistinct; setae semierect, those of disk basally like on pronotum, elsewhere they are white, shorter and stout. Underside with prothor- num coarsely tightly reticulate-punctate, setae mostly narrow-squamiform, front margin truncate, deeply retracted from anterior angles of pronotum; meso- and metathorax coarsely reticulate-punctate, setae variably elongate-squamiform, longer than on prothorax, especially on lateral portions; abdomen shallowly punctate, vestiture recumbent to subrecumbent, ventrites 1 and 2 very finely punctate on middle, becoming coarsely punctate at sides, vestiture setiform on middle, narrow-squamiform at sides; ventrites 3 and 4 finely indistinctly punctured, vestiture similar to 1 and 2; ventrite 5 narrowly subtruncate at apex, with a small weakly developed subapical plate, indistinctly punctate, vestiture setiform and subrecumbent.

MATERIAL EXAMINED


Variation. The paratype males measure 7.71 mm X 2.70 mm and 6.43 mm X 2.31 mm, the female is 6.94 mm X 2.51 mm. Based upon only four specimens, I believe that A. chamelensis will be found to exhibit considerable variation in elytral markings. The anterior fasciae may be joined along the margin over one or two intervals, and on the female they are connected medially, forming a rough “O” marking. All the elytral fasciae are connected laterally on that specimen. On the three paratypes, the subapical plate of the 5th abdominal ventrite is slightly better developed, and the apex may be broader
FIGURES 1-6. Fig. 1: Acmaeodera chamelensis Westcott. Fig. 2: Acmaeodera rodriguezae Westcott. Figs. 3-4: Mastogenius aliciae Westcott, 3) male, 4) female. Figs. 5-6: Mastogenius cyanelytra Westcott, 5) male, 6) female.
and more clearly truncate, than on the holotype. No significant sexual difference is apparent.

**Biology.** I collected a male as it flew low along the side of a forested path (“Tejon”) at Chamela. I have observed similar low-flying behavior in many other species of *Acmaeodera*, usually as they are visiting flowers or landing on or near twigs and branches that lie on the ground.

**Discussion.** *Acmaeodera chamelensis* can be confused readily with *A. aurantiofasciata* Westcott and Noguera, 1995, the color and arrangement of elytral markings being essentially the same. However, the latter species is more narrowly elongate, the pronotum less convex, more parallel-sided and not expanded, and the fourth antennal segment is not triangular. Differences in vestiture are also apparent, notably beneath where, in *A. aurantiofasciata*, the setae are longer, denser and less squamiform. *Acmaeodera aurantiofasciata* is also known only from Jalisco, but from different areas (Westcott and Noguera, 1995).

**Etymology.** The name is geographical from Estación Biología Chamela, which is commonly referred to as “Chamela” though there is a nearby town of the same name.

*Acmaeodera rodriguezei* sp. nov.

(Figures 2, 8)

**Holotype male:** 6.11 mm long, 2.23 mm wide, black, head with strong copper reflection, pronotum with weak purple reflection, elytra with strong purple reflection and yellow fasciae and spots as in Figure 2, the fasciae reaching to or immediately inside lateral margins; ventral surface with purple and coppery reflections which are stronger on last three abdominal ventrites; vestiture white. **Head** with front flattened, broadly and shallowly depressed above, surface coarsely reticulate-punctate, setae dense, medium length, erect to suberect; clypeus broadly shallowly arcuate; antennae reaching scarcely beyond mesocoxae, abruptly and broadly serrate from segment 5. **Pronotum** strongly and evenly convex, widest along basal half then sides rather strongly, arcuately converging to quadrate apical angles, basal angles quadrate; anterior margin deeply arcuately emarginate, with a distinct broad median lobe; sides not constricted basally, lateral margins entire, not sharp or visible from above; posterior margin truncate, deflexed at sides; disk with submarginal basal foveae well-defined, without distinct surrounding depressions, surface coarsely densely punctate on disk, becoming very tightly reticulate-punctate laterally, setae as on head except becoming subrecumbent at sides. **Elytra** moderately and evenly convex, strongly tapering, at base equally wide as pronotum, slightly wider across area of umbones, which are prominent and strongly yet not densely punctate; humeral angles bluntly triangular, slightly projecting; lateral margins subparallel basally, then shortly and arcuately constricted opposite base of first abdominal ventrite, weakly and sparsely serrate on apical third, more strongly so on apex; suture strongly depressed, more or less grooved, immediately behind base, not elevated; surface coarsely densely deeply striatopunctate, intervals indistinctly punctate, not raised, setae as on pronotum, moderately dense, erect on disk, suberect laterally. **Underside** coarsely densely punctate, more finely and sparsely so on middle of abdominal ventrite 2 and on ventrites 3-4, setae as long or somewhat shorter than on dorsal surface, recumbent to suberect (apically), mostly finely 2-4-digitate, dense at sides, except apical portions of abdominal ventrites 3-4 and most of 5 with normal setae; prosternum distinctly convex, front margin deeply retracted, truncate; fifth abdominal ventrite broadly rounded at apex, without a trace of a subapical plate or swelling.

**MATERIAL EXAMINED**

**Holotype** (UNAM) labeled “MEXICO, Jalisco, Est. Biol. Chamela, 30/VI-2/VII-95, R. L.
FIGURES 7-12. Fig. 7: *Acmaeodera chamelensis* Westcott, aedeagus. Fig. 8: *Acmaeodera rodriguezae* Westcott, aedeagus. Figs. 9-10: *Mastoginius aliciae* Westcott, 9) aedeagus, dorsal, 10) aedeagus, ventral. Figs. 11-12: *Mastogenius cyanelytra* Westcott, 11) aedeagus, dorsal, 12) aedeagus, ventral.
Westcott/HOLOTYPE Acmaeodera rodriguezae Westcott" [red label].

**Biology.** The specimen was collected as it flew along the side of and approximately seven feet above the densely forested trail, “Buho”.

**Discussion.** This buprestid is unlike any described species familiar to me, though there is a closely related undescribed species found farther south in Mexico. Superficially, *A. rodriguezae* resembles *A. exilis* Waterhouse, 1882 in elytral markings, yet it is but distantly related and easily separated by the ground color, much coarser punctures, and finely digitate setae on the venter. Species in the unrelated *A. pinalorum* Knnull, 1930 group, which are comparable in size, also bear finely digitate setae on the venter.

**Etymology.** I dedicate this species, known only by the unique holotype, to a person who was also one of a kind, Alicia Rodríguez Palafox.

**Mastogenius aliciae sp. nov.**
(Figures 3, 4, 9, 10)

**Holotype male:** 2.88 mm long, 1.21 mm wide, elongate-oval, evenly convex, moderately shining black throughout except vague blue reflection on base of elytra, especially along basal margin, and tarsi varying from black (basal segments) to brown; vestiture pale, moderately long, dense above, moderately dense beneath. **Head** with front strongly evenly convex, surface densely, shallowly, irregularly punctate, vestiture recumbent; front margin of clypeus broadly shallowly emarginate; antennae reaching to just behind mesocoxal cavity, second and third segments subequal in size. **Pronotum** equal in width to elytra at middle, slightly wider than base of elytra; sides subparallel then abruptly convergent apically; upper lateral margin fine, distinctly visible from above, ending near front margin; lower lateral margin fine, entire, essentially straight, well separated from upper margin; anterior margin indistinctly lobed at middle, front angles strongly triangular; posterior margin truncate, hind angles quadrate; disk strongly evenly convex, without depressions, surface moderately and very densely punctate; vestiture forward-projecting, recumbent. **Elytra** measured across humeri equal in width to pronotum as measured between basal angles, rather evenly convex, narrowly transversely depressed behind basal margin, and with shallow median depression at apex; basal margin truncate, strongly thickened, especially along middle, humeral angles subquadrate and rounded; lateral margins parallel to apical third then gradually converging to truncate rounded apices; surface moderately densly shallowly punctate, the punctures less obvious, particularly towards sides, then on pronotum, vestiture subrecumbent and directed apically. **Scutellum** small, with a vague coppery reflection, flattened, very smooth, broadly rounded anteriorly, narrowly rounded posteriorly and slightly projecting behind basal margin of elytra. **Underside** shallowly densely punctate, vestiture recumbent to subrecumbent, some setae of last three ventrites longer, suberect; prosternum with punctures somewhat confused, not as evident as on abdomen, strongly convex on middle, each side recessed below anterior pronotal angles thus forming a narrow short groove, front margin truncate along middle, not reaching pronotal angles at sides; abdomen shallowly convex, last ventrite broadly subtruncate.

**Allotype female:** Length 3.05 mm, width 1.33 mm, differing from male as follows: color above black with distinct blue reflections which are strongest basally and apically on elytra; underside black; tarsi pale brown; head with a small vague median circular depression on front; antennae reaching to procoxal cavity; pronotum with anterolateral “groove” indistinct; abdomen beneath strongly convex, last ventrite more coarsely and distinctly punctate.

**MATERIAL EXAMINED**

**Holotype** (UNAM) labeled “MEXICO, Jalisco,

Variation. The female paratype is 3.50 mm long, 1.56 mm wide. Blue reflections are stronger on the head and pronotum, the median depression on the frons is distinct, and the tarsi are colored like the holotype. I doubt that the frontal depression or tarsal coloration is sexual, the latter likely depending upon the age of a specimen at the time of collection.

Biology. The allotype was reared from Mimosa arenosa (Willdenow) Poiret branches girdled by Taricannus zaragozai Noguera and Chemsak, 1993 (Cerambycidae) (F. Noguera, in litt.).

Discussion. This species is not like any other that I have seen, though my familiarity with the genus does not extend outside Mexico and the U.S. It appears most closely related to M. robustus Schaeffer, 1905, and the male will key readily to that species in Bellamy (2002). The sexual dichromatism and the more coarsely punctate elytra, not to mention the disparate habitats in which they occur, will serve to readily separate the two species.

Etymology. It is with great pleasure, yet with immense sadness due to her recent passing, that I dedicate this species to Alicia Rodriguez Palafax, who collected many specimens of Coleoptera in Mexico during her quest for Hymenoptera, especially at Estación Biología Chamela. It was my pleasure to have known her as a friend and colleague for 15 years.

Mastogenius cyanelytra sp. nov.
(Figures 5, 6, 11, 12)

Holotype male: 2.88 mm long, 1.08 mm wide, elongate-oval, strongly evenly convex; head and pronotum black with vague metallic copper and blue reflections; elytra metallic dark blue; ventral surface and legs strongly shining black; vestiture pale. Head with front parallel-sided, weakly convex, with a relatively wide deep groove extending from about middle to near level with upper margin of eyes, discretely coarsely punctate; vestiture short, forward-projecting, subrecumbent; front margin of clypeus very shallowly emarginate; antennae reaching to beyond humeral umbo when laid alongside, second segment much more slender than any other. Pronotum distinctly narrower than elytra, sides subparallel from base to about middle then strongly converging apically, upper lateral margin distinctly explanate to about middle, ending well back of front margin, lower lateral margin fine entire and widely separated from upper margin; anterior margin subtruncate on middle, front angles subquadrate; disk with a shallow anterolateral depression, moderately, densely, shallowly punctate, vaguely rugose, vestiture short, longer than on head, forward-projecting, recumbent. Elytra measured across humeri 1.16 X wider than pronotum between basal angles, rather smooth and evenly convex, vaguely flattened apically, narrowly transversely depressed immediately behind front margin, and with a broad shallow median subbasal sutural depression; front margin truncate, humeral angles subquadrate; lateral margins subparallel, slightly sinuate at middle, gradually converging apically to subtruncate apices; surface moderately coarsely densely punctate, the punctures rather shallow and becoming coarser laterally, each bearing a minute white seta. Scutellum small, subtriangular, flattened, microsculptured. Underside discretely, moderately to densely punctate, the punctures medium size; setae short, white, subrecumbent, much longer and suberect to erect apically on last visible abdominal ventrite which is broadly truncate; prosternum without antennal groove, densely
punctured, front margin shallowly arcurately emarginate, truncate on middle.

Allotype female: Length 2.88 mm, width 1.08 mm, differing from male as follows: antennae barely attaining humeral angle of elytra when laid alongside; pronotum almost as wide as elytra, more convex, notably so anterolaterally where sides converge more abruptly; elytra measured across humeri 1.09 X wider than pronotum between basal angles; abdomen beneath distinctly more convex, especially last visible ventrite which is slightly more broadly truncate.

Material examined
Holotype (UNAM) labeled “MEXICO, México, 2800 m, Santa Catarina del Monte, ±12 km (air) ESE Texcoco, 23.vii.1999, R. L. Westcott, beating Quercus rugosa/HOLOTYPE Mastogenius cyanelytra R. L. Westcott” (hand-printed red card). Allotype with same collection data. Paratypes, all from Estado de México: 7 male, 11 female, same data as holotype; 17 male, 7 female, same data except 20-VI-2000, beating Quercus sp.; 1 male, 6 female, San Pablo Ixayoc, 19’28’, 98’47’, ±2450 m, mountains ESE Texcoco, 2-VII-2001, beating Quercus sp., A. Equihua and R. Westcott; 4 male, 2 female, km 41, hwy. Texcoco-Calpulapan, 2685 m, 19’30’43”, 98’52’40”, 3-VII-2001, beating oak, R. L. Westcott; specimens deposited in BMNH, CEAM, CLBC, GHNC, LACM, NMPC, RLWE, TCMC, UNAM, WFBM.

Variation. Size is variable, the length of males ranging from 2.40 mm to 3.15 mm; of females, 2.01 mm to 3.12 mm. The groove on the frons exhibits some variation, it may more resemble a pit. Metallic reflections on the pronotum may be indistinct, especially in females. Color of the elytra on a few specimens is indistinctly blue, being blacker with blue, green, copper and violet reflections, which possibly are the result of contact with fluids. Humeral elytral width/width between pronotal basal angles ranges from 1.12 mm to 1.19 mm (average 1.15 mm) in males, 1.06 mm to 1.10 mm (average 1.08 mm) in females.

Biology. The high montane area where this beetle has been collected is forest predominantly consisting of several species of Quercus (oaks), at least one of which obviously serves as a host. Most specimens were beaten from living, apparently thriving trees; however, a few were beaten from a fallen dead tree with all the leaves brown. The beetles made no attempt to fly, but slowly crawled on the beating sheet.

Discussion. Mastogenius cyanelytra is clearly distinct from any of the mainland Mexican species that I have seen, all of which are undescribed and from very different habitats and hosts, and it is does not remotely resemble M. impressipennis from Baja California Sur. It appears related to M. subcyaneus (LeConte), 1859, from the U.S., which has also been taken from oaks, among other hosts. From that species M. cyanelytra is readily distinguished by its distinctly blue elytra which are more elongate and converge more strongly to the apex, by its more distinct vestiture and, in the male, by the pronotum being distinctly narrower than the elytra.

Etymology. The species epithet is a noun in apposition to the genus, based on the Greek kyanos in reference to the dark blue elytra.

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**LITERATURE CITED**


