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New genera and species of mimetic Cleridae from Mexico and Central America (Coleoptera: Cleroidea)

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New genera and species of mimetic Cleridae from Mexico and Central America (Coleoptera: Cleroidea)

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Abstract. New genera and species of putatively mimetic Cleridae (Coleoptera: Cleroidea) are described from Mexico and Central America: *Namba testacea*, **new genus and species** from Nuevo León, Mexico; *Aulicoides leavengoodi*, **new genus and species** from Jalisco, Mexico; and *Quadrophenia*, **new genus**, which includes *Q. townshendi*, **new species**, from Mexico, Nicaragua, Costa Rica and Panama, *Q. mooni*, **new species**, from Costa Rica, *Q. entwistlei*, **new species**, from Guatemala and Honduras, *Q. daltreyi*, **new species**, from Costa Rica, and *Q. sumidero* **new species**, from Chiapas, Mexico. A key to the species of *Quadrophenia* is provided. All of the newly described species are hypothesized to be Batesian mimics of aposematically colored coleopteran models, some of which are known to be chemically protected.

Key Words. Taxonomy, checkered beetles, Chrysomelidae, Melyridae, tropical deciduous forest, cloud forest, pine forest.

Introduction

Putative Batesian mimics of chemically protected beetles are commonly found among New World Cleridae, with the majority of these belonging to species in the subfamilies Peloniinae and Orthopleurinae (Menier 1985; Mawdsley 1994; Rifkind 2000). In the neotropics, a few species belonging to the subfamily Clerinae, primarily within the genera *Enoclerus* Gahan and *Perilypus* Spinola, appear to mimic Chrysomelidae (Coleoptera) (Mawdsley 1994), although a larger percentage of the species in these genera appear to be mimicking other aposematic models, notably Mutillidae and Formicidae (Hymenoptera) in the case of *Enoclerus* (Hespenheide 1986; Rifkind 1996, 2000, 2012, 2017), and Cantharidae, Lycidae, and Lampyridae (Coleoptera) in the case of *Perilypus* (Ekis 1977a). The clerine *Colyphus strongylioides* Ekis mimics an aposematically colored tenebrionid beetle (Ekis 1977b). Among the hydnocerine Cleridae, most of which are ant-like and appear to mimic various Formicidae, two similarly colored Mexican species of *Phyllobaenus* Dejean, *P. gorhami* (Wolcott), and *P. haematicus* (Gorham), are likely mimicking chrysomelids belonging to the genera *Saxinis* Lacordaire and *Cryptocephalus* Geoffroy. The present paper describes and illustrates three new genera and seven new species of beetle-mimicking Clerinae from Mexico and Central America. Species in the new genus *Quadrophenia* exhibit a combination of body shape and color pattern that contributes to their resemblance to leaf beetle models belonging to the chrysomelid subfamilies Criocerinae and Galerucinae. There is a substantial literature demonstrating the presence of both sequestered and endogenous defensive compounds in criocerine and galerucine chrysomelids, members of which often announce their unpalatability through aposematic coloration and patterning (Pasteels et al. 1988; Muñoz 2014). The new monotypic genus *Namba* represents the first reported instance of a clerid mimicking a beetle in the chrysomelid subfamily Aulacoscelinae. Members of Aulacoscelinae are also known to be chemically defended (Prado et al. 2011). Finally, *Aulicoides*, another monotypic genus of Mexican Clerinae described here, appears to mimic aposematically colored malachiine flower beetles (Melyridae).

Materials and Methods

Specimens were photographed through the eyepiece of a Zeiss stereo dissecting microscope using the camera in an Apple iPhone 7 Plus. Terminology primarily follows Ekis (1977a). Photographs of *Diabrotica* species were accessed from <http://idtools.org/id/beetles/diabrotica/> (full citation under Derunkov

et al. 2013 in Literature Cited). This paper is based on the study of specimens borrowed or gifted from the following institutions and individuals (abbreviations as used in the text):

CIUM	Colección de Insectos de la Universidad Autónoma del Estado de Morelos, Mexico.
CNIN	Colección Nacional de Insectos, Instituto de Biología, UNAM, Mexico.
CSCA	California State Collection of Arthropods, Sacramento, California, U.S.A.
EMEC	University of California, Essig Museum of Entomology, Berkeley, California, U.S.A.
FMNH	Field Museum of Natural History, Chicago, Illinois, U.S.A.
FSCA	Florida State Collection of Arthropods, Gainesville, Florida, U.S.A.
JNRC	Collection of Jacques Rifkind, Valley Village, California, U.S.A.
LACM	Natural History Museum of Los Angeles County, Los Angeles, California, U.S.A.
MEMM	Mississippi Entomological Museum, Mississippi State University, Mississippi, U.S.A.
MNCR	Museo Nacional de Costa Rica, San José, Costa Rica.
MNHN	Muséum National d'Histoire Naturelle, Paris, France.
MUCR	Universidad de Costa Rica, San José, Costa Rica.
RHTC	Collection of Robert H. Turnbow, Jr., Ft. Rucker, Alabama, U.S.A.
WFBM	William F. Barr Entomological Museum, University of Idaho, Moscow, Idaho, U.S.A.
WOPC	Collection of Weston Opitz, Gainesville, Florida, U.S.A.

Taxonomy

Namba Rifkind, new genus

(Fig. 1–3)

Type species. *Namba testacea* Rifkind (by monotypy)

Diagnosis. Within New World members of the clerid subfamily Clerinae, the new genus uniquely combines the following characters: pronotum and elytra broad (Fig. 1), color orange-testaceous; elytral surface not lucent, with integument densely, deeply, and regularly set with moderately small punctations that extend from base to apices without diminution; elytral setation rather dense, concolorous with integument; antenna (Fig. 2) without a distinct capitulum, rather robust in aspect, with antennomeres increasingly serrate distally, antennomere 11 broad, acuminate at apex. *Namba* is somewhat similar to the genera *Blaxima* Gorham and *Phonius* Chevrolat, but *Blaxima* has the antenna terminating in a distinct club, while *Phonius* has a black pronotum, elytra with shallow punctation, and infusate vestiture that contrasts against its reddish integument.

Description. Clerinae. Form: robust, subflattened dorsoventrally. Length 10 mm. Vestiture: orange-testaceous, moderately short, moderately densely arranged, composed of both erect and suberect setae, some erect setae longer; vestiture on venter finer, paler, longer. Head: surface shining, rather finely, densely, and shallowly punctate; frons rather wide, shallowly bi-impressed; maxillary palpus with terminal palpomere digitiform, apex subtruncate; labial palpus with terminal palpomere securiform; eyes moderately large, protuberant, finely faceted, ocular notch large, triangular, broad at base; antennae (Fig. 2) robust, without distinct club; antennomeres gradually enlarged beyond pedicel; pedicel subspheroid, short; antennomere 3 subcylindrical, nearly 2× as long as pedicel; antennomeres 4–10 transverse, serrate, gradually increasing in size distally; antennomere 11 elongate (more than 2× as long as antennomere 10), subfalciform, robust basally, aciculate at terminus. Pronotum: broader than long (ratio of maximum width to length 35:31); anterior margin very feebly, broadly arcuate / emarginate at middle; sides at anterior 1/5 subparallel, inflected where they intersect transverse impression; sides at posterior 4/5 rounded; disk subflattened posterior to rather deeply incised, broadly U-shaped, transverse impression; surface shining, punctations dense, moderate in diameter, rather shallow; foveae distinct; basal collar rather narrow longitudinally. Scutellum: small, triangulate. Elytra: moderately elongate (ratio of length to maximum width approximately 2:1), subflattened dorsally; subbasal

tumescences absent; humeri subquadrate; sides subsinuate at anterior 1/2, then arcuately expanded to widest point just posterior to middle, thence very gradually, arcuately convergent to separately rounded, slightly dehiscent apices; surface rather dull, densely, uniformly, subconfluently set with moderately deep but moderately small punctures, these not arranged in striae, and not diminished posteriorly. Legs: tibial spur formula 1-2-2; tarsal pulvillae well developed. Mesosternum: posterior process rather deeply notched at apex, not elevated posteriorly. Metasternum: convex; anterior process not elevated at apex; integument shallowly granulate-subpunctate. Abdomen: consisting of 6 visible ventrites; ventrite 5 with posterior angles subacute, hind margin shallowly subsinuate laterally, shallowly, arcuately emarginate at middle; ventrite 6 rather small, sides slightly arcuate, posterior margin slightly, triangularly emarginate; tergite 6 with sides obliquely convergent, hind margin rather broadly subtruncate or feebly, arcuately rounded, surpassing hind margin of ventrite 6. Aedeagus: tegmen as in Fig. 3, not sagittate posteriorly. Female: abdomen with hind margin of ventrite 5 subtruncate; hind margins of ventrite 6 and tergite 6 feebly, broadly rounded, and coterminous.

Distribution. Known only from the Mexican state of Nuevo León.

Etymology. The generic name honors Ken Namba, one of North America's most accomplished sushi chefs. It is treated here as feminine for the sake of euphony.

***Namba testacea* Rifkind, new species**

(Fig. 1–3)

Type material. Holotype, male. Mexico: N. L. [Nuevo León], 9 mi. E Iturbide, VI-13-1962, J. M. Campbell, 4000'. Holotype deposited in CASC. Paratypes: 2 (JNRC), 1 (CNIN), 1 (CSCA), same data as holotype; 1 (WOPC), Mexico, 23-IV-62 (no further data).

Diagnosis. This is the only known member of the genus.

Description. (Holotype) Length: 10 mm. Form: pronotum and elytra subflattened above. Color: orange-testaceous, except eyes and mandibles black; antennomeres black except inner surface of scape; terminal maxillary palpomeres with a broad infusate annulus at middle; distal 1/5 of femora, tibiae and tarsi in their entirety, piceous. Elytral surface rather dull, densely set with small/medium punctations that do not diminish in size or density apically; punctures subconfluent, not arrayed in striae.

Variation. The available specimens are rather uniform. The shape of the female pygidium is characterized under the generic description.

Distribution. This species is known from near Iturbide in Nuevo León, Mexico.

Etymology. The specific epithet refers to the new species' nearly concolorous orange-testaceous color.

Remarks. The holotype and four paratypes were collected at 4000' in the Sierra Madre Oriental. The habitat at the type locality is presumably pine forest and/or piedmont scrub, the characteristic plant landscape types for the Gran Sierra Plegada which encompasses the area around Iturbide (Nevárez-de los Reyes et al. 2016). J. M. "Milt" Campbell collected the type specimens of *Namba testacea* along with a series of remarkably similar aulacosceline chrysomelid beetles (Fig. 4) (identified as *Aulacoscelis hoegei* Jacoby by J. A. Wilcox). Some adult *Aulacoscelis* species in Mexico and Central America are known both to feed upon cycad palm fronds, and to sequester and reflex bleed highly toxic and mutagenic azoxyglycosides derived from these plant hosts (Prado et al. 2011; Windsor et al. 1999). *Dioon* Lindl., one of the host cycad genera recorded for *Aulacoscelis vogti* Monrós in northeastern Mexico (Prado et al. 2011) includes species that range into Nuevo León (Whitelock 2004), and are known from localities near Iturbide (González-Astorga et al. 2005). Further collecting is needed to explore the intriguing possibility that *Namba testacea* mimics chemically protected *Aulacoscelis* leaf beetles on cycads in Nuevo León.

***Quadrophenia* Rifkind, new genus**

(Fig. 5–13, 17–21)

Type species. *Quadrophenia townshendi* Rifkind (by present designation)

Diagnosis. Members of the new genus bear similarities to some species belonging to the genus *Enoclerus* Gahan, and to the monotypic genus *Systemoderes* Spinola. *Quadrophenia* species can be differentiated from both genera by a unique combination of broad, subflattened pronotal dorsum, relucet pronotal and elytral integument, and the shape of antennomere 11, which is broadly emarginate internally, as well as on the distal/external side (Fig. 17–21). *Systemoderes amoenus* Spinola is patterned very similarly to some species of *Quadrophenia*, although the dark pronotal maculation in *Systemoderes* appears always to be interrupted longitudinally at the middle, whereas it is always entire (when present) in *Quadrophenia*.

Description. Clerinae. Form: medium sized, body subflattened; integument shining. Head: eyes moderate in size, finely faceted; ocular emargination triangular, moderate; frons shallowly bi-impressed, surface shining, indistinctly, shallowly, rather sparsely punctate; maxillary palpus with terminal palpomere digitiform, apex subtruncate; labial palpus with terminal palpomere securiform; antennae extending to or slightly extending past posterior margin of pronotum when laid alongside; antennomeres 3–5 slightly flattened, subcylindrical; antennomeres 6–8 subconical; antennomeres 9–11 forming a distinct, rather abruptly expanded club, with antennomeres 9–10 subserrate and antennomere 11 enlarged, polygonal, bilaterally compressed apically, emarginate internally and on distal/external side (Fig. 17–21), apex subacuminate; gular process narrow. Pronotum: broader than long; subflattened above; transverse impression distinct, rather deeply incised, broadly U-shaped at middle; foveae shallow but rather broad; sides slightly to moderately convex; integument shining, rather sparsely, shallowly punctate; vestiture rather sparse, varied in composition, including robust, elongate, erect and suberect setae; pronotal collar rather narrow longitudinally. Scutellum: broad, rounded posteriorly. Elytra: subflattened above; approximately 1.5× as long as broad; subbasal tumescences absent; umbones prominent; sides sinuate behind rounded humeri; posterior moderately expanded laterally; apices dehiscent; surface shining; punctation moderately densely but irregularly arrayed, not arranged in striae; minute asetiferous punctures also present; vestiture inconspicuous. Legs: tibial spur formula 1-2-2; tarsal pulvilli well developed. Mesosternum: posterior process very narrow, elongate, not elevated distally. Metasternum: anterior process not elevated apically. Abdomen: ventrites shining, inconspicuously setose; pygidium without elaborate modifications; male pygidium without setal daggers; aedeagus well sclerotized, parameres rather short and subsagittate posteriorly; phallus subacuminate apically.

Distribution. The genus ranges from southern Mexico to Panama. Specimens of some undescribed South American species may eventually be assigned to this genus.

Etymology. The genus is named for The Who's iconic 1973 concept album. *Quadrophenia* is treated as feminine.

Key to the species of *Quadrophenia*

1. Elytra marked by boldly contrasting black and cream-colored bands (Fig. 12–13) (Chiapas, Mexico) ***Q. sumidero*, Rifkind n.sp.**
- Elytra not so marked **2**
- 2(1). Elytra concolorous, pale sorrel brown with a slightly olive, pearlescent cast (Fig. 11), antennae bicolorous, tibiae infusate (Costa Rica) ***Q. daltreyi*, Rifkind n.sp.**
- Elytra otherwise colored **3**
- 3(2). Pronotal ground color reddish, antennal club darkened, femora usually darkened at distal end (Fig. 5–7) (Mexico, Nicaragua, Costa Rica, Panama) ***Q. townshendi*, Rifkind n.sp.**
- Pronotal disk with ground color flavotestaceous, orange-testaceous, or eburneous **4**

- 4(3). Elytral ground color flavotestaceous, each elytron with two large dark maculae (Fig. 8), antennae and legs uniformly testaceous (Costa Rica) ***Q. mooni*, Rifkind n.sp.**
 — Elytral ground color eburneous, elytral maculae smaller than in *Q. mooni*, antennal funicle and tibiae darkened (Fig. 9–10) (Honduras and Guatemala) ***Q. entwistlei*, Rifkind n.sp.**

***Quadrophenia townshendi* Rifkind, new species**

(Fig. 5, 6, 7, 17)

Type material. Holotype, male. Panama, Panama Pr., Cerro Campana, 2700', May 17–19, 1987, E. Giesbert, coll. Holotype deposited in CSCA. Paratypes: 3 (JNRC), 2 (FSCA), same data as holotype; PANAMA: 1 (CSCA), Panama Prov., Cerro Campana, 2100 ft., April 27–May 4, 1992, E. Giesbert, coll.; 1 (LACM), Panama Prov., Cerro Jefe, ± 2800', May 21, 1987, E. Giesbert, coll.; 3 (WFBM), Pan[amá] Prov., Altos de Cerro Campana, V-17–18-1994, F. T. Hovore; 1 (JNRC), Coclé, Cerro Gaital, VI-10–12-1985, E. Riley & D. Rider; 1 (RHTC), Chiriqui, 4.7 km N Valle de las Minas, 8 July 1997, R. Turnbow; COSTA RICA: 1 (FMNH), La Caja, S. Jose, V-1932, H. Schmidt, leg., F. Nevermann [collection?]; 2 (MNH), 1920, Paul Serre, Museum Paris; 1 (JNRC), Est. Cacao, 1000–1400 m, Lado SO Vol. Cacao, P. N. Guan., Prov. Guanacaste, P. Rios, C. Moraga y M. M. Chavarria, 21 a 28 May, 1992, L–N 323300, 375700, INBIO CR1000/734267; 1 (JNRC), Est. Pitilla, 700 m, 9 km S. Sta. Cecilia, P. N. Guanacaste, Prov. Guan., 19 May–3 Jun 1993, C. Moraga, L–N. 330200, 380200, INBIO CR1001/315248; 1 (WOPC), Est. Pitilla, 700 m, 9 km S Sta. Cecilia, P. N. Guanacaste, Prov. Guan., R. W. Flowers, 15 May, 1991, L–N–330200, 380200, INBIO CR1000/516354; 1 (MNCR), Est. Cacao, 1000–1400 m, Lado Suroeste del Volcan Cacao, Prov. Guan., II Curso Parataxon, Jun 1990, L–N–323300, 375700, INBIO CR1000/250223; 1 (MUCR), Est. Cacao, 1000–1400 m, SW side Volcan Cacao, Guanac. Pr., Mar. 1988, GNP Biod. Sur, 323300, 375700, INBIO CR1000/028684; 1(CASC), Est. Cacao, S. O. de Volcán Cacao, Prov. Guana. 800–1600 m, Jul 1993, G. Mora, G. Fonseca, J. Saborio, G. Varela, LS 323300_375700, #2222, INBIO CR1001/180362; MEXICO: 1 (CIUM), Chiapas, 20 km NNO Ocozocoautla, 25-VII-2000, Cols. V. H. Toledo y A. M. Corona.; 1 (JNRC), Chiapas, Sumidero Cyn., 4000', June 14, 1987, E. Giesbert, coll.; 1 (JNRC), Chiapas, El Sumidero, Mirador La Coyota, 24 June, 1990, R. Turnbow; 1 (CSCA), Chiapas, Sumidero Cyn., 4000', June 15, 1987, E. Giesbert, coll.; 1 (MEM), Chiapas, Sumidero Nat. Pk., 19 June 1989, S. Testa, P. K. Lago; 1 (EMEC), Veracruz, Cordoba, VII-6-1966, J. S. Buckett, M. R. & R. C. Gardner, colls.; 1 (WFBM), Veracruz, 250', Los Tuxtlas Biol. Sta. UNAM, 20 May 1983, C. & L. O'Brien & G. Marshall; NICARAGUA: 1 (WOPC), Matagalpa, Selva Negra, beating, 1280 m, 20-V-2006, Weston Opitz.

Diagnosis. The only member of the genus displaying a combination of reddish pronotal ground color, infusate or piceous antennal club, femora (usually) darkened at distal end, and scutellum (usually) pale.

Description. (Holotype). Length: 8.25 mm. Color: reddish-orange; antennal club infusate; the following black: mandibles, eyes, antennomeres 2–3 (in part) and 4–9 (entirely), legs (except proximal 4/5 of profemora and mesofemora, and proximal 3/4 of metafemora); pronotum with piceous longitudinal macula at middle, extending from anterior margin to beyond posterior limit of transverse impression; elytra with 4 black maculae (Fig. 5) that do not attain epipleura laterally. Abdomen: ventrite 5 with posterior angles rather broadly rounded, hind margin with a rather shallow, broad, V-shaped emargination; ventrite 6 narrower than ventrite 5, with hind angles more acute, and posterior emargination deeper at middle; tergite 6 concave ventrally, with hind margin narrowly rounded, surpassing posterior margin of ventrite 6.

Variation. Length of specimens range from 7.6 mm–10.8 mm. The female pygidium has ventrite 5 feebly, broadly emarginate posteriorly, ventrite 6 rounded or subtruncate posteriorly, sometimes with a shallow indentation apically at middle, and tergite 6 with the hind margin broadly rounded or subtruncate, and sometimes slightly inflected at middle. Coloration and markings are highly variable in this species. Fig. 5–7 illustrate the range of variation, which includes individuals with no pronotal or elytral markings, some with expanded markings, and others with the elytra entirely black. Three specimens

from Chiapas, Mexico have the scutellum darkened. Three other specimens have the elytral ground color testaceous rather than reddish or black.

Etymology. I take great pleasure in naming this species for Pete Townshend, guitarist and primary composer for the British rock group The Who.

Distribution. *Quadrophenia townshendi* ranges from southern Mexico southward to Panama.

Remarks. *Quadrophenia townshendi* exhibits a range of color morphs that appear to mimic chemically protected Chrysomelidae belonging to several genera, including *Malacorhinus* Jacoby (Galerucinae), and *Diphaulaca* Clark (Galerucinae).

***Quadrophenia mooni* Rifkind, new species**
(Fig. 8, 18)

Type material. Holotype, female. Costa Rica, Puntarenas Prov., Monteverde, cloud forest, IV-16-19-2000, J. & A. Rifkind, P. Gum, colls. Holotype deposited in CSCA. Paratypes: COSTA RICA: 1 (JNRC), Estac. Cacao, 1000–1400 m, SW side Volcan Cacao, Guanac. Pr., Mar 1988, GNP Biod., 323300, 375700, INBIO CR1000, 028563; 1 (JNRC), same data as previous, except INBIO CR1000, 028339; 1 (MUCR), same data as previous, except INBIO CR1000, 028586; 1 (CSCA), same data as previous, except INBIO CR1000, 028372; 1 (WOPC), Est. Cacao, 1000–1400 m, Lado Suroeste del Volcan Cacao, Prov. Guan., tp Malaise, Mar a Ago, 1990, L–N–323300, 375700, INBIO CR1000, 232988; 1 (EMEC), Monteverde, Puntarenas Prov., 1300 m, V-17 to V-20-[19]85, J. A. Chemsak, collector.

Diagnosis. *Quadrophenia mooni* can be distinguished from congeners based on a unique combination of dorsal color and pattern. From *Q. townshendi* it can in most cases be separated by its flavotestaceous pronotal and elytral ground color. From specimens of the uncommon testaceous morph of *Q. townshendi* (and from *Q. entwistlei*, described below) it can be distinguished by its uniformly testaceous antennae and legs.

Description. (Holotype). Length: 9.0 mm. Form: subflattened dorsally, expanded posteriorly. Color: flavotestaceous (pronotum slightly orange-testaceous at middle); mesepisternum, mesosternum laterally, and metasternum, piceous; head, mandibles, a curvate V-shaped spot at pronotal anterior margin, and scutellum, black; elytra with four large black maculae arranged as in Fig. 8; maculae not attaining epipleura laterally. Antennae: terminal antennomere with internal and external/distal emarginations exaggerated, apex prolonged, subacuminate (Fig. 18). Pronotum: sparsely, coarsely but shallowly punctate posteriorly on either side of midline. Elytra: longer than broad (ratio of length to maximum width 9:7); expanded posteriorly; widest at posterior 1/3; surface shining, shallowly roughened, punctures shallow, mostly indistinct, somewhat larger and more densely arranged at sides; minute asetiferous punctations also present; vestiture composed of erect and suberect, rather robust black setae. Abdomen: ventrite 5 broad, hind angles gently rounded, posterior margin broadly, arcuately emarginate; ventrite 6 arcuately rounded posteriorly, very slightly, shallowly inflected at middle of hind margin; tergite 6 semicircularly rounded posteriorly, surpassing hind margin of ventrite 6.

Variation. Length of specimens ranges from 8.0–9.75 mm. The extent and placement of the dorsal black maculae is somewhat variable; the pronotum of some specimens is narrowly darkened posteriorly, and one Costa Rican specimen has the epipleural margin darkened along its length, and the elytral humeral and postmedian maculae connected by a narrow dark streak on either side of the sutural bead. The male pygidium has ventrite 6 with the hind margin rather shallowly, arcuately emarginate at middle.

Distribution. This species is known from the Cordillera de Guanacaste and Cordillera de Tilarán in Costa Rica. It has been collected in cloud forest in Monteverde by beating, and in Malaise traps set between 1000 m and 1400 m elevation on Volcán Cacao.

Etymology. The new species is named for the late Keith Moon, drummer for The Who.

Remarks. *Quadrophenia mooni* is a strikingly similar mimic of several sympatric species of leaf beetle belonging to the genus *Diabrotica* Chevrolat (Chrysomelidae: Galerucinae) (e.g. *D. caveyi* Derunkov, Prado, Tishechkin, Konstantinov (Fig. 22)).

***Quadrophenia entwistlei* Rifkind, new species**

(Fig. 9, 10, 19)

Type material. Holotype, female. Honduras, Yoro, PN Pico Pijol, 14 May 2002, R. Turnbow. The holotype is deposited in CSCA. Paratypes: 1 (WFBM), Honduras, Sta Barbara, nr. Las Vegas, Lago de Yojoa, 3 June 1987, C. & L. Johnson; 1 (JNRC), Guatemala, Izabal, 25 km SE Morales, 900 m, May 31–June 2, 1997, E. Giesbert, J. Monzon.

Diagnosis. This species can be separated from congeners based on its unique pattern of elytral markings (Fig. 9, 10). From the somewhat similarly marked *Q. mooni*, it can be further distinguished by its infusate antennal funicle (antennomeres 3–8), and darkened tibiae.

Description. (Holotype). Length: 10.5 mm. Form: subflattened dorsally, expanded posteriorly. Color: eburneous; pronotal disk, terminal palpomeres, undersides of antennal scape, pedicel and antennomere 3, femora and trochanters, stramineous; antennal club amber; cranium, mandibles, genae and anterior of gula, piceous; antennal funicle, tibiae, tarsi and pronotal and elytral markings (Fig. 9, 10), medium to dark brown. Antennae: terminal antennomere with internal and external/distal emarginations exaggerated, apex subacuminate (Fig. 19). Pronotum: surface shining, sparsely, minutely and shallowly punctulate, very sparsely set with moderately elongate, darkened suberect setae. Elytra: approximately 1.5× longer than broad, broadest at posterior 1/3; surface shining, rather densely but inconspicuously sculpted with shallow punctations, interspersed with evenly spaced minute, asetiferous punctures; vestiture rather sparse (somewhat more closely arranged anteriorly), composed of mostly fine, erect and suberect, infusate setae. Abdomen: ventrite 5 with hind margin broadly, shallowly inflected; ventrite 6 arcuately rounded, posterior margin very slightly inflected at middle.

Variation. The smaller of the two paratypes measures 6.0 mm in length and has the dorsal markings less distinct than in the holotype. It is unclear whether either paratype represents a male specimen, so characterization of the male pygidium will have to await availability of further specimens.

Distribution. The new species is recorded from Honduras and Guatemala.

Etymology. I dedicate this species to the memory of the late John “The Ox” Entwistle, bassist for The Who.

Remarks. As in the case of *Q. mooni*, *Q. entwistlei* appears to be a remarkably close mimic of certain chrysomelid beetles belonging to the genus *Diabrotica*, particularly *D. adelpha* Harold, with which it is sympatric. I have examined a specimen belonging to the genus *Quadrophenia* that agrees in all aspects with *Q. entwistlei*, with the exception of its dorsal elytral sculpturing, which consists of closely set, rather coarse and deep punctations, the raised borders of which form a contiguous reticulated network at the center of the elytral disk. Although some degree of infraspecific variation in surface sculpturing is not unusual in Cleridae, in this instance the rather radically different facies produced in this specimen by the coarsely impressed punctures prompts me to exclude it from the type series, despite its otherwise close similarity, and its collection locality near that of the Honduran holotype.

***Quadrophenia daltreyi* Rifkind, new species**

(Fig. 11, 20)

Type material. Holotype, male. Costa Rica, Cartago, Turrialba–CATIE, May 28–31, 1987, E. Giesbert, coll. Holotype deposited in CSCA. Paratype: 1 (JNRC), Costa Rica, Cartago Prov., Turrialba, 2–8 June, 1967, coll. J. Robertson.

Diagnosis. *Quadrophenia daltreyi* can be distinguished from congeners by its uniquely colored elytra: concolorous, pale sorrel brown with a slightly olive, pearlescent cast (Fig. 11). It can be further separated from sympatric individuals of *Q. mooni* by its bicolored antennae and darkened tibiae, and from unmarked sympatric individuals of *Q. townshendi* by its bicolored antennae.

Description. (Holotype). Length: 9.25 mm. Form: slightly subflattened dorsally, moderately expanded posteriorly. Color: orange-testaceous; cranium, mandibles, genae, anterior gula, and tibiae piceous; antennomeres 4–8, metasternum and tarsi, dark brown; elytra uniformly pale sorrel brown with a slight olive cast. Antennae: terminal antennomeres with internal and external/distal emarginations exaggerated, apex subacuminate (Fig. 20). Pronotum: disk smooth except for a few scattered setae; sides shallowly, feebly rugulose. Elytra: nearly 2× as long as wide; slightly expanded posteriorly, broadest just posterior to middle; surface rather coarsely, moderately densely but shallowly punctate; asetiferous punctures most conspicuous on anterior disk on either side of suture; pubescence inconspicuous, composed of erect, rather robust black setae, intermingled with shorter, suberect black setae, and very few suberect pale setae. Integument with a slight pearlescent luster. Abdomen: ventrite 5 with the hind margin shallowly, broadly emarginate; ventrite 6 smaller than ventrite 5, its sides oblique and hind margin slightly emarginate; tergite 6 with sides slightly obliquely convergent, posterior margin rather broadly subtruncate.

Variation. The single paratype, a female, differs as follows: length 10.25 mm; metasternum orange-testaceous; abdominal ventrite 6 with hind margin subtruncate.

Distribution. *Quadrophenia daltreyi* is known only from the vicinity of Turrialba, Costa Rica.

Etymology. I dedicate this species to Roger Daltrey, lead vocalist for The Who.

Remarks. This species presumably mimics similarly colored species belonging to the chrysomelid genus *Diabrotica*; for example *D. olivieri* Jacoby (Fig. 23).

***Quadrophenia sumidero* Rifkind, new species**

(Fig. 12, 13, 21)

Type material. Holotype, male. Mexico, Chiapas, Sumidero Cyn., 4000', June 15, 1987, E. Giesbert, coll. Holotype deposited in CSCA.

Diagnosis. This is the only member of its genus with the elytra marked by boldly contrasting black and cream-colored bands.

Description. (Holotype). Length: 8.80 mm. Form: subflattened dorsally, slightly expanded posteriorly. Color: piceous; antennomeres 1–3 (in part), labrum, and mouthparts (except mandibles), testaceous; elytra with a broad, irregularly bordered cream-colored fascia at middle, fascia narrowed laterally, then extending in a line anteriorly along epipleural margin to approximately anterior 1/5 (Fig. 12–13); elytral posterior 1/4 also cream-colored. Antennae: terminal antennomere with internal and external/distal emarginations exaggerated; proximal angle of external emarginate plane produced as a short spine, apex subacuminate (Fig. 21). Pronotum: sides rather convex. Elytra: ratio of length to maximum width 17:10, broadest at posterior 4/11; apices subsinuate; surface coarsely, densely,

moderately deeply punctate; asetiferous punctures uniformly dispersed; vestiture sparse, inconspicuous, composed of erect and suberect infusate setae of various lengths. Abdomen: ventrite 5 with hind angles rounded, posterior margin very feebly, arcuately emarginate; ventrite 6 with hind angles broadly rounded, posterior margin with a shallow U-shaped inflection at middle; tergite 6 with hind margin rounded.

Variation. Only the type specimen is known.

Distribution. *Quadrophenia sumidero* is known only from Sumidero Canyon in Chiapas, Mexico. The habitat at the type locality is primarily tropical deciduous forest.

Etymology. The specific epithet references the type locality. It is treated as a noun in apposition.

Remarks. Based on its bold markings, *Quadrophenia sumidero* is presumably a mimic, but I am unable as yet to posit a similar, aposematically patterned sympatric model. Another specimen of *Quadrophenia* from the type locality of *Q. sumidero* is noted here, but not included in the type series because it shows salient differences in habitus that I cannot with confidence attribute to infraspecific variation. This specimen, a male, measures 8.50 mm in length. It differs from the holotype of *Q. sumidero* by having the elytra significantly more dorsoventrally flattened, duller, and more coarsely punctate, and by its coloration: the prosternum, the anterior transverse impression dorsolaterally, and the pronotal collar dorsolaterally are cream-colored; the posterior elytral cream-colored band is reduced to a thin line along the apices.

***Aulicoides* Rifkind, new genus**

(Fig. 14–16)

Type species. *Aulicoides leavengoodi* Rifkind (by monotypy)

Diagnosis. Clerinae. From other New World clerine genera, *Aulicoides* can be distinguished by a combination of small size (<5.0 mm), subflattened body, broad pronotum, rather elongate antennae terminating in a weakly defined capitulum, antennomere 11 without emarginate sides, and elytral surface densely, cribrately punctate. In its general facies, and with its red and black markings, *Aulicoides* resembles some species belonging to the genus *Aulicus* Spinola, but it is easily separated from these by the shape of the mouthparts (all terminal palpomeres securiform in *Aulicus*) and by its lack of an expanded antennal club. The new genus might be confused with similarly colored small individuals belonging to *Perilypus* Spinola, but *Perilypus* species have the pronotum and elytra more elongate, and the elytral punctures are never as coarsely cribrate as in *Aulicoides*.

Description. Form: small (<5.0 mm), rather squat, subflattened dorsoventrally. Head: eyes moderate in size, feebly protuberant, finely faceted; ocular notch triangulate; frons rather shallowly bi-impressed; antennae (Fig. 16) moderately elongate (extending past elytral humeral umbones when laid alongside), without a distinct capitulum, flagellum compressed dorsoventrally, antennomeres 3–6 subconical, antennomeres 7–10 subserrate; antennomere 11 obovate / elongate, subaciculate apically; maxillary palpus with terminal palpomere subconical, rather pointed at apex; labial palpus with terminal palpomere securiform. Pronotum: broader than long (ratio of maximum width to length 17:13), dorsoventrally compressed; sides arcuately expanded behind transverse impression; transverse impression distinct, broadly U-shaped; lateral foveae broad, rather distinct; basal collar rather narrow at middle. Scutellum: rounded posteriorly. Elytra: moderately elongate (ratio of length to maximum width approximately 5:3), broadest at posterior 2/5; humeri rounded, with distinct umbones; sides feebly sinuate at anterior 1/3, feebly expanded posteriorly, then very gradually, arcuately convergent to almost conjointly rounded, slightly dehiscent apices; subbasal tumescences obsolete; disk subflattened above; integument rather coarsely, densely, cribrate-punctate and roughened; punctures not arranged in rows, undiminished posteriorly; raised areas between punctures forming an irregular reticulum;

vestiture moderately dense but inconspicuous. Mesosternum: posterior process narrow, elongate, not elevated distally. Metasternum: anterior process not elevated apically. Abdomen: ventrite 5 broad; hind margin broadly, feebly, arcuately emarginate; ventrite 6 smaller, with hind angles rounded, hind margin subtruncate or feebly inflected at middle; tergite 6 with hind margin moderately narrowly rounded, surpassing posterior margin of ventrite 6; pygidium (male) without setal daggers. Legs: moderate in length; femora rather narrow.

Distribution. Known only from the Mexican state of Jalisco.

Etymology. The generic name makes reference to the new taxon's superficial resemblance to some members of the clerid genus *Aulicus*.

***Aulicoides leavengoodi* Rifkind, new species**
(Fig. 14–16)

Type material. Holotype, male. Mexico, Jalisco, Hwy. 427, 7–14 km S of Sayula, VII-10-2017, beating in tropical deciduous forest, J. Rifkind & E. Martinez, colls. The holotype is deposited in CSCA. Paratypes: none.

Diagnosis. This is the only known member of the genus.

Description. Length: 4.6 mm. Color: reddish-orange; antennomeres 8–11, distal 4/5 of tibiae, proximal 3/4 of metafemora, and tarsi, castaneous; antennal scape, pedicel, antennomere 3 (in part), and antennomeres 4–10 (entirely), tips of mandibles, proximal 1/5 of tibiae and distal 1/4 of metafemora, piceous; mesosternum, metasternum, and abdomen black; pronotum with an hourglass-shaped longitudinal black macula; scutellum black; elytra (Fig. 14) with a pair of large, rectangular black maculae on anterior 1/3, and a pair of large, irregularly margined, slightly oblique black maculae at posterior 1/3, narrowly interrupted at suture internally, and by epipleura laterally. Head: surface shallowly rugulose-punctate; moderately densely but inconspicuously set with fine, pale setae (Fig. 15). Pronotum: surface shining, moderately densely but shallowly punctate, feebly rugulose laterally; vestiture rather sparse, composed of mostly short, suberect, pale and infusate setae. Elytra: surface moderately densely but inconspicuously pubescent; vestiture made up of rather short, fine, pale and infusate suberect setae, with an intermixture of more robust, slightly longer, erect black setae. Metasternum: moderately convex; surface shining, finely punctulate, nearly glabrous at middle. Abdomen: surface shining, integument finely, transversely rugulose, inconspicuously set with fine silvery setae.

Variation. Only the holotype is known.

Distribution. Known from a single locality in southeastern Jalisco state, Mexico. Vegetation at the type locality is tropical deciduous forest.

Etymology. The specific epithet honors John M. Leavengood, Jr., a fellow clerid taxonomist, in recognition of his scientific contributions, and by way of thanks for many professional kindnesses. *Aulicoides* is treated as masculine.

Remarks. *Aulicoides leavengoodi* is a convincing mimic of sympatric malachiine flower beetles (Melyridae) belonging to the genus *Collops* Erichson. *Collops* species are hypothetically excellent models for Batesian mimics: they are commonly found exposed on flowers and vegetation, they are frequently marked aposematically with bold red and black dorsal patterns, and many possess reversible vesicles that presumably are deployed as a deterrent against predators. Some melyrids are known to possess powerful toxins (Dumbacher et al. 2004), although such toxins have not been identified in *Collops* species.

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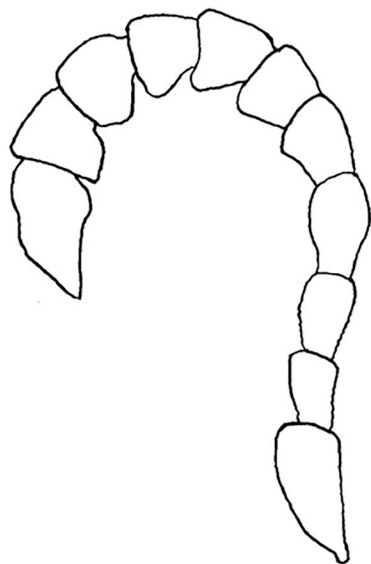
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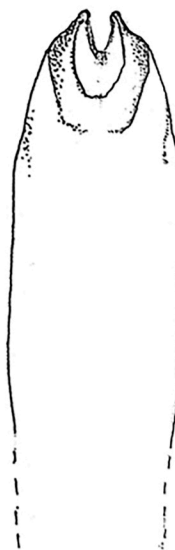
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Figures 1–4. *Namba testacea* and *Aulacoscelis hoegei* anatomy. 1) *Namba testacea* new species, habitus; 2) *N. testacea* antenna, detail; 3) *N. testacea* tegmen, ventral view; 4) *Aulacoscelis hoegei*, habitus.



Figures 5–7. *Quadrophenia townshendi* new species. **5)** habitus of holotype; **6)** habitus of paratype; **7)** habitus of paratype.



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Figures 8–11. *Quadrophenia* n.spp. 8) *Quadrophenia mooni* new species, habitus; 9) *Quadrophenia entwistlei* new species, habitus; 10) *Quadrophenia entwistlei*, lateral view; 11) *Quadrophenia daltreyi* new species, habitus.

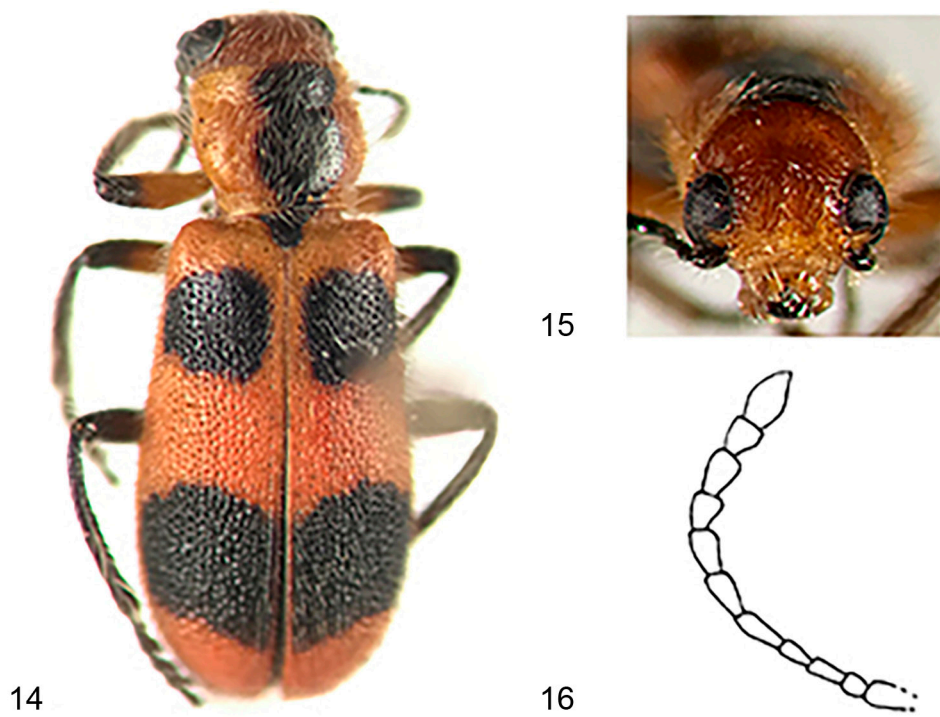


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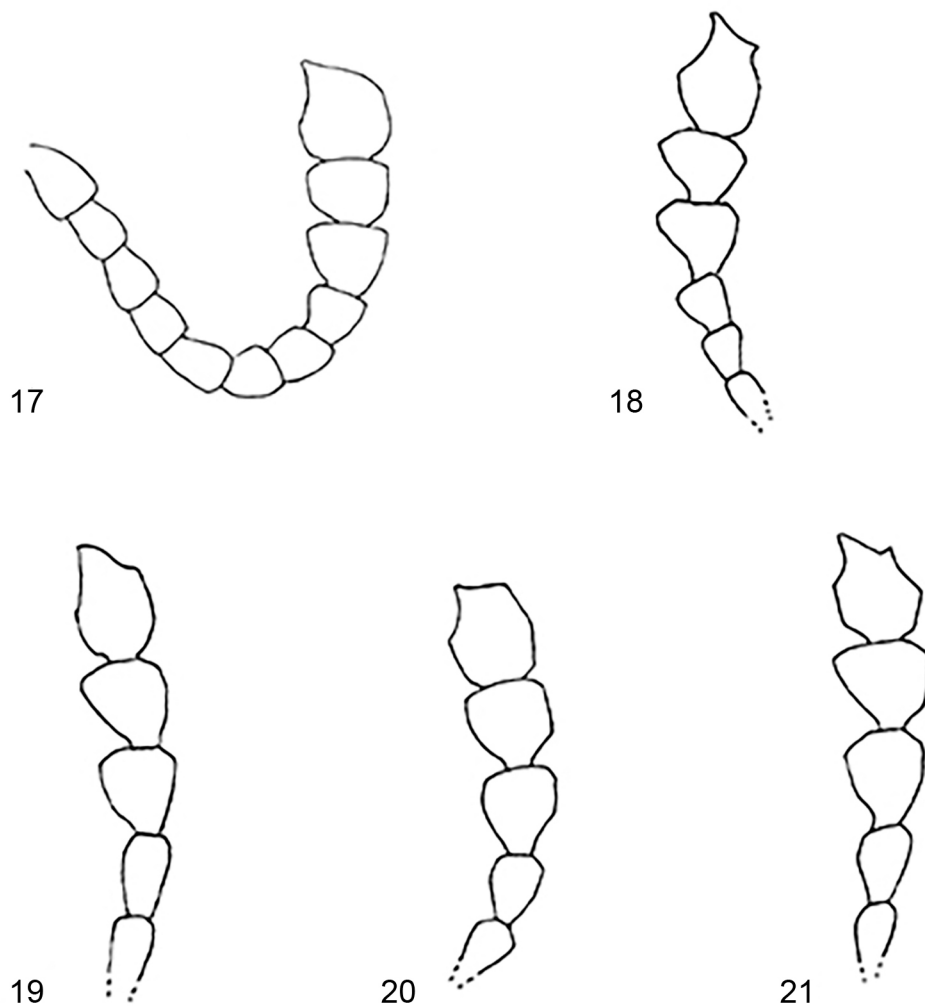


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Figures 12–13. *Quadrophenia sumidero* new species. 12) habitus; 13) lateral view.



Figures 14–16. *Aulicoides leavengoodi* new species. 14) habitus; 15) head; 16) antenna.



Figures 17–21. *Quadrophenia* new genus, antennae of new species. **17)** *Q. townshendi*, antenna; **18)** *Q. mooni*, capitulum; **19)** *Q. entwistlei*, capitulum; **20)** *Q. daltreyi*, capitulum; **21)** *Q. sumidero*, capitulum.