

A revision of the genus *Anisostena* Weise  
(Coleoptera: Chrysomelidae, Hispinae).  
Part III. The pilatei species group

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### Abstract

The pilatei species group of *Anisostena* s. str. is revised. Lectotypes are designated for *A. nunenmacheri*, *A. pilatei*, and *A. trilineata*; *A. mitchelli* is synonymized with *A. arizonica*; *A. confusa* and *A. vittata* are described as new.

**Key words:** *Anisostena*, lectotype, revision, new species.

### Introduction

This is the third in a series of articles revising the genus *Anisostena*. The first article (Staines, 1993) summarized the work on the genus and revised the subgenera *Neostena* and *Apostena*. The second article (Staines, 1994) divided the subgenus *Anisostena* s. str. into three species groups and revised the ariadne species group.

Types were examined for all species except *A. scapularis*. Lectotypes are designated for *A. nunenmacheri*, *A. pilatei*, and *A. trilineata*. In recording the label data from type specimens, a slash (/) divides data on different labels.

Measurements were taken with an ocular micrometer. Pronotal length and width were taken along the midlines. Elytral width was measured at the humeri. Elytral length was measured from the base to apex. Total length was measured from the base of the frontal sulcus to the apex of the elytra.

### The pilatei species group

Members of the pilatei species group are distinguished by the vittate or maculate elytra. Members of this species group are known from Kansas to Argentina.

### Key to the species of the pilatei group

1. Elytra vittate ..... 4  
Elytra maculate ..... *scapularis* Uhmann

2. Pronotum with basal impression ..... 3  
Pronotum without basal impression ..... 6
3. Vertex of head punctate ..... *trilineata* (Baly)  
Vertex of head not punctate ..... 4
4. Antennal segment III distinctly longer than II .  
..... *vittata* New Species  
Antennal segments II and III subequal in length  
..... 5
5. Pronotum wider than long ..... *pilatei* (Baly)  
Pronotum longer than wide .....  
..... *promta fasciata* Maulik
6. Antennal segment II longer than III .....  
..... *suturalis* (Weise)  
Antennal segment III longer than II ..... 7  
Antennal segments II and III subequal in length  
..... 8
7. Faint longitudinal sulcus on pronotal disc; vertex  
of head with median sulcus; pronotum longer  
than wide ..... *nunenmacheri* (Weise)  
Pronotum without longitudinal sulcus; vertex of  
head without sulcus; pronotum wider than long  
..... *gracilis* (Horn)
8. Head with median sulcus faint; punctures present  
near eyes; pronotum longer than wide .....  
..... *promta promta* (Weise)  
Head with median sulcus distinct; no punctures  
near eyes; pronotum wider than long ..... 9

9. Mesofemur serrate; antennal segment II wider than III; frons projecting ..... *confusa* New Species  
 Mesofemur not serrate; antennal segments II and III same width; frons not projecting ..... *arizonica* Schaeffer

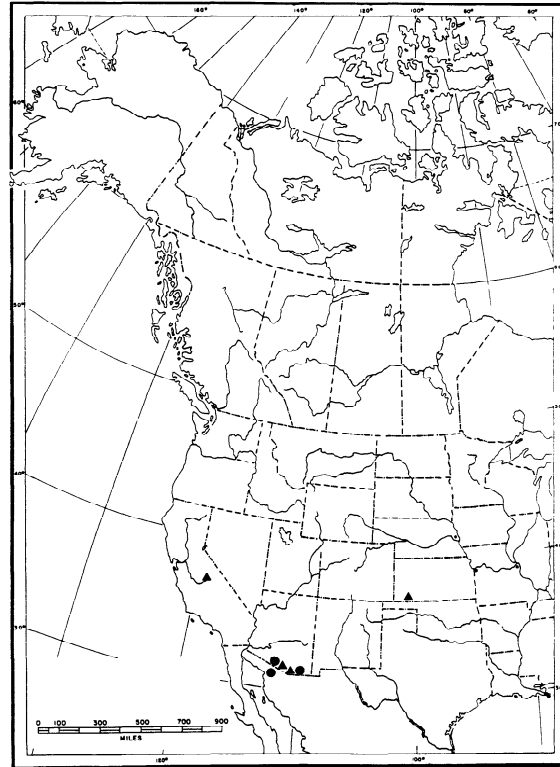
### *Anisostena arizonica* Schaeffer Map 1

*Anisostena arizonica* Schaeffer 1933:103. Holotype: Ari[zona]/ *arizonica* Schaeffer Coll. Holotype, 1935 Barber/ Charles Schaeffer Collection/ HS Barber Bequest 1950/ *Anisostena arizonica* Schaeffer (USNM). Papp 1953:58; Uhmman 1957:73; Wilcox 1975:140.

*Anisostena mitchelli* White 1939:55; Papp 1953:59; Uhmman 1957:74; Wilcox 1975:140. NEW SYNONYMY.

**Description:** Body color brown with dark sutural vitta. Head: median sulcus present; sulcus on inner margin of each eye; vertex micropunctate. Antennae brown, segments I-III lighter than rest; segment I subglobose; segments II- III cylindrical, subequal in width and length; IV-X transverse, VII-X wider than preceding; XI pointed at apex; frons projecting at base of antennae; frons punctate; apical margin of clypeus darkened; sides of head alutaceous. Pronotum: apical margin black; alutaceous between punctures; covered with large, shallow punctures; margined laterally; basal margin bisinuate; longer than wide; basal impression absent; lateral margins divergent from base to apex; no tooth in anterior angles; length 0.7 mm (n=4); width 0.7-0.9 mm (avg. 0.8). Scutellum: black; quadrate; alutaceous. Elytra: sutural vitta reaches puncture row 1; scutellar row of 3 punctures; elytral punctures in adjacent rows overlap or touch; lateral and apical margins smooth; apices individually rounded; intervals 2, 4, and 6 costate, interval 6 most pronounced; intervals 2 and 6 unite on apical fifth, 4 does not attain union by the diameter of three punctures; length 2.4-2.8 mm (avg. 2.6); width 1.0-1.3 mm (avg. 1.1). Legs: brown; tibia with ring of setae at apex; femur darker at apex, mesofemur not serrate on inner margin; last tarsal segment dark. Venter: prosternum brown; meso-, and metasterna black, alutaceous; abdomen brown. Total length: 3.6 mm (avg. 3.4).

**Larval host plant:** unknown.



**Map 1.** Distribution of *Anisostena* species: *arizonica* (triangles), *nunenmacheri* (squares).

**Distribution:** Arizona, California, and Mexico.

**Specimens examined:** MEXICO: Nuevo Leon: 29 km W. Linares, 2400 ft., 3-VI-1983 (ISAC). UNITED STATES: Arizona: no further data (USNM). Pima Co.- Arivaca, 26-VII-1941 (SEMC). St. Cruz Co.- 3 mi. E Pena Blanca, 19-20-VII-1978 (AJGC); Ruby, 13-VII-1940 (SEMC); Sycamore Can., 4000, 11-IV-1970 (USNM). California: Inyo Co.- Lone Pine, 2-V-1937 (CASC). Kansas: Barbour Co.- 1468 ft., 1916 (SEMC). Texas: Jeff Davis Co.- H. O. Canyon, Davis Mts., 5-VII-1968, 6200 ft. (TAMU). Total: 11.

Specimens collected in dry oak forest.

### *Anisostena confusa* new species

#### Map 2 Figure 1

**Types:** Holotype: Guayana Francesa/ F. Monros Collection 1959/ Holotype *Anisostena confusa* Staines, det. C. L. Staines 1990 (red label) (USNM). Paratype (male):

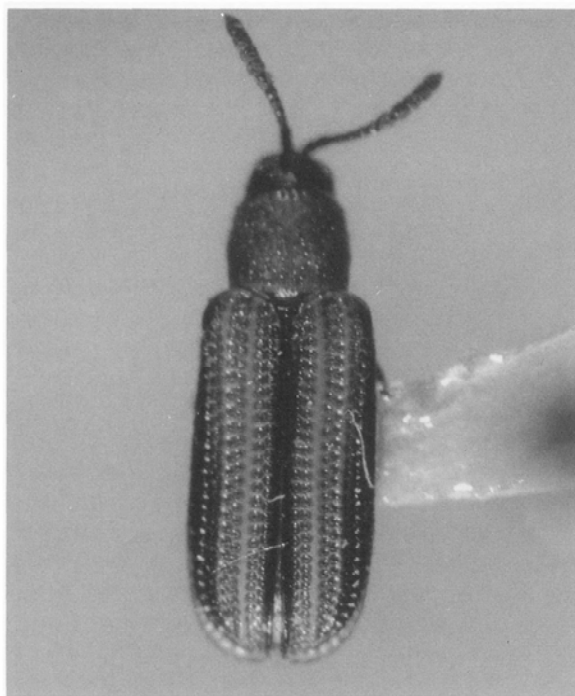


Figure 1. Habitus of *Anisostena confusa*.

Ecuador: Guayas Prov., San Antonio, sea level, 3 km S Manglaralto, 12 Feb. 1987, K. A. Johnson colr./Paratype *Anisostena confusa* Staines, det. C. L. Staines 1989 (red label) (CLS). Paratype: Ven[e]zuela, Bolívar, 520 Guri Dam, 16-XI-1974, M. Murlaugh/ Paratype *Anisostena confusa* Staines, det. C. L. Staines 1989 (red label) (DEFW). Paratype: Mexico: Morelos, 4.4 mi. E. Cuernavaca, July 6-8, 1974, Clark, Murrery, Ashe, Schaffner/ Paratype *Anisostena confusa* Staines, det. C. L. Staines 1990 (red label) (TAMU). Paratype: 2 mi. se. Tecoman, Col., Mex., VII-20-66, P. M. & P. K. Wagner/ Paratype *Anisostena confusa* Staines, det. C. L. Staines 1990 (red label) (TAMU).

**Description:** Head: black; median sulcus present; vertex alutaceous; sulcus present on inner margin of each eye; row of punctures present on outer margin of each eye; frons and clypeus reddish; frons projecting at base of antennae. Antennal segment I subglobular; II-III cylindrical, II wider than III, subequal in length; IV-VI transverse, decreasing in length; VII-X transverse, wider than preceding, with setae; XI hirsute, pointed at apex; I-VI punctate. Pronotum: yellow, apical margin darkened; basal margin bisinuate; margined laterally; small tooth in anterior angles; covered with large punctures; surface between punctures alutaceous; length 0.7 mm (n=5); width 0.9 mm. Scutellum: black;

quadrate; alutaceous. Elytra: yellow with black sutural and lateral vittae; sutural vitta reaches to 1st puncture row; lateral vitta from lateral margin to 6th interspace; scutellar row of 2 punctures; intervals 2, 4, and 6 costate, 2 and 6 unite on apical fifth, 4 does not attain union by the diameter of a puncture; punctures touching or overlapping those in adjacent rows; lateral margins sparsely serrate; apical margin dentate; surface between punctures alutaceous; length 2.7-2.8 mm (avg. 2.75); width 1.1-1.3 mm (avg. 1.2). Venter: prosternum yellow; meso- and metasterna yellow in middle, dark laterally; abdominal sterna 1-2 yellow in middle, dark laterally; 3-5 brownish. Legs: femur yellow at base, dark for apical two-thirds, punctate; tibia dark, tuft of setae on inner apical margin; mesofemur serrate on inner margin; tarsi dark. Total length: 3.6 mm.

**Larval host plant:** unknown.

**Distribution:** Ecuador and Venezuela.

**Specimens examined:** **ECUADOR:** Guayas Prov.- San Antonio, 3 km S Manglaralto, 12-II-1987 (USNM). **FRENCH GUYANA:** no further data (USNM). **MEXICO:** Colima - 2 mi. SE Tecoman, 20-VII-1966 (TAMU). **Morelos-** 4.4 mi. E Cuernavaca, 6-8-VII-1974 (TAMU). **VENEZUELA:** Bolivar, 520 Guri Dam, 16-XI-1974 (DEFW). Total: 5.

### *Anisostena gracilis* (Horn)

#### Map 3

*Charistena gracilis* Horn 1883:298. Holotype: Columbus, Texas, 21/V/ MCZC type no. 8217 (MCZC).  
*Anoplitis gracilis* (Horn). Weise 1911a:22, 1911b:33; Leng 1920:303; Uhmman 1957:78.  
*Odontota gracilis* (Horn). Butte 1969:14.  
*Sumitrosis gracilis* (Horn). Wilcox 1975:141.  
*Anisostena gracilis* (Horn). Staines 1987:319; Noguera 1988:285.

**Description:** Body color orange-red or yellowish with black sutural vitta. Head: vertex micropunctate; median sulcus absent; frons not projecting at base of antennae; sulcus on inner margin of each eye; row of punctures on outer margin of each eye; eyes slightly protruding, finely faceted; interocular space concave; interantennal keel present. Antennae with last five segments expanded, segment I subglobose, orangish-red; II transverse, scattered setae present, orange-red, wider than III; III cylindrical, scattered setae present, reddish-brown,

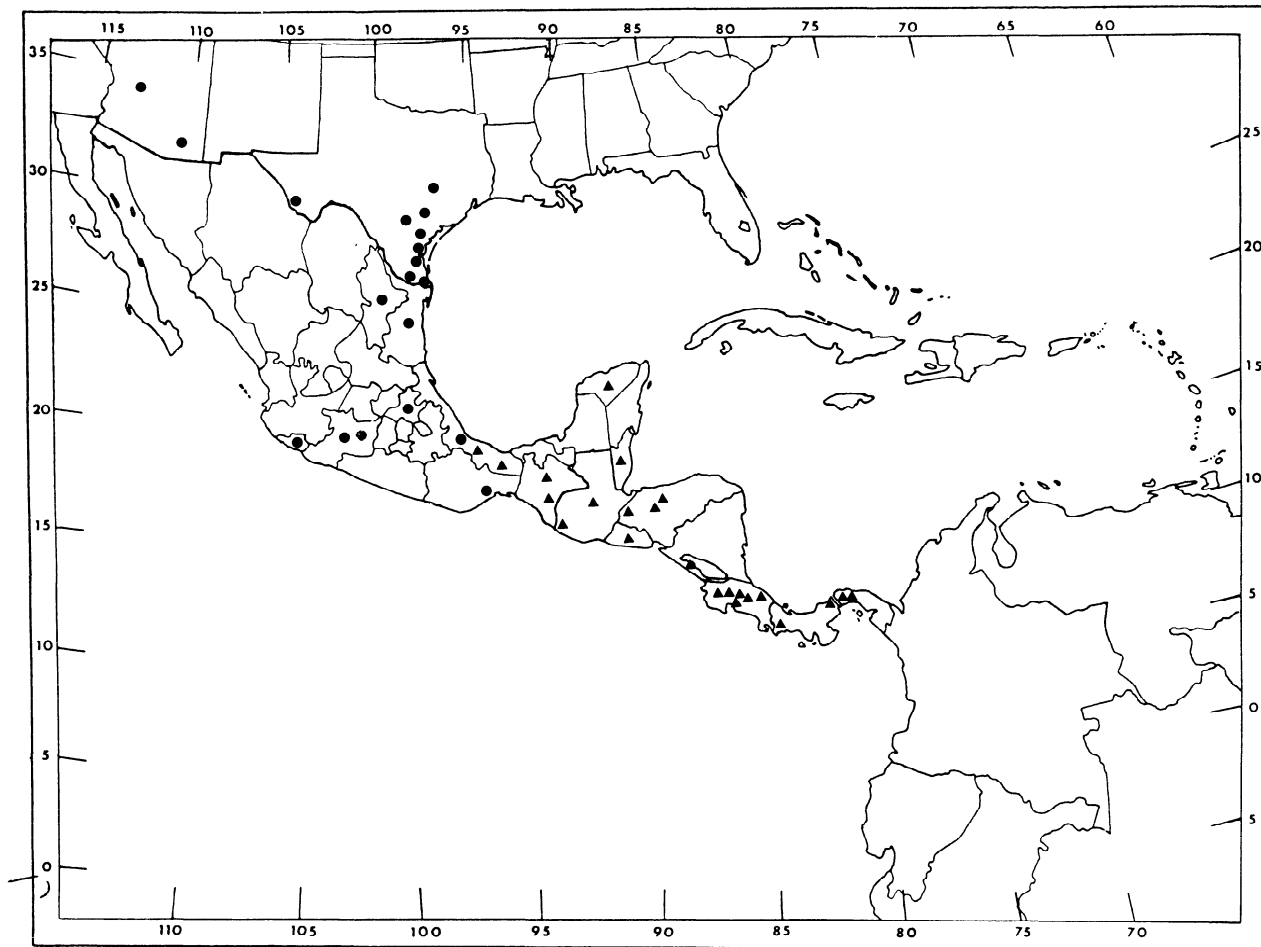


**Map 2.** Distribution of *Anisostena confusa*.

longer than II; IV-VI transverse, with scattered setae; VII-X transverse, hirsute; XI acutely pointed at apex, hirsute. Pronotum: convex; wider than long; width 0.7 to 0.9 mm (avg. 0.78, n=26), length 0.7 to 0.8 mm (avg. 0.72); lateral margins feebly arcuate; disk smooth; margins with scattered large, deep punctures; basal margin bisinuate; sides not emarginate. Scutellum: wider than long; quadrate; black; alutaceous. Elytra: parallel-sided, not widened apically; margin finely serrulate; elytral intervals and space between punctures alutaceous; sutural row of 2 punctures; intervals 2, 4, and 6 costate, 2 and 6 unite on apical fifth; black vitta

from suture to second puncture row; lateral margin usually with black vitta on basal half that at base reaches seventh puncture row, narrows apically; width 1.0 to 1.2 mm (avg. 1.1); length 2.3 to 3.0 mm (avg. 2.56). Venter: orange; alutaceous; some punctures laterally. Legs: orange; tarsi and apex of tibiae darker; femur punctate, mesofemur not serrate on inner margin; tibiae with tuft of setae at apex. Total length: 3.0 to 3.7 mm (avg. 3.28).

**Larval host plant:** *Panicum maximum* (Graminae) (Noguera, 1988).



**Map 3.** Distribution of *Anisostena* species: *gracilis* (circles), *pilatei* (triangles).

**Distribution:** Southern Texas and Arizona and Mexico.

**Specimens examined:** **MEXICO:** Colima - Santiago Bay, 27-VIII-1953 (UMMZ). Hidalgo - Hwy 85, 42 mi NW Jacala, 2500 ft., 24-VII-1982 (EGRC). Jalisco - Carr. Barra Navidad-Pro. Vallarta, km 60, 18-IX-1985; Estacion de Biologia Chamela, 22-VIII-1985, 19-VIII-1985 (UNAM). Michoacan - Apatzingan, 330 m., 22-VII-1947 (UMMZ). Nayarit - Tepic, 24-III-1964 (CDFA). Nuevo Leon - Hwy 58, 15 mi W Linares, 1800 ft., 21-VII-1983 (EGRC). Oaxaca - Tehuantepec, 17-VIII-1963 (AJGC). Tamaulipas - Botcatoma, 7 km SSE Gomez Farias, 19-23-V-1979, 25-30-III-1978 (EGRC); El Cielito nr. Encino, 28-30-VIII-1985 (EGRC). Vera Cruz - hwy 180, S Vera Cruz, seashore, 21-VIII-1982 (EGRC). **UNITED STATES:** Arizona: Baboquivari Mts., 18-VII-1932 (SEMC); Huachuca Mts., 5000 ft., 14-VI-1928 (UAIC); Sta. Rita Range Res., 12-VIII-1949 (UAIC); Sycamore Cn., nr. Ruby, 6-VIII-1978 (UAIC). Pima Co.- 18 P Plot, 27-VIII-1971 (CUCC). Yavapai Co.- Oak Creek

Canyon, 9-VII-1941 (SEMC). Texas: Brazos Co.- Carters Ck. @ Hwy. 30, College Station, 3-VII-1973 (TAMU). Cameron Co.- Brownsville, 6-VII (USNM), 29-VI-1938, 3-VII-1938 (SEMC), 15-III-1980 (TAMU), 29-XII-1945 (INHS); Sabel Palm Grove Sanct., 4-X-1986 (EGRC); vicinity Southmost School, 1-V-1979 (UGCA); Sabel Palm Grove, 30-V-1981, 18/V/1979 (EGRC). Colorado Co.- Columbus, 21-V (MCZC). Gonzales Co.- Palmetto St. Pk., 3-IV-1969, 15-IV-1972 (TAMU). Hidalgo Co.- Bentsen-Rio Grande St. Pk., 11-VI-1975 (EGRC), 10-VI-1975 (UGCA), 20-IV-1985 (TAMU); Delta Lake Co. Pk., 27-28-III-1986 (EGRC); Mission, 26-XII-1945 (SEMC); Santa Ana Nat. Wldf. Refuge, 2-V-1987 (EGRC). Kleberg Co.- Kingsville, King Ranch, 24-VII-1961 (TAMU). Presidio Co.- Plata, 24-VIII-1969 (TAMU). San Patricio Co.- 4 mi. SW Mathis, 19-IV-1964 (TAMU); Welder Wldf. Refuge, 12-13-X-1988 (TAMU). Victoria Co.- Victoria, 25-V-1907 (USNM). Total: 66.

*Anisostena nunenmacheri* (Weise)

## Map 1

*Charistena nunenmacheri* Weise 1907:206. Lectotype (here designated): Nogales, St. Cruz Co., IX.18.06, Ariz./ coll'd by F. W. Nunenmacher/ 105503/ Typus (orange label)/ I. Weise det./ Zool. Mus. Berlin/ *Anisostena nunenmacheri* m/ *Charistena nunenmacheri* m (reversed)/ Lectotype *Anisostena nunenmacheri* (Weise) designated C. L. Staines, Jr. 1989 (red label) (ZMHB). Paralectotypes (here designated): five with exact same labeling as lectotype except last label is Paralectotype (ZMHB); one with same labels as lectotype plus a label- *Anisostena nunenmacheri* Ws., Uhmman 1959 (ZMHB); two with the same first three labels then- *nunenmacheri* Weise, Paratype, C. Schaeffer coll. 1935 Barber/ Charles Schaeffer Collection/ HSBBarber Bequest 1950/ *Anisostena nunenmacheri* (folded) (USNM). All paralectotypes have a red label- Paralectotype *Anisostena nunenmacheri* (Weise) designated C. L. Staines, Jr. 1989.

*Anisostena nunenmacheri* (Weise). Weise 1911a:22, 1911b:33; Leng 1920:303; Papp 1953:59; Uhmman 1957:75; Wilcox 1975:140.

**Description:** Overall color reddish-brown, elytra usually with a black sutural vitta. Head: median sulcus present, deep, extends to between antennae; vertex impunctate, alutaceous; frons not projecting. Antennal segments I- VI punctate, glabrous; VII punctate with setae at apex; VIII-XI hirsute; III longer than II; II transverse; III cylindrical; IV-VI transverse; VII- X wider; XI acutely pointed at apex. Pronotum: parallel-sided, convex; covered with scattered large punctures, more dense laterally, punctures separated by more than the diameter of a puncture; longer than wide; margined laterally; basal impression absent; faint longitudinal sulcus on disc; surface alutaceous; length 0.6-0.8 mm (avg. 0.8) (n=11); width 0.7- 0.8 mm (avg. 0.7). Scutellum: black; quadrate; alutaceous. Elytra: scutellar row of 2 punctures; black sutural vitta reaching interval 1; anterior half of lateral margin black; lateral and apical margins smooth; intervals 2, 4, and 6 costate, none strongly produced; intervals 2 and 6 unite on apical fifth, 4 does not attain union; apical angles conjointly rounded; length 2.1-2.7 mm (avg. 2.4); width 0.8-1.0 mm (avg. 1.0). Legs: reddish-brown; mesofemur not serrate on inner margin. Venter: pro-, mesosterna, and abdomen reddish-brown, metasternum black. Total length: 2.8-3.4 mm. (avg. 3.1).

**Larval host plant:** unknown.

**Distribution:** Arizona and northern Mexico.

**Specimens examined: MEXICO: Sonora:** Maicova River, west of Maicova, 21-VIII-1986 (SMC). **UNITED STATES: Arizona:** Sta. Rita Mts., 5- X-1936 (INHS). Pima Co.- Sahurita, 5-VII-1956 (UAIC). Santa Cruz Co.- Nogales, 18-IX-1906 (USNM, ZMHB); Santa Rita Mts., 21-VI-1935 (UAIC); Santa Rita Mts., Madera Cyn., 19-V-1968 (FSCA). Total: 14.

*Anisostena pilatei* (Baly)

## Map 3

*Charistena pilatei* Baly 1864:254. Lectotype (here designated): E. Coll. Chev. (reversed)/ Teapa/ 67.56/ Syntype (white disk with blue border)/ Syntype *Charistena pilatei* Baly/ Lectotype *Anisostena pilatei* (Baly) designated C. L. Staines 1989 (red label) (BMNH). Two paralectotypes (here designated): Teapa ex coll. Baly/ Syntype (white disk with blue border)/ Syntype *Charistena pilatei* Baly/ Paralectotype *Anisostena pilatei* (Baly) designated C. L. Staines 1989 (red label) (BMNH); Teapa Tilata/ E. Coll. Chev./ 931/ 67.56/ Syntype (white disk with blue border)/ Syntype *Charistena pilatei* Baly/ Paralectotype *Anisostena pilatei* (Baly) designated C. L. Staines 1989 (red label) (BMNH). Baly 1885:46; Donckier 1899:584.

*Chalepus pilatei* (Baly). Gemminger & Harold 1876:3614. *Anisostena pilatei* (Baly). Weise 1910:123, 1911a:22, 1911b:33; Uhmman 1938:71; Blackwelder 1946:724; Papp 1953:59; Uhmman 1957:75, 1964b:414; Wilcox 1975:140.

*Anisostena diversecostata* Pic 1932:21; Uhmman 1938:71.

**Description:** Vertex of head and elytral vittae shining aeneus green, pronotum and elytral background orangish-red. Head: vertex aeneus, frons orangish-red, projecting at base of antennae; vertex micropunctate; median sulcus not extending onto vertex; sulci on inner margin of each eye; row of punctures on outer margin of each eye; interocular area reddish. Antennae dark, except segment I which is reddish; segments VI-XI with setae, I-VI rugose; segment I subglobular; II and III cylindrical, subequal in length; IV-VI transverse, decreasing in length; VII-X transverse, wider than preceding; XI pointed at apex. Pronotum: apical margin darkened; covered with large scattered punctures, more dense laterally; basal transverse impression present; widest in middle; length 0.7-0.9 mm. (avg. 0.7, n=30); width 0.7-1.0 mm (avg. 0.8). Scutellum:

quadrate; greenish-black, micropunctate. Elytra: scutellar row with 3 punctures; sutural vitta extends to interval 2; lateral vitta embracing humerus, includes intervals 5-8; vittae usually unite on apical fifth; intervals 2, 4, and 6 costate; intervals 2 and 4 not strongly produced; 6 strongly produced; intervals 2 and 6 unite on apical fifth, 4 does not attain union by the diameter of a puncture; lateral margins parallel for basal third, then divergent; apical margins serrate, orangish-red; width 1.0-1.4 mm (avg. 1.2); length 2.1-3.1 mm (avg. 2.6). Legs: orangish-red except at joints and tarsi, which are black; femora punctate, mesofemur not serrate on inner margin. Venter: orangish; rugose at sides. Total length: 2.7-4.0 mm (avg. 3.4).

**Larval host plant:** unknown.

**Distribution:** southern Mexico to Panama.

**Specimens examined:** [?] "Pty: Eican, Grejo, 7-VII-1970" (CHAH). **BELIZE:** M-tee Dist., 18-V-1906 (USNM). **COSTA RICA:** Barranca, nr. Puntarenas, 25-VIII-1954 (CASC); Bataan, 16-VI-1951 (USNM); Cartago Prov., Turrialba, 4-13-VIII-1970 (BPBM); Guan., La Pacifica nr. Cañas, 22-26-V-1984 (EGRC); Heredia Pr., La Selva Biol. Sta., 3 km S Pto. Viejo, 10° 26' N, 84° 01' W, 25-III-1988 (CHAH); Limon, La Perla, 10 mi. NE Siquirres, Rio Pacuare, 21-VI-1972 (TAMU); Juan Viñas, 900 m (USNM); La Caja, X-1930, XII-1929 (USNM); Palmar Sur, 9-I-1973 (NDSU); Port Limon, 9-V-1929 (MCZC); Prov. Guanacaste, 5 km NW Canas, Hotel la Pacifica, 9-XI-1980 (AJGC); Prov. Heredia, Finca la Selva Verde, 12 km S. Puerto Viejo, 500 ft., 23-26-IX-1986 (FCSA); Puntar, Manuel Antonio NP, 26-VIII-1986 (CLS); San Jose, 27-VI-1925 (ICCM); Turrialba (USNM), 12-I-1973 (NDSU). **EL SALVADOR:** Quezaltepeque, 500 m, 19-VI-1963, 15-VII-1963, 5-VII-1963 (CASC); Santa Tecla, 4-VI-1959 (USNM). **GUATEMALA:** Nueva Concepcion, 50 ft., 17-VIII-1963 (CASC); 4 mi E Retalhuleu, 4-IX-1972 (USNM). **HONDURAS:** La Ceiba (USNM), 22-X-1916 (USNM), 24-X-1916, 19-XII-1916, 22-III-1916, 14-VIII-1916 (USNM); La Lima, 1958 (CUIC); Liberia, Progreso, 19-VIII-1983 (EGRC); 3 mi. W Progreso, 19-VIII-1983 (EGRC); Ola., 5 mi. SE Catacomus, 13-VI-1974 (EGRC); Teguelgalpa, 31-III-1917 (USNM). **MEXICO:** Chiapas - Parque Nacional El Aguacero, 23-V-1987 (EGRC); Tapachula, 6-IX-1980 (TAMU). **Vera Cruz** - Cordoba (CASC); El Palmar, 16 km W Tetzonapa, 9-15-VI-1948 (UAIC); 42 km S Vera Cruz, 25-IV-1973 (USNM). **Yucatan** - 10 km N Pisté, 10-IV-1983 (EGRC). **NICARAGUA:** 5.5 mi NE Nandaime, 24-VIII-1972 (USNM). **PANAMA:** Almirante, S.4.38 (USNM); Colon, 1959 (USNM); Taboga Isl., 19-19 (USNM). Canal Zone- Ancon, 19-21-VIII-1970 (BPBM); Barro Colorado 1938 (USNM); Cerro Azul, 24-XI-1961

(UICM); Colon Pr., 'Achiote Road', 4 km NW Escobol, 9° 10' N 80° 00' W, 12-VI-1977 (CHAH); Coco Solo, 9° 22' N, 79° 53' W, 30-VII-1978 (CHAH); Diablo Heights, 1-II-1971, 5-II-1971, 26-V-1971, 6-II-1971, 25-IX-1971, 23-X-1971, 18-V-1971, 24-IV-1971 (EGRC); Gamboa, 17-VII-1918, 23-IX-1946 (USNM), 18-VI-1976 (EGRC); N shore Gatan Lake, 17-V-1985 (AJGC), 8-VI-1976 (EGRC); Fort Kobbe, 15-VI-1976 (USNM), 18-V-1985 (AJGC), 8-VI-1976 (EGRC); Gatun, 22-VIII-1970 (BPBM); Kobe Beach, 23-VIII-1970 (BPBM); Para Grass Mindi Dairy Farm, 10-VII-1918 (USNM); Pueblo Buevo, 4 mi from Panama City, Papaya Plantation, 26-VIII-1918 (USNM); Tank Hill nr. Albroke Field, 8-V-1971, 16-VI-1976 (EGRC); Jct. K-9 & K-6 rds., 9-VI-1976 (EGRC). Total: 127.

### *Anisostena prompta prompta* Weise Map 4

*Anisostena prompta* Weise 1910:125. Holotype: S. Paulo, Ihering (green label)/ 105496/ Typus (orange label)/ I. Weise det/ Zool. Mus. Berlin/ *Anisostena prompta* m (ZMHB). Weise 1911a:22, 1911b:32; Spaeth 1937:144; Blackwelder 1946:725; Uhmman 1948:14; Papp 1953:59; Lima 1955:309; Uhmman 1957:75, 1964a:17, 1964b:414.

*Anisostena prompta* Weise. Uhmman 1932:36; Maulik 1937:135; Uhmman 1938:71; Monrós & Viana 1947:202.

**Description:** Head black, pronotum orangish-red with black maculae on disc and lateral margins, elytra orangish-red with black vittae from humeral angle to lateral margin. Head: black, shining; median sulcus faint; vertex alutaceous; front and frons red; frons projects forward; antennae black; clypeus smooth; vertex with punctures near eyes; sulcus on inner margin of each eye; row of punctures on outer margin of each eye; side of head alutaceous. Antennal segments punctured; segments I-II subglobular; III-IV cylindrical, II-III subequal in length; V-X transverse, becoming progressively wider; XI acutely pointed at apex. Pronotum: orangish-red with central black macula on disc and central black macula on lateral margins; convex; longer than wide; lateral margins evenly arcuate; basal margin bisinuate; disc densely punctured, punctures separated by less than diameter of a puncture; surface between punctures alutaceous; basal impression absent; length 0.9 mm (n=2); width 0.9 mm. Scutellum: black; alutaceous; trapezoidal. Elytra: parallel-sided; 8 puncture rows plus scutellar row of 2 punctures; intervals 2, 4, and 6 costate, 2 most pronounced, 4 and 6 less produced, all unite on

apical fifth; elytral vitta begins at fourth interval and continues to lateral margin; apices black; humeral angles produced; lateral margin indistinctly serrulate, apical margin distinctly serrulate; length 3.3-3.6 mm (avg. 3.45); width 1.1-1.3 mm (avg. 1.2). Venter: prosternum reddish-yellow; mesosternum orangish-red in middle, black at sides; metasternum black, rugose at sides; abdominal sterna, except for last three and apical half of preceding orangish-red, others black. Legs: orangish-red except for tarsi and apex of tibiae which are black; tibiae with fringe of setae at apex; mesofemur not serrate on inner margin. Total length: 4.3-4.4 mm.

**Larval host plant:** *Panicum leucophaeum* H. B. & K. (Gramineae).

**Distribution:** Argentina, Paraguay, and Brazil.

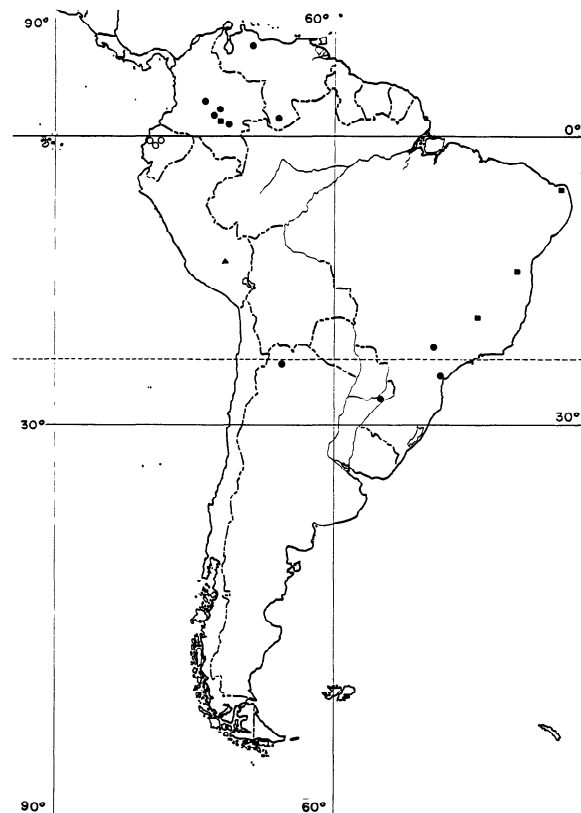
**Specimens examined:** ARGENTINA: Misiones - Loreto (USNM), IX-1953 (USNM); Puerto Iguazu, 16-XI-1988 (JW); Dep. Concep., Sta. Maria, X-1946 (USNM). BRAZIL: Minas Gerais, Sete Logoas, IPEACO, 16-VI-1974 (FSCA); Sao Paulo (ZMHB), 5-I-1974 (CNC). COLOMBIA: Apiay, Meta, 14-VII-1965 (USNM); Guayabetal Cundinamarca, 14-VII-1965 (USNM); Peralonso Caño, Pachiaquiari, Meta, 4-IX-1965 (USNM); Villavicencio, Meta, 18-IX-1965, 2-X-1965, 4-XII-1965 (USNM). VENEZUELA: Cojedes, 10 km E. Apartaderos, 15-III-1982 (USNM); Exp. Territ. Amazonas, Puerto Ayacucho, 15-VI-1950 (USNM). Total: 26.

### *Anisostena promta fasciata* Maulik Map 4

*Anisostena fasciata* Maulik 1930:87. Holotype: Type (white disk with red border)/ Brazil, Bahia, 1928, on grasses, Dr. G. Bondar, 1131/ Pres. by Imp. Bur. Ent. Brit. Mus. 1929-178 (reversed)/ *Anisostena fasciata* M., S. Maulik 1928 Type (BMNH). Paratypes: three with same data as holotype except first label- Paratype (white disk with yellow border) (BMNH).

*Anisostena promta fasciata* Maulik. Uhmman 1932:36; Lima 1955:209; Uhmman 1964a:17.

**Description:** Head black, pronotum yellow with black maculae, elytra black with yellow vittae. Head: median sulcus present; sulcus on inner margin of each eye; row of punctures on outer margin of each eye; vertex alutaceous. Antennal segment I subglobose, punctate; II-III cylindrical, subequal in length; IV-VI transverse, decreasing in length; VII-



**Map 4.** Distribution of *Anisostena* species: *promta promta* (closed circles), *promta fasciata* (squares), *scapularis* (triangles), *vittata* (open circles).

X transverse, wider than preceding; XI pointed at apex; VII-XI hirsute; area between eyes and frons yellow; clypeus black. Pronotum: yellow with central black macula; black macula on lateral margins; covered with coarse, deep punctures; prebasal impression present; basal margin bisinuate; apical margin darkened; lateral margins parallel for basal three-fourths then weakly convergent; small tooth in anterior angles; length 0.8-1.0 mm (avg. 0.8, n=6); width 0.7- 0.9 mm (avg. 0.75). Scutellum: black; quadrate. Elytra: black, yellow vitta from interval 1 to 4th puncture row, extends from base to apex; apical margins dentate; lateral margins serrate; 8 regular puncture rows plus scutellar row of 2 punctures; intervals 2, 4, and 6 costate, all raised; all unite on apical fifth; length 3.4-4.0 mm (avg. 3.7); width 1.1-1.3 mm (avg. 1.2). Legs: femur yellow, apex dark; tibia and tarsi dark. Venter: prosternum yellow; meso- and metasterna yellow in middle, dark laterally; abdomen yellow except



last three segments which are dark. Total length: 4.1- 4.7 mm (avg. 4.3).

**Larval host plant:** unknown.

**Distribution:** Brazil to Colombia.

**Specimens examined:** **BRAZIL:** Bahia, 1928 (BMNH); Minas Gerais, Damantina, 4-III-1956 (USNM); Muri Est. do Rio, 1000 m, 26-XII-1949 (USNM); Natal, Rio Grande do Norte, 24-X-1951 (USNM); Rezende Estado de Rio, Feb. 1924 (BPBM). **COLOMBIA:** Peralonso, Cano Pachiaquiari, Meta, 4-IX-1965 (USNM). Total: 11.

### *Anisostena scapularis* Uhmann

#### Map 4

*Anisostena scapularis* Uhmann 1964a:734. (Type not seen, deposited in Museum G. Frey). Gaedike & Döbler 1971:359.

**Description:** Body black with two yellow maculae on pronotum and yellow markings on each elytron. Head: vertex micropunctate; row of punctures behind eye; median sulcus present. Antennal segment I subglobular; II-III cylindrical, III longer than II; IV-VI transverse, decreasing in length; VII-X transverse, wider than preceding; XI pointed at apex. Pronotum: weakly transverse; lateral margins almost parallel; disc impunctate; weak impression near base; black with yellowish maculae on lateral margins; tooth in anterior angles; length 1.4 mm (n=2); width 1.14 mm. Scutellum: quadrate. Elytra: apices individually rounded; black markings at base reach interval 2, gradually expand outward until after middle, then expand rapidly so that basal third all black, rest of elytra yellow; scutellar row of 2 punctures; lateral margin dentate, more so at apex; intervals 2, 4, and 6 costate, all raised; width 1.5 mm; length 2.3-2.4 mm. Legs: base of femur yellow, rest black. Total length: 4.7-4.85 mm.

**Larval host plant:** unknown.

**Distribution:** Peru.

**Specimens examined:** PERU: no further data (MZLU). Total: 2.

### *Anisostena suturalis* (Weise)

#### Map 5

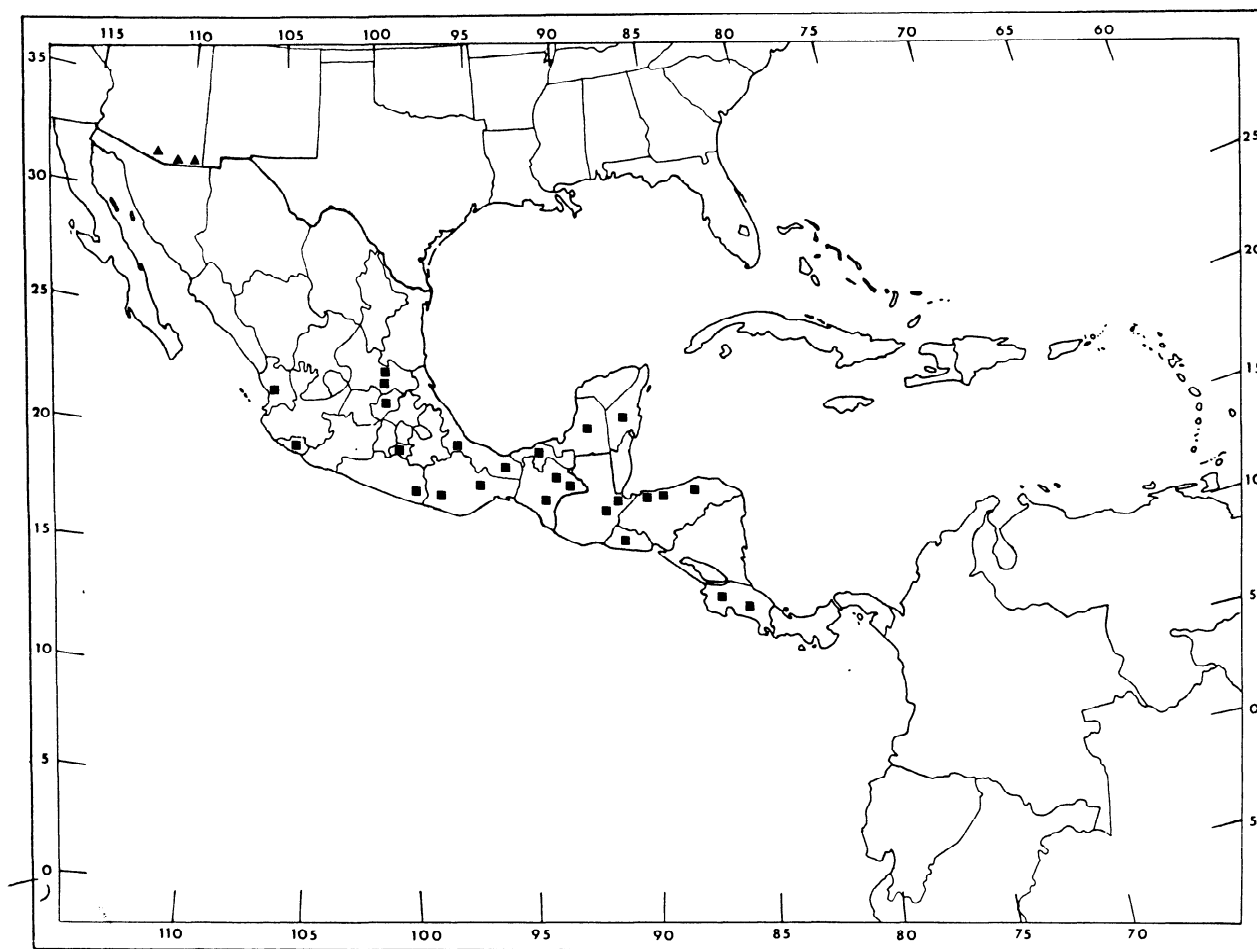
*Charistena suturalis* Weise 1907:205. Holotype: Nogales, St. Cruz Co., IX.29.06, Ariz./ Coll'd by F. W. Nunenmacher/ 105502/ I. Weise det./ Holo-typus (orange label)/ Zool. Mus. Berlin/ *Anisostena suturalis* m/ *Charistena suturalis* m (reversed) (ZMHB). *Anisostena suturalis* (Weise). Weise 1911a:22, 1911b:33; Leng 1920:303; Papp 1953:59; Uhmman 1957:75; Wilcox 1975:140.

**Description:** Dorsal color orangish-yellow, elytra with a dark sutural vitta. Head: yellowish-orange; median sulcus faint; concave between eyes; frons projecting, yellow; clypeus darker, punctate; vertex micropunctate; sulcus on inner margin of each eye; row of punctures on outer margin of each eye. Antennal segments punctate; segment I subglobular; II-V transverse, II longer than III, IV-V smaller; VI-X transverse, gradually widening, VII-X with a band of setae at apex; XI hirsute, acutely pointed. Pronotum: covered with coarse, deep punctures; punctures separated by less than the diameter of a puncture; apical margin darker; basal and lateral sides margined; disc with small impunctate area; surface between punctures micropunctate; basal margin bisinuate; lateral margins evenly arcuate; small tooth in anterior angles; evenly convex; basal impression absent; length 0.7-0.9 mm (avg. 0.9, n=8); pronotal width 0.9 mm. Scutellum: quadrate; micropunctate; brownish. Elytra: 8 regular puncture rows plus scutellar row of one puncture; sutural vitta reaches to 1st or 2nd puncture row; vitta narrows posteriorly until only suture is covered; intervals 2, 4, and 6 with highly produced carinae, 2 and 6 unite on apical fifth, 4 does not attain union by the diameter of a puncture; punctures discreet; lateral margins sparsely dentate; apical margins dentate; apical margins conjointly rounded; length 2.7-2.9 mm (avg. 2.9); width 1.1-1.3 mm (avg. 1.1). Legs: yellowish-orange, tarsi darker; mesofemur not serrate on inner margin. Venter: yellowish-orange. Total length: 3.4-4.0 mm. (avg. 3.75).

**Larval host plant:** unknown.

**Distribution:** Arizona and Texas.

**Specimens examined:** ARIZONA: Cochise Co.-Chiricahua Mts. near Portal, 28- VIII-1966 (FSCA); 1 mi. E Portal, 4600 ft., 28-VIII-1980 (CLS). Pima Co.-



**Map 5.** Distribution of *Anisostena* species: *suturalis* (triangles), *trilineata* (squares).

Baboquivari Mts., 11-IV-1932 (USNM); Madera Canyon, 11-VIII-1981 (AJGC); Santa Rita Ranch, VIII-1977 (EGRC); St. Rita Range, 12-VIII-1949 (USNM). St. Cruz Co.- Nogales, 29-IX-1906 (ZMHB). **TEXAS:** Cameron Co.- 12.5 mi. E Brownsville, 14-X-1983 (EGRC). Dickens Co.- 1 mi. N Dickens, 11-12-X-1979 (EGRC). Hidalgo Co.- McAllen Valley Bot. Garden, IX-1973 (FSCA). Total: 12.

### *Anisostena trilineata* (Baly)

#### Map 5

*Charistena trilineata* Baly 1864:254. Lectotype (here designated): E. Coll Chevt./ Syntype (white disk with blue border)/ *Charistena trilineata* Baly, Yucatan (pale green label)/ Lectotype *Anisostena trilineata* (Baly) designated C. L. Staines 1989 (red label) (BMNH). Three paralectotypes (here desig-

nated): E. Coll Chevt./ *trilineata* Chev. teapo (folded)/ 67.56/ Syntype (white disk with blue border)/ Syntype *Charistena trilineata* Baly/ Paralectotype *Anisostena trilineata* (Baly) designated C. L. Staines 1989 (red label); E. Coll Chevt./ syntype (white disk with blue border)/ syntype *Charistena trilineata* Baly/ Paralectotype *Anisostena trilineata* (Baly) designated C. L. Staines 1989 (red label); E. Coll Chevt./ 67.56 (reversed)/ Syntype (white disk with blue border)/ Syntype *Charistena trilineata* Baly/ Paralectotype *Anisostena trilineata* (Baly) designated C. L. Staines 1989 (red label) (BMNH). Baly 1885:46; Donckier 1899:584; Weise 1905:237.

*Chalepus trilineata* (Baly). Gemminger & Harold 1876:3614.

*Anisostena trilineata* (Baly). Weise 1910:123, 1911a:22, 1911b:32; Blackwelder 1946:725; Papp 1953:59; Uhmman 1957:75; Wilcox 1975:140.

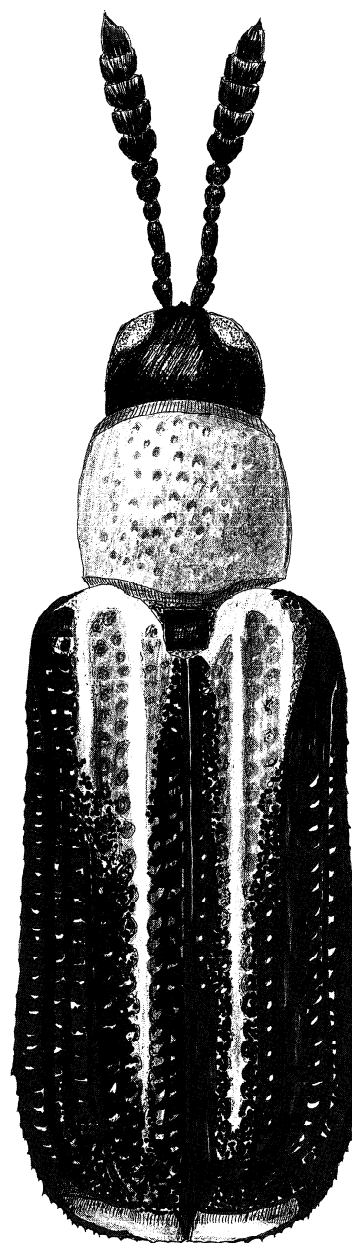
**Description:** Body orange, pronotum may have black markings, elytra with black sutural and lateral vittae. Head: vertex punctate; median sulcus present; area between eyes slightly concave; sulcus present on inner margin of each eye; frons projecting at base of antennae; interantennal keel sharp. Antennal segment I orange, subglobose, punctate; II-XI black; II transverse; III cylindrical, subequal in length to II; IV-VI transverse, decreasing in size; VII-XI wider than preceding, hirsute, XI acutely pointed. Pronotum: surface between punctures alutaceous; completely margined; sparsely punctate with large, coarse punctures uniformly distributed; apical margin darker; lateral margins sometimes black; transverse subbasal depression present; lateral margins parallel for basal half, then strongly convergent; basal margin bisinuate; length 0.7-0.9 mm (avg. 0.76; n=13); width 0.7-1.0 mm (avg. 0.76). Scutellum: black; alutaceous; quadrate. Elytra: scutellar row of 2 punctures; suture with black vitta extending to puncture row 2; black vitta on lateral margin, extends to interval 6 and humerus, stops at apical fifth; lateral margin sparsely dentate; apical margin dentate; apices individually rounded; intervals 2, 4, and 6 costate, interval 6 most pronounced; intervals 2 & 6 unite on apical fifth, 4 does not attain union by the diameter of a puncture; length 2.1-3.0 mm (avg. 2.38); width 1.0-1.3 mm (avg. 1.06). Legs: femora clavate, orange, mesofemur not serrate on inner margin; tibiae orange, black at apex, widens gradually to apex, tuft of setae at apex; tarsi blackish-brown, I-III with pad of setae beneath, I small, triangular; II larger, expanded; III bilobed, 3/4 length of IV; IV cylindrical. Venter: orange, entirely alutaceous; last abdominal segment dark in center. Total length: 2.8-3.8 mm (avg. 3.1).

**Life history:** specimens have been collected in tropical lowland forests.

**Larval host plant:** unknown.

**Distribution:** Mexico to Costa Rica.

**Specimens examined:** **BELIZE:** Cayo, Xunantunich, 14-VIII-1977 (CLS). **COSTA RICA:** Prov. Guanacaste, 5 km SW Canas, Hotel la Pacifica, 9-IX-1980 (AJGC); Palo Verde, 24-II-1983 (CUIC); San Jose, 27-VI-1925 (ICCM). **EL SALVADOR:** San Salvador, 21-VI-1958, 25-VI-1958, 5-VI-1958 (CNC). **GUATEMALA:** Isbal-Las Escobas, 15-XI-1986 (CNC). Zacapa- 2 km N Santa Cruz (CNC); San Lorenzo, 19-XI-1986 (LLS). **HONDURAS:** Atlantida, Tela, at Bot. Gardens, 26- XII-1986



**Figure 2.** Habitus of *Anisostena vittata*.

(SMC); Copan, 19-VIII-1959 (INHS); La Ceiba, X-1949 (CNC), 19-V-1988 (CLS); Trujillo, 26-VII-1968 (FSCA). **MEXICO: Chiapas** - 11 mi. E Chiapa de Corzo, 22-VI-1965 (TAMU); Parque Nacional El Aguacero, 23-V-1987 (EGRC); Parque Laguna Belgica, 27-V-1987 (EGRC); 4 mi. NW Pubeblo Nuevo, River Bajada, 15-VII-1965 (EGRC). **Colima** - 9.7 km S Colima, 335 m, 4-VIII-1988 (TAMU). **Guerrero** - 14 mi S. Potaquillas, 23-24-VI-

1983 (FSCA); 32 mi. SE Petatlan, 14-VII-1984 (TAMU). Hidalgo Co.- 23 km SW Tamazunchale, Cerro Boludo, 823 m, 4-VI-1987 (TAMU). **Morelos** - Balveario Las Estacas, 23-VI-1963 (EGRC). **Nayarit** - San Blas, 24-26-IV-1961 (CNC); 5 mi. NE San Blas, 20-VIII-1964. **Oaxaca** - Puerto Escondido, 15-VII-1985 (TAMU); 3.9 mi. NE San Gabriel Mixtepec, 16-VII-1985 (TAMU); Temescal, 6-VII-1965 (EGRC). **San Luis Potosi** - 24 mi. S Ciudad Valles, 7-VII-1966 (TAMU); El Salto de Agua, 28-30-VII-1960 (CNC); Huichihuayan, 25-IX-1938, 27-IX-1938 (SEMC); 6 mi. S Matalpa, 7-VII-1966 (TAMU); Tamazunchale, 12-15-III-1961 (USNM); 10 mi SW Tamazunchale, 12-VIII-1972 (USNM). **Tabasco** - nr. Grutas de Cocona, 1.5 mi. E Teapa, 250 ft., 7-VII-1983 (ISAC); 4 mi. N Teapa, 14-VI-1965 (TAMU); 10.6 mi. S Villahermosa, 3-VII-1965 (FSCA). **Vera Cruz** - Palma Sola, 24-VI-1972, 25-VIII-1973 (NDSU); 4 mi. NW Sontecomapan, 9-VI-1965 (TAMU); Tuxpan, 1.6 km W Tuxpan R. on Peza Rica Hwy., 18-IX-1980 (CUIC); 22 mi. S Vega de Altorre, 28-VI-1971 (TAMU). **Yucatan** - no further data (BMNH); Chichen, 29-VIII-1936 (SEMC). Total: 71.

### *Anisostena vittata* new species

#### Map 4

#### Figure 2

**Types:** Holotype (male): Ecuador, Pinch., Prov., Tinalandia, 800 m, II-1983 mal. T., M. Sharkey, L. Masner/ CNC Type No. 19496 (red label)/ Holotype *Anisostena vittata* Staines, det. C. L. Staines, Jr. 1989 (red label) (CNC). Paratypes (all with red label- Paratype *Anisostena vittata* Staines, det. C. L. Staines, Jr. 1989): Two with the same data as the holotype (CNC). Three- Ecuador, Pinch. Prov., Tinalandia, 800 m, II-1983, Malaise trap, M. Sharkey/ CNC Type No. 19496 (red label) (CNC,LLS). Two- Ecuador, Pinch. Prov., Rio Palanque Res. Sta., II-1983, mal. t. M. Sharkey, L. Masner/ CNC Type No. 19496 (red label) (CNC). One- Ecuador, Manabi Prov., Montecrist, II-1983, 300 m, M. Sharkey/ CNC Type No. 19496 (red label) (CNC). One- Ecuador, Pinchin., Tinalandia, 2.II.1983, leg. L. Huggert (CLS). Two- Ecuador: Pichincha Prov., Tinalandia; 12 km. E. Sto. Domingo de los Colorados, ca. 2500 ft., 11-17-V-1986, J. E. Eger, coll. (FSCA). One- Ecuador, Los Rios Quevedo (40 kms S), 11-VII-1975, Cohen Peterson & Thorndal/ Ecuador-Peace Corps-Smithsonian Institution Aquatic Insect Survey (USNM).

**Description:** Head black, pronotum orange, elytra black with yellow vitta. Head: black; median sulcus faint; frons projecting at base of antennae; vertex alutaceous; sulcus on inner margin of each eye; row of punctures on outer margin of each eye. Antennal segment I subglobular, as long as II; II-III cylindri-

cal, III longer than II; IV-VI transverse, decreasing in length; VII- X transverse, wider than preceding, with setae; XI pointed at apex, hirsute. Pronotum: orange; basal margin bisinuate; lateral margins evenly arcuate; apical margin darker; covered with large punctures; slight prebasal impression; surface between punctures alutaceous; length 0.6-0.7 mm (avg. 0.6; n=13); width 0.7-0.9 mm (avg. 0.8). Scutellum: black; quadrate; alutaceous. Elytra: black with yellow vitta basally from scutellar row to interval 4, narrows apically until only interspace 2 yellow, disappears on apical fifth; apical margins serrate; lateral margins smooth; surface between punctures alutaceous; intervals 2, 4, and 6 costate, 2 and 6 unite on apical fifth, 4 does not attain union by the diameter of a puncture; interval 2 at base wider than others, as wide as the diameter of a puncture, narrows apically; punctures in rows 1-2 and 3-4 alternate, those in rows 5-6 and 7-8 are opposite; length 2.6-2.7 mm (avg. 2.6); width 1.0-1.3 mm (avg. 1.1). Legs: brownish; inner margin of mesofemur not serrate; tibiae with setae at apex. Venter: prosternum red, alutaceous; mesosternum red in middle, alutaceous, black laterally, punctate; metasternum black alutaceous, row of punctures along lateral margin; abdominal sternites reddish-brown, smooth in middle, alutaceous at sides. Total length: 3.1-3.4 mm (avg. 3.3).

**Larval host plant:** unknown.

**Distribution:** Ecuador.

**Specimens examined: ECUADOR: Guardando Prov.-** Los Rios Quaveado (40 kms S), 11-VII-1975 (USNM). **Manabi Prov.-** Montecrist, II-1983 (CNC). **Pinchincha Prov.-** Rio Palanque Res. Sta., II-1983 (CNC); Tinalandia, 800 m, II-1983 (CNC, LLS), 2-II-1983 (CLS); Tinalandia, 12 km E Sto. Domingo de los Colorados, ca. 2500 ft., 11-17-V-1986 (FSCA). Total: 13.

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## Literature Cited

- Baly, J. S.** 1864. X. Further descriptions of new genera and species of Phytophaga. Transactions of the Entomological Society of London (3)2:251-258.
- Baly, J. S.** 1885. Biologia Centrali-Americana, Insecta, Coleoptera, Hispidae. 6(2):1-124.
- Blackwelder, R. E.** 1946. Checklist of the Coleopterous insects of Mexico, Central America, the West Indies, and South America. United States National Museum Bulletin 185:551-763.
- Butte, J. G.** 1969. Revision of the Tribe Chalepini of America north of Mexico. IV. Genus *Sumitrosis* Butte (Coleoptera: Chrysomelidae). Journal of the New York Entomological Society 76:12-30.
- Donckier, H.** 1899. Catalogue Systematique des Hispides. Annales de la Société Entomologique de France 68:540-615.
- Gaedike, R. & H. Döbler.** 1971. Katalog der in den Sammlungen des ehemaligen Deutschen Entomologischen Institutes aufbewahrten Typen- VII (Coleoptera: Hispinae). Beitrag zur Entomologie 21:341-395.
- Gemminger, M. & B. Harold.** 1876. Catalogus Coleopterum hucusque descriptorum, synonymicus et systematicus. Williams & Norgate, London. Vol. 12:3479-3822.
- Horn, G. H.** 1883. Miscellaneous notes and short studies of North American Coleoptera. Transactions of the American Entomological Society 10:269-312.
- Leng, C. W.** 1920. Catalogue of the Coleoptera of America, north of Mexico. John D. Sherman, Mt. Vernon, NY. 420 pp.
- Lima, A. C.** 1955. Insectos do Brasil. 9th Tomo Coleopteros, 3rd Parte. Séries Didatica 11:1-289.
- Maulik, S.** 1930. New injurious Hispinae. Bulletin of Entomological Research 20:81-94.
- Maulik, S.** 1937. Distributional correlation between Hispine beetles and their host plants. Proceedings of the Zoological Society of London, Series A:129-159.
- Monrós, F. & M. J. Viana.** 1947. Revisión sistemática de los Hispidae argentinos (Insecta, Coleop., Chrysomeloid.). Anales del Museo Argentina Ciencias Naturales "Bernardino Rivadavia" 42:125-324.
- Noguera, F. A.** 1988. Hispinae y Cassidinae (Coleoptera: Chrysomelidae) de Chamela, Jalisco Mexico. Folia Entomológica Mexico 77:277-311.
- Papp, C. S.** 1953. The Hispinae of America. Third contribution for promoting the scientific results of the International Hylean Amazon Inst. in Manaus, Brazil. Portugaliae Acta Biologica (B)4:1-147.
- Pic, M.** 1932. Nouveautés diverses. Mélanges Exotico- Entomologiques 59:1-36.
- Schaeffer, C. F. A.** 1933. Notes on some Hispini and Cassidini and descriptions of new species (Coleoptera: Chrysomelidae). Pan Pacific Entomologist 9:103-109.

- Spaeth, F.** 1937. Über die von Regierungsrat E. Reimaser in Argentinien und Paraguay 1907 und 1908 gesammelten Hispinen (Col. Chrysom.). *Annalen des Nathistorischen Museums in Wien* 48:143-166.
- Staines, C. L.** 1987. The correct generic placement of *Sumitrosis gracilis* (Horn) (Coleoptera: Chrysomelidae: Hispinae). *Coleopterists Bulletin* 41:319-321.
- Staines, C. L.** 1993. A revision of the genus *Anisostena* Weise (Coleoptera: Chrysomelidae, Hispinae). Part I. Introduction and the subgenera *Neostena* and *Apostena*. *Insecta Mundi* 7:183-190.
- Staines, C. L.** 1994. A revision of the genus *Anisostena* (Coleoptera: Chrysomelidae, Hispinae). Part II. The subgenus *Anisostena*: Key to the species groups and the ariadne group. *Insecta Mundi* 8:125-135.
- Uhmann, E.** 1932. Hispinen aus Brasilien, gesammelt von Herrn Pfarrer Kessel. 36. Beitrag zur Kenntnis der Hispinen (Col. Chrys.). *Mitteilungen der Deutschen Entomologischen Gesellschaft* 3:36-38.
- Uhmann, E.** 1938. Deckenzeichung von *Stethispa crenatula* n. sp. Südtmerikanische Hispinen aus dem Zoologischen Museum der Universität Berlin. IV. Teil. Chalepini vor *Chalepus*. 58. Beitrag zur Kenntnis der Hispinen (Col. Chrys.). *Revista de Argentina Entomología* 3:69-72.
- Uhmann, E.** 1948. Hispinen aus dem Naturhistorischen Museum Basel. *Verhandlungen der Naturforschenden Gesellschaft in Basel* 59:12-28.
- Uhmann, E.** 1957. *Coleopterorum Catalogus, Supplementa, Chrysomelidae: Hispinae. pars 35(1):1-153.* W. Junk, Gravenhage.
- Uhmann, E.** 1964a. Hispinae aus dem Staate São Paulo, Brasilien (209. Beitrag zur Kenntnis der Hispinae (Coleoptera, Chrysomelidae)). *Iheringia Zoologica* 32:1-27.
- Uhmann, E.** 1964b. *Coleopterorum Catalogus Supplementa. Chrysomelidae: Hispinae Corrigenda et addenda.* W. Junk, Gravenhage. pars 35(3):399-490.
- Weise, J.** 1905. Aufzählung mexicanischer Hispinen. *Deutsche Entomologische Zeitschrift* 1905:130-135.
- Weise, J.** 1907. Hispinen aus Arizona. *Archiv für Naturgeschichte* 1907:205-209.
- Weise, J.** 1910. Zweiter Beitrag zur Kenntnis der Hispinen. *Verhandlungen des Naturforschenden Vereines in Brünn.* 48:115-162.
- Weise, J.** 1911a. *Coleopterorum Catalogus Chrysomelidae: Hispinae.* W. Junk, Berlin. pars 35:1-94.
- Weise, J.** 1911b. Coleoptera: Phytophaga, family Chrysomelidae, subfamily Hispinae. in P. Wytsman, *Genera Insectorum* fasc. 125:1-123. Brussels.
- White, B. E.** 1939. A new *Anisostena* (Coleoptera: Chrysomelidae) from Owens Valley, California. *Bulletin of the Brooklyn Entomological Society* 34:55-56.
- Wilcox, J. A.** 1975. Checklist of the beetles of Canada, United States, Mexico, Central America and the West Indies. Vol. 1 part 7, the leaf beetles (red version). *Biological Research Institute of America, Latham, NY.* 166 pp.