Distributional and Biological Notes on North and Central American Species of Acmaeodera (Coleoptera: Buprestidae)

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DISTRIBUTIONAL AND BIOLOGICAL NOTES ON NORTH AND CENTRAL AMERICAN SPECIES OF
ACMAEODERA (COLEOPTERA: BUPRESTIDAE)  

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ABSTRACT  
New distributional data and adult and larval host records are presented for 85 species in the genus Acmaeodera. Seven species are recorded for the first time from Mexico and one is new to Central America. A. neognecta Fisher is recorded from the United States and compared with A. tubulus (Fabricius). Adult behavior of A. plagiaticauda Horn is discussed.  

INTRODUCTION  
Recent field trips and examination of collections by the authors have resulted in considerable new distributional and host plant information for some species of the genus Acmaeodera. In order to make this information available for inclusion in the forthcoming catalogue of Coleoptera of North America, this paper has been prepared.  
For the Buprestidae the term "host plant" is usually applied only to that plant in which the larva completes its development rather than that on which the adult feeds. Larval feeding has been considered the more significant or interesting aspect of a species' biology. Specific records of adult feeding are scarce. However, we believe that adults of most, if not all, species feed as a necessary part of their life cycle. Therefore, in this paper we attempt a clear distinction between "adult host" and "larval host."  
Adult host records for most of the species treated herein are based upon specimens collected from various flowers where they commonly feed on pollen and/or other floral structures. Anthophilous adult Acmaeodera are not usually host specific, but may be restricted to a single family of plants. Often, they show decided preference for flowers of one or a few species of plants. They may or may not be attracted to flowers of their larval host. Some species have been collected only on or flying to foliage or dead parts of various plants which are known or are presumed to be their larval hosts. In some instances, the adults have been observed feeding on the foliage of these hosts. Adult host information given herein has not to our knowledge been recorded in the literature, though a complete search was not undertaken.  

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Unless otherwise stated, specimens are deposited in the collection of the collector. Collection abbreviations [in brackets] follow those of Arnett and Samuelson (1969) and Barr and Westcott (1976). The authors’ names herein are abbreviated RLW, WFB, GHN and DSV, respectively. We are grateful for the privilege of examining specimens from the various institutions listed herein. F. G. Andrews, California Department of Food and Agriculture; W. A. Iselin, New Mexico Department of Agriculture; C. W. O’Brien, Florida A & M University; R. O. Schuster, University of California, Davis; Eric Smith, Field Museum of Natural History, Chicago; B. K. Dozier, Chula Vista, California; E. M. Fisher, Riverside, California; F. T. Hovore, Newhall, California; L. L. Lampert, Asheville, North Carolina; P. H. Sullivan, Pasadena, California; R. H. Turnbow, Jr., Athens, Georgia; and G. C. Walters, Los Angeles, California, have been particularly helpful in this regard. We give special thanks to F. M. Beer (FMB), Corvallis, Oregon, for providing many significant new records from his fine collection.


Acmaeodera acuta LeConte. NEVADA: Clark Co., 6 mi NW Moapa, 16-VI-61, R. C. Bechtel; Nye Co., Peavine Can., 3-VIII-67, G. D. Cooney; White Pine Co., Cleve Cr., 740', 28-VII-65, R. C. Bechtel; Washoe Co., Reno, 27-V-60, 19-VI-59, F. D. Parker [all NSDA, WFBC]; Nixon, 24-VI-64, M. E. Irwin [UCRC]; Verdi, 12-VII-67, RLW. (NEW STATE RECORD). The known distribution of this primarily western Great Basin species strongly suggests that it is restricted to a riparian habitat. In southeastern Oregon large numbers have been collected on flowers of Rosa sp., a few on Achillea sp. In California, Owens Valley, it has been taken on flowers of Encelia virginensis actoni, Sphaeralcea sp., and Salix sp. Observations suggest that willows are a likely larval host for this insect. Most of the literature records for A. acuta refer to A. retifera LeConte.


Acmaeodera alicia Fall. Fall’s description of this species was based on a single specimen labeled as from California, Los Angeles Co. We are not aware of another instance of its capture in that county. It is possible that said specimen was not taken in what today comprises the county, or that subsequent environmental changes may have altered its habitat there so this species has become extremely rare or even extinct. In light of the foregoing it seems worthwhile to substantiate its occurrence in CALIFORNIA as follows: Imperial Co., El Centro, 9-IX-63, G. Harrison, light trap [RLWE]; 3 mi NW Glamis, 15/16-IX-72, M. Wasbauer and A. Hardy [CDAE, RLWE]; Fish Springs, 13-IX-75, R. C. Dickson [UCRC]; 1 mi S Travertine Rock, 30-VIII to 7-VI-65, R. C. Dickson [UCRC, WFBC]; Palo Verde, (20-22)-VII-46, P. D. Hurd, J. W. MacSwain and W. F. Barr [WFBC, CASC, GHNC], and 10-X-71, E. E. Grissell and R. M. Bohart [UCDC]; Riverside Co., Blythe, 19-VIII-46, J. W. MacSwain, [WFBC]; approx. 10 mi W Blythe, VHII-61, David L. Mays [RLWE]; 18 mi W Blythe, 14-X-67, R. M. Bohart [UCDC, RLWE]; 3.3 mi S Palm Desert, 10-VII-73, Westcott and Fisher [RLWE]; 2.5 mi S Palm Desert, 20-VII-68, G. Walters [GHNC]. The distribution of this insect in California appears restricted to the Colorado Desert. SONORA: Alamos, 15/20-VII-58; 22 mi W Alamos, 17-VII-63; 10 mi E Navojoa, 14-VII-58; 15 mi E Navojoa, 18/29-VIII-59, all RLW; 21 mi N Navojoa, Hwy. 15, 13-VIII-55, GHN; 28 mi S Navojoa, 3-IX-72, B. Villegas and E. A. Kane [UCDC]; 20 mi S Hermosillo, 3-IX-70, R. M. Bohart [UCDC] and 30-VII-66, G. C.
Walters; San Carlos, 3-IX-70, R. M. Bohart [UCDC]; 66 mi S Guaymas, 20-VII-65; 30-VII-66, all DSV; Campo Utah, 10-VII-53, B. Malkin [CASC]; Sonoyta, 28-VII-62, M. R. Beguhl [WFBC]; Santa Ana, 5-X-51, J. and M. Marquis [WFBC]; 19.4 mi S Estacion Llano, 25-VII-64, E. I. Schlinger [UCRC]; SINALOA: 16 mi S Culiacan, 24-VII-73, Chemak [CISC]. (NEW RECORD, MEXICO). Most of these specimens are more finely maculate than those on hand from Arizona and California. This species was reared from wood of *Acacia willardiana* Rose collected December, 1969 in Sonora, San Carlos Bay, em. during 1971, DSV (NEW LARVAL HOST). Adults have been collected on flowers of *Baileya pleniradiata* in Arizona; *Cercidium floridum*, *Larrea tridentata*, and *Sesbania exaltata* in California.

**Acmaeodera alpina** Barr. Some specimens of the type series, from the type locality in California (Barr 1972), were collected on flowers of *Leptodactylon pungens*; others were taken on granite rocks and bare soil, a habit also observed at several localities by Mr. Derham Giuliani, Big Pine, California (in litt.).

**Acmaeodera amabilis** Horn. TEXAS: Brewster Co., 7 mi SW Alpine, 16-X-75, R. L. Penrose [RLWE]; Culberson Co., Guadalupe Nat. Park, Upper Dog Canyon, 19-IX-76 and The Bowl, 4-X-73, D. E. Foster [TMCC]; Jeff Davis Co., Davis Mts., 20-IX-38, D. J. and J. N. Knuff [FMNH, WFBC], 16-X-75, F. Hovore (NEW STATE RECORD). On these specimens the elytral maculation tends towards that usually exhibited by the closely related *A. chiricahuae* Barr. This beetle has been collected in southern Arizona on flowers of the following plants: *Bahia dissecta*, *Haplopappus gracilis*, *Senecio macdougalii*, *Verbena gooddingii*, and *Viguiera longifolia*. It is primarily a late summer montane species.

**Acmaeodera amplicollis** LeConte. TEXAS: Jeff Davis Co., Davis Mt. St. Park, 11-IV-65 [UCRC]. SONORA: Cananea, 6 mi NW mt. pass, ca. 6,000', 15-VIII-59, Nutting & Werner [UAIC, GHNC]; 14.1 mi W, 25-VIII-64, E. I. Schlinger [UCRC]. JA-LISCO: 12 mi N Lagos de Moreno, 11-VIII-62, DSV. (NEW STATE RECORDS). The latter represents the southernmost known occurrence for this species. It is a common flower-visitor in mountainous regions of southern Arizona where it has been collected on the following plants: *Baileya multiradiata*, *Gaillardia pinnatifida*, *Gutierrezia microcephala*, *Haplopappus gracilis*, *Heliopsis parvifolia*, *Selloa glutinosa*, *Senecio longilobus*, *Verbena bipinnatifidia*, and *Verbesina encelioides*.

**Acmaeodera angelica** Fall. UTAH: Zion National Park, D. E. Beck [BYUC] (NEW STATE RECORD). This common western species is often collected flying about or by beating various chaparral shrubs. It has been collected from flowers of *Adenostoma fasciculatum*, *Fallugia paradoxa*, *Eriogonum fasciculatum*, and *Lotus* sp.

**Acmaeodera atactospilota** Westcott. This species has been collected on *Encelia virginsensis actonii* in the Owens Valley, California and a moderate series was taken on a yellow-flowered *Eriogonum* sp. near Benton Hot Springs, Mono Co. The latter genus is not known as a preferred adult host, though occasional specimens have been collected from flowers of two other species (Westcott 1971; G. C. Walters, in litt.).

**Acmaeodera auritincta** Fall. Specimens have been collected in western Texas on flowers of *Psilostrophe* sp. and *Viguiera stenoloba*.

**Acmaeodera bishopiana** Fall. Collected in Owens Valley, California on flowers of *Encelia virginsensis actonii*.

**Acmaeodera bivulnera** Horn. ARIZONA: Pinal Co., 1 1/2 mi NE Apache Jct., FMB, reared from *Krameria grayi* Rose and Painter, em. 20-X-76, one specimen (NEW LARVAL HOST). Heretofore, no larval host was known for this species. Large numbers of adults were collected on *Cercidium floridum* and *Hymenolepis salsola* (Nelson 1959); the former probably is a larval host but we believe the latter to represent only a convenient resting place.

**Acmaeodera bowditchi** Fall. NEW MEXICO: Grant Co., 5 mi W Silver City, 16-VI-64, R. C. Dickson [UCRC] (NEW STATE RECORD). This widespread southwestern species has been collected in Arizona on flowers of *Bahia* sp., *Baileya* sp., *Cowania mexicana*, *Fallugia paradoxa*, *Opuntia* sp., and *Sphaeralcea laxa*. In Texas it has been taken on *Argemone* sp., *Haplopappus spinulosus* var. *turbinellus*, and *Vernonia marginata*. 
Acmaeodera carlota Fall. Cut from wood of Quercus dumosa Nuttall in ARIZONA: Gila Co., 7 mi N Sunflower, 12-III-76, by FMB (NEW LARVAL HOST). Adults have been collected in April near Wikieup, Mohave Co., Arizona on flowers of Eriogonum fasciculatum, Melampodium leucanthum, and Sphaeralcea sp.

Acmaeodera ceanothae Nelson. Collected at the type locality, Yarnell, Arizona, on Quercus turbinella. This beetle was described from a series taken on Ceanothus sp.; it has been reared from this plant collected at Yarnell (J. M. Davidson, pers. comm.). Its capture on oak may be incidental, since the two plants grow in close association.

Acmaeodera comata LeConte. Longtime suspicions that larval hosts for this species are mesquites, Prosopis spp. were confirmed by numerous specimens cut from P. sp. by FMB in ARIZONA: Maricopa Co., near Painted Rock State Park, 20-III-76; Pima Co., 5 mi W Old Tucson, 20-III-76; Pinal Co., 1 1/2 mi NE Apache Jct., 21-I to 10-II-76. Large numbers of adults have been collected in northern Baja California, either beaten from (usually dead branches) or flying about P. glandulosa var. torreyana (L. Benson) M. C. Johnston (NEW LARVAL HOST).

Acmaeodera connexa LeConte. A collection at Cottonwood Creek, 4200', Inyo Co., California, on Encelia virginensis actonii, by Derham Giuliani [CASC], appears to represent an eastern range extension. This beetle also has been collected in California on Erigeron sp., Eridiceyon sp., Rosa sp., and Salsola sp. Tanner (1928) listed this species as common in Zion National Park, Utah but it is not known to occur in that state and it was almost certainly referring to A. bowditchi Fall.


Acmaeodera cribricollis Horn. This widespread denizen of the desert has been collected in California on flowers of mesquite, Prosopis glandulosa var. torreyana. A good discussion of this beetle was given by Hurd and Linsley (1975).

Acmaeodera curtilata Knnull. This species was described from the Morongo Valley, San Bernardino Co., California and reported by Nelson (1959) from nearby in the northwestern Coachella Valley, Riverside Co. At these localities it is associated with Dalea californica, a shrub which does not occur further south. One specimen of A. curtilata was collected at Borrego Springs, San Diego Co., 1-IV-62, D. S. Verity, flying about Dalea schotti. Although this shrub is common in the Coachella Valley, the beetle has not been found associated with it there.


Acmaeodera decipiens LeConte. CHIHUAHUA: 16 mi W La Junta, 10-X-75; 3 mi S Gomez Farias, 9-IX-75; 9.5 mi N Ignacio Zaragoza, 9-X-75, all W. Iselin [NMPI, GHNC] (NEW STATE RECORD). In southeastern Arizona this common montane anthophilous species has been collected on Bahia dissecta, Erigeron neomexicanus, Haplopappus gracilis, Helioipsis parvifolia, Selloa glutinosa, Senecio longilobus, Senecio macdougalii, Sphaeralcea laxa, Verbena bipinnatifida, Verbesina encelioides, Viguiera cordifolia, and Viguiera longifolia.

Acmaeodera delumbis Horn. This species was for a long time considered a synonym of A. gibbula LeConte; therefore, records of it are few even though it is not un-

Acmaeodera diffusa Barr (Acmaeodera hepburni var., Tanner 1928, MISSIDENTIFICATION). The occurrence of A. hepburni in Utah, reported by Tanner, was based on a misidentified specimen of A. diffusa labeled “Zion National Park, Utah, Aug. 1925/Vasco M. Tanner collector/Acmaeodera hepburni, W. Knaus 1926, 9243” [BYUC].

Acmaeodera disjuncta Fall. CHIHUAHUA: Cuauhtemoc, 22-VII-58; Meoqui, 2-IX-57, both W. W. Tanner, W. G. Robinson [BYUC] (NEW STATE RECORD). It has been collected in Arizona and New Mexico on flowers of Batylea multiradiata, Chrysothamnus nauseosus, Gutierrezia microcephala, Helianthus petiolaris, and Verbena enceioides.

Acmaeodera dolorosa dolorosa Fall. Reared from wood of Simmondsia chinensis (Link) C. K. Schneider, CALIFORNIA: San Diego Co., 5 mi E Jacumba, em. 29-III-77, cut from wood 23-VIII-72 and 11-IV-76 (both dead), DSV. Cut from branch Prunus fasciculata (Torr) Gray, CALIFORNIA: Riverside Co., Pinyon Flat, IV-77 (dead), DSV. (NEW LARVAL HOSTS).

Acmaeodera dolorosa liberta Fall. Based on a single specimen, the following represents the northernmost occurrence: NEVADA: Washoe Co., Reno Hot Springs, 10-72, RLW (NEW STATE RECORD). In the Owens Valley, California it has been taken on flowers of Encelia virginensis actonii.

Acmaeodera fisheri Cazier. Nothing has been recorded on the biology of this rather common Colorado Desert species. ARIZONA: Yuma Co., 5 mi W Yuma, em. 18-VII-72, 5-IX-76 from branches of Atriplex lentiformis (Torr) Watson, FMB (NEW LARVAL HOST).


Acmaeodera flavosparsa Waterhouse. This species was described from “Mexico” and has been recorded only from Guerrero. MICHOACAN: Morelia, 22-VIII-60, R. & K. Dreisbach [TAMU, SGWC] (NEW STATE RECORD).

Acmaeodera gibrilla LeConte. This wide-ranging and common species is recorded from Texas to California in the United States and from Coahuila to Durango and Baja California Sur in Mexico. UTAH: St. George, 12-VI-24, A. M. Woodbury [BYUC]. NEVADA: Clark Co.: Tule Spring, 6-VIII-67, WFB, on dead Acacia greggii; Las Vegas, 12-IX-69, DSF, on Prosopis glandulosa var. torreyana. SINALOA: Culiacan, 22-VII-60, RLW; 20 mi S Culiacan, 22-VII-65, DSV; 4 mi NW Chico, 27-III-69, T. A. Sears, R. C. Gardner, C. S. Glaser [UCDC, RLWE]; 70 mi N Culiacan, 20-VIII-60; and Elota, 26-VII-60, all DSV [GHNC]; 23 mi N Los Mochis Jct. and Hwy. 15, 14-IX-70, E. M. Fisher [DSVC]. (NEW STATE RECORDS). These Mexican specimens, as well as a series on hand from Sonora, represent a form which is proportionately narrower, apically in particular, than those examined from the United States. Considerable variation occurs elsewhere and a thorough study of this is needed. Larval hosts for this species include palo verde (Knall 1937) and Prosopis spp. (Van Dyke 1942). Specimens were reared from Acacia greggii Gray, CALIFORNIA: Riverside Co., Pinyon Flat, em. 10-VI-76, DSF; Imperial Co., Mt. Springs, wood coll. 4-II-62, em. 14-VII-63, GHN; and a small series from Salix sp., ARIZONA: Yuma Co., Morelos Dam, em. 2-73, F. T. Hovore [FTHC, DSVC,
Acmaeodera gillespiensis Knull. Taken on flowers of Actinea lineatifolia, Argemone sp., Baileya multiradiata, and Vernonaria marginata in the Davis Mountains, Texas.

Acmaeodera griffithi (Barr 1975), this species has been collected in southern Texas on flowers of Viguiera stenoloba.

Acmaeodera haemorrhhoa LeConte. Formerly known under the name "rubronota" (Barr 1975), this species has been collected in southern Texas on flowers of Viguiera stenoloba.

Acmaeodera hepbumi LeConte. This common species was collected on flowers of Encelia virginensis actonii in California, Inyo Co., Cottonwood Creek, 4200', Derham Giuliani [CASC], which represents an eastern range extension. Elsewhere in California, additional flower records are Erigeron sp., Helianthus gracilenta, and it is very common on Eriophyllum confertiflorum. Tanner (1928) listed this species (as "Acmaeodera hepbumi var.?") from Utah but this was based on a misidentified specimen of A. diffusa Barr. Chamberlin (1928) recorded A. hepbumi from New Mexico and Arizona but this may refer to A. latiflava Fall since the former could not occur in those areas. The occurrence of A. latiflava in New Mexico remains to be discovered.


Acmaeodera labyrinthica Fall. Collected in California from a wide variety of flowers, particularly of the family Compositae. In desert transition areas it has been taken on Encelia farinosa and E. virginensis actonii.

Acmaeodera lateralis Chevrolat. This species appears to be very rare in collections and has been recorded only from Puebla (no definite locality). Additional specimens from that state are: 26 km S Zapotitlan, 2000 m, 5-XI-76, E. Fisher, P. Sullivan [RLWE]; 6 mi SE Acatlan, 4700', 8-X-75; 7 km SE Morelos Canada, 7700', 4-X-75, both J. Powell [CISC]. GUERRERO: Sabana, 7-X-63, A. E. Michelbacher [CISC]. (NEW STATE RECORD).

Acmaeodera aulax Fall. No biological data on this subspecies have been published.

Acmaeodera aulacoides Barr. MEXICO: 1 1/2 mi S Hermosillo, 23-VIII-76, J. Marquis. TAMAULIPAS: Villa Juarez, 10-XI-37, G. C. Walters. (NEW STATE RECORDS). Collected in Texas on flowers of various composites, including Viguiera stenoloba; also taken on Acacia constricta and dead twigs of Mimosa sp.

Acmaeodera bicornis Horn. This uncommonly collected species was taken in MEXICO: 6 1/2 mi S Santa Ana, 6-VII-73, DSV and 30 mi S Hermosillo, 24-V-62, Parker & Stange [UCDC] (NEW RECORD, MEXICO). CALIFORNIA: Imperial Co., 1 1/2 mi NE Apache Jct., 22-VIII-76, FMB (NEW LARVAL HOST). In Maricopa Co., Arizona it has been collected on Cercidium microphyllum and dead Lycium sp. It appears that this beetle may utilize a wide variety of desert trees and shrubs as hosts.

Acmaeodera bicolor Fall. No biological data on this subspecies have been published.

Acmaeodera bicolor var. bicolor Fall. No biological data on this subspecies have been published.

Acmaeodera bicolor var. latifrons Waterhouse. Collected in California on Adenostoma sp., Encelia sp., Erionotus trichocalyx, Helianthus gracilens, Salvia apiana, S. vaseyi, Sphaeralcea ambigua, Viguiera deltoidea parishii, and Yucca whipplei; in Nevada on Stephanomeria pauciflora; and in Arizona on flowers of Baileya sp., Melampodium leucanthum and Opuntia sp. (beavertail).

Acmaeodera latiflava lineipicta Fall. No biological data on this subspecies have been published. ARIZONA: Pinal Co., Tonto N.F., Oak Flat Rec. Area, 10-III-76, FMB, cut from stalks Dasylirion wheeleri S. Wats. ex Rothrock (NEW LARVAL HOST). Collected on flowers Sphaeralcea sp. near Globe, Arizona.


Acmaeodera ligulata Cazier. Collected on flowers of Actinea linearifolia in western Texas; Couvaxia mexicana and Fallugia paradoxa in Arizona. The only larval host known was Quercus pungens Liebmman (Cazier, 1940). Specimens were cut and reared from Quercus dumosa Nuttall, ARIZONA: Gila Co., 7 mi N Sunflower, 12-III and 8-IV-76, by FMB (NEW LARVAL HOST).

Acmaeodera macra Horn. This rather uncommonly collected fall species is known only from Texas, where it has been collected on Acacia berlandieri and Verbesina encelioides.

Acmaeodera maculifera Horn. Until recent years this species, also fall-occurring, was rare in collections. However, it has been taken in large series in southern New Mexico. Flower records include Crysanthemum viscidiflorus var. puberulus, Helianthus petiolaris, and Sphaeralcea sp.; also, it has been collected from leaves (mostly dried) of Sphaeralcea sp. which was not in bloom.

The specimen listed by Waterhouse (1889:181, Fig. 14a) as a variety of A. delectabilis Waterhouse from Villa Lerdo actually is A. maculifera. This specimen, in the British Museum (Natural History), establishes the occurrence of A. maculifera in MEXICO for the first time.

Acmaeodera mariposa Horn. Reared from Cercocarpus ledifolius Nuttall, OREGON: Klamath Falls, 19-VIII-11, FCC [USFS Coll., Corvallis, Oregon] (NEW LARVAL HOST). This insect has been collected sparingly in southwestern Oregon but we are not aware of any collections made east of the Cascade Range.


Acmaeodera mixta Horn. NEBRASKA: Sioux Co., 20-VI-76, W. T. Morgan [GHNC] (NEW STATE RECORD). Occurs commonly on the flowers of various plants, especially composites, including Viguiera stenoloba in western Texas.

Acmaeodera mojavei Westcott. CALIFORNIA: Los Angeles Co., Palmdale, 4-I-75, F. Hovore, dug from stem of Lycium sp. This represents the first recorded larval host for this species. According to Frank T. Hovore (in litt.) the larvae appear associated with dead or decadent portions of live stems. Often they were in the lower portion of stems girdled by Anelaphus inflaticollis Chemsak (Coleoptera, Cerambycidae). In Arizona, A. mojavei has been collected on flowers of Baileya sp.
Acmaeodera monticola Fisher. This species was described from two specimens from Oaxaca. Specimens from the following localities were compared with those and appear to be conspecific: PUEBLA: 5 mi W Chapulco, 5800', 14-VII-70, E. Fisher, P. Sullivan [RLWE]; Cacaloapan, 20-VIII-63, F. D. Parker, L. A. Stange [UCDC, RLWE]. Additional specimens are on hand from 80 mi E Puebla, 20-VIII-63, A. Hardy [DSVC, RLWE] and 15 mi NW Chapulco, 1-VIII-64, E. Fisher, D. Verity [DSVC]. (NEW STATE RECORD).

Acmaeodera nautica Van Dyke. Taken in Contra Costa Co., California on flower of Rosa sp.


Acmaeodera neoneglecta Fisher. This species was described from a single specimen found in mesquite from Mexico, intercepted at Brownsville, Texas, 21-XII-37. The type appears slightly teneral with the darker parts of the elytra not quite fully pigmented. When it was described, it was compared to A. neglecta Fall but it appears to be closer to A. tubulus (Fabricius). It differs in being more narrowly cylindrical and in having the front of the head more convex. The population in southern Texas that has previously been regarded as A. tubulus appears to be A. neoneglecta. Material is at hand from San Patricio, Duvall, McMullen, Starr, Hidalgo, and Cameron counties. Adults are active during March and April and have been collected on Prosopis glandulosa Torrey and flowers of Opuntia lindheimeri Englemann. In Hidalgo Co. they have been reared from limbs of Pteleococbus flexicaule (Bentham) Coulter and from P. glandulosa, Santa Ana Wildlife Refuge, em. 26-II to 18-III-77, R. H. Turnbow, Jr.; cut from Acacia spp., Maverick Co., Highway 277, 10.6 mi E Eagle Pass, 3-II-70 and Webb Co., 27 mi NE Laredo, 5-II-70, F. M. Beer. (NEW RECORD, USA; NEW LARVAL HOSTS). Typical A. tubulus is found in more northern and eastern Texas. Material is before us from Henderson, Anderson, Stephens, Real, Brazos, and Bastrop counties.


Acmaeodera nigrovittata Van Dyke. Longstanding suspicions that a host for this California species is Atriplex polycarpa (Torrey) Watson were confirmed when two dead adults were dug from this plant in Fresno Co.: along Hwy. I-5, 19 mi NNB Jct. Hwy 33 South, 20-XII-74, RLW; 18 mi SW Mendota, Sec. 15, T16S, R13E, 27-II-75, F. Andrews, A. Gilbert, E. Paddock [RLWE]. It was also reared from Suaeda fruticosa (Linnaeus) Forsskal collected in Tulare Co., Tipton, 4-IV-57, R. P. Allen [WFBC, CDAE]. (NEW LARVAL HOSTS). Adults have been taken on flowers of Cirsium sp. and Centaurea solstitialis.

Acmaeodera oaxacae Fisher. Recent collections prove that this is a very common and widespread species in Mexico, though it has been recorded only from Oaxaca (the type-locality, Tehuantepec). GUERRERO: Canon del Zopilote, 48 km N Chilpancingo, 520 m, 1-VII-75 and 3'/2 mi S Rio Balsas at Hwy. 95, 17-VIII-70, E. M. Fisher & J. L. Fisher [RLWE]; 18 mi S Iguala, 22-VII-63, Parker and Stange [UCDC, RLWE]. PUEBLA: 11 km NW Tehuitzingo, 1200 m, (7-8)-VII-74, E. M. & J. L. Fisher [RLWE]; 3 mi N Petalcingo, 21-VII-63, Parker & Stange [UCDC, RLWE]. MICHOACAN: 5 mi SE Tiquicheo, 1400', 8-VII-70; 9 mi E Capirio, 800', 6-VII-70; Barranca Hondo, 19 mi S Uruapan, 3000', 5-VII-70; 22 mi SE Huetzamo, 9-VII-70; 44 km NE Arteaga, 610 m (Hwy. 37, K231), 10-XI-76, all E. Fisher, P. Sullivan [RLWE]. COLIMA: 8 mi N Tecoman, 25-VII-66, DSV. SINALOA: Mazatlan, 9-IX-64, E. Fisher, D. Verity [DSVC]; 7 mi S Culiacan, 23-VIII-60, RLW, DSV. SONORA: Alamos, 30-VII-57, RLW; 15 mi E Navojoa, 17-VII-58, RLW [DSVC]. (NEW STATE RECORDS). A few of these specimens, especially those from Sonora and Sinaloa, exhibit a distinct bluish cast on the elytra, which usually are black with a faint aeneous reflection.

Acmaeodera ornata (Fabricius). TENNESSEE: Murfreesboro, 5-VII-59, B. Benesh; Knoxville, 17-IV-55, H. and A. Howden [both WFBC] (NEW STATE RECORD). Little is known concerning the habits of this uncommon eastern species. Mr. Frank Hovore (in litt.) reports collecting a specimen that was apparently ovipositing in the scarred stump of a recently-cut Persea borbonia (L.) Spreng. in Florida, Dune Co., 4 mi N Oldtown, 6-V-78.

Acmaeodera ornatoideas Barr. TEXAS: Edwards Co., vic. Carta Valley, 1-11-70, FMB, cut from dead, standing, weatherbeaten Quercus virginiana fusiformis (Small) Sargent (NEW LARVAL HOST).

Acmaeodera panamintensis Westcott. The range of this species is extended southward approximately 135 miles with the collection of a large series in California, San Bernardino Co., 2 mi NW Baldwin Lake, 6150', 19-VI-73, 16-VI-74, DSV and 30-VII-75, 24-VII-76, 4-G. C. Walters. All specimens were taken as they flew about or rested on Ephedra viridis Coville. Collected from flowers of Monardella sp., Salvia sp., and Tetradymia sp. in California, Mono Co., Sherwin Grade, 6500'.


Acmaeodera pinalorum Knull. SONORA: Km 56 E Los Hornos, 27-VIII-78, B. K. Dozier; 10 mi E Navojoa, 14-VII-58; 22 mi W Alamogordo, 17-VII-63, both RLW. SINALOA: 13 mi S Guanuchi, 21-VII-61, DSV; 40 mi S Culiacan, 22-VII-54, M. Cazier, W. Gertsch and Bradts [AMNH, WFBC]. (NEW RECORD, MEXICO). TEXAS: Uvalde Co., 5 mi N Uvalde, 22-VI-61, P. D. Christenson [RLWE] (NEW STATE RECORD). These collections extend the distribution of this species approximately 500 miles southward and 600 miles eastward, respectively. The Texas specimen was at first thought to be an aberrant form of the related A. uvaldensis Knull, but closer examination proved otherwise.

Acmaeodera plagiaicuda Horn. The range of this species is in California and southwestern Oregon. The adult is always associated with manzanita, Arctostaphylos spp. Beer (1940) established a larval host by chopping adults from their pupal cells in Arctostaphylos viscida Parry. One of us (RLW) made some interesting observations of the beetle on this plant along a small narrow wash in Oregon, Josephine Co., 10 mi N Grants Pass, 12-VII-73. Specimens had been collected here several times previously and almost always were taken while flying over manzanita bushes from approximately 3:30 to 5 p.m., rarely earlier. Occasionally they were observed resting on new leaves which are coppery-reddish, thus closely matching the beetle in color. Approximately 15 specimens were collected on fleshy red leaf-curl galls which are produced apically on A. viscida leaves by the aphid, Tamalia coweni (Cockerell). Up to three beetles per twig tip were seen and about half the specimens were taken from one unthrifty bush (besides numerous galls, many leaves were dead). Beetles were observed feeding on these fleshy galls.

Acmaeodera prorsa Fall. In California adults have been taken on and/or flying to flowers of Rosa californica, Salvia spp., Turricula parryi; and on Quercus dumosa.

Acmaeodera resplendens Van Dyke. Taken in the Santa Rita Mts., Arizona, on Verbena gooddingii.

Acmaeodera robusta Horn. In the Owens Valley area of California this species has been collected from flowers of Dalea sp. and Encelia virginensis actonii; and on twigs of Chrysothamnus sp. and Ephedra sp.

Acmaeodera rubronotata Laporte and Gory. TEXAS: Culberson Co., Guadalupe Nat. Park, Upper Dog Canyon, 20-VIII-76, D. Ralston, on Asclepias [TTCC] (NEW STATE RECORD). No larval host was known until a specimen was cut from Quercus sp. in ARIZONA: Mohave Co., 17 mi SE Wikieup, 20-VI-75, FMB (NEW LARVAL HOST). Until recently (Barr 1975) this common species was well known as A. sparsa Horn. Texas records in the literature refer to Acmaeodera haemorrhhoa LeConte. In Arizona it has been collected on flowers of the following: Bahia dissecta, Baileya multiradiata, Erigeron neomexicanus, Haplopappus gracilis, Helianthus nuttallii, Heliotis parvifolia, Selloa glutinosa, and Verbesina encelioides.

Acmaeodera sabinae Knnull. SONORA: San Carlos Bay, 6-VII-73, DSv; 16 mi N Navojoa, 13-VI-65, E. M. Fisher [DSV]; 10 mi E Navojoa, 14-VII-58, RlW, Bahia San Francisco, 16-VI-62, E. Sleeper, et al [CSLB]. In Mexico, this species has previously been recorded only from Tiburon Is., Sonora, and Baja California Sur. Specimens from CALIFORNIA: Inyo Co., 6 mi N Ballarat, 4-VI-61, RlW, on Prosopis glandulosa var. torreyana, represent the northernmost recorded locality. Adults have been beaten from Baccharis sp., Pluchea sericea, and Prosopis pubescens in California, but more often they have been taken on or flying to Prosopis glandulosa var. torreyana and the latter has been assumed to be a larval host. This was substantiated by the rearing of several specimens from small dead branches collected in BAJA CALIFORNIA SUR: Bahia Concepcion, Playa El Coyote, 7-VI-75, RlW and one specimen from cut that plant in California, Inyo Co., 7 mi NE Shoshone, 9-IV-76, FMB (NEW LARVAL HOST).


Adults are usually taken on flowers. In New Mexico they have been collected on Baileya sp., Gutierrezia sarothrae, Helianthus petiolaris, Sphaeralcea sp.; and in Arizona on Bahia absinthifolia and Cleome sp.

Flame, on wild cotton [CDAE]; 12-VII-62, W. J. Akins, Argon light trap [CDAE]; Riverside Co.: Blythe, 8-VII-56, J. I. Stage [DSVC]; Ripley, 19, 25, & 26-VI-46, WFB. (NEW STATE RECORD). Some of these were taken on flowers of arrowweed, Plu- chea sericea, and others on blossoms of Sphaeralcea sp.

Acmaeodera sphaeralceae Barr. NEW MEXICO: Otero Co., La Luz, 11-V-76, on yellow composites; Grant Co., Mule Creek, 18-V-77, all W. Iselin [NMPI, GHNC] (NEW STATE RECORD).

Acmaeodera superba Waterhouse. This beautiful metallic green or blue and red species has been recorded from Mexico (Puebla, no specific locality) and Brazil. The latter locality seems highly questionable. Specimens are on hand from Puebla, 15 km WNW Izucar de Matamoros (K151), 1300 m, 6-XI-76, E. M. Fisher [RLWE]. GUERRERO: 30 mi N Chilpancingo, 31-VIII-64, E. Fisher, D. Verity [DSVC]; 5 mi N Chilpancingo, 25-VIII-58, E. L. Mockford [GHNC]; 3 mi N Zumpango del Rio, 12-VII-60, Selander & Mathieu [DSVC]; 49 km N Chilpancingo (K51), 460 m, 7-XI-76, E. Fisher, P. Sullivan [RLWE]; vic. Mexcala, 1 mi S Rio Balsas at Hwy. 95, (3-4)-IX-70, E. M. & J. L. Fisher [DSVC, RLWE] (NEW STATE RECORD).

Acmaeodera texana LeConte. This species has been recorded from Texas, Oklahoma, and Louisiana. Records in the J. N. Knnull collection [FMNH] include: NORTH CAROLINA: Lillington, 13-VI-41, S. C. Schell. GEORGIA: Kennesaw Mt., 4-VII-44, P. W. Fattig; Dallas, 28-VII-40, P. W. Fattig. ALABAMA: Eufaula, 18-VI-54, R. L. Fischer; Mobile, 10-V-10. MISSISSIPPI: Grenada Co., 18-VI-44, J. A. Wilcox. (NEW STATE RECORDS). There is also one specimen, without collector, labelled ARIZONA: Portal, 20-VII-68, which is probably mislabeled, as this locality is far removed from the known range and habitat of this species.

Acmaeodera trizonalis Kerremans. This striking and apparently uncommon species has been known only from Guerrero. COLIMA: Manzanillo, 21-1-66, F. T. Scott [RLWE]. JALISCO: Barra de Navidad, IX-65, N. L. & H. K. Krauss [BKDC]. (NEW STATE RECORDS).

Acmaeodera tubulus (Fabricius). Apparently this common eastern species has not been listed from the following states, though they fall within its generally recorded distribution. ARKANSAS: State University, 11-VI-1894, Knobel [GHNC]; Jasper, 17-V-58, Evans & Flint [GHNC]; Hot Springs National Park, 16 and 26-IV, 2-V-62, D. H. Huntzinger [WFBC]. NEBRASKA: Schubert, 16-V-70, B. C. Ratcliffe [GHNC]. OKLAHOMA: Muskogee Co., Camp Gruber, 6-VI-43, J. A. Wilcox [WFBC]. TENNESSEE: Burrville, 15-VI-60 [WFBC]. (NEW STATE RECORDS). Chamberlin's (1926) erroneously recorded this species from several western states. Rearred from Cercis reniformis Engelmann, TEXAS: Real Co., 5 mi E Camp Wood, 2-VII-71, GHN, em. 3-VI-72 (NEW LARVAL HOST). Chamberlin's (1926) host record of Dasylirion wheeleri must be in error and may refer to A. yuccavora Knnull. Flower visitation records include Achillea millefolium, Arenaria nuttallii, Cornus florida, Crataegus sp., Hudsonia ericoides, Leucothoe racemosa, Phlox sp., Rubus trivialis, Tephrosia virginiana, Tradescantia sp., Viburnum rufidulum, dewberry, hairy ruellia, and spiderwort. Also collected on Sapindus drummondii.

Acmaeodera tuta Horn. ARIZONA: Mohave Co., 4 mi S Hoover Dam, 13-VI-64, WFB, on Encelia sp. (NEW STATE RECORD). In Nevada this species has been collected on Dalea polyadenia, Encelia frutescens, Stephanomeria pauciflora; in California on Dalea californica.

Acmaeodera variegata LeConte. Recorded from TEXAS by Chamberlin (1926); however, since erroneous concepts of this species existed at that time it is worthwhile to establish this species’ occurrence in that state: Culberson Co., Guadalupe Nat. Park, The Bowl, 27-VII-77, D. D. Ralston [TTCC].

Acmaeodera wenzeli Van Dyke. No biological information has been recorded for this species. In the Chisos Mts., Texas, it has been beaten from healthy and decayed Acacia constriccta which likely serves as a larval host.

Acmaeodera wheeleri Van Dyke. Previously known only from Arizona, where it has been rarely collected. It appears to be more common farther south and specimens have been taken in SONORA: 10 mi E Navojoa, 14/21-VII-58, RLW; Alamos,

Acmaeodera wickenburgana Knull. This species was described from Arizona where, like the preceding, it is a rarity. Barr (1941) recorded it from "Northern Mexico". His record probably was based on a specimen collected in SONORA: Guaymas, 5-VIII-40, R. P. Allen [CASC]; other records include 22 mi N Guaymas, 2-IX-60, DSV; 3 mi E Navojoa, 29-VII-66, G. C. Walters, on Cercidium sp.; 15 mi E Navojoa, 18/21-VIII-59 and 22 mi W Alamos, 17-VII-63, RLW; 35 mi S Navojoa, 24-VIII-63, A. Hardy [DSVC]. SINALOA, 23 mi N Los Mochis Jct. and Hwy. 15, 14-IX-70, E. M. Fisher [RLWE]. (NEW STATE RECORDS).

Acmaeodera yuccavora Knull. This species has been collected in abundance near Portal, Cochise Co., Arizona, on flowers of Allionia incarnata, mostly during the morning hours (J. M. Davidson, pers. comm.).


LITERATURE CITED


VAN DYKE, EDWIN C. 1942. Contributions toward a knowledge of the insect

FOOTNOTE

BOOK REVIEW


On page one of this attractive little guide to beetle families of New Guinea the authors inform the reader that . . . “This small handbook gives only the simplest introduction to the subject.” About 45 families are included in a short key and in the text that follows. A brief description is provided for each family and some subfamilies. Some information on behavior and ecology is included. Genera found in New Guinea are also listed under the families and subfamilies. Although not every family is depicted there are about 100 illustrations of “selected representatives.” The four plates in color, showing 16 species, are beautiful. The ten plates of black and white photographs are fair-to-good and 36 black and white drawings are excellent. Among the 70 references that are listed there are many important works on New Guinea beetles for the serious student of Coleoptera. Although a handful of typographical errors were noted, the only serious shortcoming of this attractive and readable book is the poorly constructed binding. At least this was the case with the review copy sent to me. This volume should be of some interest to anyone interested in Pacific beetles.

-P.P.S.