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## A taxonomic review of the *Xanthonia* species occurring in Texas (Coleoptera: Chrysomelidae, Eumolpinae)

EDWARD G. RILEY<sup>1</sup>, DONALD M. WEISMAN<sup>2</sup> & MICHAEL A. QUINN<sup>3</sup>

<sup>1</sup>Research Assistant, Department of Entomology, Texas A&M University, College Station, Texas 77842-2475 USA

E-mail: [egrchryso@tamu.edu](mailto:egrchryso@tamu.edu)

<sup>2</sup>deceased

<sup>3</sup>Curatorial Assistant, Department of Integrative Biology, University of Texas Insect Collection, Austin, Texas 78702

E-mail: [entomike@gmail.com](mailto:entomike@gmail.com)

### Abstract

Taxonomy of the Texas representatives of the genus *Xanthonia* Baly, 1863 (Coleoptera: Chrysomelidae: Eumolpinae) is reviewed. A total of 12 species are recognized in Texas, including seven that are described as new: *X. hirsuta* Weisman, *X. marquai* Riley & Quinn, *X. nitida* Weisman, *X. parva* Riley & Quinn, *X. picturata* Weisman & Riley, *X. querci* Weisman, and *X. texana* Weisman. A key to the species recorded from Texas is given together with habitus and male genitalia figures, plant associations, and Texas range maps. Adult seasonality and plant preference data are graphically presented for abundant central Texas species. Previous Texas records of *X. striata* Staines & Weisman are based on misidentifications of *X. angulata* Staines & Weisman.

**Key words:** leaf beetle, plant association, seasonality, taxonomy, United States of America

### Introduction

Species of the genus *Xanthonia* Baly, 1863 are dull-colored, pubescent, frail-bodied leaf beetles (Chrysomelidae) of the subfamily Eumolpinae, common in woodland communities across most of the eastern half of the United States, forested regions of the southwestern United States and south through much of México to parts of Central America. Many species possess variably expressed darker maculation on their elytra, and most also produce a cuticular exudate that forms a whitish bloom accentuating these otherwise feeble dark color patterns. In central Texas, *Xanthonia* are among the most commonly encountered and most abundant early-season leaf beetles associated with woody vegetation (Quinn 2000). In this region, adults of at least one species appear during the winter months, and most species are present by mid-March. Their larvae are unknown, but as members of the subfamily Eumolpinae, it can be assumed that they are subterranean feeders on plant roots.

For many years, those striving to identify *Xanthonia* species of the United States have encountered more species than there are species-group names available. The two described southwestern United States species, *X. vagans* (LeConte) and *X. pinicola* Schaeffer, are easily recognized from their restricted ranges and their distinctive external morphology, while the two early-described eastern species, *X. decemnotata* (Say) and *X. villosula* (Melsheimer), are complexes of maculate and immaculate species, respectively.

One of us (DMW) undertook a taxonomic revision of the species found in America north of México for a graduate research thesis at North Carolina State University, Raleigh. The resulting revision (Weisman, D. M. 1960: *A Revision of the Species of the Genus Xanthonia Baly in America north of Mexico*. Unpublished thesis, North Carolina State College, Raleigh. vii + 69 pp.) introduced the use of the male genitalia, specifically the shape of the median lobe, for distinguishing species. That study recognized 18 species in America north of México and provided a key to species, descriptions, and illustrations of the male genitalia for each, including some intraspecific variations in the shape of the median lobe. The United States species recognized in that study fall geographically into three distinct areas: 1) eastern, represented by nine species; 2) Texan, represented by five species; and 3) southwestern, represented by four species.

Subsequent to the Weisman thesis, Staines & Weisman (2001a) published a treatment of the nine eastern species and (2001b) descriptions for two new species occurring in the southwestern United States. The early taxonomic history of North American *Xanthonia* is fairly simple and is not reviewed here (see Staines & Weisman 2001a).

In the present publication, the taxonomy of the *Xanthonia* species known to occur in Texas is reviewed in a standard taxonomic format. The 12 recorded Texas species include five previously named species (three eastern and two southwestern) and seven new Texan or primarily Texan species, five of which were first recognized by Weisman in his unpublished 1960 thesis. Also included in the present work is seasonality and plant association data for *Xanthonia* species from a separate study of arthropod diversity in Travis County, Texas (Quinn 2000), hereafter referred to as the “Travis County study.” This study sampled arthropods from four locally common tree species following a quantitatively standardized protocol during early spring to mid-summer of two successive years (1993–1994).

With the exception of *X. vagans* (LeConte), herein newly recorded from state of Sonora in México, none of the *Xanthonia* species treated in this work are known to occur from further south, although it is likely some will eventually be discovered in the northernmost regions of México. There are five named species of *Xanthonia* from México: three described by Jacoby (1882), one added by Blake (1954) and one added by Bechyné (1955). The syntypes of the Jacoby material in Natural History Museum in London and images of select syntypes housed at the Museum of Comparative Zoology were examined as well as images of Blake’s holotype and her thorough description and Bechyné’s brief comparative description. These examinations, although cursory, confirm that these named species are not among those named as new in the present work. Blake’s species is based on specimens intercepted at the Texas border from México and it is not a resident Texas species. A preliminary study of undetermined *Xanthonia* specimens from México indicates that there are numerous unnamed species present in that country.

## Methods

**Specimens examined.** This study is based on approximately 3800 *Xanthonia* specimens mostly from Texas, including most of the Texas material examined by Weisman. Many additional specimens from outside of Texas were also examined, some of which are reported on here. Specimens examined are from the following collections: **AJGC:** Arthur J. Gilbert Collection (private), Fresno, CA; **BYUC:** Brigham Young University, Provo, Utah (S. M. Clark); **CSUC:** C. P. Gillette Museum of Arthropod Diversity, Colorado State University, Fort Collins, CO (B. Kondratieff); **EGRC:** Edward G. Riley Collection (private), College Station, TX; **TAMU:** Texas A&M University Insect Collection, College Station, TX (K. Wright); **TORC:** Tom O. Robbins Collection (private), Temple, TX; **TTUM:** Texas Tech University Museum, Lubbock, TX (J. Cokendolpher); **UNMC:** Museum of Southwestern Biology, Albuquerque, NM (S. Brantley); **USNM:** United States National Museum of Natural History, Washington DC (A. Konstantinov / C. L. Staines); and **UTIC:** University of Texas Insect Collection, Austin, TX (A. Wild).

**Types.** The name-bearing type specimens for the previously-named Texas species were examined for all species except *X. vagans* LeConte and *X. villosula* Melsheimer. Holotypes and paratype series for the new species originally recognized by Weisman (1960) are the original material examined by Weisman, except for *X. picturata* where the description is expanded to include the male genitalia (males of this species were unknown to Weisman). Holotype label data is cited verbatim.

**Paratype and non-type label data:** The label data for paratypes and non-type specimens are interpretations of their original label data.

**Maps:** Distribution maps were produced using Google Maps. The points plotted are based on localities cited on specimen labels and were georeferenced using Geolocate (web client) or Google Earth Pro.

**Species descriptions.** For those new species originally recognized by Weisman, the descriptions are taken from the Weisman thesis but include some minor modifications and reformatting by the senior author. The use of elytral striae punctuation, confused vs. formed into rows, and to some extent the associated pubescence of the interstrial areas, alternating vs. present on each interval, was found to be variable and often difficult to interpret in some species, thus these characters have been de-emphasized in the present work. **Measurements:** All measurements are provided without distinguishing between males and females. **Color:** References to coloration are taken from mature, fully hardened specimens. No attempt is made to quantify or describe the flocculent whitish material found on the integument of most mature specimens as this material is likely a waxy cuticular exudate and is variable dependent on age of the specimen when killed and subject to alteration by solvent actions of various killing agents.

**Illustrations:** Illustrations from Weisman (1960) are reproduced here and so referenced in their associated captions. Those illustrations not so referenced are provided here for the first time. Habitus images were taken with a Canon MP-E 65mm 1–5x macro lens with ring flash, hand-held or fixed, and the resulting images received minimal touch-up using Google Picasa photo editor and Adobe Photoshop Elements. Images of legs and abdominal ventrites were taken with Leica Z16 APO microscope with Leica DFC295 digital camera and LAS v4.2 software with minimal post-capture processing with Adobe Photoshop Elements.

**Authorship of new names.** In recognition of the high quality of Weisman's unpublished work, the living authors wish to credit Weisman as sole author for the new species he recognized. One exception is made for *X. picturata* where the male was unknown to him.

## Key to *Xanthonia* species of Texas

- 1 Tooth of profemur large (Figs 21–22); large species, length 3.8–6.1 mm; apex of median lobe of male genitalia long and narrow, apex acute not incised (Figs 27–31) ..... 2
- Tooth of profemur moderate in size to minute or nearly obsolete (Figs 23–26); small species, length 2.1–4.0 mm; apex of median lobe of male genitalia narrow or broad, truncate or incised (Figs 32–54, 64–75) ..... 3
- 2 Elytra appearing mottled due to clumping of variable darker and lighter hairs and usually variably alternating light and dark brown coloration of integument (Fig 10) ..... 1. *X. vagans* (LeConte)
- Elytra of uniform brownish coloration, hairs uniformly pale brownish and integument of uniform medium brown color (Fig 11) ..... 2. *X. marquai* Riley & Quinn n. sp.
- 3 Tooth of profemur moderate (Fig 23); venter and legs dark brownish, elytral dark brown with darker pattern (Figs 6, 15) ..... 3. *X. picturata* Weisman n. sp.
- Tooth of profemur minute to obsolete (Figs. 24–26); color of venter, legs and elytra, and elytral pattern variable ..... 4
- 4 Ridge on lateral margins of abdominal ventrites III–V minutely denticulate (Figs 17–19) ..... 5
- Ridge on lateral margins of abdominal ventrites III–V entire, uniformly sharp (Fig 20) ..... 7
- 5 Median lobe of male genitalia truncate apically (Figs 36–38); punctuation of elytral disc subseriate, formed into more-or-less distinct rows; elytra usually without pattern of dark maculae or if present (rarely), ground color is light reddish brown [eastern Texas] ..... 4. *X. villosula* (Melsheimer)
- Apex of median lobe of male genitalia with conspicuous median incision; punctuation of elytral disc confused to subseriate; elytral pattern variable [central and western Texas] ..... 6
- 6 Elytra with distinct pattern of dark maculae (Fig 2, 55), ground color dark brown; apex of median lobe narrowed with moderately deep median incision (Fig 40–43); setae arising from elytral intervals erect and long, imparting bristly appearance; larger, length 2.8–3.4 mm [mountainous regions of western Texas] ..... 5. *X. dentata* Staines & Weisman
- Elytra without distinct pattern of dark maculae, ground color light reddish brown; apex of median lobe with broad moderately deep median incision (Fig 34); setae arising from elytral intervals reclining, moderate in length, not imparting an especially bristly appearance; smaller, length 2.1–2.7 mm [central Texas] ..... 6. *X. parva* Riley & Quinn n. sp.
- 7 Elytral setae dense, all setae appressed, of near uniform length and curvature and with seta emerging from punctures slightly shorter than those emerging from interstitial areas; tip of median lobe with deep, narrow, parallel-sided incision (Fig 45) ..... 7. *X. hirsuta* Weisman n. sp.
- Elytral setae distinctly dull with setae emerging from punctures shorter, lying nearly flat against elytral surface, strongly curved, and setae emerging from interstitial areas long, reclining and weakly curved; tip of median lobe variable, but not as above ..... 8
- 8 Elytra uniformly medium brown, immaculate; larger, length 3.5–4.0 mm; punctuation of elytral disc subseriate; median lobe long, broad throughout length, with deep angular apical incision (Fig 67) ..... 8. *X. angulata* Staines & Weisman
- Elytra either uniformly dark reddish brown or medium to pale brownish usually with variably developed pattern of dark maculae (Figs 3–4, 6–8); smaller, length 2.5–3.5 mm; punctuation of elytral disc subseriate to confused; median lobe variable, but not as above ..... 9
- 9 Abdominal ventrites and most of metasternum dark, nearly black; dorsum uniformly dark reddish brown lacking dark pattern or pattern barely discernable; median lobe (Figs 51–52) ..... 9. *X. nitida* Weisman n. sp.
- Abdominal ventrites and most of metasternum medium to pale brownish; dorsum pale to medium brown usually with variably developed pattern of darker maculae ..... 10
- 10 Apex of median lobe of male genitalia broad with broad rounded deep incision (Figs 47–48); femora pale; elytral pattern when well developed as in figures 8 and 76 ..... 10. *X. texana* Weisman n. sp.
- Apex of median lobe narrowed with narrow shallow incision; knee of leg or apex of femora often vaguely darker than remainder of leg ..... 11
- 11 Apex of median lobe of male genitalia with lobe on each side blunt (Figs 53); femora without dark spot at midlength; elytral pattern as in figures 7 and 77 [central Texas] ..... 11. *X. querci* Weisman n. sp.
- Apex of median lobe of male genitalia with lobe on each side acute (Figs 74); femora often with conspicuous dark spot at midlength; elytral pattern as in figures 3 and 78 [northeastern Texas] ..... 12. *X. furcata* Staines & Weisman

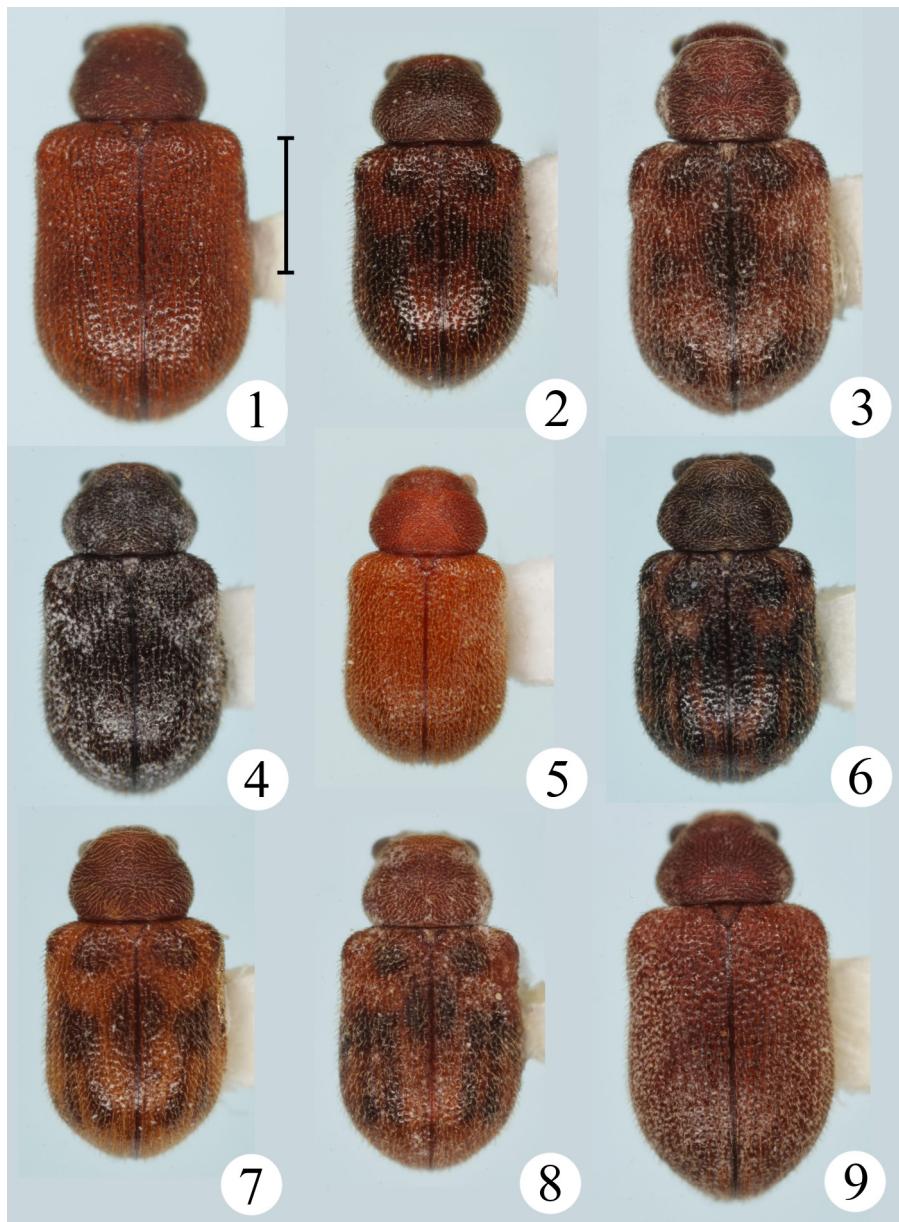
**1. *Xanthonia vagans* (LeConte)**

(Figs 10, 13, 21, 27–29; Map 1)

*Trichotheca vagans* LeConte 1884:12.

*Xanthonia vagans*: Horn 1892:19. Clavareau 1914: 75. Leng 1920: 292. Riley et al. 2003: 152.

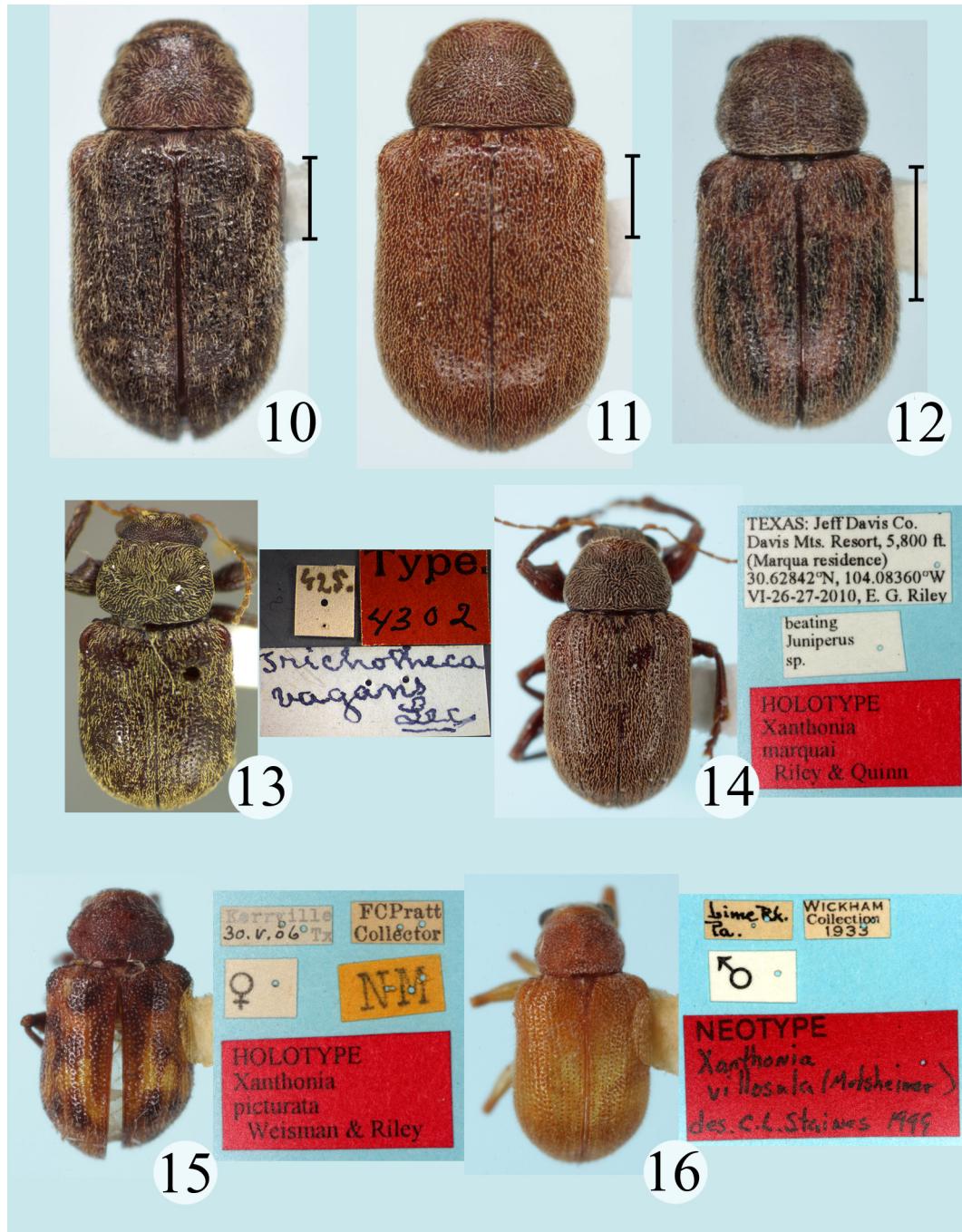
**Holotype.** Not examined, sex undetermined (Fig 13), conserved in MCZ (images at MCZ type database viewed November, 2017). This species was originally based on one specimen collected by Gustaf Belfrage in Texas (LeConte 1884). Weisman (1960) based his interpretation of this species on a specimen from Texas in the United States National Museum that had been compared to LeConte's type by Doris Blake. This USNM specimen is so labeled and was examined during the present study.



**FIGURES 1–9.** *Xanthonia* species, dorsal habitus. **1)** *X. angulata* (Bastrop Co., Texas); **2)** *X. dentata* (Jeff Davis Co., Texas); **3)** *X. furcata* (Wood Co., Texas); **4)** *X. nitida* (Pecos Co., Texas); **5)** *X. parva* (Kerr Co., Texas); **6)** *X. picturata* (Robertson Co., Texas); **7)** *X. querci* (Val Verde Co., Texas); **8)** *X. texana* (Bandera Co., Texas); **9)** *X. villosula* (Bossier Parish, Louisiana). Images to scale, scale bar = 1 mm.

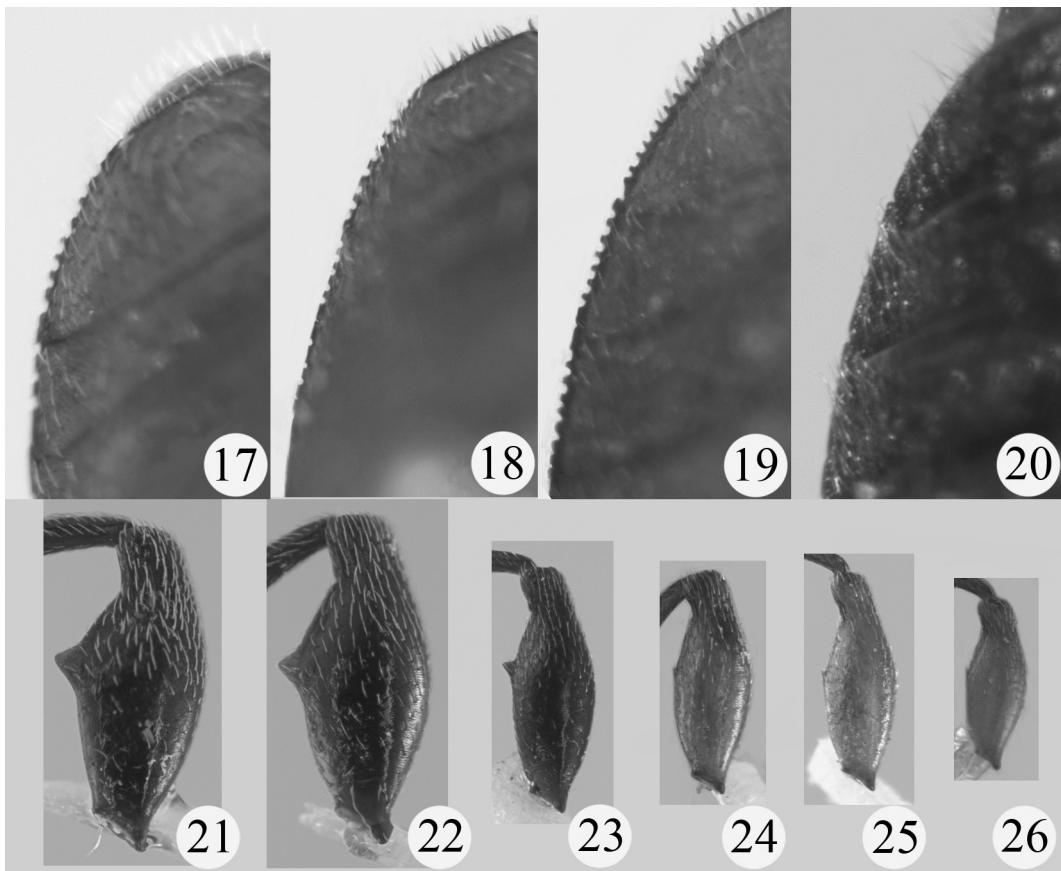
**Diagnosis.** Size large, length 3.8–5.2 mm; ground color of dorsum medium to dark brownish, elytra usually with vague dark streaks enhanced by arrangement of variable light and dark colored elytral hairs (Fig 10), venter

dark brown; punctures of elytral disc in uniform rows; hairs on elytral intervals roughly in paired rows, curved and strongly reclined, shorter hairs arising from punctures very small confined to punctures (difficult to see); ventral tooth of profemur large (Fig 21); lateral margins of all ventrites entire; median lobe of male genitalia long and narrow, evenly tapered to non-incised apex (Figs 27–28).



**FIGURES 10–12.** *Xanthonia* species, dorsal habitus. **10)** *X. vagans* (Cochise Co., Arizona); **11)** *X. marquai* (Jeff Davis Co., Texas); **12)** *X. hirsuta* (Travis Co., Texas). Scale bars = 1 mm. **Figs 13–16.** *Xanthonia* species, types and type labels. **13)** *X. vagans* (courtesy of the MCZ type database); **14)** *X. marquai*; **15)** *X. picturata*; **16)** *X. villosula*.

**Range.** Central Texas to Arizona and Sonora, México. Weisman (1960) recorded *X. vagans* from the Chisos Mountains of Texas, but it occurs as far eastward as the eastern edge of the Edwards Plateau (Map 1). LeConte's original type probably came from the vicinity of Bosque County where Gustaf Belfrage lived from 1868 to 1882 (Geiser 1948). Since there are very few Arizona and New Mexico records published for this species, label data from those states are cited in Appendix 1 and that for what is apparently the first record for México (Sonora). The Utah record reported by Horn (1892) has not been verified.



**FIGURES 17–26.** *Xanthonia* species, margins of ventrites III–V. **17**) *X. dentata*; **18**) *X. parva*; **19**) *X. villosula*; **20**) *X. angulata*. Figs. **21–22**). *Xanthonia* species, profemora. **21**) *X. vagans*; **22**) *X. marquai*; **23**) *X. picturata*; **24**) *X. hirsuta*; **25**) *X. texana*; **26**) *X. parva*.

**Plant associations.** Weisman (1960) listed “walnut” as a plant association for specimen(s) from Santa Rita Mts., Arizona. Our specimens from Travis County were taken on *Juniperus ashei* J. Buchholz as were some additional specimens from other counties indicating that this species is likely a juniper specialist. Label data indicate this species frequently comes to light.

**Seasonal distribution.** Collection dates indicate it is active later in the season. Only three specimens were taken during the Travis County study, all during late July.

**Remarks.** This and the following species are the most distinctive of North American *Xanthonia* because of their large size, greatly enlarged tooth of the anterior femur, clavate anterior tibiae, and the unique shape of the median lobe which is pointed and not incised at the apex. These characters are shared with certain other large species of *Xanthonia* found in México and Central America.

**Specimens examined.** See Appendix 1. The genitalia of eight males from six localities were examined.

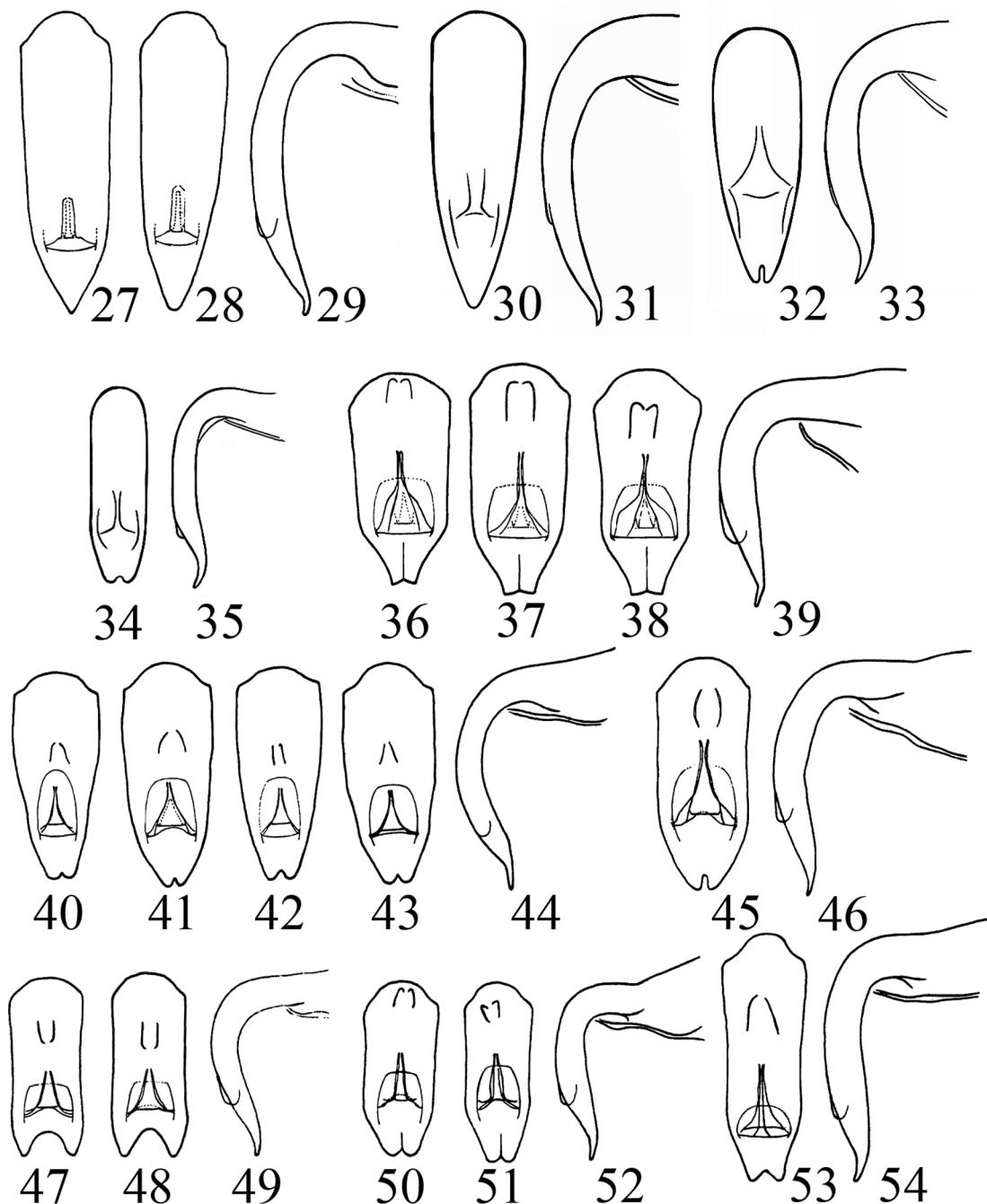
## 2. *Xanthonia marquai* Riley & Quinn n. sp.

(Figs 11, 14, 22, 30–31; Map 2)

**Holotype.** Here designated, ♂ (Fig 14) with the following labels: || TEXAS: Jeff Davis Co. | Davis Mts. Resort, 5,800 ft. | (Marqua residence) | 30.62842°N, 104.08360°W | VI-26-27-2010, E. G. Riley || beating | *Juniperus* | sp. || [red label] HOLOTYPE | *Xanthonia* | *marquai* | Riley & Quinn ||. Deposited in TAMU. The specimen is point-mounted and dissected, with abdomen and genitalia affixed to the point. It is in excellent condition with all appendages intact.

**Paratypes** (37 total) TEXAS: Jeff Davis Co., Davis Mts. Resort (Marqua residence), 5,800 ft., VI-26-1994, E. G. Riley [1 EGRC]; same data, except 30°37'42"N, 104°05'01"W, VI-22-23-2002 [6 EGRC]; same data as

holotype [23 total: AJGC, BYUC, EGRC, TAMU, USNM]; Madera Canyon rest stop, 30.70613°N, 104.10484°W, VII-4-2009, E. G. Riley, beating *Juniperus deppeana* Steud. [1 EGRC]; Davis Mts. Resort, 5800', VII-5-12-1993, D. Marqua, malaise trap [1 TAMU], same locality, VII-16-1994, D. G. Marqua [1 TAMU]; same data, except VII-3-1996 [1 TAMU]; same data, except IX-15-2003 [1 TAMU]; Madera Canyon, rest stop, Hwy. 118, VIII-7-1992, W. Godwin & E. Riley [2 TAMU].



**FIGURES 27–54.** *Xanthonia* species, en-face and lateral view of median lobe. **27**) *X. vagans* (Palmerlee, Arizona); **28–29**) *X. vagans* (Chisos Mts., Texas); **30–31**) *X. marquai* (Jeff Davis Co., Texas); **32–33**) *X. picturata* (Gonzales, Texas); **34–35**) *X. parva* (Kerr Co., Texas); **36**) *X. villosula* (Miller, Indiana); **37**) *X. villosula* (Dallas, Texas); **38–39**) *X. villosula* (Natchez, Mississippi); **40**) *X. dentata* (Socorro Co., New Mexico); **41**) *X. dentata* (Sapello, New Mexico); **42**) *X. dentata* (Chisos Mts., Texas); **43–44**) *X. dentata* (Cloudcroft, New Mexico); **45–46**) *X. hirsuta* (Dallas, Texas); **47–49**) *X. texana* (Victoria, Texas); **50**) *X. nitida* (San Antonio, Texas); **51–52**) *X. nitida* (Dallas, Texas); **53–54**) *X. querci* (Dallas, Texas). All figures from Weisman (1960), except 30–31 and 32–33.

**Diagnosis.** Size large, length 3.9–4.9 mm; ground color of dorsum uniformly medium brownish, elytral hairs uniformly light yellow-brown, (Fig 11), venter medium brown; ventral tooth of profemur large (Fig 22); lateral margins of all ventrites entire; median lobe of male genitalia long and narrow, evenly tapered to non-incised apex (Fig 30).

**Description. Color:** Head dark reddish brown, labrum and basal segments of antennae yellow brown, distal segments obscurely darker. Pronotum and elytra uniform medium brown (Fig 11). Venter medium brown as dorsum. Legs dark reddish brown, femora slightly darker. **Form:** Length 4.9–6.1 mm Head densely and coarsely punctate throughout with pale closely appressed pubescence, face with median line not evident to faint on vertex, inter-antennal area flat. Pronotum densely and very coarsely punctate with long pale brown closely appressed pubescence; pronotal width averaging 1.48 times its length, widest behind middle; sides moderately rounded in dorsal aspect; anterior transverse depression and lateral impressions shallow. Elytra with length averaging 1.42 times their combined width, 2.73 times length of pronotum; basal callosity evident; punctures in regular rows on disc including post-scutellar area and behind callosity, confused below humerus; punctures moderate in size, nearly as large as intervals on disc; intervals flat on disc, becoming slightly elevated near lateral margins and apex; pubescence composed of strongly reclined to recumbent hairs in double rows on intervals and very short obscure hairs contained within punctures. Metasternum completely smooth and lacking coarse punctures, very finely rugose in anterolateral angles. Abdomen with ridge on lateral margins of all ventrites entire, last segment of male flat without tubercles. Ventral tooth of profemur large and broad (Fig 22), distinct small ventral tooth on meso- and metafemora. Median lobe of male genitalia in en-face view long and narrow, evenly tapered to pointed apex without incision (Fig 30).

**Range.** Thus far, this species is known only from the Davis Mountains of western Texas (Map 2).

**Plant associations.** As with *X. vagans*, this species is likely a juniper specialist. Most of the type specimens were beaten from a single unidentified juniper tree having the general habitus of *Juniperus ashei* J. Buchholz. One specimen was beaten from *Juniperus deppeana* Steud..

**Seasonal Distribution.** Taken during June, July and September.

**Remarks.** Very close to *X. vagans* with which it shares most characters except the coloration. In *X. marquai*, both the medium reddish brown integument and the pale brownish pubescence are consistent in color throughout, giving these beetles an immaculate uniform appearance, whereas in *X. vagans* the mixed light and dark elytral hairs and, in most specimens, the light and dark brownish-streaked coloration of the elytral integument combine to impart a maculate appearance. On average, the body of *X. marquai* seems a trifle broader relative to its length than that of *X. vagans*.

This species is named to honor of David G. Marqua (1924–2017), beetle collector and Davis Mountains' resident. Dave's former residence at 5,800 ft. in the Davis Mountains is likely the best entomologically-known locale in the Davis Mountains, due to his personal collecting efforts, his warm friendly nature, and his long-standing invitation to countless insect collectors.

**Specimens examined.** See type data above. The genitalia of five males from one locality were examined.

### 3. *Xanthonia picturata* Weisman & Riley, n. sp.

(Figs 6, 15, 23, 32–33, 61; Map 4)

**Holotype.** Here designated, ♀ (Fig 15) with the following labels: || Kerrville | 30.V.06 TX || FCP Pratt | Collector || ♀ || NM || [red label] HOLOTYPE | Xanthonia | picturata | Weisman & Riley ||. Deposited in USNM. The abdomen is removed from the body and glued on the point. The specimen is in excellent condition with all appendages intact.

**Paratypes.** (35 total): TEXAS: Brazos Co. College Station, Riley Estate, 30.58840°N, 96.25366°W, V-1–7-2014, E. G. Riley, UV [3 EGRC]; same data, except V-1–10-2014 [17 total, AJGC, BYUC, EGRC, TAMU, USNM]. Kimbal Co. Junction, overlook area, 30°28'28N, 99°45'20"W, IV-10-2002, E. G. Riley [11 TAMU]. Uvalde Co. Sabinal, IV-1910, Pierce and Pratt [1 USNM]. Lee Co. Fedor, [1 USNM].

**Diagnosis.** Size moderate, length 2.6–3.6 mm; dorsal ground color dark brownish, elytra with distinct and fairly consistent pattern of black maculae (Figs 6, 15), venter dark brown to black; ventral tooth of profemur moderately large (Fig 23); lateral margins of all ventrites entire; median lobe of male genitalia long and narrow gradually tapered distally, apex narrowly rounded with short narrow incision (Fig 32).

**Description. Color:** Head dark reddish brown, labrum and antennae yellowish brown. Pronotum completely

dark reddish brown to nearly black sometimes with indistinct darker spot on each side of middle at base and another at middle of apical margin. Elytra dark reddish brown, each with darker spot at middle of base, one on humerus, a linear dorsal spot at suture extending along middle third, a row of three elongate spots across disc at basal third, one between outer two and humerus, a row of three across apical third and one at apex, some variation in expression and degree of fusion of these dark spots evident (Figs 6, 15). Venter dark reddish brown to black with apex of abdomen lighter. Legs dark reddish brown. **Form:** Length: 2.5 to 3.6 mm Head densely and coarsely punctate throughout and with silky golden closely appressed pubescence, face with median line conspicuously impressed and extending to vertex, interantennal area nearly flat. Pronotum densely and coarsely punctate with dense silky golden appressed pubescence, width averaging 1.46 times length, widest behind middle; sides very broadly rounded in dorsal aspect; anterior transverse depression and lateral impressions shallow. Elytra length averaging 1.36 times combined width, 2.7 times length of pronotum; basal callosity slightly prominent; punctures confused over most of disc and base, at most with vague rows present, tending to form rows at suture and along lateral margins and apex; punctures coarse, dense, larger than spaces between punctures; intervals at lateral margins slightly elevated; pubescence composed of erect hairs scattered on intervals to partially aligned in rows and appressed hairs arising from punctures as long as the erect hairs. Metasternum smooth medially, finely densely punctate laterally. Abdomen with ridge on lateral margins of all ventrites entire, last ventrite of male flat without tubercles. Ventral tooth on profemur moderately large (Fig 23), tooth on meso- and metafemora small to minute. Median lobe of male genitalia in en-face view long and narrow gradually tapered distally, apex narrowly rounded with short narrow incision (Fig 32).

**Range:** Much of central and eastern Texas to extreme south-central Oklahoma (Map 4).

**Plant Associations.** This species has been associated with several different woody plants, but it has a preference for oak species. Of the 112 specimens taken during the Travis County study, 68% were taken from *Q. fusiformis* Small and 25% were taken from *Quercus buckleyi* Nixon & Dorr (Table 1). Other recorded oak associations include, *Q. havardii* Rydb., *Q. macrocarpa* Michx., and *Q. marilandica* Münchh. Several specimens were collected at lights.

**Seasonal distribution.** Collected from early March to early June. Peak abundance during the Travis County study was late April (Fig 61).

**Remarks:** This is a distinctive species, owing to its dark coloration, moderate-sized profemoral tooth, and the distinctive male median lobe. Weisman's originally treatment of this species was based on only three females, but further field study has shown this to be one of the most abundant species in Texas (see specimens examined, Appendix 3). Specimens from the Edwards Plateau tend to be slightly smaller in overall stature than those found in the more eastern portions of the range.

**Specimens examined.** See Appendix 2. The genitalia of 22 males from 14 localities were examined.

#### 4. *Xanthonia dentata* Staines & Weisman

(Figs 2, 17, 40–44, 55; Map 5)

*Xanthonia dentata* Staines & Weisman, 2001b: 354. Riley et al., 2003: 152.

**Holotype.** Examined, ♂ (Fig 55) with labels and attachment as follows: || Cludcroft | New Mex. | Wickham. || Wickham | collection | 1933 || ♂ || [glycerin-filled microvial containing male genitalia] || [red label] HOLOTYPE | XANTHONIA | DENTATA Staines & | Weisman | des. C. L. Staines 2000 ||. This specimen is dissected with abdomen glued on point and male genitalia contained in a glycerin-filled microvial, all appendages intact. Conserved in USNM.

**Diagnosis.** Size moderate, length 2.8–3.4 mm; dorsal ground color dark reddish brown to medium brownish, elytra with distinct and fairly consistent pattern of black maculae (Figs 2, 55), venter dark brown to black; punctures of elytral disc irregular or with vague vestiges of rows present; elytral hairs composed of long erect hairs on intervals and appressed shorter hairs arising from punctures; ventral tooth of profemur small to minute; margins of ventrites III–V serrate to irregularly notched (Fig 17); median lobe of male genitalia gradually tapered distally, apex narrowly rounded with short incision (Fig 40–43).

**Range.** Arizona, Colorado, New Mexico and Texas. We have not confirmed the Kansas record reported by Staines & Weisman (2001b). Staines & Weisman (2001b) did not cite Arizona records for *X. dentata*, but a few specimens from Arizona were examined in the present study. Arizona records and an additional record for Colorado

and records for New Mexico are cited herein (see Appendix 4). In Texas, the range of *X. dentata* is restricted to the mountains of the Trans-Pecos region (Map 5).

**Plant associations.** This species has been regularly taken from oaks, including *Quercus grisea* Liebm.

**Seasonal distribution.** Collected from May to October, with most collections during June to August.

**Remarks.** Pale specimens of this species can be difficult to separate with certainty from *X. pilosa* Staines & Weisman, except by examination of the ridge on the margin of ventrites 3–5 and the male genitalia. In the later species, which is not presently known to occur in Texas, the ridge on the margins of ventrites 3–5 is entire. In general, the dorsal ground color of *X. pilosa* is a much lighter shade than that of *X. dentata*.

**Specimens examined.** See Appendix 3. The genitalia of 32 males from 18 localities were examined.

## 5. *Xanthonia villosula* (F. E. Melsheimer)

(Figs 9, 16, 19, 36–39; Map 6)

*Eumolpus Villosus* F. V. Melsheimer 1806: 47 [*nomen nudum*].

*Eumolpus villosulus* F. E. Melsheimer 1847: 169.

*Myochrous villosulus*: F. E. Melsheimer 1853: 125.

*Xanthonia villosula*: Crotch 1873: 96. Gemminger & Harold 1874: 3376. Clavareau 1914: 75.

Leng, 1920: 292. Staines & Weisman 2001a: 178. Riley et al. 2003: 153.

*Eumolpus plagiatus* F. E. Melsheimer 1847: 169 [as *Eumolpus villosulus*, var. ? a].

*Myochrous plagiatus*: F. E. Melsheimer 1835:125 [as valid species]. Staines & Weisman, 2001a:178 [as *nomen nudum*].

**Syntype.** Not examined, sex undetermined but probably ♀, conserved in MCZ [MCZ type no. 29396] (images at MCZ type database last viewed February, 2019). This species was originally based on an unknown number of specimens from Pennsylvania. Weisman (1960) based his interpretation of this species on Melsheimer's original description. Staines and Weisman (2001a) designated a neotype (examined, ♂, Fig 16, conserved in USNM), stating that they could not locate syntype material; however, this neotype designation is invalid since a syntype exists (ICZN Art. 75.8). The syntype at the MCZ had been dissected prior to this study and the abdomen is glued to the specimen's point. There is no microvial associated with the specimen (P. Perkins, personal communication to EGR, 2017). The margins of ventrites III–IV are finely serrate.

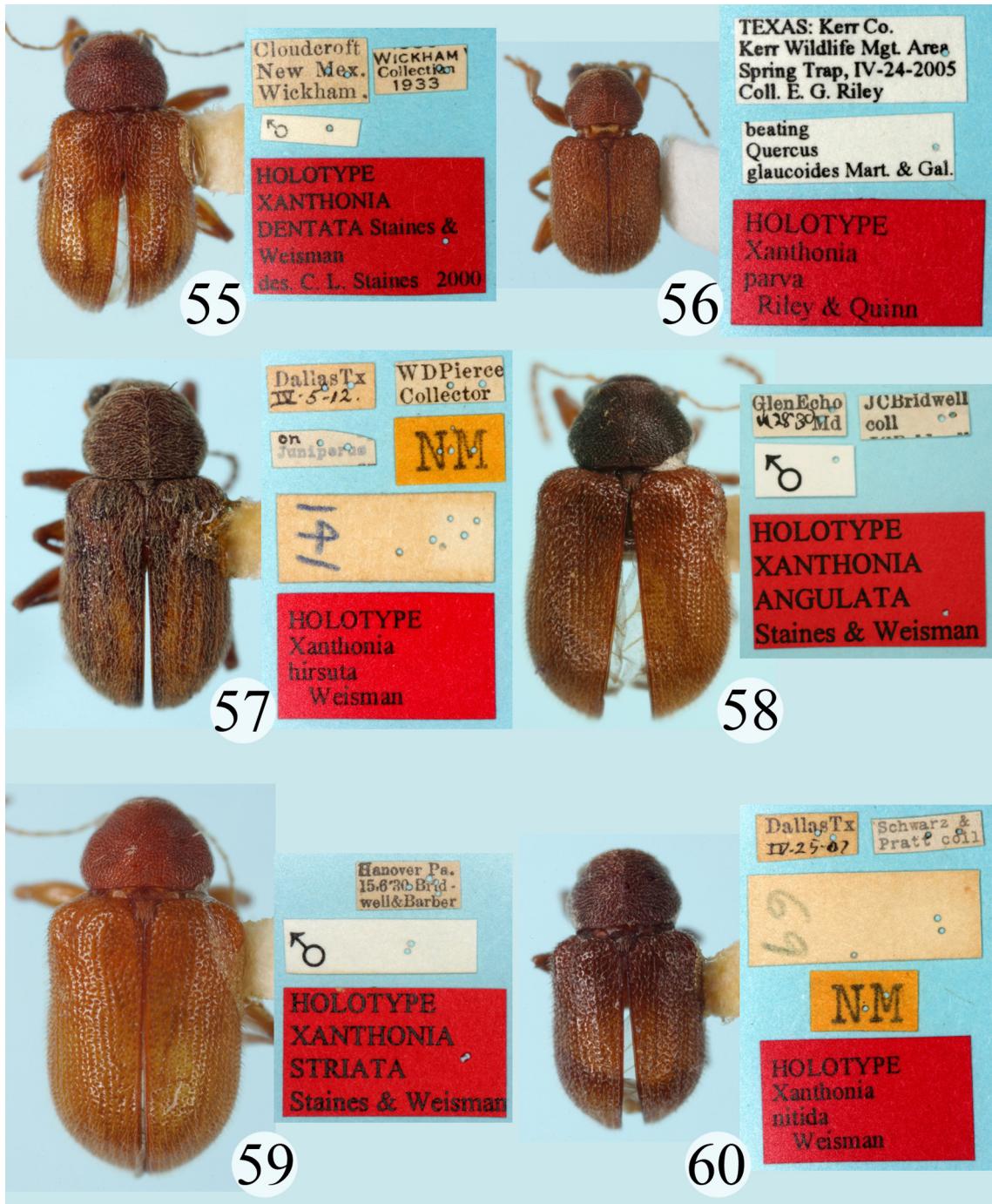
The name *Eumolpus plagiatus* of F. E. Melsheimer (1847) was mentioned as a variety of *E. villosulus* and accompanied by a diagnosis in that work. This name was treated as a *nomen nudum* by Staines & Weisman (2001a) and types were not located. This name is available from its original publication date and is here perpetuated as a junior synonym of *X. villosula*. It applies to either the maculate form of *X. villosula* or possibly to a different maculate species occurring in the geographical area where Melsheimer acquired his specimens.

**Diagnosis.** Moderate in size, length 2.8–3.5 mm; ground color of dorsum light reddish brown, usually immaculate or rarely with faint indications of elytral maculae (Figs 9, 16), venter brown; punctures of elytral disc in regular rows; hairs on elytral intervals long and suberect, those emerging from punctures short and appressed; ventral tooth of profemur minute; lateral margins of ventrites III–V finely evenly denticulate (Fig 19); median lobe of male genitalia gently tapered distally, apex abruptly truncate with weak emargination (Figs 36–38).

**Range.** Southern Ontario and Quebec south to South Carolina, Tennessee and Mississippi, west to Wisconsin, Nebraska, Kansas, Oklahoma and Texas (Staines & Weisman 2001a). The records of Dawson, Yukon, and “Colorado” cited in Staines & Weisman (2001a) seem out of the expected range for this species and are likely incorrect. The specimens supporting these records should be reexamined. The specimens cited from Travis County, Texas in that work were not examined during the present study. In Texas, this species is known from the eastern one-third of the state (Map 6).

**Plant associations.** This common and wide-ranging eastern species has been associated with numerous woody plants, with some of those records probably being based on other *Xanthonia* species (Clark, et al. 2004). The oak associations likely represent true food plants. Some Texas specimens were beaten from *Quercus nigra* L. and *Q. sellata* Wangen..

**Seasonal distribution.** Texas specimens were taken from April through June.



**FIGURES 55–60.** *Xanthonia* species, types and type labels. 55) *X. dentata*; 56) *X. parva*; 57) *X. hirsuta*; 58) *X. angulata*; 59) *X. striata*, 60) *X. nitida*.

**Remarks.** A fair number of the specimens examined from Fannin County have faint to distinct dark maculation on their elytra, but otherwise the elytral color of the examined Texas material is pale. The finely and uniformly denticulate ridge on the margins of ventrites III–V and the shape of the median lobe are the important diagnostic characters separating this species from all other species of similar size and coloration.

**Specimens examined.** See Appendix 4. The genitalia of 15 males from 10 Texas localities were examined and from many additional specimens not from Texas.

## 6. *Xanthonia parva* Riley & Quinn, n. sp.

(Figs 5, 18, 26, 34–35, 56; Map 6)

**Holotype.** Here designated, ♂ (Fig 56) with the following labels: || TEXAS: Kerr Co. | Kerr Wildlife Management Area | Spring Trap, IV-24-2005 | Coll. E. G. Riley || beating | Quercus | glaucoidea Mart. & Gal. || [red label] HOLOTYPEN | Xanthonia | parva | Riley & Quinn ||. This specimen is dissected with the genitalia and abdomen mounted on the point, missing one hind leg and portion of one antenna. Deposited in TAMU.

**Paratypes.** (18 total) TEXAS: Kerr Co., same data as holotype [10 total, EGRC, TAMU, USNM]; same locality as holotype, IV-25-1992, E. G. Riley [5 EGRC]; Kerrville, VI-5-1956, H. & A. Howden [1 USNM]; Burnet Co., 11.8 km. W Bertram, V-22-1989, R. S. Anderson [2 TAMU].

**Diagnosis.** Size small, length 2.1–2.7 mm; dorsal ground color light to medium reddish brown, immaculate or nearly so (Figs 5, 56), venter of body light to medium brown; hairs on intervals reclined and in single rows, hairs arising from punctures appressed nearly as long as those on intervals; ventral tooth of profemur obsolete to absent; margins of ventrites III–V serrate (Fig 18); median lobe of male genitalia gradually tapered distally, apex rounded with shallow v-shaped incision and short broad lobe on each side (Fig 34).

**Description. Color:** Head light reddish brown, labrum and antennae slightly lighter shade of reddish brown. Pronotum and elytra light to medium reddish brown, elytra without dark pattern or at most with vague traces of a pattern (Fig 5, 56). Venter light to medium brownish. Legs light reddish brown. **Form:** Length 2.1–2.7 mm Head densely and coarsely punctate throughout and with short golden closely-appressed pubescence, face with median line faintly impressed on vertex, inter-antennal area nearly flat. Pronotum densely and coarsely punctate with short fine golden recumbent pubescence, width averaging 1.27 times length, widest at middle; lateral margins evenly broadly rounded in dorsal view; anterior transverse depression and lateral impressions obscure. Elytra length averaging 1.38 times their combined width, 2.35 times length of pronotum; basal callosity poorly developed; punctures confused over most of disc and base, tending to form rows at suture and along lateral margins and apex; punctures as large or slightly larger than spaces between punctures; intervals at lateral margins and apex slightly elevated; pubescence composed of reclining hair arranged in single lines on intervals and recurved appressed hairs arising from punctures nearly as long as erect hairs. Metasternum smooth medially, finely densely punctate laterally. Abdomen with ridge of lateral margins of ventrites III–V serrate, often irregularly serrate (Fig 18); last ventrite of male flat without tubercles. Ventral tooth obsolete to absent on all femora. Median lobe of male genitalia in en-face view slightly tapered distally, apex broad, with shallow broad v-shaped incision that defines short round lobe on each side (Figs 34–35).

**Range.** Thus far known from a limited area of the Edwards Plateau (Map 6).

**Plant associations.** The holotype series was beaten from Lacey oak, *Quercus laceyi* Small (long-known in Texas as *Quercus glaucoidea* Mart. & Gal.).

**Seasonal distribution.** Taken during April and May.

**Remarks.** This is the smallest member of the genus occurring in Texas and not likely to be confused with other species with denticulate ventrite margins. It is most similar to *X. serrata* Staines & Weisman, another small species found in the eastern states but that species has a slightly differently shaped median lobe and distinct elytral pattern. Our Kerr County specimens are immaculate, but one specimen from Burnet County has a very faint indication of an elytral pattern.

**Specimens examined.** See types cited above. The male genitalia of seven males from two localities were examined.

## 7. *Xanthonia hirsuta* Weisman, n. sp.

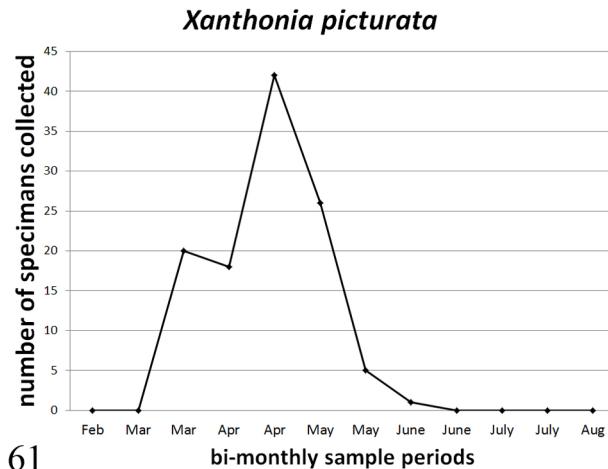
(Figs 12, 24, 45–46, 57, 62; Map 3)

**Holotype.** Here designated, ♂ (Fig 57) with the following labels and attachment: || Dallas TX | IV-5-12. || WDPierce | Collector || on | Juniperus | sp. || NM || 141 || [glycerin-filled microvial containing male genitalia] || [red label] HOLOTYPEN | Xanthonia | hirsuta | Weisman ||. This specimen is dissected with the abdomen glued on its point and the median lobe contained in a glycerine-filled microvial, all appendages intact. Deposited in USNM.

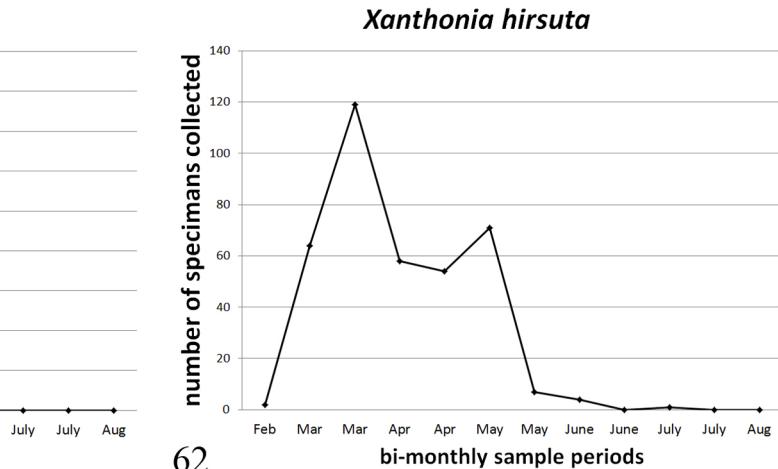
**Paratypes.** (12 total), TEXAS: Dallas Co., Dallas, IV-25-1907, Schwarz and Pratt [5 USNM, 1 male dissected with microvial]; same locality, IV-5-1912, W. D. Peirce, on *Juniperus* [1 USNM]; same data, except IV-27-1912 [2

USNM]; same locality, III-2-1908, E. S. Tucker, on pine [3 USNM, 1 male dissected with microvial]; same locality, III-6-1909, E. S. Tucker [1 USNM].

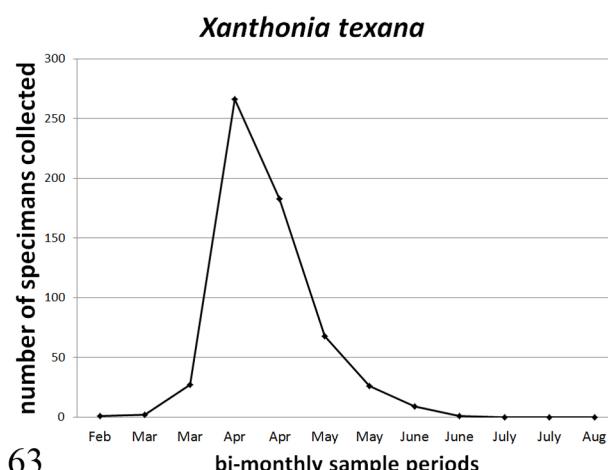
**Diagnosis.** Size moderate, length 3.0–3.5 mm; ground color dark brown, elytra with consistent pattern of black maculae (Figs 12, 57), venter of body black; hairs of elytra generally dense, composed of single rows of strongly reclined hairs on intervals and equally long appressed hairs arising from punctures; ventral tooth of profemur minute; lateral margins of all ventrites entire; median lobe of male genitalia narrowed distally, apex evenly rounded with narrow parallel-sided incision (Fig 45).



61



62



63

	<i>Juniperus ashei</i> (Cupressaceae)	<i>Quercus buckleyi</i> (Fagaceae)	<i>Quercus fusciformis</i> (Fagaceae)	<i>Ulmus crassifolia</i> (Ulmaceae)
<i>Xanthonia vagans</i> (3 specimens)	3	0	0	0
<i>Xanthonia picturata</i> (112 specimens)	3	28	76	5
<i>Xanthonia hirsuta</i> (380 specimens)	376	0	2	2
<i>Xanthonia texana</i> (583 specimens)	13	42	112	416
<i>Xanthonia nitida</i> (26 specimens)	0	11	15	1

Table 1.

**FIGURES 61–63.** Seasonal distribution of *Xanthonia* species from Travis County, Texas (data from Quinn, 2000). **61**) *X. picturata*; **62**) *X. hirsuta*; **63**) *X. texana*. **Table 1.** Quantitative plant association data for *Xanthonia* species from Travis County, Texas (data from Quinn, 2000)

**Description. Color:** Head reddish brown, labrum and basal segments of antennae yellowish brown, distal segments reddish brown. Pronotum uniformly dark reddish brown. Elytra dark reddish brown with darker spot at middle of base and each elytron with two or three dark longitudinal lines on disc, uniting basally and formed by extension and fusion of subapical spots, elytral markings partially obscured by dense pubescence (Figs 12, 57). Venter dark brown with distal abdominal ventrites lighter. Legs uniformly yellowish brown. **Form:** Length 3.0–3.5 mm Head densely and coarsely punctate throughout and with long golden recumbent pubescence, face with median line not evident, inter-antennal area flat. Pronotum densely and coarsely punctate, with long silky golden recumbent pubescence, length averaging 1.35 times its width, widest behind middle; sides fairly evenly broadly rounded in dorsal aspect; anterior transverse depression and lateral impressions absent. Elytra length averaging 1.45 times combined width, 2.45 times length of pronotum; basal callosity evident; punctures in regular rows, confused near scutellum, behind sulcus and below humerus; punctures as large as or larger than intervals of disc; intervals flat, or slightly elevated at sides and apex; pubescence composed of strongly reclined or recumbent hairs in single lines on the intervals and appressed hairs arising from punctures as long as the reclined hairs, pubescence fairly dense partially obscuring punctuation. Metasternum with lateral areas rugose and very coarsely densely punctate, becoming

smooth toward midline. Abdomen with ridge on lateral margins of all ventrites entire, last ventrite of male flat without tubercles. Ventral tooth on all femora minute to absent. Median lobe of male genitalia in en-face view narrowed distally, apex evenly rounded with narrow parallel-sided incision (Figs 45–46).

**Range.** Colorado, New Mexico and Texas. Primarily on the Edwards Plateau and westward to the Davis Mountains, Chisos Mountains and Guadalupe Mountains in Texas (Map 3), southeastern New Mexico, and extreme southeastern Colorado (Baca County).

**Plant associations.** Weisman (1960) cited plant associations from label data of “on *Juniperus*” and “on Pine.” More recently-collected specimens are mostly from *Juniperus*, represented by many separate collections. Of the 380 specimens tabulated for the Travis County study, 99% were from *Juniperus ashei* J. Buchholz (Table 1). The Austin County specimens, representing the eastern-most portion of the range, were collected from *J. virginiana* L.

**Seasonal distribution.** Most collections of this species are from the early spring through early June, but some are from the fall and winter months, indicating that unlike other Texas *Xanthonia* species, at least some emergence occurs prior to the spring warming. During the Travis County study, more specimens were taken during March than during subsequent months (Figure 62).

**Remarks.** This is a distinctive and easily recognized species, separated from the others occurring in the United States by the longer and denser elytral pubescence. That on the elytra is all decumbent, laying close to the elytral surface, and the hairs arising from the punctures are as long as those arising from the intervals. It is clearly a *Juniperus* specialist, but not closely related to the other juniper-associated species (*X. vagans* and *X. marquai*).

**Specimens examined.** See Appendix 5. The genitalia of 27 males from 15 localities were examined.

## 8. *Xanthonia angulata* Staines and Weisman

(Figs 1, 20, 58, 64–68; Map 5)

*Xanthonia angulata* Staines & Weisman 2001a: 160. Riley et al. 2003: 152.

*Xanthonia striata*: Staines & Weisman 2001a: 173 (in part).

**Holotype.** Examined, ♂ (Fig 58) with the following labels and attachment: || Glen Echo | VI 28 30 Md || JC Bridwell | coll || ♂ || [glycerine-filled microvial containing male genitalia] || [red label] HOLOTYPE | XANTHONIA | ANGULATA | Staines & Weisman ||. This specimen is dissected with the abdomen glued on the point and the male genitalia contained in a glycerine-filled microvial, all appendages intact. Conserved in USNM.

**Diagnosis.** Size moderate to large, length 3.5 to 4.0 mm; ground color of dorsum medium reddish brown with the pronotum notably darker than elytra, elytra immaculate (Fig 1, 58), venter dark brown to black; punctuation of elytral disc in regular rows; hairs on elytral intervals long and suberect, those emerging from punctures short and appressed; ventral tooth of profemur minute; lateral margins of all ventrites entire; median lobe of male genitalia long not tapered distally, distal emargination broad and shallow, v-shaped, lobes on each side subtriangular, divergent, with left lobe side slightly smaller than right lobe (Fig 67).

**Range.** Recorded from District of Columbia, Indiana, Kansas, Maryland, Missouri, Tennessee, and Virginia (Staines & Weisman 2001a). Also identified from Arkansas, Oklahoma and Texas in the present study. The only confirmed Texas specimens are from Bastrop County (Map 5).

**Plant Associations.** Staines and Weisman (2001a) record *Quercus* sp. Most of the Bastrop County specimens were beaten from *Quercus marilandica* Münchh., and it has been recorded from oaks in other states (EGR personal observations).

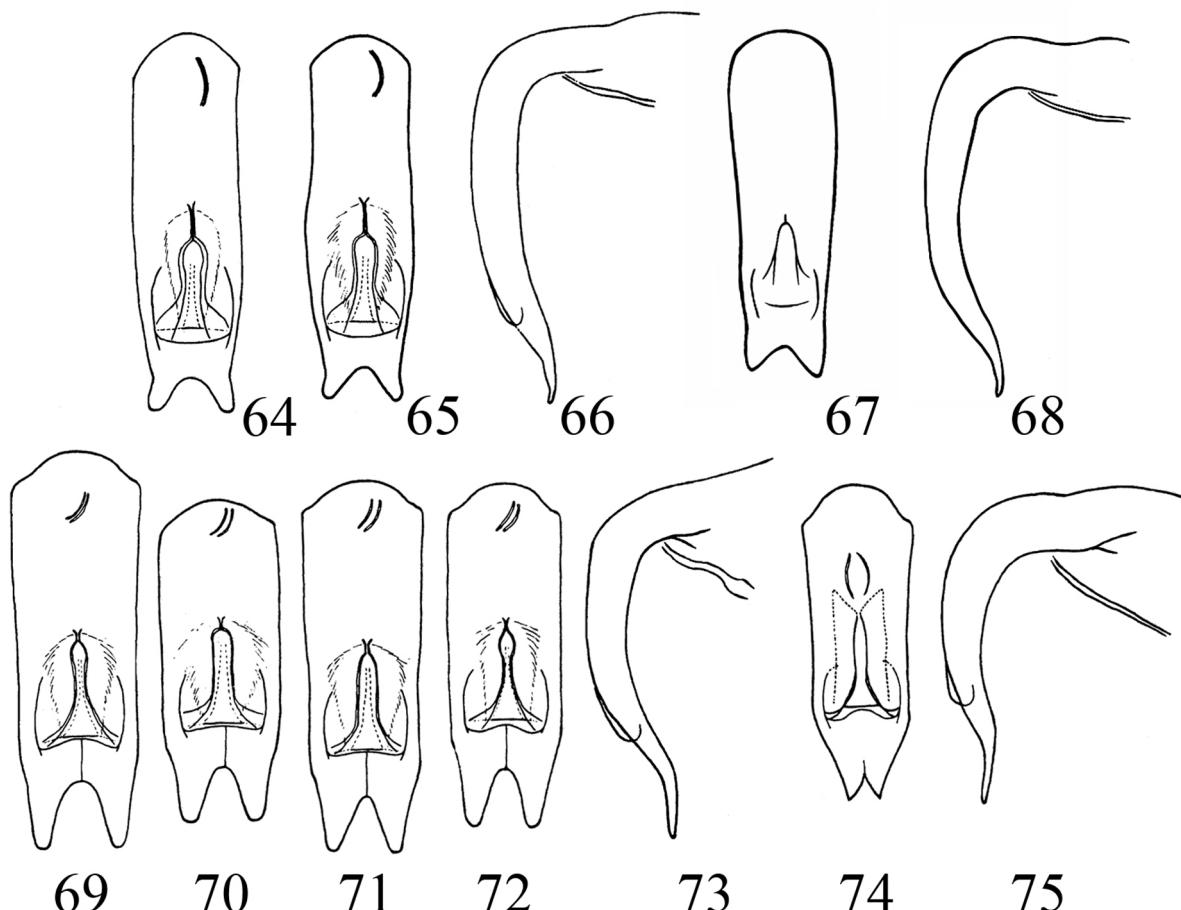
**Seasonal distribution.** The Texas specimens were collected from April through June.

**Remarks.** Staines and Weisman (2001a) cite specimens of *Xanthonia striata* from Bastrop and Travis counties in Texas. Close examination of specimens representing the Bastrop County records show that they are misidentified examples of *X. angulata*. In making this determination, we follow the original work of Weisman (1960) who states that *X. angulata* can be separated from *X. striata* by the more shallow apical emargination and the divergent apices at the apex of the median lobe (compare Figs 69–72 to Figs 64–65, 67). The Texas material we assign to *X. angulata* has the tip of the median lobe less laterally angled and with a broad, more triangular lobe on each side (Fig 67). A further difference between these two species is weakly indicated in Weisman’s original figures but more pronounced in the material examined during the present study (including that from Arkansas, Missouri and Oklahoma), namely the apices of the median lobe are unequal, that on the left (in en-face view) being slightly smaller than that on the

right (Fig 67). This slight asymmetry is not seen in any other *Xanthonia* species known to us. The median lobes of these species differ further in their lateral profiles. In *X. angulata* most of the length is nearly straight with a relatively smaller portion of overall length comprising the deflexed tip (Fig 66, 68), whereas in *X. striata* a greater portion of overall length comprises the deflexed tip (Fig 73).

Weisman (1960) identified material of *X. striata* mostly from states much further to the east of Texas and the Great Plains. Many of the specimens representing records published in Staines and Weisman (2001a) but not included in Weisman's original work should be re-examined. During the course of our study, we examined the holotype of *X. striata* (Fig 59).

**Specimens examined.** See Appendix 6. The genitalia of six males from one Texas locality were examined and from numerous specimens from other states. In the appendix we also cite confirmed records for Arkansas, Missouri, and Oklahoma.



**FIGURES 64–75.** *Xanthonia* species, en-face and lateral view of median lobe. **64**) *X. angulata* (Washington, DC); **65–66**) *X. angulata* (Mt. Vernon, Virginia); **67–68**) (Bastrop State Park, Texas), **69**); *X. striata* (Flatbush, New York); **70**) *X. striata* (Nelson Co., Virginia); **71**) *X. striata* (Wolfville, Maryland); **72–73**) *X. striata* (Hanover, Pennsylvania); **74–75**) *X. furcata* (Union Co., Illinois). All figures from Weisman (1960), except 67–68.

## 9. *Xanthonia nitida* Weisman, n. sp.

(Figs 4, 50–52, 60; Map 2)

**Holotype.** Here designated, ♂ (Fig 60) with labels and attachment as follows: || Dallas TX | 25.IV.07 || Schwarz & Pratt Coll || 69 || NM || [glycerine-filled microvial containing male genitalia] || [red label] HOLOTYPE | *Xanthonia nitida* | Weisman ||. This specimen is dissected with the abdomen glued on the point and the median lobe contained in a glycerine-filled microvial, missing terminal segment of one antenna, otherwise appendages intact. Deposited in USNM.

**Paratypes** (5 total): TEXAS: Bexar Co. San Antonio, IV-8-1945, duBois [1 USNM]; Blanco Co. Cypress Mills,

IV-2, Chittenden Collection [1 USNM]. Dallas Co. Same data as holotype [2 USNM]; same locality, IV-20-1907, Schwarz & Pratt [1 USNM].

**Diagnosis.** Size small to moderate, length 2.8–3.0 mm; dorsal ground color dark brown to nearly black, without obvious pattern of maculae (Figs 4, 60), venter dark brown to black; elytral hairs composed of erect hairs in single rows on intervals and appressed hairs arising from punctures nearly as long as erect hairs; ventral tooth of profemur minute to obsolete; lateral margins of all ventrites entire; median lobe of male genitalia gradually tapered distally, apex rounded with short V-shaped incision separating a short rounded lobe on each side (Fig 50–51).

**Description. Color:** Head dark reddish brown, labrum and antennae yellowish brown. Pronotum and elytra uniformly dark reddish brown to black, pattern not evident (Fig 4, 60). Venter varying from entirely dark reddish brown to black or forms with meso- and metathorax and abdomen dark. Legs dark reddish brown. **Form:** Length 2.8–3.0 mm Head densely and coarsely punctate throughout, punctures very shallow on clypeal area, with short closely appressed pubescence; face with median line moderately impressed and extending to vertex; interantennal area slightly concave. Pronotum densely and very coarsely punctate with short yellow recumbent pubescence, length averaging 1.35 times width, widest behind middle; lateral margins very broadly rounded in dorsal aspect; anterior transverse depression and lateral impressions absent. Elytra length averaging 1.35 times combined width, 2.35 times length of pronotum; basal callosity obscure; punctures in irregular rows which tend to be double, confused near scutellum, behind sulcus and below humeri; punctures as large as intervals on disc; intervals nearly flat on disc, becoming weakly costate on lateral areas and at apex; pubescence composed of erect bristle-like hairs in single lines on every other interval and appressed hairs arising from punctures nearly as long as erect hairs. Metasternum with lateral areas coarsely punctate and rugose. Ventral tooth on all femora minute to obsolete. Abdomen with ridge on lateral margins of all ventrites entire, last ventrite of male flat without tubercles. Median lobe of male genitalia in en-face view gradually tapered distally, apex rounded with short v-shaped incision defining short rounded lobe on each side (Figs 50–52).

**Range.** Confined to Texas, primarily on the Edwards Plateau, from Val Verde County north to Dallas County and as far west as the Glass Mountains in Pecos County (Map 2).

**Plant Associations.** None reported by Weisman (1960), but during the present study it was found abundant on *Quercus buckleyi* Nixon & Dorr, *Q. mohriana* Buckley and *Q. vaseyana* Buckley. Specimen numbers during the Travis County study were low, but most were taken on *Q. buckleyi* and *Q. fusiformis* Small (Table 1).

**Seasonal distribution.** Collection dates range from late March to late May. Specimen numbers during the Travis County study were low, but all were taken from early April to late May, most during April.

**Remarks.** The overall dark coloration of the body with no discernable dorsal elytral pattern and the shape of the male genitalia are diagnostic.

**Specimens examined.** See Appendix 7. The male genitalia of 21 males from eight localities were examined.

## 10. *Xanthonia texana* Weisman, n. sp.

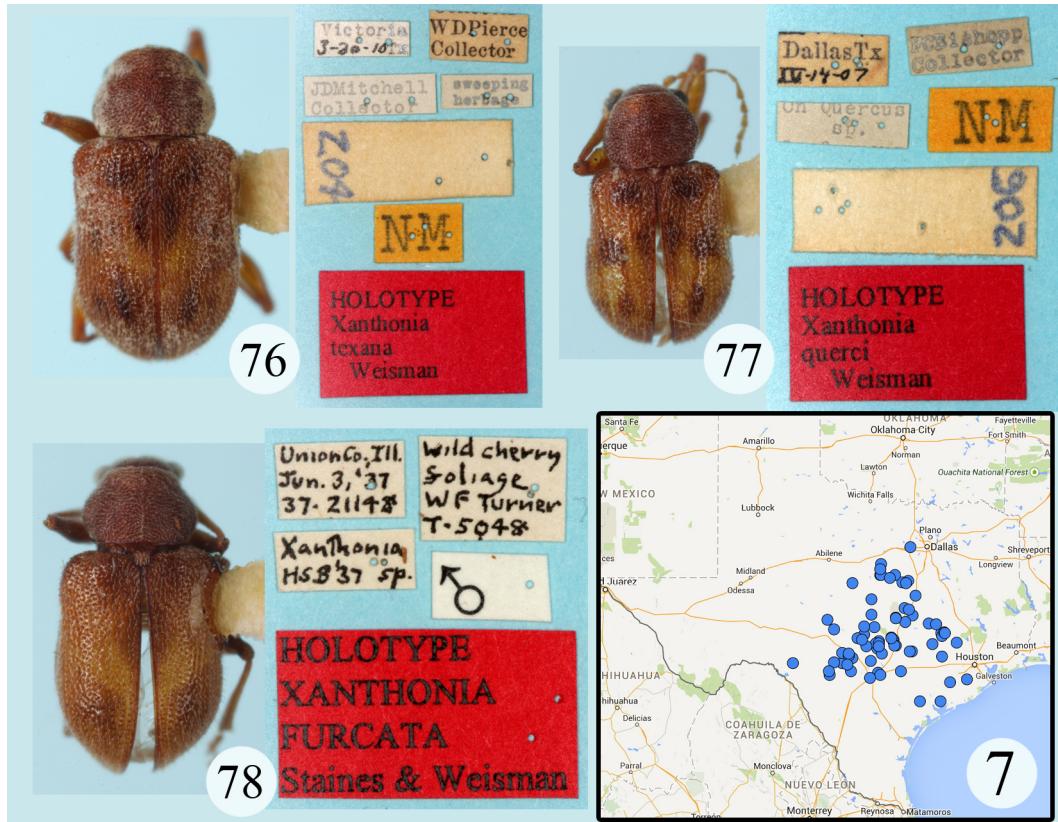
(Figs 8, 25, 47–49, 63, 76; Map 7)

**Holotype.** Here designated, ♂ (Fig 76) with the following labels and attachment: || Victoria | 3-30-10 TX || WD-Pierce | Collector || JDMitchell | collector || sweeping | herbage || 204 || NM || [glycerine-filled microvial containing male genitalia] || [red label] HOLOTYPE | *Xanthonia* | *texana* | Weisman ||. This specimen is dissected with the abdomen glued on the point and the median lobe contained in a glycerine-filled microvial, all appendages intact. The male genitalia are over-cleared. Deposited in USNM.

**Paratypes.** (43 total) TEXAS: “Texas” no further data [4 USNM]; Bexar Co. San Antonio, IV-8-1945, C. O. Orchard [2 USNM]; Burnet Co., Hubbard and Schwarz [1 USNM]; Blanco Co., Cypress Mills [2 USNM]; same locality, III-15, Chittenden Collection [2 USNM]; Kerr Co., Kerrville, IV-12-1907, F. C. Pratt [1 USNM]; same locality, VI-19-1907, F. C. Pratt [1 USNM]; same locality, IV-22-1908, F. C. Pratt [2 USNM]; McLennan Co., Waco, III-22-1907, W. D. Pierce, on woodbine [1 USNM]; Victoria Co., same data as holotype [7 USNM]; Victoria, IV-24, H. S. Barber [1 USNM]; same locality, IV-3, E. A. Schwarz [2 USNM]; same locality, IV-2, J. D. Mitchell [2 USNM]; same locality, IV-2, J. D. Mitchell, on red haw [1 USNM]; same locality, IV-13, J. D. Mitchell [2 USNM]; same locality, III-30-1909, J. D. Mitchell, collected on pecan [4 USNM]; same locality, IV-23-1907, J. D. Mitchell [1 USNM]; same locality, V-29-1908, J. D. Mitchell, on *Xanthium* sp. [1 USNM] same locality, IV-17-1911, J. D.

Mitchell, on *Cornus sericea* [1 USNM] same locality, IV-2-1908, J. D. Mitchell, on red haw tree [2 USNM]; same locality, IV-18-1911, J. D. Mitchell, on flowers [2 USNM]; Wharton Co. Wharton, IV-18-1905, W. W. Yothers [1 USNM].

**Diagnosis.** Size small to moderate, length 2.5–3.4 mm; ground color of dorsum light reddish brown, elytra ranging from immaculate to a pattern of well-defined brownish to black maculae (Figs 8, 76), venter of body brownish to distinctly darkened or partially black; pubescence of elytra composed of erect hairs on intervals in single lines and smaller appressed hairs arising from punctures nearly as long as erect hairs; ventral tooth of profemur minute to obsolete; lateral margins of all ventrites entire; median lobe of male genitalia broad to apex, apical emargination deep and rounded with broad lobe on each side (Fig 47–48).



**FIGURES 76–78.** *Xanthonia* species, types and type labels. 76) *X. texana*; 77) *X. querici*; 78) *X. furcata*. Map 7. Distribution of *Xanthonia texana*.

**Description. Color:** Head reddish brown, labrum and antennae yellowish brown. Pronotum reddish brown with darker area in middle of disc. Elytra light reddish brown with dark common median spot, each with dark spot at middle of base, one on humerus, a row of two or three across disc and of two or three across apical third, the distal and subapical spots tending to unite transversely and longitudinally (Figs 8, 76). Some specimens immaculate yellowish brown with light reddish brown head and prothorax, most with markings faint or reduced in number or extent. Venter reddish brown, becoming blackish on metathorax and base of abdomen. Legs yellowish brown.  
**Form:** Length 2.5–3.4 mm. Head densely and coarsely punctate throughout with fine short yellow recumbent pubescence, face with median line not evident, interantennal area moderately concave. Pronotum densely and coarsely punctate, with fine recumbent pubescence, width averaging 1.35 times its length, widest behind middle; sides fairly evenly broadly rounded in dorsal aspect; anterior transverse depression moderately deep to shallow and lateral impressions obscure to absent. Elytra with length averaging 1.50 times their combined width, 2.65 times length of pronotum; basal callosity evident; punctures in fairly regular rows, confused near scutellum, behind callosity and below humeri; punctures coarse, dense, and larger than intervals on disc; intervals somewhat convex on disc, becoming weakly costate on lateral areas and at apex; pubescence composed of erect hairs in single lines on intervals and appressed hairs arising from punctures nearly as long as erect hairs. Metasternum with moderately coarse dense punctures on lateral areas. Abdomen with ridge on lateral margins of all ventrites entire, last ventrite of male flat without tubercles. Ventral tooth on profemur very small to obsolete, meso- and metafemora with tooth obsolete to

absent. Median lobe of male genitalia in en-face view broad to apex, apical emargination deep and rounded with broad apically rounded lobe on each side (Figs 47–49).

**Range.** Confined to Texas, primarily the post oak savanna and blackland prairie regions of east-central Texas, but extending well into the eastern portion of the Edwards Plateau (Map 7).

**Plant associations.** Weisman (1960) cited the following plant associations from label data: “on Red Haw”, “on Red Haw Tree”, “on flowers”, “on *Xanthium* sp.”, “collected on pecan”, “on *Cornus sericea*”, and “on Woodbine”. Specimens examined during the present study were recorded on many different woody plants (see Appendix 8) but most are from *Ulmus crassifolia* Nutt. Data from the Travis County study, where this species was especially abundant, showed that it has a strong preference for *Ulmus crassifolia* with 71% of specimens collected from this tree species, followed by *Quercus fusiformis* Small with 19% of specimens (Table 1).

**Seasonal distribution.** The Texas collection dates range from March to August. In the Travis County study, the peak abundance was during early April (Fig 63).

**Remarks.** Although differing slightly in habitus from the other species of similar size with entire ventrite margins, this species can be difficult to identify without reference to the male genitalia. Its pattern of dark maculation, when well developed, differs slightly from similar species. The short male genitalia with a deep u-shaped apical emargination are highly diagnostic. As noted by Weisman (1960), this form of male genitalia is similar to that of *X. decemnotata* (Say). The alignment of elytral disc punctures is variable with most individuals displaying fairly regular rows.

**Specimens examined.** See Appendix 8. The genitalia of 71 males from 31 localities were examined.

## 11. *Xanthonia querici* Weisman, n. sp.

(Figs 7, 53–54, 77; Map 5)

**Holotype.** Here designated, ♂ (Fig 77) labeled || Dallas TX | IV.14.07 || FCBishop | Collector || on Quercus | sp. || NM || 206 || [glycerine-filled microvial containing male genitalia] || [red label] HOLOTYPE | *Xanthonia* | *querici* | Weisman ||. This specimen is dissected with the abdomen glued on the point and the male genitalia contained in a glycerine-filled microvial, with part of one antenna, one entire hind leg, and part of one hind tibia missing. Deposited in USNM.

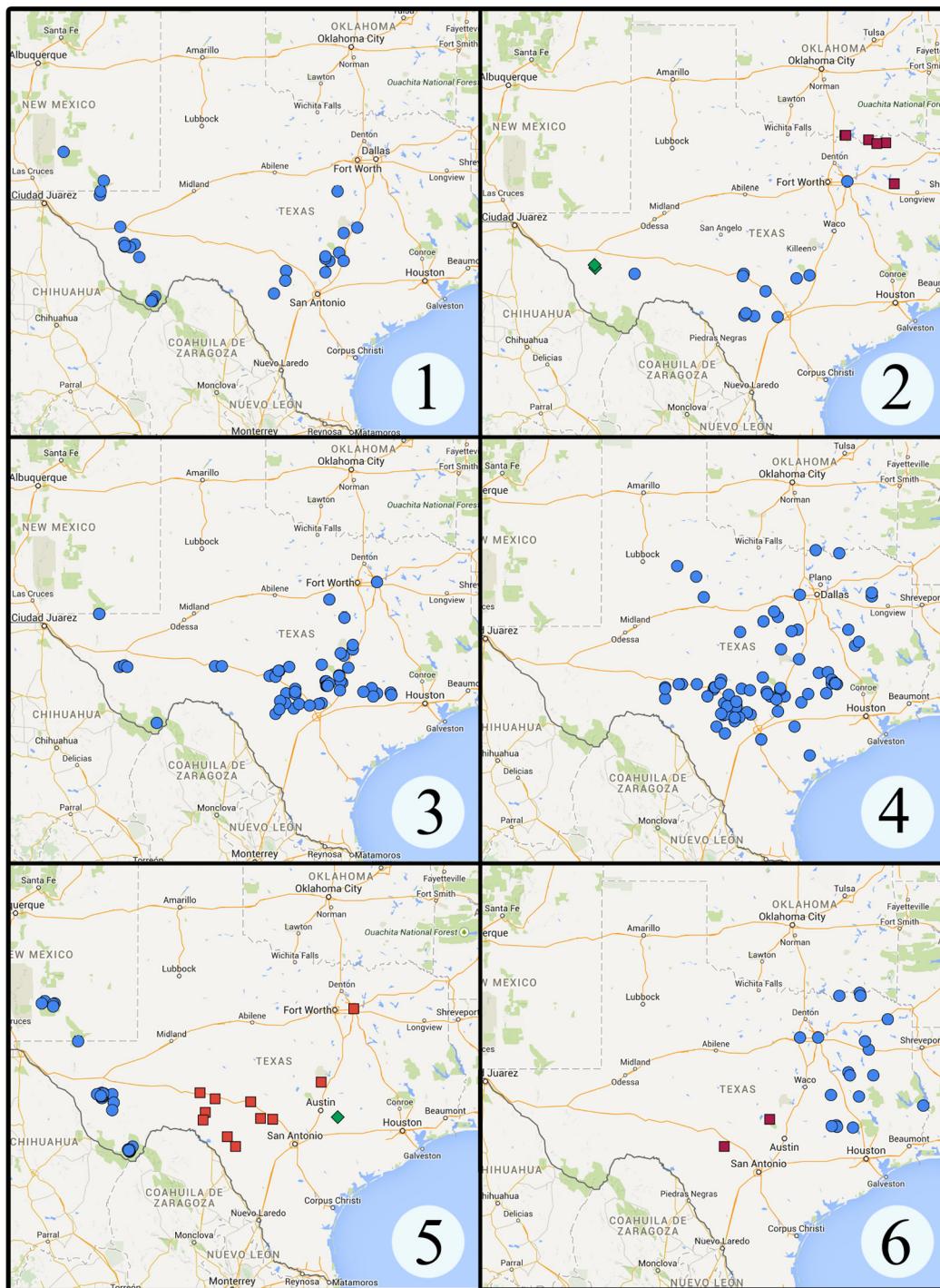
**Paratypes.** (8 total), TEXAS: same data as holotype [5 USNM]; same locality, IV-20-1907, F. C. Pratt [1 USNM]; same locality, IV-25-1907, Schwarz & Pratt [1 USNM]; same locality, IV-13-1910, W. D. Pierce [1 USNM].

**Diagnosis.** Size small to medium, length 2.5–2.8 mm; dorsal ground color light to medium reddish brown with pattern of darker maculae (Figs 7, 77), venter of body dark brown to black; pubescence of elytra composed of reclined hairs on intervals in single rows and appressed hairs arising from punctures shorter than erect hairs; ventral tooth of profemur minute; lateral margins of all ventrites entire; median lobe of male genitalia gradually tapered distally, apex rounded with short v-shaped incision and short blunt lobe on each side (Figs 53–54).

**Description. Color:** Head reddish brown, labrum and antennae yellowish brown. Pronotum reddish brown with disc transversely blackish. Elytra light to medium reddish brown with dark common median spot, each with dark spot at middle of base, one on humerus, one on middle and one on lateral area of disc, one near suture, and one on lateral area at apical third; the discal and subapical spots occasionally tending to unite both transversely and longitudinally or pattern often lighter in color, indistinct to sometimes absent (Figs 7, 77). Venter darker brownish to black with apex of abdomen lighter. Legs yellowish brown, knees often darker. **Form:** Length 2.5–2.8 mm. Head densely and coarsely punctate throughout and with short yellow closely appressed pubescence, face with median line faintly impressed, interantennal area slightly concave. Pronotum densely and coarsely punctate with short golden recumbent pubescence, width averaging 1.20 times length, widest at middle; sides evenly broadly rounded in dorsal aspect; anterior transverse depression moderately deep to shallow and lateral impressions obscure. Elytra length averaging 1.40 times their combined width, 2.45 times length of pronotum; basal callosity evident; punctures almost completely confused over disc and base, tending to form rows at suture and along lateral margins, often with one or two weak longitudinal costae evident on disc; punctures as large as spaces between punctures; intervals at lateral margins and at apex slightly elevated; pubescence composed of erect hairs on intervals tending to be in single lines and appressed hairs arising from punctures shorter than erect hairs. Metasternum with moderately coarse punctures near lateral edges. Abdomen with ridge on lateral margins of all ventrites entire, last ventrite of male flat

without tubercles. Ventral tooth on all femora very small to obsolete. Median lobe of male genitalia in en-face view gradually tapered distally, apex rounded with short v-shaped incision that defines a short blunt lobe on each side (Figs 53–54).

**Range.** Confined to Texas, primarily central Texas from Val Verde County north to Dallas County. Most collections are from the Edwards Plateau (Map 5).



**MAPS 1–6.** Distribution of *Xanthonia* species. **1)** *X. vagans*; **2)** *X. furcata* (■), *X. marquai* (♦), *X. nitida* (●); **3)** *X. hirsuta*; **4)** *X. picturata*; **5)** *X. angulata* (♦), *X. dentata* (●), *X. querci* (■); **6)** *X. parva* (■), *X. villosula* (●).

**Plant associations.** Weisman (1960) cited “on *Quercus* sp.” from label data. This species was not taken during the Travis County study; however, it was collected by beating *Q. fusiformis* Small in Crockett, Kinney, and Val Verde counties.

**Seasonal distribution.** Known collections are from March through May.

**Remarks.** As with the preceding species, this species can be tricky to identify without reference to the male genitalia. The pattern of dark maculation, when well developed, can be helpful, and the dark “knees” of the legs are unique, but this attribute is often variably expressed and is absent from some light-colored individuals. The alignment of elytral disc punctures is variable with some individuals displaying fairly regular rows.

**Specimens examined.** See Appendix 9. The male genitalia of 38 males from 10 localities were examined.

## 12. *Xanthonia furcata* Staines and Weisman

(Figs 3, 74–75, 78; Map 2)

*Xanthonia furcata* Staines & Weisman 2001a: 165. Riley et al. 2003: 152.

**Holotype.** Examined, ♂ (Fig 78) with the following labels and attachments: || Union Co., Ill. | Jun. 3' 37 | 37-21148 || wild cherry | foliage | W. F. Turner | T-5048 || Xanthonia | HSB'37 sp. || ♂ || [glycerine-filled microvial containing male genitalia] || [red label] HOLOTYPE | XANTHONIA | FURCATA | Staines & Weisman ||. This specimen is dissected with the abdomen glued on the point and the male genitalia contained in a glycerine-filled microvial, all appendages intact. Conserved in USNM.

**Diagnosis.** Size medium, length 2.8–3.5 mm; dorsal ground color light to medium reddish brown with pattern of darker maculae (Figs 3, 78); venter of body dark brown to black; pubescence of elytra composed of reclined hairs on intervals in single rows and appressed hairs arising from punctures shorter than erect hairs; ventral tooth of profemur obsolete to absent; lateral margins of all ventrites entire; median lobe of male genitalia gradually tapered distally, apex with deep, acute v-shaped incision with acutely pointed lobe on each side (Fig 74).

**Range.** Recorded from Illinois and Missouri (Staines & Weisman 2001a). During the present study, specimens were recorded Texas and adjacent Oklahoma (Appendix 10). In Texas, *X. furcata* is known from the northeastern portion of the state (Map 2).

**Plant associations.** The holotype is labeled as having been taken on wild cherry. There are no plant associations for the Texas material, but the collection records from Oklahoma are from oak.

**Seasonal distribution.** Collections in Texas and Oklahoma are from April and May.

**Remarks.** As with the preceding two species, this species can be tricky to identify without reference to the male genitalia, but its color pattern when well developed and its restricted range in Texas are helpful. The male genitalia with a deep and sharply defined v-shaped emargination and acute lateral lobes are highly diagnostic.

**Specimens examined.** See Appendix 10. The male genitalia of 14 males from 5 localities were examined.

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#### APPENDIX 1. *Xanthonia vagans* (LeConte), specimens examined (384 total).

**MEXICO: SONORA: Mun. Nacoziari de Garcia:** Rancho la Zulema, 15.9 km. SE Nacoziari de Garcia, Sierra Juriquipa, 30.2839°N, 109.5603°W, elev. 1687, VII-14-2017, T. R. Van Devender & J. D. Palting [1 BYU]; same data, except VII-15-2017 [2 BYU]. **USA: ARIZONA: Cochise Co.** Chiricahua Mts., Pridham Canyon, VIII-14-1977, S. McCleve [1 TAMU]; Chiricahua Mts., Texas Canyon, 5300', VIII-12-1974, S. McCleve, at light [3 TAMU]; Dragoon Mts., Sorin Canyon, 1926m, VII-23–24-1979, S. McCleve, at light [1 TAMU]; Portal Ranger Station, V-31-1977, J. Daneker, at light [1 TAMU]; same data, VI-11-1977 [1 TAMU]; 2 mi. SW Paradise, nr. Turkey Creek, 6100', VIII-8-1992, Wm. Godwin & M. Vogel [1 TAMU]; Peloncillo Mts., 33 mi. E Douglas, VII-18-1974, S. McCleve [1 TAMU]; nr. Rucker Lake, VIII-15-1970, S. McCleve, at light [1 TAMU]; same data except: VII-10-1974 [1 TAMU]; Southwest Research Station, 5 mi. W Portal, IX-19-1975, R. Wharton [1 TAMU]; Southwest Research Station, 5400', VIII-18-1981, T. & T. A. Friedlander [1 TAMU]. **Graham Co.** Galiuro Mts., High Cr., 1660m, VII-20-1978, S. McCleve, at light [3 TAMU]. **Pima Co.** Madera Canyon Road, VIII-25-26-1994, J. Huether [1 TAMU]. **NEW MEXICO: Catron Co.** Cottonwood Campgrd., Hwy. 80, 14.5 (air) mi. S Luna, 33.61887°N, 108.89515°W, VII-14-2012, E. G. & M. L. Riley, UV [1 EGRC]. **Eddy Co.** Sitting Bull Canyon, VIII-18-1982, R. Turnbow [1 TAMU]. **Grant Co.** Central City, 8 mi. E Silver City, VI-1-1971, J. R. McClellan [1 BYU]. **Hidalgo Co.** Animas Mts., Indian Creek 1737m, VIII-5-6-1979, S. McCleve [1 TAMU]. **Ortero Co.** Sacramento Mts., Fresnal Canyon, 5,850 ft., 32°56'50"N, 105°52'29"W, VIII-10-2003, E. G. Riley [1 EGRC]. **Sandoval Co.** Soda Dam, Jemez River, 2 mi. N Jemez Springs, 35.79118°N, 106.68639°W, 1924m, VI-7-2010, C. R. Nelson, J. K. Gelhaus, P. B. Frandsen [1 BYU]. **TEXAS: Bandera Co.** 12 mi. W Medina on Hwy. 337, V-4-1999, S. M. Clark [2 BYUC]. **Bell Co.** Temple, VII-11-1985, T. O. Robbins, hiding under loose bark on damaged tree of *Juniperus ashei* [3 TORC]; 1 km. W Youngsport, Bowmer Ranch, Lampasas River bluff, 30.96197°N, 97.72903°W, X-1-XI-11-2011, T. O. Robbins, FIT-ground level [1 TORC]. **Blanco Co.** (no further locality), IX-12-1958, H. R. Burke [1 TAMU]; 3 km. NE Payton

[30.145°N, 98.287°W], malaise trap, X-3-X-28-2005, J. C. Abbott [1 UTIC]; same data, except IX-29-XI-15-2005 [2 UTIC]; Pedernales Falls St. Pk., X-1990, C. R. Nelson [1 BYUC]; same locality, V-5-1998, S. M. Clark & C. R. Nelson [1 BYUC]; 2.7 mi. N Pedernales Falls St. Pk., V-21-1989, E. G. Riley [4 EGRC]. **Bosque Co.** 2 mi. W Iredell, VI-21-1968, J. C. Schaffner [1 TAMU]. **Brewster Co.** Alpine, VIII-13-14-1992, J. C. Schaffner [2 TAMU]; Big Bend Nat'l. Pk., The Basin area, VI-11-2004, E. G. Riley, UV light [1 TAMU]; same locality, VI-5-8-2006, E. G. Riley [24 TAMU]; Big Bend Nat'l. Pk., Green Gulch, 5700', VIII-13-1968, J. E. Hafernik [1 TAMU]; Big Bend Nat'l. Pk., Green Gulch, VI-4-1972, W. E. Clark [1 TAMU]; Big Bend Nat'l. Pk., Colima Trail, 2179 m, IX-7-1988, R. S. Anderson [1 TAMU]; Big Bend Nat'l. Pk., Laguna Meadow Trail, VII-3-1978, R. Turnbow [1 EGRC]; same locality, VII-3-1978, J. E. Wappes [1 EGRC]; Chisos Mountains, Big Bend, VII-3-1942 [1 USNM]; **Comal Co.** Fischer, Hwy. 32, Fischer Cemetery, 29.97444°N, 98.26126°W, VI-18-2012, T. O. Robbins [1 TORC]. **Culberson Co.** 5 km. N Kent, County Road 2424, 31°06'36"N, 104°18'09"W, VIII-17-2001, J. D. Oswald & S. L. Winterton, MV light [1 TAMU]. Guadalupe Mountains Nat'l. Pk., VII-30-1989, W. F. Chamberlain, at light [1 TAMU]; Guadalupe Mountains Nat'l. Pk., McKittrick Canyon, VIII-1977, D. D. Ralston, malaise trap [10 USNM, TTUM]; same locality, VIII-4-1976, R. Benson, D. Ralston [1 USNM]. **Hays Co.** 6 mi. NW Dripping Springs, 30°13.554°N, 98°11.039°W, various dates from IX-8-2005 to IX-9-2006, E. G. Riley, et al., *Juniperus* managed or unmanaged plots, flight intercept, Lindgren funnel, or pit-fall trap [49 TAMU]. 10.4 km. NW Dripping Springs, 30.227°N, 98.185°W, malaise trap, dates from VIII-24 to XI-18-2005, J. C. Abbott [12 UTIC]; same data, except IV-6-IX-2006 [17 UTIC]; same data, except VII-4-IX-21-2007 [11 UTIC]; 11.6 km. NW Dripping Springs, 30.237°N, 98.194°W, malaise trap, dates from V-9 to XI-5-2007, J. C. Abbott [4 UTIC]; same data, except VI-27-X-8-2008 [1 UTIC]; 10.7 km. NW Dripping Springs, 30.230°N, 98.187°W, malaise trap, various dates from V-3 to VIII-16-2006, J. C. Abbott [5 UTIC]; same data, except V-9-VII-4-2007 [92 UTIC]; 8.6 km. E Payton 30.105°N, 98.216°W, malaise trap, various dates from IV-24 to X-29-2008, J. C. Abbott [39 UTIC]; same data, except V-9-XI-5-2007 [13 UTIC]. **Jeff Davis Co.** Davis Mountains St. Pk., IX-10-1988, R. S. Anderson [1 TAMU]; same locality, VIII-10-1992, Wm. Godwin & E. Riley, at UV light [1 TAMU]; Davis Mountains Resort, VI-25-2000, J. E. Wappes [1 TAMU]; same data except IV-7-17-1993 [1 TAMU]; same locality except 30.62842°N, -104.08360°W, VII-4-5-2009, E. G. & M. L. Riley, UV [4 EGRC]; same locality, VI-26-27-2010, E. G. Riley, beating *Juniperus* sp. [1 EGRC]; same data except IV-21-2011, M. A. Quinn & E. G. Riley [1 TAMU]; 10 mi. N Fort Davis, VII-15, 1991, R. A. Androw [1 BYUC]; Davis Mountains., Limpia Canyon, 30°35.840°N, 103°55.872°W, 4954', VIII-18-2004, A. J. Gilbert & R. D. Haines [2 AJGC]; Madera Canyon rest stop, Hwy. 118, VIII-7-1992, W. B. Godwin & E. G. Riley, UV light [1 TAMU]. **Kerr Co.** 6.5 mi. SW Hunt, 29°59.40'N, 99°23.244'W, IX-2-X-5-2006, E. G. Riley et al., upland deciduous forest, Lindgren funnel trap [1 TAMU]. **Travis Co.** Brackenridge Field Laboratory, Austin, VI-13-1986, A. Hook [4 TAMU]. City Park Road, Austin, 30.3697°N, 97.8331°W, V-8-VII-9-2007, J. C. Abbott [2 UTIC]; same data, except VII-28-X-6-2008 [1 UTIC]; Colorado River, Austin, 30.352°N, 97.815°W, malaise trap, various dates from V-3 to IX-29-2006, J. C. Abbott [10 UTIC]; same data, except V-8-VII-9-2007 [3 UTIC]; same data, except various dates from V-30 to X-30-2008 [4 UTIC]; vicinity Long Hollow Creek, 30°27'43"N, 97°52'19"W, VII-23-1993, Alexander, Quinn, Riley, Wharton, et al., on *Juniperus ashei* [2 TAMU]; same data, except VII-13-1994 [1 TAMU]; Parkside Hills, 30.334°N, 97.888°W, V-31-VII-6-2006, J. C. Abbott [5 UTIC]. **Uvalde Co.** Freedman Ranch Springs, VI-25-1991, J. A. Jackman [1 TAMU]; ca. 6 mi. S jct. Hwy. 127 on Hwy. 83, V-10-2997, E. G. Riley, beating *Juniperus* sp. [4 EGRC].

## APPENDIX 2. *Xanthonia picturata* Weisman & Riley n. sp., specimens examined (395 total).

**OKLAHOMA:** **Marshall Co.** Univ. Oklahoma Biol. Sta., Ecological Research Area, IV-28-2012, E. G. Riley, UV light [14 EGRC]. **TEXAS:** **Anderson Co.** Elkhart, IV-22-1962, H. R. Burke [1 TAMU]; 10 mi. SW Elkhart, III-31-2963, H. R. Burke [1 TAMU]; Gus Engeling Wildlife Management Area, V-2-1999, S. M. Clark [1 BYUC]. **Bandera Co.** 6.2 mi. W Bandera, IV-25-1992, E. G. Riley [2 EGRC]; Hill Country Natural Res., III-11-2001, C. W. O'Brien [1 BYUC]; 2.5 km. ENE Bandera, along Bandera Creek, V-4-1999, R. Androw & S. M. Clark [1 BYUC]; Lost Maples Nat. Pk., IV-21-1986, Kovarik, Haack & Agnew [3 TAMU]; same locality, IV-27-1986, P. W. Kovarik & K. Haack [36 TAMU]; same locality, V-10-1986, P. W. Kovarik [3 TAMU]; 12.5 mi. N Medina, V-2-1983, J. C. Schaffner [1 TAMU]; 4 mi. NE Vanderpool, 29.78172°N, 99.50360°W, IV-4-2011, E. G. Riley [11 TAMU]. **Bastrop Co.** Bastrop St. Pk., V-5-1968, J. C. Schaffner [1 TAMU]; same locality, IV-7-8-2000, E. G. Riley [1 EGRC]; same data, except V-10-1992, beating *Quercus marilandica* [1 EGRC]. **Bell Co.** Temple, IV-25-2003, T. O. Robbins [1 TORC]; same data, except IV-28-2003 [1 TORC]; same data, except V-1-2003, collected from foliage of *Quercus macrocarpa* [1 TORC]. **Bexar Co.** jct. Mathis Road & I-37, Waterwood Estates, III-30-1991, E. G. Riley [2 EGRC]. **Blanco Co.** Pedernales Falls St. Pk., IV-16-1990, A. Hook [11 TAMU]; 2.7 mi. N Pedernales Falls St. Pk., V-21-1989, E. G. Riley [1 EGRC]. **Bosque Co.** 8 mi. ESE Meridian, V-15-2000, W. F. Chamberlain, beating [1 TAMU]. **Brazos Co.** (no further locality) III-29-

1965, H. R. Burke [1 TAMU]; Bryan, IV-9-1989, E. G. Riley [1 EGRC]; College Station, III-26-1932, H. J. Reinhard [10 TAMU]; same data, except IV-24-1932 [1 TAMU]; same data, except III-31-1935 [1 TAMU]; same locality, VI-3-1939 [1 TAMU]; same locality, IV-21-1947, H. J. Reinhard [1 TAMU]; same locality, IV-22-1965, H. R. Burke [1 TAMU]; same locality, IV-24-1970, W. E. Clark [1 TAMU]; same locality, IV-5-1982, R. Turnbow, beating *Crataegus* sp. [2 EGRC]; same locality, IV-8-1982, R. Turnbow, beating *Quercus* sp. [2 EGRC]; same locality, IV-8-1982, R. Turnbow, beating *Crataegus* sp. [1 EGRC]; same locality, IV-11-1982, R. Turnbow [2 EGRC]; same locality, III-30-1987, R. S. Anderson [1 TAMU]; College Station, Lick Creek Pk., IV-23-30-2000, E. G. Riley, hanging sugarbait trap [1 TAMU]; College Station, Riley Estate, 30.58849°N, 96.25366°W, IV-V-2001, E. G. Riley [2 EGRC]; same data, except IV-24-V-12-2001, hanging flight intercept trap [2 EGRC]; same locality V-6-2002, E. G. Riley [1 TAMU]; same data, except, various dates from III-2003 to III-31-2013, E. G. Riley, [16 EGRC]; same data, except IV-26-2013, beating *Quercus marylandica* [2 EGRC]; same data, except V-2014, E. G. Riley, UV [3 EGRC]; same data, except V-1-7-2014 [3 paratypes EGRC]; same data, except V-1-10-2014 [17 paratypes, AJG, BYC, EGRC, TAMU, USNM]; same locality V-15-30-2014, E. G. Riley [1 EGRC]; 5 mi. SW College Station, White Creek Road, IV-18-1982, R. Turnbow [2 EGRC]. **Brown Co.** Lake Brownwood St. Pk., IV-29-1985, E. G. Riley [17 TAMU]; same data, except UV light [16 EGRC, TAMU]. **Burleson Co.** Lake Sommerville (edge) IV-11-1982, T. P. & L. G. Friedlander, L. Lammers [6 TAMU]. **Burnet Co.** (no further locality), V-2-1959, S. Burke [1 TAMU]; Inks Lake St. Pk., IV-13-1985, Jones, Kovarik & Agnew [9 TAMU]; same locality, IV-2-1999, M. J. Yoder [1 TAMU]. **Coryell Co.** 5.6 mi. W Gatesville, V-4-1997, E. G. Riley [2 TAMU]. **Crockett Co.** 16 mi. S Ozona, IV-29-1997, E. G. Riley, beating *Quercus fusiformis* [28 EGRC, TAMU]. **Dickens Co.** Spur, V-26-1965, W. L. Sterling [1 TAMU]. **Edwards Co.** 24 mi. S Junction, Hwy. 377, IV-10-2002, E. G. Riley & M. J. Yoder [4 TAMU]. **Erath Co.** 1 mi. N Bluff Dale, Paluxy River, V-19-26-1979, R. L. Sams, malaise trap [1 TAMU]; 2 mi. N Dublin, IV-28-1971, J. C. Schaffner [1 TAMU]. **Fannin Co.** Lake Fannin, 33°46'47"N, 96°09'34"W, IV-29-2004, E. G. Riley [3 TAMU]. **Gillespie Co.** 8 mi. E Doss, IV-29-1971, V. V. Board [1 TAMU]; Eckert, V-8-1982, W. F. Chamberlain [3 TAMU]. **Gonzales Co.** Gonzales, IV-14-1989, R. D. Parker, live oak leaves [2 TAMU]. **Grayson Co.** Juniper Point Campground, 33.85962°N, 96.83010°W, IV-27-2012, E. G. Riley [12 EGRC]. **Hays Co.** 6.5 mi. E Dripping Springs, IV-26-1997, E. G. Riley [1 EGRC]; same data except IV-28-1997 [2 TAMU]; 6 mi. NW Dripping Springs, 30°13.554'N, 98°11.039'W, various dates from II-24 to VI-30-2006, E. G. Riley et al., *Juniperus* managed or *Juniperus* unmanaged plot, flight intercept or Lindgren funnel trap [77 TAMU]; San Marcos, VI-12-1986, D. W. Sundberg [1 EGRC]. **Hill Co.** Lake Whitney St. Pk., V-11-2000, W. F. Chamberlain, at light [1 TAMU]. **Jones Co.** County Road 504, 7.6 mi. N Noodle, 32.71030°N, 100.08965°W, IV-24-25-2012, E. G. Riley, beating *Quercus havardii* Rybd. [12 EGRC, TAMU]. **Kendall Co.** Boerne, IV-15-1978, W. F. Chamberlain [2 TAMU]; 7 mi. NW Boerne, V-25-26-2003, W. Seifert [1 TAMU]. **Kerr Co.** 6.5 mi. SW Hunt, 29°59.409'N, 99°23.244'W, various dates from II-24 to VI-30-2006, E. G. Riley, et al., upland deciduous forest, flight intercept, Lindgren funnel or pit-fall trap [24 TAMU]; Kerr Wildlife Management Area, Spring Trap, IV-25-1992, E. G. Riley, beating oak [30 EGRC, TAMU]; Kerrville, V-30-1906, F. C. Pratt [holotype USNM]; same locality, V-1-1970, W. F. Chamberlain [1 TAMU]; same data, except V-15-1990 [1 TAMU]; same data, except III-19-1995 [1 TAMU]; 5 mi. N Kerrville, V-18-1990, W. F. Chamberlain [2 TAMU]; 11 mi. S Kerrville, IV-22-2009, J. C. Schaffner [1 TAMU]; Kerrville, Double L Ranch, III-17-1990, W. F. Chamberlain, beating *Quercus* [7 TAMU]; Kerrville-Schreiner St. Pk., IV-21-1990, E. G. Riley & C. Wolfe, beating live oak at night [29 EGRC]; 6 mi. N Kerrville, Double L Ranch, III-17-1990, E. G. Riley & W. F. Chamberlain, beating live oak at night [27 AJGC, EGRC]. **Kimble Co.** South Llano River at Junction, V-4-1998, S. M. Clark & S. A. Wells [1 BYUC]; South Llano River St. Pk., V-1-1999, E. G. Riley, beating *Quercus buckleyi* [13 AJGC, EGRC]; jct. Llano River & RR 385, IV-1-2000, E. G. Riley [3 TAMU]; 6.5 mi. W Harper, IV-20-1997, E. G. Riley, beating Spanish oak, *Quercus buckleyi* [10 EGRC]; Junction, overlook area [30°35'17"N, 99°35'58"W], IV-10-2002, E. G. Riley [45 TAMU including 11 paratypes]; 6.5 mi. S London, Llano River crossing, V-13-1997, A. R. Gillogly & J. C. Schaffner [2 TAMU]. **Lamar Co.** Camp Maxey National Guard, near Powderly, IV-26-27-2003, Harrison, Horn, Palacios [2 UTIC]; same locality, V-10-14-2010, J. C. Abbott, Lindgren funnel trap [3 UTIC]. **Lee Co.** Fedor (no further data) [1 paratype USNM]. **Milam Co.** 5 mi. NNW Gause, Lawson Ranch at Little River, II-5-III-19-1999, Yoder, Gorena, Roth & Warriner, malaise trap [1 TAMU]. **Robertson Co.** Camp Arrowmoon, 6 mi. SE Hearne, IV-16-1996, E. G. Riley [2 EGRC]. **Shackelford Co.** Fort Griffin St. Pk., V-10-2002, E. G. Riley [1 TAMU]. **Somervell Co.** 10 mi. W Glen Rose, V-4-1973, J. C. Schaffner [1 TAMU]. **Stonewall Co.** Jct. Hwy. 380 & FM 2211, 33.21252°N, 100.29848°W, IV-19-2013, E. G. Riley [3 EGRC]. **Sutton Co.** 5 mi. W Sonora, IV-28-1997, E. G. Riley [1 TAMU]; 10 mi. WSW Sonora, V-5-1998, S. M. Clark & S. A. Wells [38 BYUC]; 22 mi. E Sonora, 30°27'59"N, 100°17'26"W, V-1-1999, E. G. Riley, beating *Quercus fusiformis* [24 EGRC, TAMU]. **Tarrant Co.** (no further locality), V-1-1981, C. S. Wolfe [1 TAMU]. **Travis Co.** Austin, Brackenridge Field Laboratory, IV-25-1987, A. Hook [5 TAMU]; vicinity Long Hollow Creek, 30°27'43"N, 97°52'19"W, various dates from III-26-1993 to V-26-1993 and from III-26-1994 to V-19-1994, Quinn, Riley, Wharton, et al., on various tree species - *Juniperus ashei*, *Quercus buckleyi*, or *Quercus virginiana* [34 TAMU]; vicinity Cypress Creek, 30°25'58"N, 97°52'01"W, various dates

from III-26-1994 to VI-2-1994, Quinn, Riley, Wharton, et al., on various tree species—*Juniperus ashei*, *Quercus buckleyi*, *Quercus virginiana*, or *Ulmus crassifolia* [64 TAMU]. **Uvalde Co.** Concan, V-3-1999, S. M. Clark & R. A. Androw [2 BYUC]; Concan, Neal's Lodge area, V-10-11-1997, E. G. Riley [8 TAMU]; Sabinal, IV-1910, Pierce & Pratt [1 paratype USNM]. **Victoria Co.** Victoria, III-26-1986, E. G. Riley [2 EGRC]. **Wood Co.** ca. 10 mi. N Hawkins, V-9-1999, E. G. Riley [1 EGRC]; ca. 17 mi. N Hawkins, V-9-1999, A. Gillogly, W. Godwin, E. Riley [2 EGRC].

### APPENDIX 3. *Xanthonia dentata* Staines & Weisman, specimens examined (276 total).

**ARIZONA:** **Apache Co.** 6 mi. NW Lupton, N-12, Navajo Nation picnic site, VII-26-2016, C. Harp [3 CSUC]. **Gila Co.** Sierra Ancha Mts., Workman Cr., 6000', VIII-4-1977, S. McCleve [1 EGRC]; same data, except VIII-5-1977, at light [1 EGRC]. **COLORADO:** **Garfield Co.** County Road 245, 1 mi. N County Road 247, VIII-9-2014, W. Cranshaw, D. Leatherman & B. Kondratieff, ex. gamble oak [10 CSUC]. **Las Animas Co.** Road 119.8, 1.8 mi. , from jct. Road 8.8, VII-9-2016, W. Cranshaw, D. Leatherman & B. Kondratieff, gray oak [2 CSUC]. **NEW MEXICO:** **Catron Co.** Cottonwood Campgrd., Hwy. 80, 14.4 (air) mi. S Luna, VII-14-2012, E. G. and M. L. Riley [1 EGRC]. **Colfax Co.** 6 mi. NE Cimarron, 36.5326°N, 104.8546°W, E. G. Riley, beating oak [4 EGRC]. Koehler, H. F. Wickham [1 paratype USNM]. **Los Alamos Co.** Los Alamos, Canyon Rim Trail, VII-4-2013, E. G. Riley [1 EGRC]. **Mora Co.** 8 km. (rd.) NW Ocate, 36.2252°N, 105.1086°W, VI-13-2018, E. G. Riley, beating oak [3 EGRC]. **Otero Co.** Cludcroft, Wickham [holotype, USNM]; 1 mi. W Cludcroft, Osha Trail, VII-2-1999, D. J. Heffern [4 EGRC]; Lincoln Nat'l. Forest, James Canyon Campgrd., VIII-20-1982, R. Turnbow [9 TAMU]; 1.2 mi. E jct. hwys. 130 & 24, VIII-19-1982, R. Turnbow [2 TAMU]; Sacramento Mts., Westside Road, 32°54'49N, 105°50'05"W, VIII-11-2003, E. G. Riley [7 EGRC]. **Socorro Co.** 28 km. ESE Bernardo, N34.369, W107.025, VIII-20-1991, S. L. Brantley, pit-fall trap [4 UNMC]; same data, except XI-3-1992 [2 UNMC]; same locality, VIII-5-1999, D. Lightfoot, D-vac foliage [2 UNMC]. **Torrance Co.** (no further locality) J. R. Douglas [1 paratype USNM]. **TEXAS:** **Brewster Co.** Alpine 4400–6000 ft., VI-20-[30], Wickham [1 USNM]; Big Bend Park, VI-19-1937, R. E. Baker [1 TAMU]; same locality, VII-8-1937, R. H. Baker [4 TAMU]; Big Bend Nat'l. Pk., VIII-14-1969, V. V. Board & J. E. Hafernik [1 TAMU]; same locality, X-7-1982, E. G. Riley [1 EGRC]; Big Bend Nat'l. Pk., Basin area, VII-18-19-2002, E. G. & C. M. Riley [3 TAMU]; Big Bend Nat'l. Pk., Chisos Mts., V-4-1979, W. F. Chamberlain [2 TAMU]; same locality, VIII-31-IX-2-1986, D. A. East, P. W. Kovarik & J. Haack [3 TAMU]; Big Bend Nat'l. Pk., Emory Peak Trail (lower), VI-8-2006, E. G. Riley [8 TAMU]; Big Bend Nat'l. Pk., Green Gulch, VII-23-1968, J. E. Hafernik [1 TAMU]; same data, except VIII-15-1968, blacklight [1 TAMU]; Big Bend Nat'l. Pk., Laguna Meadow-Colima Trails, VIII-2-2003, E. G. Riley [14 TAMU]; Big Bend Nat'l. Pk., Laguna Meadows Trail, VII-20-2002, E. G. & C. M. Riley [3 TAMU]; Big Bend Nat'l. Pk., Lost Mine Trail (upper ridge), VI-6-2006, E. G. & C. M. Riley [2 TAMU]; same locality, except (upper), E. G. Riley [12 TAMU]; Big Bend Nat'l. Pk., Lost Mine Trailhead, VII-18-2002, E. G. & C. M. Riley, beating *Querus grisea* Liebm. [6 TAMU]; Big Bend Nat'l. Pk., near Lost Mine Trailhead, VI-6-2006, E. G. Riley, UV light [2 TAMU]; Big Bend Nat'l. Pk., Maple Canyon, IX-9-1988, R. S. Anderson [2 TAMU]; Big Bend Nat'l. Pk., Pinnacles Trail (upper), VI-8-2006, E. G. Riley [1 TAMU]; Big Bend Nat'l. Pk., South Rim Trail (Chisos Mts.), VIII-16-1968, J. E. Hafernik [1 TAMU]; Big Bend Nat'l. Pk., The Basin, VII-23-1968, J. E. Hafernik [1 TAMU]; same data, except VII-24-1968 [1 TAMU]; Big Bend Nat'l. Pk., Window Trail (lower), VII-19-2002, E. G. & C. M. Riley [5 TAMU]; same date, except (upper), [23 TAMU]; Chisos Mts., VI-20-1908, Mitchell & Cushman [5 paratypes USNM]; Chisos Mts., Panther Pass, VII-27-1987, D. J. Heffern [1 TAMU]; **Culberson Co.** McKittrick Canyon, Guadalupe Mountains National Park, VIII-7-1976, D. E. Foster [1 TTUM]; Sierra Diablo Wildlife Management Area, 6000 ft., VII-12-1971, A. & M. E. Blanchard [3 USNM]; **Jeff Davis Co.** Davis Mts., VI-28-1986, R. A. Androw [3 BYUC]; same data except, VI-28-VII-2-1986 [1 BYUC]; same locality, except (vicinity), VII-19-22-1995, J. Huether [1 TAMU]; Davis Mts. Resort, VI-30-1986 [3 BYUC]; same locality, VII-25-26-1987, D. J. Heffern [1 TAMU]; same locality, VII-24-1989, E. G. Riley [1 EGRC]; same locality, VI-25-26-2000. J. E. Wappes [5 TAMU]; Davis Mts. Resort, Marqua residence, 5800 ft., VIII-8-1992, E. G. Riley & W. B. Godwin [22 TAMU]; same locality, VI-28-VII-5-1993, D. G. Marqua, malaise trap [1 TAMU]; same data, except VII-26-1993 [1 TAMU]; same data, except VIII-27-IX-7-1993 [2 TAMU]; same locality, VI-26-1994, E. G. Riley, UV light [3 EGRC]; same locality, VIII-4-5-2000, E. G. Riley [2 EGRC]; same data, except VIII-11-2003, beating *Quercus grisea* [10 EGRC]; Davis Mts. Resort, upper Limpia Creek Canyon, 30°37'48"N, 104°07'59"W, 6180 ft., VIII-5-2000, E. G. Riley [12 AJGC, EGRC]; same locality, VII-18-2002, C. M. & E. G. Riley [4 EGRC, TAMU]; Davis Mts., Elbow Canyon, VII-6-1968, J. E. Hafernik [1 TAMU]; 9–17 km. NW Davis Mts. St. Pk., VII-21-1989, R. S. Anderson [7 EGRC]; 8 mi. NE Fort Davis, VII-20-1968, J. E. Hafernik [1 TAMU]; 10 mi. N Fort Davis, VII-15-1991, R. A. Androw [1 BYUC]; 11 mi. W Fort Davis, VII-2-2004, D. J. Heffern [1 TAMU]; 12 mi. SE Fort Davis, VII-29-30-1986, Heffern, Huether & Androw [1 TAMU]; Limpia Canyon, 6000 ft., VII-4-1999, D. J. Heffern [1 EGRC]; 1.8 mi. W McDonald Observatory Road,

on Hwy. 118, VIII-9-1992, E. G. Riley [1 TAMU]; Madera Canyon, VIII-15-1982, R. Turnbow [6 EGRC, TAMU]; Madera Canyon rest stop, Hwy. 118, VIII-9-1992, W. B. Godwin & E. G. Riley [2 TAMU]; same locality, VI-25-1994, E. G. Riley & C. W. Wolfe, UV light [2 EGRC]; rest stop, 9.5 mi. S jct. Hwy. 188 on Hwy. 166, VII-24-1989, E. G. Riley [4 EGRC]; Sawtooth Mountain Park (Rockpile), V-29-1973, G. C. Gaumer & W. E. Clark [4 TAMU]. **Presidio Co.** Route 67, 20 mi. W Alpine, VI-13-1989, R. A. Androw [4 BYUC].

#### APPENDIX 4. *Xanthonia villosula* (Melsheimer), Texas specimens examined (207 total).

**TEXAS:** **Anderson Co.** Gus Engeling Wildlife Management Area, V-4-2002, S. M. Clark & E. G. Riley [1 BYUC], Tennessee Colony, V-12-1969, A. & M. E. Blanchard [1 USNM]. **Brazos Co.** 5 mi. SW College Station, White Creek Road, IV-18-1982, R. Turnbow [1 EGRC]; College Station, Riley Estate, 30°35'18"N, 96°15'12"W, V-3-2002, E. G. Riley [1 EGRC]; same locality, V-25-2002, E. G. Riley [1 EGRC]; same data, except, V-19-2003 [1 TAMU]; same data, except VI-2003, beating *Quercus nigra* L. [9 EGRC]; Lick Creek Park, College Station, V-3-1998, S. M. Clark [5 BYUC]; College Station, Lick Creek Park, 30.56234°N, 96.21333°W, IV-14-2013, E. G. Riley [1 EGRC]. **Cherokee Co.** Texas Experiment Station, V-19-1952, H. J. Reinhard [1 TAMU]. **Dallas Co.** Dallas, IV-25-1907, Schwarz & Pratt [1 USNM]; same data, except IV-27-1907, Schwarz & Pratt [2 USNM]; same data, except IV-26-1907 [9 USNM]; same data, except V-18-1907 [4 USNM]; same data, except V-19-1907, F. C. Bishopp [7 USNM]. **Fannin Co.** Lake Fannin, V-25-2003, E. G. Riley [71 EGRC, TAMU]; same data, except, 33°46'47"N, 96°09'34"W, IV-29-V-2-2004 [4 TAMU]. **Houston Co.** 8 mi. W Crockett, 31°18'N, 95°35'W, V-9-18-2002, J. Yantis, pit-fall trap [1 TAMU]. **Lamar Co.** Camp Maxey, 33°48'10"N, 95°33'57"W, V-24-2003, E. G. Riley [19 EGRC, TAMU]; Camp Maxey, 33°48'36"N, 95°34'10"W, V-24-2003, E. G. Riley, native prairie [3 TAMU]; Camp Maxey National Guard, near Powderly, V-1-2009, J. C. Abbott [2 UTIC]; same data, except V-28-2009 [1 UTIC]; same data, except VI-16-20-2009, malaise trap [2 UTIC]; Pat Mayse State Wdlf. Mgt. Area, 33.8101°N, 95.6825°W, V-31-2007, E. G. Riley [13 EGRC, TAMU]. **Limestone Co.** near Oleatha, Furguson Cemetery, V-6-1995, E. G. Riley [1 TAMU]. **Montgomery Co.** jct. Hwy. 149 & Hwy. 1791, Sam Houston Nat'l. Forest, 30°32'13"N, 95°44'56"W, V-7-VI-14-1998, E. G. Riley, flight intercept trap [1 TAMU]. **Morris Co.** 2 mi. N Omaha, V-23-1998, E. G. Riley [2 TAMU]. **Newton Co.** near Mayflower, Canyon Rim Nature Trail, VI-18-2006, D. P. Lewis, ex. sweetgum leaf [1 TAMU]. **Sabine Co.** 1.5 mi. N Geneva, Myrtle Springs, V-22-2000, Wm. Godwin [1 TAMU]. **Smith Co.** Tyler St. Pk., VI-24-1989, E. Riley & C. Wolfe [6 EGRC]. **Tarrant Co.** (no further locality) V-9-1981, C. S. Wolfe [1 TAMU]. **Wood Co.** Godwin Woods, 3.5 mi. SW Hainesville, 32°42'30"N, 95°24'36"W, IV-23-30-2000, M. J. Yoder, yellow pan trap [17 TAMU]; same locality, IV-28-29-2000, E. G. Riley [13 EGRC, TAMU]; same data, except J. C. Schaffner, at light [3 TAMU].

#### APPENDIX 5. *Xanthonia hirsuta* Weisman n. sp., specimens examined (865 total).

**COLORADO:** **Baca Co.** Picture Canyon Picnic Area, IX-26-2014, E. M. Knutson, ex. pinyon/juniper [1 CSUC]. **NEW MEXICO:** **Lincoln Co.** Alto & vicinity, 33°22.384'N, 105°41.253'W, 6614 ft., A. J. Gilbert & R. D. Haines [1 AJGC]; Nogal Lake for. camp, 7000ft. VI-1-1969, S. L. Wood, *Pinus edulis* [1 BYUC]. **Socorro Co.** 28 km. ESE Bernardo, N34.369, W107.025, IV-10-1989, D. lighfoot, pit-fall trap [1 UNMC]; same data, except, XII-6-1991, S. L. Brantley, pit-fall trap [1 UNMC]. **TEXAS:** **Austin Co.** 5 mi. SSW Kenney, III-22-1985, J. C. Schaffner [2 TAMU]; Germania Cemetery, 5 km. SW Kenney, III-19-2015, E. G. Riley, beating *Juniperus virginiana* L. [8 EGRC]; Arning Road., 3.9 km. SW Kenney, III-19-2015, E. G. Riley, beating *Juniperus virginiana* L. [15 EGRC]. **Bandera Co.** Bear Creek, 7 mi. ENE Bandera, V-6-1998, S. M. Clark & S. A. Wells, on *Juniperus* sp. [3 BYUC]; Hill Country Wild. Area, 7 mi. W Bandera, IV-9-1988, D. W. Sundberg [1 BYUC]; Hill Country State Natural Area, V-4-1999, S. M. Clark [1 BYUC]; Lost Maples St. Pk., III-22-1985, Kovarik, Jones, Haack [4 TAMU]; same locality, IV-27-1986, P. Kovarik & K. Haack, at UV light [2 TAMU]; Polly Peak, near Bandera, V-6-1998, S. M. Clark & S. A. Wells, collected from *Juniperus* sp. [6 BYUC]. **Bastrop Co.** Buescher St. Pk., IV-22-1973, J. C. Schaffner [1 TAMU]; Stengl Biological Station, 6 mi. N Smithville, II-6-II-1-2000, J. C. Abbott & R. Caesar, malasie trap in meadow [3 UTIC]. **Bell Co.** 4 mi. N Belton, Elmer King Road, XI-14-1995, T. O. Robbins, sweeping roadside vegetation [1 TORC]; Belton Lake, White Flint Park, IV-30-1995, E. G. Riley [4 EGRC, TAMU]; 1 km. W Youngsport, Bowmer Ranch, Lampasas River bluff, 30.96197°N, 97.72903°W, IV-10-21-2010, T. O. Robbins, flight intercept trap [1 TAMU]; same data, except IV-22-V-11-2010, Lindgren funnel trap [2 TAMU, TORC]; same data, except XI-9-XII-20-2010, FIT-ground level [1 TORC]; Parrie Haynes Ranch (East), 31.01515°N, 97.81564°W, IV-14-2012, E. G. Riley [1 TAMU]. **Bexar Co.** 13.5 km. NNW Helotes, 29.69895°N, 98.72867°W, III-27-2015, E. G. Riley, beating *Juniperus ashei* J. Buchholz [25 AJGC, EGRC, TAMU]; San Antonio, Eisen-

hauer Park, IV-1-1988, Sundberg & Hanselmann [1 BYUC]. **Blanco Co.** jct. Hwy. 290 & FM 3232 (at Hays Co. line), IV-26-1997, E. G. Riley [1 EGRC]; Pedernales Falls St. Pk., V-5-1998, S. M. Clark & C. R. Nelson [6 BYUC]; Regal Creek, Twin Falls, Pedernales Falls St. Pk., IV-18-1990, R. W. Baumann [3 BYUC]. **Bosque Co.** Meridian St. Pk., IV-6-1967, J. C. Schaffner [1 TAMU]. **Brewster Co.** Big Bend Nat'l. Pk., Lost Mine Trail, IX-9-1988, R. S. Anderson [1 TAMU]. **Burnet Co.** Inks Lake St. Pk., IV-13-1985, P. Kovarik, R. Jones, & C. Agnew [5 EGRC, TAMU]; same locality, V-6-7-1989, R. S. Anderson [1 EGRC]. **Comal Co.** Bulverde, XII-9-1989, S. M. Clark [1 BYUC]. **Crockett Co.** 3-4 mi. W Ozona, III-26-1999, E. G. Riley, beating *Quercus virginiana*, var. *fusiformis* [1 EGRC]; 16 mi. S Ozona, IV-29-1997, E. G. Riley [4 EGRC]. **Dallas Co.** Dallas, IV-25-1907, Schwarz and Pratt [5 paratypes, USNM]; same locality, IV-5-1912, W. D. Peirce, on *Juniperus* [holotype & 1 paratype, USNM]; same data, except IV-27-1912 [2 paratypes, USNM]; same locality, III-2-1908, E. S. Tucker, on pine [3 paratypes, USNM]; same locality, III-6-1909, E. S. Tucker [1 paratype USNM]. **Edwards Co.** 3 mi. SE Rocksprings, III-13-1965, R. R. Grabbe [1 TAMU]. **Erath Co.** 3 mi. S Morgan Mill, 32°20'N, 98°10'W, V-2-2002, S. M. Clark & D. J. Cavan [1 BYUC]. **Fayette Co.** 10 mi. NE La Grange, IV-13-1970, V. V. Board [1 TAMU]; jct. Hwy. 77 & FM 2145, 29.94219°N, 96.87518°W, III-27-2015, E. G. Riley, beating *Juniperus virginiana* L. [2 TAMU]. **Hays Co.** Buda, XII-1-1962, H. Chambers, on cedar [4 TAMU]; 6.5 mi. W Dripping Springs, IV-28-1997, E. G. Riley [1 EGRC]; 6 mi. NW Dripping Springs, 30°13.554'N, 98°11.039'W, various dates from X-13-2005 to VI-6-2006, E. G. Riley, et al., *Juniperus* managed or unmanaged plots, flight intercept, Lindgren funnel, or pit-fall trap [55 TAMU]; 10.4 km. NW Dripping Springs, 30.227°N, 98.185°W, I-24-IV-2-2007, J. C. Abbott [4 UTIC]; same data, except IV-2-V-9-2007 [1 UTIC]; same data, except various dates from I-23 to VI-27-2008 [8 UTIC]; 11.6 km. NW Dripping Springs, 30.237°N, 98.194°W, II-27-III-25-2008, J. C. Abbott [1 UTIC]; 8.6 km. E Payton, 30.105°N, 98.216°W, malaise trap, various dates from IV-24 to X-29-2008, J. C. Abbott [39 UTIC]; same data, except V-9-XI-5-2007 [13 UTIC]; Henly, V-4-1998, S. M. Clark & S. A. Wells [2 BYUC]. **Hudspeth Co.** Upper Dog Canyon, Guadalupe Mountains Nat'l. Pk., IX-25-1976, R. Benson, D. Ralston, D. E. Foster [1 TTUM]. **Jeff Davis Co.** Davis Mts., Madera Canyon, VII-5-1978, J. E. Wappes [1 EGRC]; same locality, VI-25-1994, E. G. Riley, UV [1 EGRC]; same locality, VI-26-1994, E. G. Riley [1 EGRC]; Road 118, Madera Canyon, VII-9-1978, J. E. Wappes [1 EGRC]; Madera Canyon rest stop, 30.70613°N, 104.10484°W, VII-4-2009, E. G. Riley, beating *Juniperus deppeana* Steud. [2 EGRC]; McDonald Observatory, IX-10-1988, R. S. Anderson, on *Cowania ericaefolia* Torr. [2 TAMU]; Sawtooth Mt. Pk., (Rockpile), V-29-1973, G. C. Gaumer & W. E. Clark [9 TAMU]. **Kerr Co.** 6.5 mi. SW Hunt, various dates from X-13-2005 to VI-2-2006, E. G. Riley, et al., upland deciduous forest, flight intercept, Lindgren funnel or pit-fall trap [20 TAMU]; Kerrville, III-7-1958, W. F. Chamberlain [1 TAMU]; same data, except V-8-1965 [1 TAMU]; same data, except XI-16-1999, W. F. Chamberlain [1 TAMU]; Kerrville-Schreiner St. Pk., IV-21-1990, E. G. Riley & C. Wolfe, beating juniper at night [26 AJGC, EGRC]; 6 mi. N Kerrville, Double L Ranch, III-17-1990, E. G. Riley & W. F. Chamberlain, beating juniper at night [11 AJGC, EGRC]. **Kimble Co.** 7 mi. SW London, IV-1-2000, E. G. Riley [1 EGRC]; jct. I-10 & Hwy 83 (south side) near Junction, IV-28-1997, E. G. Riley [3 EGRC]; jct. Llano River & RR 385, 30°35'17"N, 99°35'38"W, X-12-2001, E. G. Riley [1 TAMU]; Junction, overlook area, 30°35'17"N, 99°35'38"W, IV-10-2002, E. G. Riley [5 TAMU]. **Lee Co.** 4.3 km. SSE Giddings on Hwy. 77, 30.146°N, 96.9195°W, III-27-2015, E. G. Riley, beating *Juniperus virginiana* L. [8 TAMU]. **Mason Co.** 8.5 mi. SW Mason, V-13-1997, A. R. Gillogly & J. C. Schaffner [1 TAMU]. **Medina Co.** 12 mi. W Medina on Hwy. 337, V-4-1999, S. M. Clark [3 BYUC]. **Travis Co.** Austin, Brackenridge Field Laboratory, II-10-1996, E. G. Riley, beating juniper [5 EGRC]; same locality, 170m, IV-10-1996, C. R. Nelson [3 BYUC]; Austin, Brackenridge Field Lab, pond near enclosure 5, 550ft., II-2-5-1990, C. R. Nelson, malaise trap [4 BYUC]; Austin, Camp Mabry National Guard, II-9-29-2004, J. C. Abbott [1 UTIC]; same data, except I-26-II-25-2005 [1 UTIC]; same data, except IV-28-V-12-2005 [1 UTIC]; Austin, City Park Road, 30.3697°N, 97.8331°W, XI-20-2006-I-19-2007, J. C. Abbott [3 UTIC]; same data, except I-19-III-28-2007 [1 UTIC], same data, except I-23-II-29-2008 [3 UTIC]; Austin, Colorado River, 30.352°N, 97.815°W, II-23-IV-5-2006, J. C. Abbott [1 UTIC]; same data, except V-3-V-31-2006 [1 UTIC]; same data, except XI-5-2007-I-23-2008 [1 UTIC]; same data, except IV-23-V-30-2008 [1 UTIC]; Austin, St. Edwards Park, 30.4068°N, 97.7905°W, XI-8-2013, S. M. Clark, beating *Juniperus ashei* [24 BYUC]; Five Mile Dam, 10 mi. NW Austin, IV-12-1986, S. J. Hanselmann [1 BYUC]; 1 mi. N Helotes, Scenic Loop Road, IV-20-1980, S. J. Hanselmann [2 BYUC]; vicinity Long Hollow Creek, 30°27'43"N, 97°52'19"W, various dates from III-26-1993 to V-26-1993 and from II-26-1994 to VII-2-1994, Quinn, Riley, Wharton, et al., on various tree species—*Juniperus ashei*, *Quercus buckleyi*, *Quercus virginiana*, and *Ulmus crassifolia* [258 TAMU]; same locality, III-17-1994, E. G. Riley, beat *Juniperus ashei* [32 TAMU]; vicinity Cypress Creek, 30°25'58"N, 97°52'01"W, various dates from III-17-1994 to V-20-1994, Quinn, Riley, Wharton, et al., on various tree species—*Juniperus ashei*, *Quercus buckleyi*, *Quercus virginiana*, and *Ulmus crassifolia* [189 TAMU]; Wild Basin Preserve, V-6-7-2010, M. A. Quinn, beating [1 EGRC]. **Uvalde Co.** Concan, V-5-1998, S. M. Clark & S. A. Wells [1 BYUC]; Concan, Neal's Lodge area, IV-6-1995, E. G. Riley, UV [1 EGRC]; 4.5 mi. W Utopia, IV-9-1995, E. G. Riley [3 EGRC]. **Williamson Co.** (no further locality), V-2-1959, S. Burke [1 TAMU].

**APPENDIX 6.** *Xanthonia angulata* Staines and Weisman, specimens examined from Arkansas, Missouri, Oklahoma and Texas (151 total).

**ARKANSAS:** **Logan Co.** Mt. Magazine, Cameron Bluff Campground, VII-5-16-1992, E. G. Riley [1 EGRC]; Mt. Magazine, electronics site, IV-14-1994, D. LeDoux & E. Riley [4 EGRC]; Mt. Magazine, Signal Hill Trail, VI-26-1993, E. G. Riley [3 EGRC]; same locality, V-13-15-1994, E. G. Riley [1 EGRC]; **Montgomery Co.** Hickory Nut Mtn. Campgrd., Ouchitau Nat'l. Forest, VI-8-1991, E. G. Riley, [5 EGRC]; **Pulaski Co.** Little Rock, VI-5-1997, B. Baldwin, FIT [1 EGRC]. **MISSOURI:** **Barry Co.** 3 mi. SE Roaring River St. Pk., scenic overlook on Sugar Camp Road, VII-3-1986, E. G. Riley, mercury vapor and blacklight, [3 EGRC]; Roaring River St. Pk., VI-8-9-1979, E. G. Riley [8 EGRC]. **Boone Co.** Ashland Wildlife Area, V-30-1978, E. G. Riley [1 EGRC]. **Carter Co.** Sky Line Drive, nr. Van Buren, VII-22-1978, E. G. Riley [4 EGRC]. **Gasconade Co.** 7 mi. S Mt. Sterling, VI-10-1978, E. G. Riley [43 EGRC]. **Howard Co.** Rudolph Bennett Wildlife Area, VI-19-1974, E. G. Riley [1 EGRC]; same data, except V-26-1975 [3 EGRC]; same data, except VII-4-1992 [1 EGRC]. **Randolph Co.** 1 mi. E Moberly, VI-8-1972, E. G. Riley [1 EGRC]; same data, except VI-15-1974 [1 EGRC]; same data, except VII-1-8-1990 [2 EGRC]. **OKLAHOMA:** **Le Fore Co.** 5 (air) km. NNW Big Cedar, Emerald Vista Campgrd., Hwy. 1, 34.71541°N, 94.67646°W, VI-10-12-2011, E. G. Riley [6 EGRC]; same data, except VII-8-2008 [2 EGRC]; 8.8 (air) mi. S Talihina, Hale Scout Reservation, 34.73853°N, 94.88735°W, VII-1-4-2008, E. G. Riley [1 EGRC]. **TEXAS:** **Bastrop Co.** Bastrop St. Pk., VI-10-1989, E. G. Riley [3 EGRC]; same data, except IV-19-1990 [4 EGRC]; same data, except IV-7-2000 [1 EGRC]; same data, except V-10-1990, beating *Quercus marilandica* [51 EGRC, TAMU].

**APPENDIX 7.** *Xanthonia nitida* Weiseman n. sp., specimens examined (186 total).

**TEXAS:** **Blanco Co.** Cypress Mills, IV-2, Chittenden Collection [1 paratype, USNM]. **Bexar Co.** San Antonio, IV-8-1945, duBois [1 paratype, USNM]. **Dallas Co.** Dallas, IV-25-1907, Schwarz & Pratt [holotype and 2 paratypes, USNM]; same data, except IV-20-1907 [1 paratype, USNM]. **Kerr Co.** Kerrville, V-8-1965, W. F. Chamberlain [3 TAMU]. **Kimble Co.** Junction, overlook area, 30°28'28"N, 99°45'20"W, IV-10-2002, E. G. Riley [8 TAMU] same data, except M. J. Yoder [1 TAMU]; South Llano River St. Pk., III-25-1999, E. G. Riley, beating *Quercus buckleyi* [31 EGRC]; same data, except V-1-1999 [30 AJGC, EGRC]. **Pecos Co.** 28 mi. S Fort Stockton, Hwy. 385 rest stop, V-1-1999, E. G. Riley, beating *Quercus mohriana* [46 AJGC, EGRC]; same data, except IV-26-2004, E. G. Riley [2 TAMU]. **Travis Co.** vicinity Cypress Creek, 30°25'58"N, 97°52'01"W, IV-10-1994, M. A. Quinn, E. G. Riley, R. A. Wharton, on *Quercus virginiana* [5 TAMU]; same data, except on *Quercus buckleyi* [10 TAMU]; same data, except on *Ulmus crassifolia* [1 TAMU]; same data, except IV-24-1994, on *Quercus virginiana* [5 TAMU]; same data, except V-7-1994 [4 TAMU]; same data, except on *Quercus buckleyi* [1 TAMU]; same data, except V-20-1994, on *Quercus virginiana* [1 TAMU]. **Uvalde Co.** Concan, Neal's Lodge area, IV-8-9-1995, E. G. Riley [3 EGRC]; same locality, V-10-11-1997, E. G. Riley [3 EGRC]; ca. 6 mi. S jct. Hwy 127 on Hwy. 83, V-10-1997, E. G. Riley [4 EGRC]; 7 mi. N Sabinal, IV-14-1993, J. A. Jackman [1 TAMU]; Speir Ranch, 3 mi. NW Uvalde, V-6-1977, T. Eichlin & W. Wasbauer, malaise trap [2 AJGC]. **Val Verde Co.** Pfeiffer River Ranch, 45 (air) km NNW Del Rio, (site 1), 29.7816°N, 100.9932°W, IV-18-2016, E. G. Riley [8 EGRC]; same data, except (site 2), 29.7823°N, 101.0013°W, IV-18-2016, beating *Quercus vaseyana* Buckl. [11 EGRC].

**APPENDIX 8.** *Xanthonia texana* Weisman n. sp., specimens examined (1137 total).

**TEXAS:** "Texas" with no further data [4 paratypes, USNM]; **Austin Co.** 5 mi. SSW Kenny, IV-8-2001, J. C. Schaffner [2 TAMU]. **Bandera Co.** 9 mi. S Bandera, VI-5-1995, W. F. Chamberlain [2 TAMU]; 5 mi. W Medina, V-4-1999, R. Andrew & S. M. Clark [2 BYUC]; Lost Maples State Natural Area, IV-28-30-1988, R. S. Anderson [7 TAMU]; Lost Maples St. Pk., IV-27-1986, P. W. Kovarik & K. D. Haack [2 TAMU]; same locality, V-10-1986, P. W. Kovarik [1 TAMU]; same locality, IV-28-29-1990, R. S. Anderson [2 TAMU]; Medina River, 5 mi. SE Medina, V-4-1999, S. M. Clark [10 BYUC]. **Bastrop Co.** Bastrop, III-27-1998, S. G. Wellso [1 TAMU]; Bastrop St. Pk., V-23-VI-2-1990, R. A. Wharton [2 TAMU]. **Bell Co.** Lake Belton Dam, Miller Springs Nature Area, IV-25-1998, T. O. Robbins [1 TORC]; 3 mi. SW Holland, Hackberry Road, Darrs Creek, 30.87367°N, 97.44837°W, IV-19-2011, T. O. Robbins, sweeping foliage of *Celtis laevigata* var. *laevigata* [1 TORC]; Temple, IV-5-2002, T. O. Robbins [1 TORC]; same locality, except, 31.05520°N, 97.38510°W, IV-7-2012, T. O. Robbins, feeding on foliage of young *Quercus buckleyi* [17 TORC]; Peaceable Kingdom Retreat, Fish Pond, 30.98601° 97.7332°W, IV-9-2013, T. O. Robbins, beat-

ing branches with new and old foliage of *Quercus fusiformis* [5 TORC]; same data, except V-16-2014, beating branches and foliage of *Rhus lanceolata* [1 TORC]; Seaton Road, Little Elm Creek, 31.02800°N, 97.22160°W, IV-21-2014, T. O. Robbins, feeding on foliage of *Sapindus saponaria* var. *drummondii* [4 TORC]; Seaton Road, 1 km. S Hwy. 53, 31.04700°N, 97.21383°W, V-1-2014, sweeping foliage of *Sapindus saponaria* var. *drummondii* [7 TORC]; 1 km. W Youngsport, Bowmer Ranch, Lampasas River bluff, 30.96197°N, 97.72903°W, III-18-IV-9-2010, T. O. Robbins, flight intercept trap or Lindgren funnel trap [4 TAMU]; same data, except IV-10-21-2010 [7 TAMU] same data, except IV-22-V-11-2010 [16 TAMU]; same data, except III-24-IV-24-2012, Lindgren funnel trap [2 TORC]; same data, except IV-27-V-25-2012, FIT-ground level [2 TORC]; White Flint Park, Belton Lake, IV-30-1995, E. G. Riley [1 TAMU]. **Bexar Co.** I-10 at Cibolo Creek, IV-11-1985, D. Sundberg [5 EGRC]; San Antonio, IV-21-1923, H. J. Reinhard [1 TAMU]; same locality, IV-8-1945, C. O. Orchard [2 paratypes, USNM]. **Blanco Co.** Cypress Mills [2 paratypes USNM]; same locality, III-15, Chittenden Collection [2 paratypes USNM]; 10 mi. SE Johnson City, IV-29-1983, J. C. Schaffer [1 TAMU]; jct. FM 3232 & Flate Creek, IV-28-1997, E. G. Riley [3 TAMU]; Miller Creek at Boardhouse, V-4-1998, S. M. Clark & S. A. Wells [2 BYUC]; Pedernales Falls St. Pk., IV-16-1990, A. Hook [11 TAMU]. **Bosque Co.** 1.5 mi. E Alexander, IV-29-2001, E. G. Riley [1 EGRC]; 2 mi. W Iredell, V-3-1971, J. C. Schaffner [1 TAMU]; same locality, IV-21-1987, R. S. Anderson, beating *Forestiera pubescens* [12 TAMU]. **Brazos Co.** (no further locality) IV-2006, E. G. Riley [1 BYUC]; College Station, V-15-1996, E. G. Riley, UV light [1 TAMU]; same data except IV-21-1999 [1 TAMU]; same data except IV-23-2000 [2 TAMU]; College Station, Riley Estate, 30.58849°N, 96.25366°W, III-21-2009, E. G. Riley, on *Ulmus crassifolia* Nutt. [8 EGRC]; same data, except III-31-2009 [8 EGRC]; same locality, IV-15-2004, E. G. Riley [5 TAMU]; same locality, IV-19-2009, E. G. Riley, on *Ulmus crassifolia* Nutt. [7 EGRC]; same data, except V-15-30-2014, UV [3 AJGC]; same data, except V-1-7-2014, UV [1 AJGC]; same locality, V-7-2014 [1 AJGC]; same locality V-1-10-2014, UV [1 AJGC]; College Station, Lick Creek Pk., IV-28-1996, E. G. Riley [1 EGRC]; same data, except VI-5-1996, E. G. Riley [1 EGRC]; same data, except IV-23-2000, E. G. Riley [1 EGRC]; 5 mi. SW College Station, White Creek Road, IV-18-1982, R. Turnbow [1 EGRC]; same locality, IV-27-1982, R. Turnbow [3 EGRC]. 4 mi. SW College Station, Koppes Bridge area, IV-2-1995, E. G. Riley [3 TAMU]. **Brown Co.** Lake Brownwood St. Pk. IV-29-1995, E. G. Riley [10 TAMU]. **Burleson Co.** Lake Somerville St. Pk., Birch Creek Unit, V-14-1991, E. G. Riley [1 EGRC]. **Burnett Co.** (no further locality) Hubbard and Schwarz [1 paratype USNM]; Inks Lake St. Pk., IV-13-1985, Kovarik, Jones & Agnew [14 TAMU]; same locality, IV-11-1992, R. Jones [11 TAMU]; same locality, V-17-1995, E. G. Riley [1 TAMU]. **Comal Co.** Guadalupe River St. Pk., VI-10-1992, Baumann & Lis [1 BYUC]. **Erath Co.** 3 mi. S Morgan Mill [32°20'N, 98°10'W], V-2-2002, S. M. Clark & D J. Cavan [1 BYUC]; Stephenville, IV-21-1972, J. C. Schaffner [1 TAMU]; 11 mi. S Stephenville, V-3-1995, J. C. Schaffner [1 TAMU]. **Fort Bend Co.** Brazos Bend St. Pk., III-18-1999, E. G. Riley, *Celtis* forest [1 TAMU]; same locality, IV-10-1999, B. & B. Raber, E. G. Riley, *Celtis*-dominated forest [3 TAMU]; same locality, III-25-2000, E. G. Riley, beating/sweeping buckeye-sycamore forest [4 TAMU]; same data except *Celtis* forest [1 TAMU]. **Gillespie Co.** 15 mi. E Doss, IV-22-1970, V. V. Board [2 TAMU]; Eckert, V-14-1982, W. F. Chamberlain [2 TAMU]; Lyndon B. Johnson Nat'l. Historical Pk., V-21-1989, E. G. Riley [12 EGRC, TAMU]. **Gonzales Co.** Palmetto St. Pk., nr. Luling, IV-19-1963, W. R. Enns [7 EGRC]; Plametto St. Pk., IV-13-1968, J. C. Schaffner [1 TAMU]; same locality, IV-3-1969, V. V. Board [2 TAMU]; same data except IV-19-1969 [1 TAMU]; same data except IV-13-1970 [1 TAMU]; same data except IV-18-1970 [2 TAMU]; same locality, III-26-1986, E. G. Riley [2 EGRC]; same locality, IV-17-18-1989, R. S. Anderson [99 EGRC, TAMU]. **Grimes Co.** 1-4 mi. W Plantersville, IV-11-1982, R. Turnbow [7 EGRC]. **Guadalupe Co.** Shertz, IV-12-1985, D. Sunberg [3 EGRC]. **Hays Co.** 5 mi. NW Wimberley, IV-25-1982, J. C. Schaffner [1 TAMU]. **Hill Co.** Lake Whitney St. Pk., V-11-2000, W. F. Chamberlain, at light [8 TAMU]. **Jackson Co.** 4 mi. SW Francitas, III-14-1992, E. G. Riley [19 EGRC]. **Kerr Co.** Center Point, V-20-26-1987, R. A. Wharton, malaise trap [1 TAMU]; same data except V-22-VI-6-1987 [1 TAMU]; Hunt, V-3-1969, W. F. Chamberlain [1 TAMU]; Kerrville, IV-12-1907, F. C. Pratt [1 paratype USNM]; same locality, VI-19-1907, F. C. Pratt [1 paratype USNM]; same locality, IV-22-1908, F. C. Pratt [2 paratypes USNM]; same locality, IV-18-1981, W. F. Chamberlain [7 TAMU]; same data except dates ranging from IV-26-1981 to VI-20-1996 [42 TAMU]; Kerrville St. Pk., IV-15-1995, H. R. Burke, taken on *Juniperus ashei* [1 TAMU]. **Kimble Co.** 6.5 mi. S London, Llano River Crossing, V-13-1997, A. R. Gillogly & J. C. Schaffner [1 TAMU]. **Llano Co.** Llano, IV-23-1931 [1 TAMU]; 15 mi. S Llano, Sandy Creek, IV-14-1979, W. F. Chamberlain [14 TAMU]. **McLennan Co.** Waco, III-22-1907, W. D. Pierce, on woodbine [1 paratype USNM]. **Menard Co.** Menard, San Saba River, 30°55.3'N, 99°47.2'W, V-6-2002, S. M. Clark [1 BYUC]. **Milam Co.** 4 mi. N Gause, nr. Sugarloaf Mt, IV-18-1983, E. G. Riley [1 EGRC]. **Mills Co.** 7 mi. E Goldthwaite, IV-30-1995, E. G. Riley [2 TAMU]. **Robertson Co.** 6 mi. SE Hearne, Camp Arrowmoon, IV-181998, E. G. Riley [6 TAMU]. **San Saba Co.** 5 mi. SE Bend, IV-21-1997, W. F. Chamberlain, beating [6 TAMU]. **Tarrant Co.** (no further data) V-16-1984, C. S. Wolfe [1 TAMU]. **Travis Co.** Austin, Brackenridge Field Laboratory, IV-5-8-1977, T. P. Friedlander [1 TAMU]; same locality IV-25-1987, A. Hook [4 TAMU]; same locality except 30°16'55"N, 97°46'45"W, 170m, collection dates ranging from III-13 1990 to V-28-1990, C. R. Nelson, malaise trap [69 BYUC]; Austin, Brackenridge Field Laboratory, pond near enclosure 5, 550 ft., III-6-12-1990, C. R.

Nelson, malaise trap [48 BYUC]; same data, except IV-2-9-1990 [15 BYUC]; Austin, Brackenridge Field Laboratory, 550 ft., III-27-IV-2-1990, C. R. Nelson [26 BYUC]; same data, except IV-9-16-1990 [29 BYUC]; Austin, Brackenridge Field Laboratory, Town Lake, IV-4-1997, G. I. Baird [1 BYUC]; Austin, Bull Creek Arm of Lake Travis (site 2), 30.3494°N, 97.79038°W, IV-27-2007. E. G. Riley, sweeping [4 TAMU]; vicinity Cypress Creek, 30°27'43"N, 97°52'19"W, various dates ranging from III-26 to VI-2-1994, M. A. Quinn, E. G. Riley, R. A. Wharton, et al., on various tree species—*Juniperus ashei*, *Quercus buckleyi*, *Q. virginiana* or *Ulmus crassifolia* [123 TAMU]; vicinity Long Hollow Creek, 30°25'58"N, 97°52'01"W, various dates ranging from III-26 to VI-23-1993 or between III-26 to VI-2-1994, M. A. Quinn, E. G. Riley, R. A. Wharton, et al., on various tree species—*Juniperus ashei*, *Quercus buckleyi*, *Q. virginiana* or *Ulmus crassifolia* [536 TAMU]; Saint Edwards Park, Bull Creek, V-6-1998, S. M. Clark, S. A. Wells [8 BYUC]; Zilker Park, VI-3-1985, R. Jones & P. W. Kovarik [5 TAMU]. **Uvalde Co.** Concan, V-5-1998, S. M. Clark & S. A. Wells [3 BYUC]; same locality, V-5-1999, S. M. Clark & R. A. Andrew [5 BYUC]; Concan, Neal's Lodge area, 29°29'45"N, 99°42'45"W, V-10-11-1997, E. G. Riley [2 TAMU]; Garner St. Pk., V-6-1961, Entomology 602 class [1 TAMU]; junction Hwy 127 & US 83, V-3-1996, G. M. Chamberlain [1 TAMU]; **Val Verde Co.** 8 mi. W Carta Valley, V-5-1997, W. F. Chamberlain, beating [1 TAMU]. **Victoria Co.** Victoria, III-30-1910, W. D. Pierce & J. D. Mitchell, sweeping herbage [holotype and 7 paratypes USNM]; same locality, IV-24, H. S. Barber [1 paratype USNM]; same locality, IV-3, E. A. Schwarz [2 paratypes USNM]; same locality, IV-2, J. D. Mitchell [2 paratypes USNM]; same locality, IV-2, J. D. Mitchell, on red haw [1 paratype USNM]; same locality, IV-13, J. D. Mitchell [2 paratypes USNM]; same locality, III-30-1909, J. D. Mitchell, collected on pecan [4 paratypes USNM]; same locality, IV-23-1907, J. D. Mitchell [1 paratype USNM]; same locality, IV-17-1911, J. D. Mitchell, on *Cornus sericea* [1 paratype USNM]; same locality, IV-2-1908, J. D. Mitchell, on red haw tree [2 paratypes USNM]; same locality, IV-18-1911, J. D. Mitchell, on flowers [2 paratypes USNM]. **Wharton Co.** Wharton, IV-18-1905, W. W. Yothers [1 paratype USNM].

#### APPENDIX 9. *Xanhonia querici* Weisman n. sp., specimens examined (113 total).

**TEXAS:** **Bell Co.** Peaceable Kingdom Retreat, Fish Pond, Bowmer Ranch, 30.98601°N, 97.7332°W, IV-9-2013, T. O. Robbins, beating branches with new and old foliage of *Quercus fusiformis* [3 TAMU]. **Crockett Co.** 3-4 mi. W Ozona, III-26-1999, E. G. Riley, on *Quercus fusiformis* [26 TAMU]; 3 mi. W Ozona, Hwy. 2398, IV-13-2002, T. O. Robbins, sweeping new foliage and flowers of *Quercus glaucoidea* [14 TORC]; 16 mi. S Ozona, IV-29-1997, E. G. Riley, beating *Quercus fusiformis* [4 TAMU]. **Dallas Co.** Dallas, IV-14-1907, F. C. Bishop, on *Quercus* sp. [holotype and 1 paratype USNM]; same locality, IV-20-1907, F. C. Pratt [1 paratype USNM]; same locality, IV-25-1907, Schwarz & Pratt [1 paratype USNM]; same locality, IV-13-1910, W. D. Pierce [1 paratype USNM]. **Kerr Co.** Kerr Wildlife Management Area, Spring Trap, IV-25-1992, E. G. Riley [9 EGRC]; Kerrville, V-8-1965, W. F. Chamberlain [17 TAMU]. **Kimble Co.** Junction, IV-19-30-1983, J. C. Schaffner [1 TAMU]. **Kinney Co.** ca. 6 mi. NE Brackettville, III-27-1999, E. G. Riley [2 EGRC]; Kickapoo Caverns State Natural Area, III-19-1992, E. G. Riley, beating *Quercus fusiformis* at night [3 EGRC]. **Sutton Co.** 10 mi. WSW Sonora, V-5-1998, S. M. Clark & S. G. Wells [6 BYUC]. **Val Verde Co.** 25 mi. N Comstock, III-26-1999, E. G. Riley, beating *Quercus virginiana*, var. *fusiformis* [14 AJGC, EGRC]; 32 mi. S Ozona, IV-29-1997, E. G. Riley, beating *Quercus virginiana*, var. *fusiformis* [9 EGRC].

#### APPENDIX 10. *Xanthonia furcata* Staines & Weisman, specimens examined from Oklahoma and Texas (43 total).

**OKLAHOMA:** **Marshall Co.** Univ. Oklahoma Biol. Sta. (west), 33.88368°N, 96.83925°W, IV-28-2002, E. G. Riley, beating *Quercus* sp. [15 EGRC, TAMU]; Univ. Oklahoma Biol. Sta. (Ecological Research Area), 33.88284°N, 96.81146°W, IV-28-2012, E. G. Riley [7 EGRC]. **TEXAS:** **Fannin Co.** Lake Fannin, 33°46'47"N, 96°09'34"W, IV-29-2004, E. G. Riley [2 TAMU]; Selfs, V-14-1978, J. K. Weaver [1 TAMU]. **Lamar Co.** Camp Maxey, IV-21-V-10-2003, W. Godwin, malaise trap, *Osmunda* bog [1 TAMU] Gibbons Lake, 33.700°N, 95.651°W, V-31-2007, S. M. Clark [8 BYUC]; Gibbons Lake Prairie, V-2-2004, E. G. Riley, sweeping native prairie [3 TAMU]. **Wood Co.** Godwin Woods, 3.5 mi. SW Hainesville, IV-28-29-2000, E. G. Riley [6 EGRC].