A FAUNAL SURVEY AND ZOOGEOGRAPHIC ANALYSIS OF THE CURCULIONOIDEA (COLEOPTERA) (EXCLUDING ANTHRIBIDAE, PLATPODINAE, AND SCOLYTINAE) OF THE LOWER RIO GRANDE VALLEY OF TEXAS

A Thesis

by

TAMI ANNE CARLOW

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE

August 1997

Major Subject: Entomology

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ABSTRACT

A Faunal Survey and Zoogeographic Analysis of the Curculionoidea (Coleoptera) (Excluding Anthribidae, Platypodinae, and Scolytinae) of the Lower Rio Grande Valley of Texas. (August 1997)

Tami Anne Carlow, B.S., Cornell University

Chair of Advisory Committee: Dr. Horace R. Burke

An annotated list of the Curculionoidea (Coleoptera) (excluding Anthribidae, Platypodinae, and Scolytinae) is presented for the Lower Rio Grande Valley (LRGV) of Texas. The list includes species that occur in Cameron, Hidalgo, Starr, and Willacy counties. Each of the 235 species in 97 genera is treated according to its geographical range, Lower Rio Grande distribution, seasonal activity, plant associations, and biology. The taxonomic arrangement follows O'Brien & Wibmer (1982). A table of the species occurring in particular areas of the Lower Rio Grande Valley, such as the Boca Chica Beach area, the Sabal Palm Grove Sanctuary, Bentsen-Rio Grande State Park, and the Falcon Dam area is included. A table of the species and their host associations is also presented.

Genera (number of species in parentheses) with the largest number of species represented are: *Anthonomus* (12), *Apion* (13), *Conotrachelus* (11), *Listronotus* (17), *Sibinia* (10), and *Smicronyx* (15). Thirty percent of the total species in the Lower Rio Grande Valley belong in these genera. There are 22 undetermined and/or undescribed species recorded.

Zoogeographic comparisons are made between the LRGV and Guatemala, North Dakota, Victoria County, San Patricio County, Big Bend National Park, and southern

Florida. A high percentage of species of the LRGV were found to have northern affinities. Eight non-native species were not included in the zoogeographic comparisons. Twelve species appear to be endemic to the LRGV. Fifty-seven percent of the 227 species analyzed have the LRGV as either their northern or southern boundary.

Four representative collecting sites in the LRGV were chosen to make comparisons. The greatest diversity of weevil species of the LRGV occurs in the Sabal Palm Grove Sanctuary (32%). This may be due to more extensive collecting at this site. Approximately one-third of the total diversity of the LRGV occurs on these 32 acres of land.

Plant associations are known for 33% of the weevils occurring in the LRGV, although some of the associations may have been recorded from areas outside of the LRGV. Out of the 433 plant associations, 41.3% involve the families Fabaceae, Malvaceae, and Asteraceae.

ACKNOWLEDGEMENTS

I thank Dr. Horace R. Burke, my committee chairman, for his helpful suggestions, patience, and support during this study. Appreciation goes to Dr. James Woolley and Dr. Gilbert Schroeter, my other graduate committee members for critically reviewing the manuscript and providing suggestions.

I thank Edward Riley, Texas A&M University (TAMU), College Station, TX; David Furth, Museum of Comparative Zoology, Cambridge, MA; Robert Anderson, Canadian Museum of Nature, Ottawa; Donald Bright, Canadian National Collection of insects, Ottawa; James Pakaluk; National Museum of Natural History, Washington, DC; and the people of Texas A&I University, Kingsville, TX, for letting me examine specimens in their care.

I thank Robert Turnbow (Fort Rucker, AL) for data on Lower Rio Grande Valley weevils from his personal collection, Edward Riley for the use of his personal collection, and Anne Howden (Ottawa, Canada) for making her personal collection available to me.

Acknowledgements go to Horace Burke (Texas A&M University), Henry Hespenheide (UCLA) and Charles O'Brien (Florida A&M University, Tallahassee, FL) for help with the identification of specimens; to Joseph Wipff and Stanley Jones (Texas A&M University) for help with plant identifications; and to Rene Davis (Remote Sensing Laboratory, USDA-ARS, Weslaco) for the aerial photograph of the Brownsville area. Appreciation goes to Alvin Hutchinson, Robert Gordon and F. Christian Thompson for helping with library work and Mike Scauff for computer help.

Thanks also go to Rose Farmer (Sabal Palm Grove Sanctuary, Brownsville, TX) for permission to survey the weevils of the the Sabal Palm Grove Sanctuary and David Riskind (Texas Department of Parks and Wildlife) for permits to collect in the Lower Rio Grande State Parks.

Thanks go to Dr. Natalia Vandenberg, Dr. Michael Schauff, Dr. Tom Henry, Rohit Malhotra, Shawn Carlow, and Will Godwin for critically reviewing the manuscript.

Greatest appreciations go to Horace Burke (TAMU) for his patience and critical review of the manuscript, to Edward Riley (TAMU) for accompanying me on collecting trips and the collecting information he provided, and to my mom for constant encouragement.

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INTRODUCTION

The Lower Rio Grande Valley (LRGV), or Matamoran District (Blair 1950) of the Tamaulipan Biotic Province of southern Texas is comprised of Starr, Willacy, Hidalgo, and Cameron counties (Figs. 1, 2). The climate and wildlife of the Tamaulipan brushland is unique in the United States. The LRGV is more correctly termed the Lower Rio Grande floodplain or delta (Jahrsdoerfer & Leslie 1988). It begins in the southern part of Starr County, extends through southern Hidalgo and Willacy counties and encompasses all of Cameron County. The area continues southward into the state of Tamaulipas, Mexico (Hovore et al. 1987). This unique area has an impressive amount of plant and animal diversity considering its small size.

Unfortunately, the brushland's uniqueness does not render it impervious to destruction. In fact, it makes it more vulnerable to destruction by the activities of man. Because of the desirable climate and soils, southern Texas has extensive economically desirable resources. Its small geographic size and extensive resources render the LRGV particularly susceptible to being destroyed as a viable natural resource (Hovore et al. 1987). Agricultural activity has had a great impact on this area with most of the destruction occurring in the late 1800's and early 1900's. Urbanization has also taken its toll. The city of McAllen now exists where riparian woodlands once stood. Brownsville, the largest urban area in the LRGV, has replaced lush subtropical vegetation (Quammen 1990). Pesticides, land clearing, and water development, such as Rio Grande water flow changes and irrigation canals, have all contributed to alterations of the native habitat (Jahrsdoerfer & Leslie 1988). The 200 mile stretch of land along the river starting at the Falcon Dam and extending to the Gulf of Mexico has been greatly altered. About 95% of the original vegetation of the LRGV has been destroyed, 75% of which is due to land clearing and agricultural development (Jahrsdoerfer & Leslie 1988). There is almost no

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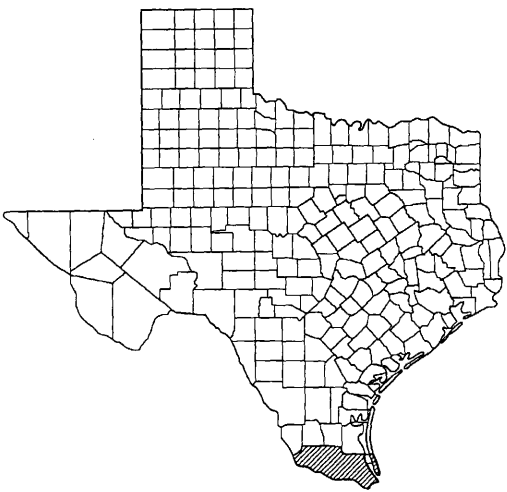

Fig. 1. Lower Rio Grande Valley, Texas.

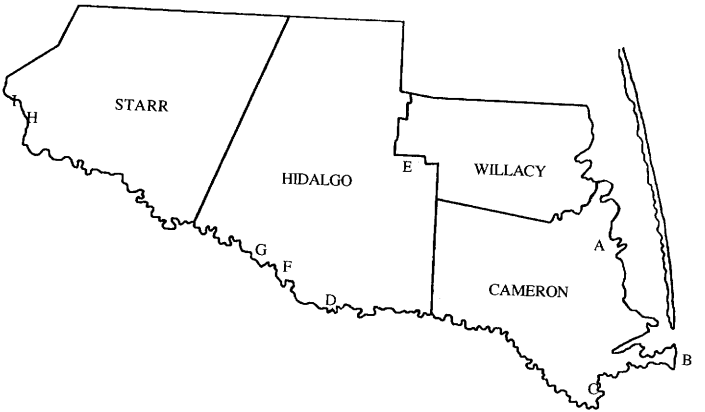

Fig. 2. Some important collection localities in the Lower Rio Grande Valley. **A**) Laguna Atascosa National Wildlife Refuge **B**) Boca Chica Beach area **C**) Sabal Palm Grove Sanctuary **D**) Santa Ana National Wildlife Refuge **E**) Delta Lake **F**) Anzalduas County Park **G**) Bentsen Rio-Grande State Park **H**) Salineño **I**) Falcon State Park.

original vegetation left on the Mexican side of the river and the remaining vegetation in the United States is found in small state and federal preserves and a few private tracts of land (Hovore et al. 1987). Most of the remaining tracts of land are of less than 100 acres in extent and are surrounded by some sort of development. Because these tracts are on private land, they will probably be developed in the near future (Jahrsdoerfer & Leslie 1988).

Blair (1950) described 7 biotic provinces in Texas according to surface features, vegetation types, climate, and terrestrial vertebrates (excluding birds). The Tamaulipan Biotic Province (Fig. 3), south of the Balcones Fault line, is comprised of about eight million hectares of semi-arid brushland (Jahrsdoerfer & Leslie 1988). Within this biotic province, Blair (1950) considered the LRGV to be different and named it the Matamoran district. For the Mexican side, Dice (1943) stated that much of the state of Tamaulipas and most of the northern part of the state of Nuevo Leon are included in the Tamaulipan Biotic Province. Goldman & Moore (1946) added part of the Mexican state of Coahuila as well.

The LRGV has been divided into seven biotic communities by some ecologists, while the United States Fish & Wildlife Service acknowledges the existence of eleven distinct communities within the Matamoran district (Fig. 4). These are the Chihuahuan thorn forest (Falcon Woodland), sabal palm forest, mid-valley riparian woodland, upper valley flood forest, mid-delta thorn forest, woodland potholes and basins, barettal community, loma/tidal flats, coastal brushland potholes, ramaderos, and upland thorn scrub (Jahrsdoerfer & Leslie 1988; Quammen 1990).

The LRGV, with its mild subtropical climate and unique flora, was considered a significant area for collecting by entomologists in the late nineteenth century and early twentieth century. Many collecting trips were made into the area during this period, but unfortunately, it was also a time when much of the native vegetation was being cleared

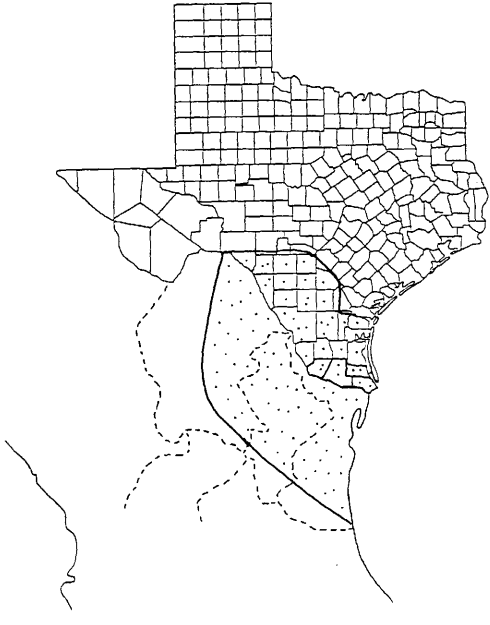

Fig. 3. Tamaulipan Biotic Province according to Dice (1943), Goldman & Moore (1946), Blair (1950), and Baro de Jones (1992).

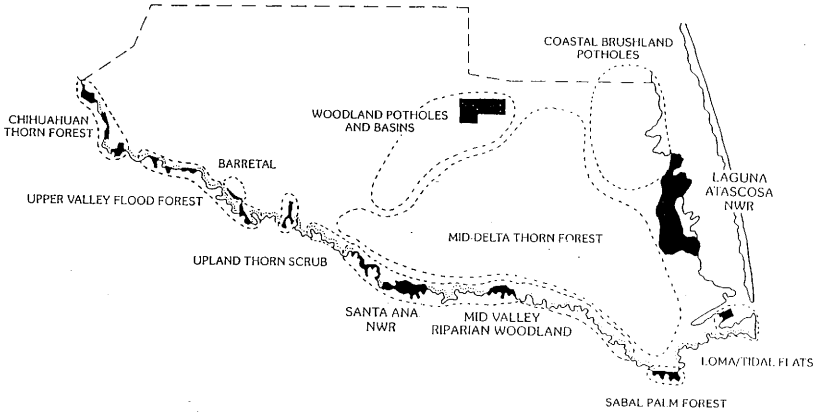

Fig. 4. Eleven biotic communities of the Lower Rio Grande Valley according to the United States Fish and Wildlife Service (1985).

for agriculture and urban development (Jahrsdoerfer & Leslie 1988, Hovore et al. 1987). One of the earliest insect collectors to the LRGV was E. A. Schwarz. He visited this area in 1879 and wrote of "semi-tropical thickets" and "forest jungles." He predicted that the semi-tropical flora and fauna would become extinct because of progressive agricultural practices (Schwarz 1896).

The climate of the LRGV can be considered semi-arid and subtropical. The southeasterly winds that occur in every month except September do not allow for a truly marine climate which makes the LRGV semi-arid. Humidity is high, with an annual average of 88%, and fog is common from December to March. The average rainfall is 68.2 cm. Approximately one-third of the total annual rainfall occurs in September and October. Rainfall patterns seem to correspond to the tropical rainy season found in eastern and central Mexico (Lonard et al. 1991). Rainfall in the area can be quite variable annually as well as monthly. An entire month's rainfall may come from one thunderstorm. Temperatures range from 50° F in winter to 96° F in summer (Jahrsdoerfer & Leslie 1988). Usually at least one frost will occur during the winter, killing some cold-sensitive and winter-active plant species. This may be one of the reasons some subtropical species have their northern limit in the LRGV (Hovore et al 1987).

The LRGV is mainly a deltaic and river floodplain. Sand dunes, salt flats, salt marshes, and lomas (clay dunes made by wind-blown silt from the Laguna Madre lagoons, bays and barren flats) make up the coastal areas. The floodplain is narrow in Starr County and widens going into Hidalgo County. In Cameron County, the river fans out into a delta. Within the delta, old river meanders or resacas are present with poorly drained clay soil in the low lying areas between them. Part of Hidalgo County, most of Willacy County and all of Cameron County are part of the Rio Grande delta. Most of Starr and Hidalgo counties have some weakly defined drainage patterns and small depressions. The northeastern part of Starr County, and northern parts of Hidalgo and

Willacy counties contain pothole lakes because there is no particular drainage pattern. The geology of southern Texas has various soil types and underground formations of varying depths and ages which in turn affect the vegetation growing on them. Cameron County is flat and contains 90% clay and loamy soils. Willacy County is also flat and contains 73% clay and loamy soils. Hidalgo County is flat near the river but is more hilly in the north, and has 60% loamy soils. Starr County has 73% clay and loam soils. Hidalgo County has the highest percentage of sandy soils at 22%, Willacy County has 16%, Starr County has 5%, and Cameron County has 3%.

Study of major groups of organisms in the LRGV will establish a baseline on which to monitor changes and to provide useful biogeographical data. One large group well represented in the LRGV is the superfamily Curculionoidea, generally known as weevils, with more than 2,388 species occurring in North America (O'Brien & Wibmer 1978). The family Curculionidae is one of the largest insect families in the world, with about 57,000 species having been described (Thompson 1992). Classification of the superfamily is in a state of flux at the present time. The classification of O'Brien and Wibmer (1982) is followed here because it represents the most recent system into which all North American weevils have been placed. Kuschel (1995) has made major changes to the classification of weevils, mainly by relegating most of the earlier recognized sub-families to the tribal level. Anderson (1992) followed the Kuschel classification in a study of weevils of South Florida in anticipation of publication of Kuschel's scheme. The present study began before the Kuschel reorganization and was therefore based on the O'Brien and Wibmer classification. I have decided to follow the latter classification rather than making the large changes that adopting the Kuschel system would require. The major taxa are still intact; only the categorical levels at which they are recognized have changed. This should not present a problem in either listing the taxa or interpreting results, as the O'Brien and Wibmer checklist remains the most recent one available for

the area covered. The taxa Anthribidae, Platypodinae and Scolytinae of the superfamily Curculionoidea are excluded from this survey because these groups have not been extensively collected in the LRGV, and little biological and distributional data are available for them. Descriptions are available for most of the species of weevils that have been collected in the LRGV, and relatively modern taxonomic studies have been completed on about 22 of the genera.

Virtually all Curculionoidea are phytophagous, yet they are quite varied in their feeding habits. The larvae are usually C-shaped and legless, and feed inside roots, stems, leaves, fruits, buds, seeds, and nuts. Many species, such as the boll weevil, pepper weevil, and rice weevil are pests of certain crops, trees, and stored products. Some weevils roll or mine leaves, form galls, or feed in dead or dying wood (Morris 1991). Most weevil species are specialized feeders often feeding on one or a few plant species within the same genus, tribe, or family, although the root-feeders usually have a wider host range (Morris 1991). Some of the LRGV weevil species have a very close relationship with their host plants. Since many of these plants may be unique to the LRGV, it is likely that some of the weevils associated with them are also unique to the region. If the relationship is altered, both species are likely to be affected.

Weevils as a large, diverse group of organisms may have a major impact on the environment. They can be major pests, such as the cotton boll weevil, or be beneficial for biological control of weeds, such as the puncture-vine weevil. It is important to study all aspects of their ecology, biology, and taxonomy in an attempt to evaluate their interrelationships with the environment. A list of species of the LRGV, along with their ranges, LRGV distributions, seasonal activities, host associations, and other general information is presented here as a basis for further study. Plant relationships are usually studied for pest species in great detail because of the possible economic problems these weevils pose. However, there is a relatively small amount of information available for

non-economic species. This list of the LRGV weevils is important not only for the pest species, but for lesser known ones that also play an important role in the ecosystem.

This study is necessary to document the present fauna so that future changes can be monitored. It also adds to the overall knowledge needed to conduct comprehensive biogeographic studies of the flora and fauna of the region. The diversity of the flora and weevils in the LRGV must be studied and preserved in order to assess how to develop and maintain natural areas as well as to accumulate valuable biological information to help with the studies of biological control of destructive pests such as the boll weevil.

The objectives of this study are to survey the Curculionoidea (excluding Anthribidae, Platypodinae, and Scolytinae) of the Lower Rio Grande Valley of Texas to provide a preliminary list of the weevil species, determine plant associations, and to document seasonal and geographic distribution patterns. Based on this information, species richness and zoogeographical patterns of selected taxa will be analyzed. Similar studies for the LRGV have been conducted on the Cerambycidae (Coleoptera) (Hovore et al. 1987), Ichneumonidae (Hymenoptera) (Porter 1977), and Buprestidae (Coleoptera) (Vogt 1949). Anderson (1992) and Anderson & Peck (1994) recently published a similar study of the Curculionoidea of southern Florida. The present study on the Lower Rio Grande Valley of Texas will contribute much needed information on the species diversity of this interesting area.

LITERATURE REVIEW

Weevils were the subjects of some early observations, collections, and descriptions in the LRGV. More comprehensive revisions of some taxa followed these earlier studies. A comprehensive faunal survey of the LRGV weevils has never been conducted, although C.H.T. Townsend (1903) compiled a list of the Coleoptera in the LRGV based on previous lists (Casey (1897) and Wickham (1897) and his own notes and observations. His list contained 49 species of weevils according to the current taxonomic system used in the present study. In the earlier part of this century, Charles Schaeffer described new genera and species, and provided some keys and other information on previously described species of various weevils, some of which occur in the LRGV (Schaeffer 1904, 1905a, b, 1906, 1907, 1908). W.D. Pierce (1907a, b, 1908, 1909, 1910, 1912, 1913, 1916a, b, 1918, 1940) provided descriptions and biological information on some of the species of weevils of the LRGV. Thomas Casey (1892, 1893, 1895, 1897, 1888, 1910, 1920) also described new LRGV species. H. F. Schoof (1942) published a monograph on the genus *Conotrachelus* of the north central United States, which included some species from the LRGV.

More recently, revisions of taxa have taken precedence over faunal studies. The tribe Ophryastini of North America, including several LRGV species, was revised by David Kissinger (1970). W. E. Clark (1978) compiled taxonomic and zoogeographic information on the genus *Sibinia*, many species of which occur in the LRGV. Other works including LRGV weevils are: revision of the genus *Isodacrys* (Howden 1961); revision of the genus *Smicronyx* in North America (Anderson 1962); review of species of Apioninae in North and Central America (Kissinger 1968); revision of the genus *Gerstaeckeria* north of Mexico (O'Brien 1970a); revision of the genus *Tychius* (Clark 1971); ecology of several *Anthonomus* species in North America (Burke & Gates 1974);

revision of the genus *Tyloderma* in North America (Wibmer 1981); key and descriptions of the larger *Listronotus* of North America (O'Brien 1981); revision of the genus *Plocetes* (Clark 1982); revision of the subfamily Rhynchaeninae (Anderson 1989); and taxonomy and natural history of the genus *Cionopsis* (Burke 1981, Anderson & Burke 1990).

Although there are numerous scattered papers treating the LRGV weevils, the overall understanding of this fauna is poor. No previous attempts have been made to concentrate on this group of insects in the area. Undoubtedly, some species remain to be discovered and some previously reported species known from the area may no longer occur there because of extensive disturbances to their hosts and habitats.

METHODS

Most of the personal collecting on this project was accomplished during five trips to the LRGV: October 1990, April 1991, May 1991, July 1991, and November 1991. Approximately 1200 weevil specimens were collected during these trips. The time spent collecting on each trip was approximately three days, usually starting at Boca Chica Beach in the eastern part of the area and ending with the Falcon Dam area on the west.

Various collecting methods were used. Weevils on low vegetation were collected with a sweep net, and those on tall vegetation and trees were collected by use of a nylon beating sheet. Mercury vapor lights and blacklights were suspended in front of a white sheet to attract weevils at night. Sweeping and beating vegetation were done both during the day and night. The collected specimens were killed with ethyl acetate and stored in vials. A number was assigned to each vial to facilitate record keeping. The specimens were pinned and labelled according to standard methods and identified to species. It was necessary to submit some specimens to specialists for identification. If no species name could be assigned to a specimen, it was identified to genus and given a species number. Identification of specimens was accomplished by the use of keys and descriptions from literature, and comparison with specimens in the Texas A&M University (TAMU) insect collection and other insect collections listed below. Kissinger's (1964) key to the weevil genera of the United States was used initially to identify the specimens to genus. The classification of this study follows O'Brien & Wibmer (1982).

Label data from the specimens were recorded. Counties and exact locations were recorded to aid in determining distributions. The month of collection was recorded to determine adult seasonal activity. Plant associations were also recorded. Individual plants were swept or beaten to determine possible associations of weevils and plants.

Host plants were collected and subsequently identified by Joseph Wipff and Stanley Jones (TAMU) using the most recent classification possible, including Correll & Johnson (1970), Richardson (1990), Hatch et al. (1990), and Lonard et al. (1991).

Seasonal activity and plant associations apply to the LRGV unless otherwise noted. References are made to keys, revisions, and biological information when such information is known. Type localities are included if they are from the LRGV, within 100 miles of the LRGV, or in ones in which locality in "Texas" was not further specified.

In addition to the information recorded from the weevils personally collected in the LRGV, similar information was recorded from the collections of Texas A&M University, College Station; Texas A&I University, Kingsville; Texas Agricultural Experiment Station, Weslaco; Canadian National Collection, Ottawa; Canadian Museum of Nature, Ottawa; National Museum of Natural History, Washington, D.C.; Museum of Comparative Zoology, Cambridge; and the Anne Howden Collection, Ottawa, Canada. Additional information was gathered from the personal collections of Charles O'Brien, Robert Turnbow, and Edward Riley. Specimens collected during this study are deposited in the Insect Collection of the Department of Entomology (TAMU).

Various collections were used in compiling information for the following list of weevils. The following acronyms represent the collections examined.

AHC	Anne Howden Collection, Ottawa, ON
CMNC	Canadian Museum of Nature Collection, Ottawa, ON
CNC	Canadian National Collection of Insects, Biosystematics Research Centre, Ottawa, ON.
CWOB	Charles W. O'Brien personal collection, Tallahassee, FL
ERC	Edward G. Riley personal collection, College Station, TX.
MCZ	Museum of Comparative Zoology, Harvard University, Cambridge, MA.
NMNH	National Museum of Natural History, Washington, D.C.
RTC	Robert Turnbow Collection, Fort Rucker, AL.
TAIU	Texas A&I University Collection, Kingsville, TX.

TAMU Texas A&M University, College Station, TX.
TAES Texas Agricultural Experiment Station, Weslaco, TX.

Indices of similarity are used to compare different areas with the LRGV. One method used is Simpson's index of similarity, ($S = 100 \times C/N_1$), where S = similarity, C = number of shared species in two habitats being compared, and N_1 = number of species in the habitat with fewer species (Simpson 1947). Sorensen's coefficient of community, ($CC = 2c/s1 + s2$) is also used to measure the percent similarity between two collecting areas. In this equation c = number of species common to both communities, s1 = the number of species in community 1, and s2 = the number of species in community 2 (Smith 1992).

DESCRIPTION OF STUDY SITES

Study sites representing most of the types of original vegetation found in the LRGV included the Boca Chica Beach area (Figs. 5, 6), Sabal Palm Grove Sanctuary (Fig. 7), Bentsen-Rio Grande State Park (Fig. 8), and the Falcon Dam area (Fig. 9). Sites which were somewhat disturbed were Southpoint Nursery (Fig. 10), Port Mansfield, Route 48 heading towards Port Isabel, Las Palomas Wildlife Management Area (Peñitas Unit), Anzalduas County Park (Fig. 11), Salineño (Fig. 12), and Delta Lake. Some roadside collecting was done in disturbed areas and on roadsides adjacent to agricultural fields (Fig. 13b). These sites were all chosen because they represent the major types of present vegetation including native, relatively undisturbed, semi-disturbed, and disturbed vegetation. Day and night collecting were done during each visit, except for April 1991 when part of the LRGV was flooded.

The Boca Chica Beach area (or coastal prairies and marshes) in Cameron County consists of sand dunes (Fig. 5a), clay lomas (Fig. 6), and tidal flats (Fig. 5b). The clay lomas or mounds are formed from the wind-blown silt of the tidal flats area and can grow as large as 30 ft. above the flats (Jahrsdoerfer & Leslie 1988). The Boca Chica Beach area is unique within the LRGV because of the blending of salt tolerant vegetation with thorn scrub. The common vegetation on the flats is *Batis maritima* (saltwort), *Monanthochloë littoralis* (shoregrass), *Borrichia frutescens* (bushy sea ox-eye), and *Salicornia* spp. (glasswort). *Spartina spartinae* (cordgrass) is most common in the marshy areas. *Pithecellobium flexicaule* (Texas ebony), *Zanthoxylum fagara* (colima), *Prosopis glandulosa* (mesquite), *Acacia smallii* (huisache), and *Yucca* spp. are characteristic of the lomas (Fig. 6) (Lonard et al 1991). Collecting was done here during each visit, except for April 1991 when this part of the LRGV was flooded.

A

B

Fig. 5. **A**) Vegetation behind dunes at Boca Chica Beach.
B) Salt flats beyond dunes at Boca Chica Beach.

A

B

Fig. 6. **A**) Edge of a loma with *Yucca* near Boca Chica Beach.
B) A loma further inland with thicker vegetation including an ebony tree.

A

B

Fig. 7A, B Sabal Palm Grove Sanctuary.

A

B

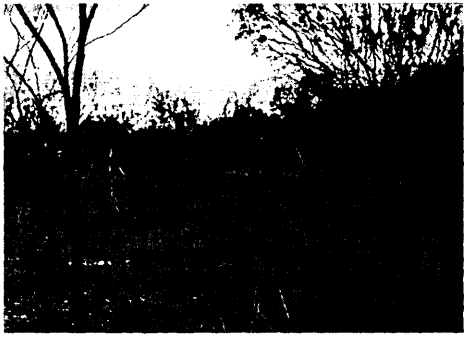

Fig. 8A, B. Bentsen-Rio Grande State Park.

Fig. 9. Falcon Dam area vegetation and Rio Grande River.

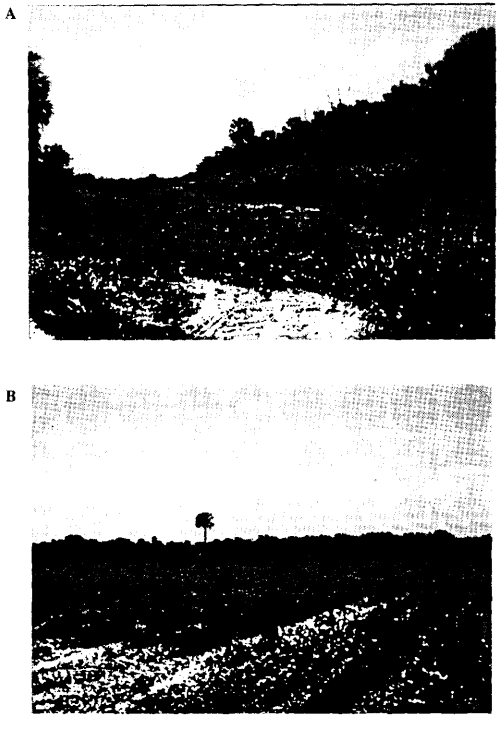

Fig. 10. **A**) Southpoint Nursery with *Sabal texana* grove.
B) Southpoint Nursery with *Sabal texana* in the background.

A

B

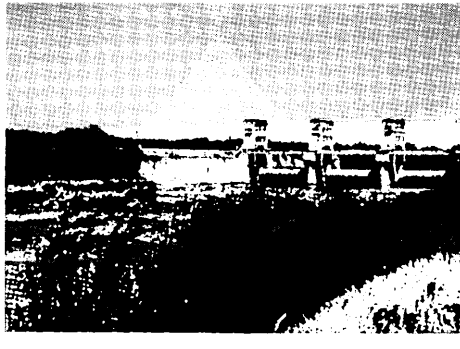

Fig. 11. **A**) Anzalduas County Park **B**) Anzalduas County Dam.

A

B

Fig. 12A, B. Rio Grande River at Salineño and Mexican vegetation.

A

B

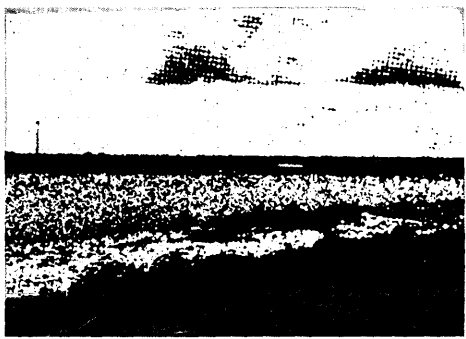

Fig. 13. **A**) Aerial photograph (USDA, ARS 1989) showing Rio Grande River, crops, part of Brownsville, Mexico, and the Sabal Palm Grove Sanctuary (arrow). **B**) Cotton (foreground) and sugarcane (background) crops.

A riparian palm forest once occupied 40,000 acres along the Rio Grande River extending 80 miles inland from the Gulf of Mexico (Sabal Palm Grove Sanctuary brochure, no date). All of the original palm forest has been cleared except for the Sabal Palm Grove Sanctuary along the southernmost bend of the Rio Grande River (Fig. 13a), and a privately owned palm woodland at the Southpoint Nursery. The Sabal Palm Grove Sanctuary contains remnant stands of *Sabal mexicana* (Mexican palmetto) that are now disjunct from populations in the tropical areas of Mexico. The area of the sanctuary is 172 acres. Old farm fields make up 140 acres and the remaining, 32 acres is the sanctuary (Sabal Palm Grove Sanctuary brochure, no date). *Pithecellobium flexicaule* (Texas ebony), *Zanthoxylum fagara* (colima), *Condalia hookeri* (brasil), *Ehretia anacua* (anacua), *Celtis pallida*, (granjeno) are some of the more abundant species in the palm grove. Some of the rare and endangered plants in the palm grove are *Xylosma flexuosa* (brush holly), *Phaulothamnus spinescens* (snake-eyes), *Sabal mexicana* (sabal palm), and *Chiococca alba* (David's milkberry) Another small tract of land with palm forest is the Southpoint Nursery. The palm forest in this nursery is quite disturbed and is surrounded by agricultural land. One collecting trip was made to the Southpoint Nursery in May 1991, but it was not productive for weevils.

Bentsen-Rio Grande Valley State Park (Fig. 8), in Hidalgo County is characterized by subtropical thorn-scrub and riparian woodland: it contains most of the major native plant communities of the LRGV (Hovore et al. 1987). It occupies 588 acres and lies about halfway between the eastern and western boundaries of the LRGV. The major plant communities include Tamaulipan semideciduous forest, Tamaulipan interior swamp, riparian hardwood forest, and mature thorn scrub. The characteristic vegetation of the park includes *Ehretia anacua* (anacua), *Salix nigra* (black willow), *Celtis laevigata* (hackberry), *Condalia hookeri* (brasil), *Ulmus crassifolia* (cedar elm), *Opuntia lindheimeri* (prickly pear), and *Parkinsonia aculeata* (retama) (Bentsen-Rio Grande Valley State Park

brochure; Hovore et al. 1987). Day and night collecting took place here on each visit to the LRGV.

Anzalduas County Park (Fig. 11) is much like Bentsen-Rio Grande Valley State Park, although it is used mainly for recreational activities and is somewhat disturbed. Collecting was done here in July 1991. Species diversity was poor at this site.

The Falcon Dam area (Fig. 9), in Starr County, representing the northwestern limit of the LRGV, is characterized as Chihuahuan Thorn Forest. This area contains a riparian zone with *Prosopis glandulosa* (honey mesquite), *Salix nigra*, and *Fraxinus berlandieriana* (Mexican ash) bordering on desert thorn scrub consisting of *Dasylirion texanum* (sotol), *Mimosa biuncifera* (catclaw mimosa), and *Opuntia* spp. (cactus).

The collecting sites at Port Mansfield, Route 48, along the coast and Delta Lake, north of Weslaco were disturbed areas, usually associated with open sunny areas and weeds.

The Las Palomas Wildlife Management Area was once a nursery, but original vegetation is in the process of reestablishing. Currently, it consists mainly of tall grasses and bushes.

Due to its proximity to the Rio Grande River, the Salineño site is subject to flooding. The dominant woody vegetation includes *Acacia smallii* (huisache), *Salix nigra*, *Parkinsonia aculeata* (retama), and *Fraxinus berlandieriana*.

Most of these collecting sites have habitats and plant communities occurring only in this part of the United States (Jahrsdoerfer & Leslie 1988). Although the preserves are protected, they are surrounded by areas devoid of natural habitat which creates stress on these unique communities. Agricultural run-off, controlled river flow, and urbanization all contribute to this stress. Because the preserves are so small and separated they are in danger of being destroyed by the forces that once made the Lower Rio Grande Valley thrive. These forces include fire, drought, flooding of the Rio Grande

River, and severe frosts. If a fire were to occur in one of these small preserves, it could wipe out many species that once had a much wider range. It is impossible at this time to assess the damage to the original flora and fauna due to development such as urbanization and the planting of crops because most of the habitat was cleared in the late 1800's and early 1900's (Hovore et al. 1987).

RESULTS AND DISCUSSION

Annotated List of Curculionoidea of the Lower Rio Grande Valley of Texas (Cameron, Hidalgo, Starr and Willacy counties)

Rhynchitidae

Rhynchitinae, Rhynchitini

Haplorhynchites pseudomexicanus Hamilton 1974: 793

Range: Arizona and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: 2 mi. E Sullivan City (CWOB); Donna (TAMU). Starr Co.: 12-15 mi. E El Sauz (RTC); 1.7 mi. N of 83 on 649; Grulla; La Joya (CWOB).

Seasonal Activity[1]: February, March, September, and November.

Plant Associations[2]: Unknown for Texas; *Helianthus* sp. and *Helianthus annuus* L. in Arizona (Hamilton 1974). No other biological information is available for this species.

General Information[3]: In addition to the LRGV record, this species has been collected in the Trans-Pecos area of Texas (Hamilton 1974). Out of eleven known species, six species of this genus occur in North America north of Mexico, five species occur in Mexico, one species occurs in Mexico and Guatemala and one species is common to Mexico, Texas, and Arizona. *Haplorhynchites* was originally included as a subgenus of *Rhynchites*. Hamilton (1974) illustrated the head and male genitalia of the species and included a key to the species of the genus.

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[1] Seasonal activity is determined by specimen label data, literature, and personal observations of adult weevils and may not reflect the total activity periods of the species listed. Activity months apply only to the LRGV, unless otherwise noted.

[2] Most of the plant associations are for the LRGV when known. Associations from other localities may be listed to facilitate finding possible hosts in the LRGV.

[3] Type localities are given only if they are in or near the LRGV.

Haplorhynchites quadripennis (Fall) 1929: 292

Range: Arizona and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Laguna Atascosa Natl. Wildlife Ref., Unit 7 (ERC). Hidalgo Co.: 13-13.5 mi. W Hargill (RTC); Donna (TAMU).

Seasonal Activity: September and October.

Plant Associations: *Baccharis* sp. in Texas (exact locality not given) (Hamilton 1974).

General Information: Hamilton (1974) illustrated the head and male genitalia of the species and provided a key to the members of the genus.

Pselaphorhynchites macrophthalmus (Schaeffer) 1908: 214
(Figure 14)

Range: Lower Rio Grande Valley, Texas [4]

Distribution in LRGV: Cameron Co.: Brownsville; Brownsville (Los Borrejos); Brownsville, Esperanza Ranch (NMNH); 2 mi., 3.8 mi., and 7.6 mi. W. Boca Chica Beach; 6 mi. S.W. of Port Isabel on Hwy 48; 9.7 mi. E. of Jct. of Rte. 1419 on Hwy. 4; Palmito Hill, E of Brownsville; 20 km E. of Brownsville. Hidalgo Co.: no specific locality on label. Willacy Co.: Port Mansfield (TAMU).

Seasonal Activity: May, June, July, October, and December.

Plant Associations: This species has been collected on *Prosopis reptans* Benth., 2 mi. W. of Boca Chica Beach, and on *Pithecellobium flexicaule* (Benth.) Coult., 7.6 mi. W. of Boca Chica Beach (TAMU).

General Information: This weevil seems to occur only in the LRGV. The type locality is Brownsville, Cameron County, Texas. Hamilton (1971) illustrated the head and male genitalia and provided a key to the 14 species of the genus north of Mexico. No biological information other than the host associations listed above is available for the species. The genus *Pselaphorhynchites* was formerly a subgenus of *Rhynchites*. During the present study, this species was collected in large numbers while beating mesquite and Texas ebony on the lomas and salt flat areas in May, July, and October. Specimens did not occur on these same plants in the Sabal Palm Grove Sanctuary.

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[4] Where no reference is cited for general range, the information presented here is based on data accumulated during this study.

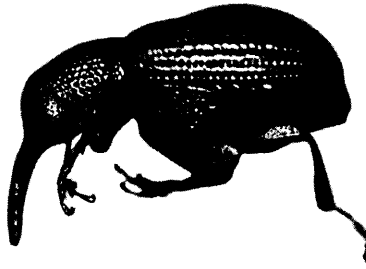


Fig. 14. *Pselaphorhynchites macrophthalmus.*

Apionidae
Cyladinae, Cyladini

Cylas formicarius elegantulus (Summers) 1875: 401

Range: Old World, Central America, West Indies, Florida, Louisiana, Mississippi, New Mexico, South Carolina and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Palmito Hill E of Brownsville; 20 km E of Brownsville; Brownsville, Sabal Palm Grove Sanctuary; Brownsville: no specific locality on label; Boca Chica Beach. Hidalgo Co.: Mercedes (TAMU).

Seasonal Activity: January, March, July, September, and October.

Plant Associations: This species has as its host the sweet potato, *Ipomoea batatus* (L.) Lam. (Kissinger 1968), and the larvae have been found developing in stems of seaside morning glory, *Ipomoea pescapreae* L. (Blatchley and Leng 1916). It has also been found in roots of a *Convolvulus* sp. (Mitchell & Pierce 1911). These plant associations are not necessarily from the LRGV. During the present study, adults were collected on *Ipomoea* sp.

General Information: This weevil is known as the sweet potato weevil and it is very destructive to cultivated sweet potatoes. Thompson (1992) and Kuschel (1995) place the species in the family Brentidae. This subspecies was first described from Louisiana as a variety, but the species is native to Asia. Pierce (1918) presented descriptions of the larva and pupa as well as figures of the adult, larva, and pupa, and a key to species of the genus. Complete information on biology and distribution is given in Reinhard (1923). Pierce (1940a) provided figures of the male genitalia of this species. Ahmad (1964) published an extensive study on the morphology of the species. During this study, four specimens were collected at night in October at the Sabal Palm Grove Sanctuary.

Apioninae, Apionini

The genus *Apion* is a speciose group of small, somewhat pear-shaped weevils that are often difficult to identify to species. They are diverse in their feeding habits and hosts, being stem borers, inquilines, gall formers, seed feeders, flower feeders, etc. (Morris 1991). Kissinger (1968) provided a key to the species of North and Central America.

Apion aculeatum Fall 1898: 171

Range: Texas, northern Mexico, and Veracruz, Mexico (Kissinger 1968).

Distribution in LRGV: Cameron Co.: Brownsville; Laguna Atascosa National Wildlife Refuge (TAMU).

Seasonal Activity: January, March, May, June, and July.

Plant Associations: This species has been reared from flower heads of huisache (*Acacia smalli* Isely (=*farnesiana*)) in Victoria Co. (Mitchell & Pierce 1911), "ex blooms of *Mimosa pigra*" L. at Brownsville, Texas (NMNH), and has been found developing in flower heads of a *Mimosa* sp. (Pierce 1916b).

General Information: The type locality of *A. aculeatum* is Brownsville, Texas. Kissinger (1968) mapped the distribution of the species and presented figures of the male genitalia and other morphological characters. The adult is described in detail. A key to the species of the genus is also available in Kissinger (1968). In the United States, this species occurs only in the LRGV and Victoria Co., Texas.

Apion amaurum Kissinger 1968: 228

Range: This widespread species has been recorded from Canada, Mexico, Arizona, California, Colorado, Idaho, Iowa, Montana, New Mexico, North Dakota, Oregon, Texas, and Utah (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (Kissinger 1968) ; Laguna Atascosa National Wildlife Refuge (CMNC); vicinity of Palmito Hill (RTC); Palmito Battle Field; Boca Chica Beach. Willacy Co.: Port Mansfield (TAMU).

Seasonal Activity: May, July, and October.

Plant Associations: This species has been reared from *Petalostemum* sp., ex *Parosela aurea* (now *Dalea aurea* Nutt.), found on *Mimosa borealis* Gray (exact plant association locality is not mentioned) (Kissinger 1968), and found on *Dalea* sp. at Boca Chica Beach (TAMU).

General Information: Kissinger (1968) described the adult, mapped the distribution, and presented figures of the male genitalia and other morphological features of this species. A key to the species of the genus is also available in Kissinger (1968). During this study, 29 specimens were collected at Boca Chica Beach in May, July, and October.

Apion attenuatum Smith 1884: 60, 62

Range: Canada and widely distributed in the U.S. (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (Kissinger 1968); Southmost Ranch; Sabal Palm Grove Sanctuary (CMNC).

Seasonal Activity: July, October, and November.

Host Associations: This species has been beaten from willow (*Salix* sp.) and collected on *Salix lasiolepsis* Benth. (exact plant association localities are not mentioned), and has been reared from sawfly (*Euura sp.*) galls, on willow in California (Kissinger 1968).

General Information: Kissinger (1968) described the adult, mapped the distribution, and presented figures of the male genitalia and other characters of this species. A key to the species of the genus is also available in Kissinger (1968).

Apion buchanani Kissinger 1958: 72, 73

Range: Southern Texas and Mexico (Kissinger 1968).

Distribution in LRGV: Cameron Co.; Brownsville; Southmost (Kissinger 1968)

Seasonal Activity: April and November.

Plant Associations: This species has been reported on *Croton punctatus* Jacq. (probable host) (unsure of exact locality for this plant association), corn, pepper, orange foliage, and cotton (Kissinger 1968). The latter are probably not true hosts.

General Information: The type locality is Brownsville, Texas. This species is distributed in middle and northeastern Mexico and does not extend further north than the LRGV. Kissinger (1968), described the adult, mapped the distribution, and pre sented figures of the male genitalia, and other characters of this species. A key to the members of the genus is also available in Kissinger (1968).

Apion curticorne Fall 1898: 127

Range: Maryland, Ohio, Kansas, Texas, Florida, Virginia, and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: vicinity of Palmito Hill; 10 mi. W. of Boca Chica Beach (RTC); Sabal Palm Grove Sanctuary; Boca Chica Beach "Ebony Loma"; Palmito Hill (CMNC).

Seasonal Activity: May, July, and October.

Plant Associations: This species has been reared from seeds of *Verbesina alternifolia* (L.) Britt. and has been found on *Verbesina virginica* L. (exact plant association localities not given) (Kissinger 1968).

General Information: The type locality is San Diego, Texas, approximately 100 miles north of the LRGV. Simple illustrations of the adult are presented in Fall (1898). Kissinger (1968) mapped the distribution, and presented figures of the male genitalia, and other characters of this species, and the adult was described in detail. A key to the members of the genus is also available in Kissinger (1968).

Apion ellipticum Smith 1884: 51

Range: Alabama, Arkansas, Louisiana, Mississippi, Nebraska, Tennessee, and Texas (Kissinger 1968).

Distribution in LRGV: Cameron Co.: Brownsville (Kissinger 1968).

Seasonal Activity: February through June (specific localities not given) (Kissinger 1968).

Plant Associations: This species has been taken from root galls on *Chaerophyllum tainturieri* Hook (=*texanum*), Dallas, Texas (Emden 1938). Nothing more is known about its biology.

General Information: This species is distributed in Texas and the central United States. It has not been recorded south of the LRGV. Kissinger (1968) mapped the distribution, and presented figures of the male genitalia and other morphological characters of this species, and the adult is described in detail. A key to the members of the genus is also available in Kissinger (1968).

Apion fumitarse Fall 1898: 162

Range: Coastal and southern Texas (Kissinger 1968).

Distribution in LRGV: Cameron Co.: Sabal Palm Grove Sanctuary (CMNC); 6 mi. E of Brownsville (TAMU). Hidalgo Co.: Mission (Kissinger 1968); 13-15 mi. W Hargill; 15 mi. N Linn-San Manuel (RTC); 3 mi. E of Hargill; 2 & 4 mi. S of Delfina; 2 mi. S Linn; Bentsen-Rio Grande State Park; Santa Ana National Wildlife Refuge (TAMU).

Seasonal Activity: January, February, March, April, May, July, October , and December.

Plant Associations: Burke (1963b) removed immature stages from the seeds of *Croton glandulosus* L. and found adults on the same plants north of Rockport, Texas. This species has also been collected on *Dalea multiflora* (Nutt.) Shinners, and leaves of *Quercus virginiana* Mill. (exact plant association locality is not mentioned) (Kissinger 1968). It has also been collected on *Celtis pallida* Torr., and *Quercus virginiana* Mill. in Brooks Co., Texas (TAMU).

General Information: The type locality is San Diego, Texas, approximately 100 miles north of the LRGV. This species is distributed in southern Texas and, based on collection data, seems to extend no further south than the LRGV. Kissinger

(1968) mapped the distribution, and presented morphological figures of this species. The adult is described in detail. A key to the species of the genus is also available in Kissinger (1968). During this study, two specimens were collected in April in Bentsen-Rio Grande State Park.

Apion importunum Fall 1898: 146

Range: Alabama, Florida, Georgia, Mississippi, South Carolina, Tennessee, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co., no specific locality (Kissinger 1968).

Seasonal Activity: March through August (United States) (Kissinger 1968).

Plant Associations: This species has been collected by sweeping *Desmodium* (exact locality of plant association is not mentioned) (Kissinger 1968).

General Information: This species ranges from the southeastern United States to Texas. The only known Texas locality is Hidalgo County. There is a simple illustration of the adult in Fall (1898). Kissinger (1968) described the adult, mapped the distribution, and presented figures of male genitalia and other characters of this species. A key to the species of the genus is also available in Kissinger (1968).

Apion occidentale Fall 1898: 123

Range: Arizona, California, Colorado, Illinois, Iowa, Kansas, Missouri, Nebraska, New Mexico, Oklahoma, Texas, Utah, and Wyoming (Kissinger 1968). Oregon (Fall 1898).

Distribution in LRGV: Cameron Co.: Brownsville; Southmost Ranch : env. Brownsville (TAMU). Hidalgo Co.: Alamo; 7 mi. S Alamo; Mercedes; Pharr (Kissinger 1968).

Seasonal Activity: February, March, April, July, and October.

Plant Associations: This species has been taken on *Helianthus* sp. in Victoria Co., Texas (Mitchell & Pierce 1911), and on *Helianthus tuberosus* L., "*Helilotus indica*" foliage, and *Brassica* sp. (exact locality of plant association is not mentioned) (Kissinger 1968).

General Information: This species is widespread, but there are no records of it occurring south of the LRGV. There is a simple illustration of the adult in Fall

(1898). Kissinger (1968), described the adult, mapped the distribution, and presented figures of the male genitalia, and other morphological figures of this species. A key to the species of the genus is also available in Kissinger (1968).

Apion persimile Fall 1898: 172

Range: Florida, Louisiana, Mississippi, South Carolina, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: 10-11 km W. Port Isabel (CMNC); Brownsville, Palm Garden Nursery; 3 mi. W Brownsville. Hidalgo Co.: Santa Ana National Wildlife Refuge.

Seasonal Activity: March, May, June, October.

Plant Associations: Unknown

General Information: The type locality was not designated by Fall (1898). There is a figure of the first segment of the middle tarsus of the male adult in Fall (1898). Kissinger (1968) described the adult in detail, mapped the distribution, and presented figures of the male genitalia and other morphological figures of this species. A key to the members of the genus is also available in Kissinger (1968). This species was not collected during the present study and based on available information does not appear to be common in the LRGV.

Apion subornatum Fall 1898: 156, 164

Range: Southern Texas and northern Mexico (Kissinger 1968).

Distribution in LRGV: Cameron Co.: Brownsville, White Wing Dove Res.; 5 mi N of Harlingen (TAMU). Hidalgo Co.: Mission (Kissinger 1968); Santa Ana National Wildlife Refuge. Starr Co.: Falcon State Park (TAMU).

Seasonal Activity: March, April, and June.

Plant Associations: This species has been found feeding on and developing in the pods of *Acacia roemeriana* Scheele in Victoria Co. (Mitchell & Pierce 1911), reared from *Acacia rigidula* (=*amentacea*) and *Prosopis* sp., and collected on *Mimosa borealis* Gray, and *Prosopis glandulosa* Torr.(=*juliflora*) (exact localities of plant associations are not mentioned) (Kissinger 1968).

General Information: Kissinger (1968), described the adult in detail, mapped the distribution, and presented figures of the male genitalia and other morphological

figures of this species. A key to the members of the genus is also available in Kissinger (1968).

Apion subtinctum Fall 1898: 138

Range: Lower California (Fall 1898); southern Texas and northeastern Mexico Kissinger (1968).

Distribution in LRGV: Cameron Co.: Brownsville: Fort Brown, Brownsville; St. Tomas, Brownsville (NMNH).

Seasonal Activity: February through July.

Plant Associations: This species has been taken on blooms of *Malvaviscus drummondi* (T. & G.) Schery at Matamoros, Mexico, has been found on *Rhynchosia* (=*Dolicholus*) *minima* (L.) DC. foliage at Victoria, Texas (NMNH), and on *Bumelia* sp. (exact locality of plant association not given) (Kissinger 1968).

General Information: This species is recorded under the name *Apion subcinctum* in Mitchell & Pierce (1911). Kissinger (1968), described the adult in detail, mapped the distribution, and presented figures of the male genitalia and other morphological figures of this species. A key to the members of the genus is also available in Kissinger (1968). This species does not appear to be common. It was not collected during the present study.

Apion xanthoxyli Fall 1898: 176
(Figure 15)

Range: Southern Texas and northern Mexico (Kissinger 1968).

Distribution in LRGV: Cameron Co.: Brownsville; Harlingen (Kissinger 1968); Sabal Palm Grove Sanctuary; 12 mi E Brownsville; 12.5 mi. E Brownsville on Hwy. 4 (TAMU); Boca Chica Beach "Ebony Loma". Hidalgo Co.: Anzalduas County Park (CMNC). Starr Co. (Kissinger 1968).

Seasonal Activity: May, July and October.

Plant Associations: This species develops in the seeds of *Zanthoxylum fagara* (L.) Sarg. (= *Xanthoxylum pterota* (L.) H. B. K.) (Fall 1898; Townsend 1903).

General Information: The type locality is Brownsville, Texas. This species occurs in the southern part of Texas along the coast and along the northeastern coast of Mexico. Kissinger (1968), described the adult in detail, mapped the distribution,

and presented figures of the male genitalia and other morphological features of this species. A key to the members of the genus is also available in Kissinger (1968). During this study, 19 specimens of this species were collected in the Sabal Palm Grove Sanctuary in July by beating *Zanthoxylum fagara* (L.) Sarg. Three of the 19 were from beating and sweeping at night. One specimen was collected in October in the Sabal Palm Grove Sanctuary. This species was usually collected in association with *Anthonomus leucostictus* and *Anthonomus xanthoxyli*.

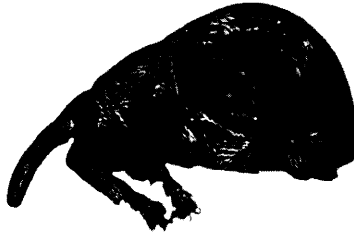


Fig. 15. *Apion xanthoxyli.*

Curculionidae
Brachyderinae, Anypotactini

Polydacrys depressifrons Boheman 1840: 298

Range: Texas, Central America, Grenada, Puerto Rico, and St. Vincent (O'Brien & Wibmer 1982); Mexico.

Distribution in LRGV: Cameron Co.: Brownsville; Southpoint Nursery; Brownsville, Sabal Palm Grove Sanctuary (TAMU); Brownsville, Esperanza Ranch; Cameron Co.: Brownsville, St. Tomas (NMNH). Hidalgo Co.: Santa Ana National Wildlife Refuge (TAMU)

Seasonal Activity: April, May, June, July, and October.

Plant Associations: This species, previously recorded as *Pandeleteius cavirostris* Schaeffer, was collected on the anachua tree, *Ehretia anacua* (Teran & Berl.) I. M. (= *Ehretia elliptica*), and on *Crataegus* in Victoria Co., Texas (Mitchell & Pierce 1911).

General Information: Descriptions of the adult are presented in Schaeffer (1908), and Champion (1911). Two specimens of this species were collected in the Sabal Palm Grove in May during the present study. The biology of this species is not known, but broad-nose weevils typically feed on roots as larvae. There are seven species in this genus that occur in the Neotropical region. This is the only species of the genus that occurs in the United States.

Naupactini

Phacepholis viridis (Champion) 1911: 336

Range: Mexico, southeastern Texas and Louisiana (Lanteri 1990).

Distribution in LRGV: Cameron Co.: Brownsville (recorded by Buchanan (1939) as *Pantomorus elegans* Horn).

Seasonal Activity: March, April, and June.

Plant Associations: The only plant association recorded is cultivated cotton in Victoria Co., Texas (Mitchell & Pierce 1911).

General Information: Mitchell & Pierce (1911), recorded this species as *Phacepholis elegans* Horn. This species also formerly placed in the genus *Pantomorus*. Lanteri

(1990), described the adult in detail, mapped the distribution, and presented figures of the male genitalia, and photographs of various morphological characters. A key to and cladistic analysis of the members of the genus was also presented by Lanteri (1990).

Platyomus flexicaulis (Schaeffer) 1905: 179

Range: Texas (O'Brien & Wibmer 1982); Mexico.
Distribution in LRGV: Cameron Co.: Brownsville (TAMU); Sabal Palm Grove Sanctuary (CMNC); Brownsville, Esperanza Ranch (NMNH).
Seasonal Activity: June, July, and October.
Plant Associations: This species has been collected from branches of *Pithecellobium flexicaule* (Benth.) Coult. (= *Acacia flexicaulis*) (Schaeffer 1905b).
General Information: The type locality is Esperanza Ranch, Brownsville, Texas. This species was originally placed in the genus *Pseudocyphus*.

Barynotini

Species of the genus *Epicaerus* are mainly Neotropical. Of the 91 species described, only 12 species are known to occur in the Nearctic Region. These are fairly large, broad-nose weevils that are probably root feeders as larvae and feed on a variety of plants. Very little is known about the biology of broad-nose weevils because of their concealed habit of developing on roots. It is known that they usually are not selective about the plants on which they choose to feed, and they are probably restricted by habitat and/or soil types (Morris 1991). This is probably the case with *Epicaerus*. The systematics of the genus is poorly known and species are particularly difficult to identify.

Epicaerus elegantulus Champion 1911: 326

Range: Mexico (O'Brien & Wibmer 1982); Texas.
Distribution in LRGV: Willacy Co.: Port Mansfield (TAMU).
Seasonal Activity: July and August.
Plant Associations: Unknown
General Information: Champion (1911) described and illustrated the adult. A key to

some members of the genus is provided by Pierce (1910), although this species was not included.

Epicaerus lepidotus Pierce 1910: 360

Range: Texas (Pierce 1910).

Distribution in LRGV: Cameron Co.: Brownsville (Pierce 1910); Boca Chica Beach (CMNC); Port Isabel. Hidalgo Co.: Bentsen-Rio Grande State Park; 7 mi. S of Alamo; Mission (TAMU); Santa Ana National Wildlife Refuge; Anzalduas County Park (CMNC). Willacy Co.: Port Mansfield (TAMU).

Seasonal Activity: April, May, June, July, and October.

Plant Associations: Unknown

General Information: This species was included in Pierce's (1910) key to some species of the genus.

Epicaerus mexicanus Boheman 1834: 324
(Figure 16)

Range: Mexico, and Lower Rio Grande Valley of Texas (Pierce 1910).

Distribution in LRGV: Cameron Co.: Brownsville; Sabal Palm Grove Sanctuary (TAMU); Resaca de las Palmas State Park (ERC); Southpoint Nursery (CMNC).

Seasonal Activity: March through October.

Plant Associations: This species has been collected on *Serjania brachycarpa* Gray (TAMU). Like many broad-nose weevils, the larvae are probably root feeders and have a wide host range.

General Information: This species is included in Pierce's (1910) key. Many specimens were collected in the Sabal Palm Grove Sanctuary during this study with most of them being found in October. Based on my collecting and other data examined, this species appears to be quite common in Cameron Co. It has not been collected in any of the other counties in the LRGV. Ten specimens were collected during this study in October, and three specimens were collected in May and July, in the Sabal Palm Grove Sanctuary.

Fig. 16. *Epicaerus mexicanus.*

Brachyderini

Mitostylus tenuis Horn 1876: 107
(Figure 17)

Range: Oklahoma, Texas and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Palmito Hill (CMNC); Brownsville; Brownsville, Esperanza Ranch (NMNH); 2 mi. and 7.6 mi. W. of Boca Chica Beach; Boca Chica Beach; 6 mi. SW of Port Isabel on Hwy. 48 (TAMU). Hidalgo Co.: Bentsen-Rio Grande State Park; Mission (NMNH).

Seasonal Activity: March through July, and October.

Plant Associations: This species has been found on *Grindelia squarrosa nuda* (Wood) Gray in Clarendon, Texas (Pierce 1907b). Many were found feeding on *Amphiachyris dracunculiodes* (DC.) Nutt. in Victoria, Texas (Mitchell & Pierce 1911). It has also been collected on *Parthenium* (exact locality for host association not given) (Burke 1963b). It was beaten from *Prosopis reptans* Benth. at night near Boca Chica Beach during the present study (TAMU).

General Information: The type locality is "Texas." Burke (1963b) discussed the distribution and variability of this species and presented figures of the male

genitalia. During the present study, 66 specimens were collected 2 miles west of Boca Chica Beach in October, and five specimens were collected at the same locality in May. Five specimens were collected in May, 6 miles southwest of Port Isabel, and two specimens were collected 7.6 miles west of Boca Chica Beach in July. This species seems to be fairly common.

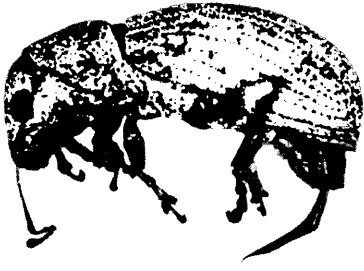


Fig. 17. *Mitostylus tenuis.*

Tanymecini

Isodacrys ovipennis (Schaeffer) 1908: 215

Range: Coastal Bend and southern Texas (Howden 1961).
Distribution in LRGV: Cameron Co.: Port Isabel (Howden 1961); Brownsville (Schaeffer 1908); Palmito Hill (CMNC); Brownsville, Esperanza Ranch (NMNH).
Seasonal Activity: February through August, October, and December.
Plant Associations: This species has been collected on *Celtis* (Pierce 1909). It was reported to damage the foliage of young watermelons and peas in Gonzales County (Burke 1959b), and was found on *Eucalyptus* in Mexico (Howden 1961).

General Information: The type locality of *I. ovipennis* is Esperanza Ranch, Brownsville, Texas. Howden (1961) mapped the distribution, and presented a figure of the male genitalia and a dorsal habitus of the adult. A key was also provided for identification of members of the genus. No biological information is available for this species except for the few plant associations mentioned above. The genus is mainly a neotropical one with only two of the 13 species occurring in Texas.

Tanymecus confusus Say 1831: 9

Range: Widely distributed throughout North and Central America (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.; Brownsville, Sabal Palm Grove Sanctuary. Hidalgo Co.: 6 mi. and 7 mi. S of Alamo; Edinburg (TAMU); Bentsen-Rio Grande State Park (CMNC);

Seasonal Activity: April through October and December.

Plant Associations: This species has been found feeding on cocklebur, *Xanthium strumarium* L., *Chenopodium album* L., and *Polygonum* sp. (uncertain locality), and has been collected on *Quercus* sp. at Gurley, Texas (Pierce 1907b). It has also been collected on *Ambrosia cumanensis* Kunth (= *psilostachya* DC.) in Victoria County (Mitchell & Pierce 1911).

General Information: There is a figure of the adult in Champion (1911). Four specimens were collected in July and October in the Sabal Palm Grove Sanctuary during this study. One specimen was taken at blacklight and three were collected beating and sweeping. This species was formerly known as *T. confertus* Gyllenhal.

Tanymecus texanus Van Dyke 1935: 86

Range: Texas and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: 20 km E. of Brownsville (CMNC).

Seasonal Activity: October.

Plant Associations: Unknown.

General Information: The type locality is Uvalde, Texas which is about 270 miles northwest of the LRGV. Nothing is known about the biology of this species.

Pandeleteius cinereus (Horn) 1876: 87
(Figure 18)

Range: Arizona, New Mexico (Pierce 1909); Mexico, Texas, and Oklahoma (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: Bentsen-Rio Grande State Park (TAMU).

Seasonal Activity: April, September, and October.

Plant Associations: This species develops in mistletoe *Phoradendron tomentosum* (DC.) Gray (= *flavescens*), stems in Texas (Pierce 1916b). It has been known to damage juniper by killing the ends of the branches. Occasional records indicate that this species has been collected on *Quercus* sp., *Juniperus* sp., *Bumelia lanuginosa* (Michx.) Pers., walnut, pecan, elm, and mesquite (exact localities for plant associations were not given) (Howden 1959). Since broad-nose weevils are usually root-feeders, these records may be exceptions to normal feeding behavior or the records may be wrong. More information needs to be collected on the habits of this species.

General Information: Howden (1959) presented a detailed description of the adult, figures of the male genitalia, and a key to species of the genus in North America. Pierce (1916b) indicated that development takes place entirely in the larval cell and the adult matures in the spring. Two specimens were collected in Bentsen-Rio Grande State Park during this study.

Fig. 18. *Pandeleteius cinereus.*

Pandeleteius longicollis Champion 1911: 206

Range: The southern coast of Texas, and coastal Mexico (Howden 1959).

Distribution in LRGV: Cameron Co.: Brownsville (TAMU); Brownsville, Sabal Palm Grove Sanctuary. Hidalgo Co.: Anzalduas County Park (CMNC).

Seasonal Activity: July, August, October, and November.

Plant Associations: The only plant association known involves three specimens intercepted from Mexico on a string bean leaf (Howden 1959).

General Information: There is a figure of the adult in Champion (1911). Howden (1959) provided a key to species of the genus in North America. There are 52 species in the genus with the majority being in the Neotropical Region. Ten species occur in Texas.

Otiorhynchinae, Eustylini

Aphrastus unicolor Horn 1876: 99
(Figure 19)

Range: Texas (Horn 1876).

Distribution in LRGV: Cameron Co.: Brownsville; San Benito (NMNH). Hidalgo Co.: Santa Ana National Wildlife Refuge; Anzalduas County Park (CMNC). Starr Co.: 9 mi. E. of Jct. 649 on Rte. 2686 (TAMU).

Seasonal Activity: March, April, May, and July.

Plant Associations: This species has been collected in Cotulla, Texas on *Coreopsis basalis* (Dietr.) Blake (= *cardaminefolia*), *Verbesina encelioides* (Cav.) Benth., and *Monarda punctata* L. (Pierce 1907b). It has also been collected on cotton (Pierce 1916b), bean foliage (NMNH), and *Bernardia myricifolia* (Scheele) S. (TAMU).

General Information: The type locality is "Texas." The genus contains five species, two of which occur in Mexico. Three specimens of this species were collected in Starr County in April during this study.

Fig. 19. *Aphrastus unicolor.*

Compsus auricephalus (Say) 1824a: 310

Range: Arkansas, Georgia, Louisiana, Mississippi, Texas, Colorado, and throughout Central America (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: no specific locality; Brownsville (Pierce 1909); vicinity of Palmito Hill; 1 mi. SE of Los Indios; 9-10 mi. W. of Boca Chica Beach (RTC); Paloma Blanca Road (CMNC); 12.5 mi. E of Brownsville "Ebony Loma"; 9 mi. NE of Brownsville; Sabal Palm Grove Sanctuary; Palmito Hill; Southpoint Nursery; 9.7 mi. E. of Jct. 1419 & Rte. 4; 7.6 mi. W. of Boca Chica Beach; 5 mi. W of Brownsville; Port Isabel 26° 04' 97° 14'. Hidalgo Co.: Santa Ana National Wildlife Refuge; Anzalduas County Park; Bentsen-Rio Grande State Park; 7 mi. S Alamo (TAMU). Starr Co.: Falcon State Park (CMNC).

Seasonal Activity: March through November.

Plant Associations: This species has been collected on cotton in Victoria and Runge, Texas, and beaten from *Lantana camara* L. and *Ehretia anacua* (Teran & Berl.) I. M. (= *elliptica*) in palmetto thickets and woods (exact locality for this plant association not given) (Pierce 1907b); collected in Victoria Co. on *Phoradendron tomentosum* (DC.) Gray (= *flavescens*), *Ambrosia*, and *Acacia* (Mitchell & Pierce 1911); observed as adults ovipositing on cotton and larvae feeding on the roots (Pierce 1916b); and has been found on alfalfa and feeding on plum foliage (TAMU). It was collected on *Prosopis glandulosa* Torr. and *Bumelia celastrina*

Kunth in the LRGV (TAMU).

General Information: Thirty-one specimens of this species were collected in the Sabal Palm Grove Sanctuary and Southpoint Nursery in October and May during this study. Like many broad-nose weevils, this species has a wide host range with its larvae being root feeders. The genus *Compsus* is well represented in the Neotropical Region. Of the 107 described species in the genus, only *Compsus auricephalus* is represented in the Nearctic Region. The genus is badly in need of revision.

Brachystylus sp., nr. microphthalmus Champion 1911: 298
(Figure 20A, B)

Range: Lower Rio Grande Valley, Texas, and probably Mexico.

Distribution in LRGV: Cameron Co.: Sabal Palm Grove Sanctuary (TAMU); South Point Nursery (ERC); Brownsville, Palm Jungle; San Benito (NMNH).

Seasonal Activity: March, September, October, and December.

Plant Associations: Unknown

General Information: Six specimens of this species have been collected from the LRGV, one during this study. This species is near *B. microphthalmus* and similar to an unidentified weevil in the tribe Eustylini from Veracruz, Mexico in TAMU. This genus is a small one with three described species, two of which occur in Mexico.

Fig. 20A. *Brachystylus* sp., nr. *microphthalmus*, dorsal.

Fig. 20B. *Brachystylus* sp., nr. *microphthalmus*, lateral.

Leptopiinae, Promecopini

Colecerus marmoratus (Horn) 1876: 109

Range: Texas (Horn 1876) and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: vicinity of Palmitto Hill; 1 mi. E. of Los Indios (RTC); Brownsville; Brownsville, Sabal Palm Grove Sanctuary; Palmito Hill; Palmito Battle Field; Southpoint Nursery; 6 mi. E of Brownsville; Boca Chica Beach; 2, 7.6 mi. W. of Boca Chica Beach; 6 mi. SW of Port Isabel; Paloma Blanca Road Hidalgo Co.: 2 mi. E Sullivan City; La Joya; near Perezville (RTC); Bentsen-Rio Grande State Park; Anzalduas County Park; Mercedes; Santa Ana National Wildlife Refuge; Mission. Starr Co.: no specific locality; first dirt road on 83 W. after junction with 2098 W. (TAMU); Falcon State Park (CMNC).

Seasonal Activity: March through November.

Plant Associations: This species has been beaten from *Leucaena pulverulenta* (Schl.) Benth. in palmetto thickets and woods (unknown locality) (Pierce 1907b), and has been collected on *Pithecellobium flexicaule* (Benth.) Coult. (RTC) and *Prosopis glandulosa* Torr. (TAMU) in the LRGV.

General Information: The type locality is "Texas." A figure of the adult is included in Champion (1911). This is a very common species in the LRGV and is quite variable in size and color pattern. Although common in the LRGV, nothing is

known about its biology except for the plant associations mentioned above. It is very common on *Prosopis*, and plants of this genus are probably its host. Sixty-three specimens of this species were collected during this study. One other species, *C. dispar*, occurs in Texas and several are known from Mexico. The genus is poorly known taxonomically.

Eudiagogus pulcher Fahraeus 1840: 310
(Figure 21a, b)

Range: Alabama, Arizona, California, Florida, Georgia, Louisiana, Mississippi, Texas, Mexico, Costa Rica, and Honduras (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Sabal Palm Grove Sanctuary. Hidalgo Co.: no specific locality (TAMU); Bentsen-Rio Grande State Park (RTC); 6 mi. and 7 mi. S Alamo; Anzalduas County Park (TAMU). Starr Co., Falcon State Park (ERC).

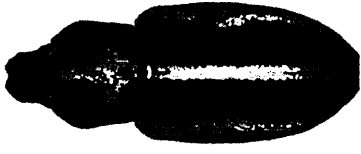
Seasonal Activity: March through August and October.

Plant Associations: This species was found defoliating senna (*Cassia occidentalis*) (L.) Link and *Zanthoxylum clava-herculis* L. in Victoria Co., Texas (Mitchell & Pierce 1911). Other plant associations listed include"*Daubentonia texana*",*Senna obtusifolia* (L.) Irwin & Barneby, *Solanum "tuberosum,"* *Acacia* sp., *Casuarina equisetifolia* , *Xanthium* sp., *Beta vulgaris* L., *Gossypium* sp., *Aster sericeus* Vent., *Sorghum bicolor* (L.) Moench (= *vulgare saccharatum*), *Crataegus* sp., *Dracopis* (= *Rudbeckia*) *amplexicaulis* (Vahl) Cass., *Medicago sativa* L., *Phaseolus vulgaris*, and *Rubus* sp. (Warner 1979). However, the above listed plants are probably not hosts as Kovarik & Burke (1989) found the larvae developing only on *Sesbania vesicaria* (Jacq.) Ell., *S. macrocarpa* Muhl. (=*exalta*), and *S. drummondii* (Rydb.) Cory. During the present study, this species was collected on *Sesbania drummondii* (Rydb.) Cory in a dry resaca in the Sabal Palm Grove Sanctuary .

General Information: Warner (1979) presented photographs of the adult and figures of male and female genitalia, and a key to the members of the genus. According to Kovarik and Burke (1989), references to *Cassia* and *Xanthoxylum* as hosts were either incidental or the plants were misidentified. *Eudiagogus pulcher* was not observed on these plants in the field nor did they feed on them in the laboratory, even if these plants were the only choices available. During the present study, 10 specimens were collected in July and 6 specimens in October in the Sabal Palm Grove Sanctuary, and 3 specimens were collected in July at Anzalduas County

Park. Kovarik & Burke (1989) studied the biology of this and a related species, *E. rosenschoeldi* Fahraeus, and described their immature stages. Although the species occur in sympatry throughout most of their ranges, only *E. pulcher* is known from the LRGV.

A



B

Fig. 21. *Eudiagogus pulcher*, **A)** dorsal, **B)** lateral.

Ophryastini

Members of the genus *Ophryastes* are mainly desert species that feed on roots as larvae and as adults on foliage in or near salt flats, playas, and washes. Pupation takes place in the soil (Kissinger 1970). Other than this information, little is known about their biologies. The LRGV species occur in the drier areas of the region as noted below in the collection data. Kissinger (1970) revised the genus and provided a key to the species of North America.

Ophryastes decipiens LeConte 1853: 445

Range: Arizona, New Mexico, Texas, and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: 5 mi. N of Rio Grande City (NMNH); 14 mi. W of Rio Grande City (TAMU); Rio Grande City (AHC); Edinburg (Kissinger 1970). Starr Co.: no specific locality (NMNH); 15 miles N of Rio Grande City; Roma (Kissinger 1970);

Seasonal Activity: March through June.

Plant Associations: This species has been recorded as being associated with *Acacia berlandieri* Benth. and *Condalia "lycioides"* (plant association localities not given) (Kissinger 1970).

General Information: Kissinger (1970) provided photographs of the adult, and male and female genitalia, a map of the distribution, distinctive morphological figures, and included a key to the members of the genus of North America.

Ophryastes tuberosus LeConte 1853: 443

Range: Alberta, Mexico and central United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: Weslaco. Starr Co.: no specific locality (TAIU); Rio Grande City (TAMU).

Seasonal Activity: March, April, June, and November.

Plant Associations: The larvae of this species has been reported to girdle roots and feed on lateral and tap roots of alfalfa 12 to 15 inches below the surface in Barstow, Texas. It has been found in the soil near the roots of blackeyed peas and on *Rumex hymenosepalus* Torr., cotton, *Lepidium "alyssoides"*, *Malva* sp., *Sphaeralcea angustifolia* (Cav.) G. Don, turnip leaves, *Verbesina (=Ximensia)*

encelioides (Cav.) Benth. & Hook, (specific localities of plant associations not given) (Kissinger 1970).

General Information: Kissinger (1970) provided photographs of the adult and male and female genitalia, mapped the distribution, and included a key to the members of the genus of North America.

Rhytirrhininae

Listronotus is mainly a North American genus with only a few species occurring in Mexico. The genus *Hyperodes*, to which many species of *Listronotus* were previosly assigned, is a junior synonym (O'Brien 1979). Most are found on aquatic or semi-aquatic plants. Some can swim just below the surface of the water. Many species of *Listronotus* are thought to be nocturnal because they are often collected at night and at lights (O'Brien 1981). Although 17 species of *Listronotus* are known to occur in the LRGV, only one species was collected during this study. This is probably due to lack of thorough collecting in or around aquatic areas in the LRGV. Dietz (1889), Henderson (1940), Stockton (1963), and O'Brien (1977, 1981) provided partial keys to species. *Listronotus* is a large group. Although species have been studied, there is a need for more taxonomic study of the others.

Listronotus appendiculatus (Boheman) 1842: 192

Range: Widely distributed in Canada, United States, northern Mexico, and Honduras (O'Brien 1977).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: June, July, September, and October.

Plant Associations: This species has been reared from *Sagittaria* in Manitoba, Canada (Henderson 1940). It has been collected on fruiting heads of *Sagittaria latifolia* Willd. in Honduras (O'Brien 1977) and has been reared from larvae found in leaf petiole galleries of *Sagittaria brevirostra* Mack & Bush. (= *engelmanniana*) (exact locality for plant association not given) (O'Brien 1981). In southern Florida, it has been collected commonly on *Saggitaria* spp. flowers during the day and night, and the larvae feed in male flower buds and stems of *Sagittaria lancifolia* L. (Anderson 1992).

General Information: Figures of male and female genitalia are presented in

Henderson (1940) and O'Brien (1977). O'Brien (1981) reared this species from larvae taken in leaf petiole galleries of *Sagittaria brevirostra* Mack & Bush. and from eggs deposited on this host in the laboratory. This species of *Listronotus* is associated with aquatic or semi-aquatic plants and it has been observed using its forelegs to swim (O'Brien 1981).

Listronotus borrichiae O'Brien 1981: 84

Range: Salt marshes in southern and central Florida and southern Texas (O'Brien 1981).

Distribution in LRGV: Cameron Co.: Brownsville, Palm Garden Nursery; Brownsville, no specific locality (TAMU). Hidalgo Co.: Santa Ana National Wildlife Refuge (O'Brien 1981). Willacy Co.: Arroyo City (TAMU).

Seasonal Activity: March, June, July, September, October, and November.

Plant Associations: This species has been found on *Borrichia frutescens* (L.) DC. at night, and on *Salicornia* sp. in Florida (O'Brien 1981). Plant associations are unknown for Texas, but *B. frutescens* and *Salicornia* spp. occur in the LRGV (Richardson 1990).

General Information: The type locality is San Patricio County, Welder Wildlife Refuge, Texas which is about 100 miles north of the LRGV. O'Brien (1981) presented figures of the male and female genitalia. This species is very similar in appearance to *L. salicorniae* O'Brien but differs in having a carinate rostrum.

Listronotus distinctus Henderson 1940: 274

Range: Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: June and September.

Plant Associations: Unknown

General Information: Henderson (1940) presented figures of male and female genitalia. This species has been taken at light and is probably active only at night (Henderson 1940). Nothing else is known of its biology.

Listronotus dorsalis (Dietz) 1889: 37

Range: Colorado, Illinois, Iowa, Louisiana, New Mexico, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: no specific locality; Brownsville (NMNH). Hidalgo Co.: Texas Experiment Station (TAMU).

Seasonal Activity: July, September, and October.

Plant Associations: Unknown

General Information: The head and rostrum are illustrated by Dietz (1889). The only modern treatment of this species was by Stockton (1963) who included it in a key to species of *Hyperodes*.

Listronotus echinatus (Dietz) 1889: 46

Range: Widely distributed throughout the United States (O'Brien & Wibmer).

Distribution in LRGV: Cameron Co.: no specific locality (TAMU); Brownsville (NMNH).

Seasonal Activity: June through September.

Plant Associations: This species has been collected on *Ludwigia repens* Forst. (=*natans*) in Victoria Co., Texas (Mitchell & Pierce 1911).

General Information: Although this species has a wide range, there seems to be no other information on it.

Listronotus echinodori O'Brien 1977: 808

Range: Mexico, Honduras, the District of Columbia, Massachusetts, Minnesota, Missouri, New Jersey, New York, Ohio, coastal Texas, and Manitoba, Canada (O'Brien 1981).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH). Hidalgo Co.: Santa Ana National Wildlife Refuge (TAMU).

Seasonal Activity: April through July, and October.

Plant Associations: This species has been found in galls on the stems of *Echinodorus cordifolius* (L.) Grisebach in Brownsville (O'Brien 1981). It has also been collected on *Echinodorus cordifolius* (L.) Grisebach in Oaxaca, Mexico and *Sagittaria latifolia* fruiting stalks in Honduras (O'Brien 1981).

General Information: O'Brien (1977, 1981) provided a detailed description of the adult, figures of male and female genitalia, and a key to the members of the genus.

Listronotus grypidioides (Dietz) 1889: 35

Range: Mexico, and widespread in the western United States (O'Brien 1981).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH); no specific locality; 3 mi. W and 5 mi. W of Brownsville; Laguna Atascosa National Wildlife Refuge. Hidalgo Co.: Santa Ana National Wildlife Refuge (TAMU).

Seasonal Activity: April through September.

Plant Associations: This species has been collected on *Eleocharis palustrus* (L.) Roem. & Schult. (= *macrostachya*) (exact locality of plant association not given) (O'Brien 1981).

General Information: O'Brien (1981) provided a detailed description of the adult, figures of the male and female genitalia and a key to the members of the genus.

Listronotus hirtellus (Dietz) 1889: 46

Range: Mexico, Guatemala, Arizona, and New Mexico (O'Brien & Wibmer 1982) and Texas.

Distribution in LRGV: Cameron Co.: Brownsville. Hidalgo Co.: no specific locality; Mercedes; Donna (TAMU).

Seasonal Activity: January, May, July, August, November, and December.

Plant Associations: Unknown

General Information: Dietz (1889) presented a dorsal view of the adult. Stockton (1963) included this species in a key to *Hyperodes*.

Listronotus hyperodes (Dietz) 1889: 33

Range: California, Nevada, Oklahoma, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: no specific locality; Brownsville; Brownsville, Palm Garden Nursery; Harlingen (TAMU); Brownsville, B & M Bridge (NMNH). Hidalgo Co.: no specific locality; Mission; San Juan; Donna; Edinburg (TAMU). Starr Co.: Falcon Heights; Falcon State Park (RTC).

Seasonal Activity: January through June, and September through December.

Plant Associations: Unknown

General Information: This species is included in a key of *Hyperodes* by Stockton (1963).

Listronotus manifestus Henderson 1940: 269

Range: Mexico and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville. Hidalgo Co. (Henderson 1940).

Seasonal Activity: May and June.

Plant Associations: Unknown

General Information: The type locality is Gregory, Texas which is about 100 miles north of the LRGV. Figures of the male and female genitalia, and keys to the members of the genus are provided by Henderson (1940) and O' Brien (1977). This species is known only from the Gulf Coast and High Plains of Texas, and from northern Mexico (O'Brien 1977).

Listronotus nebulosus LeConte 1876: 133

Range: Central, southcentral, and southeastern United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (Henderson 1940). Hidalgo Co.: no specific locality (TAMU).

Seasonal Activity: June, July, and November.

Plant Associations: Unknown

General Information: A key for identification, description of the adult and figures of the male and female genitalia are presented by Henderson (1940). The species is also included in a key by O'Brien (1981).

Listronotus pallidus O'Brien 1981: 108

Range: Gulf Prairie of Texas (O'Brien 1981).

Distribution in LRGV: Cameron Co.: Brownsville (O'Brien 1981).

Seasonal Activity: April and July.

Plant Associations: Unknown

General Information: The type locality is Brownsville, Texas. A detailed description

of the adult, figures of male and female genitalia, and a key to the members of the genus are presented by O'Brien (1981).

Listronotus salicorniae O'Brien 1981: 115
(Figure 22)

Range: Coastal salt marshes of southern and central Florida, and southern Texas (O'Brien 1981).

Distribution in LRGV: Cameron Co.: Brownsville (O'Brien 1981); Boca Chica Beach; 1 mi. from Boca Chica Beach (TAMU).

Seasonal Activity: January, February, July and October.

Plant Associations: Adults feed on glasswort, *Salicornia virginica* L. (O'Brien 1981), and have been collected on *Salicornia virginica* L. at night (TAMU).

General Information: O'Brien (1981) provided a detailed description of the adult, figures of the male and female genitalia and included the species in a key. Nineteen specimens of this species were collected during this study in July and October at and near Boca Chica Beach at night while sweeping *Salicornia virginica* L.

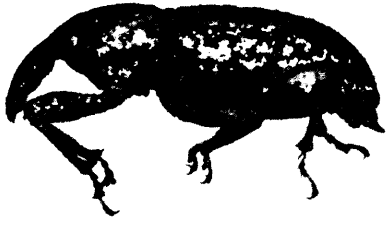


Fig. 22. *Listronotus salicorniae.*

Listronotus scapularis Casey 1895: 828

Range: Mexico, Nicaragua, Kansas, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (Henderson 1940); Harlingen (TAMU). Hidalgo Co,: Mercedes; Weslaco (Henderson 1940); Mission (AHC). Willacy Co.: Raymondville (TAIU); Arroyo City (TAMU).

Seasonal Activity: February, May, June, July, August, and October through December.

Plant Associations: Unknown

General Information: Keys for identification and figures of the male and female genitalia are presented in Henderson (1940) and O'Brien (1977).

Listronotus similis Henderson 1940: 304

Range: Gulf Prairie and High Plains of Texas (O'Brien 1977). There is one specimen from Mexico in NMNH.

Distribution in LRGV: Cameron Co.: Brownsville (Henderson 1940). Hidalgo Co.: San Juan; Edinburg (TAMU).

Seasonal Activity: May, June, July, October, and November.

Plant Associations: Unknown

General Information: The type locality is Brownsville, Texas. Keys for identification, and figures of female and male genitalia are provided by Henderson (1940) and O'Brien (1977).

Listronotus sparsus (Say) 1831: 11

Range: Canada and widespread throughout the United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville. Hidalgo Co.: Mission; McAllen; San Juan; Weslaco; Santa Maria (NMNH).

Seasonal Activity: January through May and November.

Plant Associations: Unknown

General Information: Dietz (1889) includes this species in a key as *Macrops longulus* and *M. imbellis* which have since been synonymized with *L. sparsus*.

Listronotus texanus (Stockton) 1963: 142

Range: Louisiana and Texas (Stockton 1963).

Distribution in LRGV: Hidalgo Co.: San Juan (Stockton 1963); Cameron Co.: Harlingen. Hidalgo Co.: McAllen, Mission, Pharr, Mercedes, Donna, and Weslaco. Starr Co.: Falcon State Park (TAMU).

Seasonal Activity: March through May, August, and October through December.

Plant Associations: The larvae of this species have been found in dill roots and stems at Mission, Texas, on celery stems at San Juan, Texas, and has been reared from parsley and carrot roots at McAllen, Texas (Stockton 1963).

General Information: The type locality is McAllen, Texas. This species is a serious pest of carrots in the LRGV. Adults and larvae have been collected only on the family Apiaceae (=Umbelliferae) except for one probably incidental record on a dead eggplant (Solanaceae) in Louisiana (Edelson 1985). Stockton (1963) described the species and provided a key to the members of the genus.

Thecesterninae

Thecesternus hirsutus Pierce 1909: 336

Range: Texas and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: no specific locality (NMNH). Starr Co.: Rio Grande City (AHC).

Seasonal Activity: July.

Plant Associations: Larvae feed externally on the roots of *Parthenium hysterophorus* L. and *P. confertum* Gray (northeastern Mexico) (McClay & Anderson 1985).

General Information: The type locality is San Diego, Texas which is about 100 miles north of the LRGV. McClay & Anderson (1985) described the immature stages, figured the larva, and pupa, and provided information on life history, phenology, and host specificity of this species. Theirs is the first account of the biology of these interesting weevils. Pierce (1909) included the species in a key to the members of the genus.

Thecesternus humeralis (Say) 1826: 254

Range: Colorado, Iowa, Kansas, Missouri, Nebraska, and Oklahoma (O'Brien & Wibmer 1982); Texas.

Distribution in LRGV: Cameron Co.: Brownsville, Esperanza Ranch (NMNH). Hidalgo Co.: Weslaco (TAMU).

Seasonal Activity: July, August, and September.

Plant Associations: Adults of this species have been reported to cut off grape vine blossoms in May (exact locality of plant association not given) (Blatchley & Leng 1916).

General Information: Pierce (1909) included *T. humeralis* in a key to the species of the genus. Nothing is known about the biology of the species except the plant association reported above, but its larvae are probably root feeders like those of *T. hirsutus*.

Cleoninae, Cleonini

Cleonidius canescens (LeConte) 1876: 151

Range: Southcentral United States, from southeastern Idaho to Nebraska to southern Arizona and extreme southern Texas (Anderson 1987).

Distribution in LRGV:

Seasonal Activity: May through July and October (Texas) (TAMU).

Plant Associations: This species has been collected on *Symphoricarpos* sp., *Atriplex canescens* (Pursh) Nutt., *Medicago sativa* L., and *Mentzelia* sp. (exact plant association localities not given) (Anderson 1987).

General Information: Anderson (1987) described and provided a photograph of the adult, figures of male and female genitalia, other morphological figures, and a key to the members of the genus.

Lixini

Lixus punctinasus LeConte 1876: 157

Range: Canada, Mexico, Guatemala, and widespread in the eastern United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownville, Sabal Palm Grove Sanctuary; Hidalgo Co.: Bentsen-Rio Grande State Park (CMNC).

Seasonal Activity: June, July, and October.

Plant Associations: It has been reported to develop in the stems of *Polygonum pensylvaticum* L. at Clarendon and Dallas, Texas (Pierce 1907b, as *L. musculus*) and were reared from *Polygonum amphibium* L. in Michigan (Blatchley & Leng 1916, as *L. musculus*).

General Information: The weevils in this genus are referred to as stem weevils because the larvae are borers in various plant stems (Blatchley & Leng 1916). Pierce (1907b) reported adults of this species depositing eggs in the joints of *Polygonum pensylvaticum* L. The feeding of the larvae caused galls to form in the stems. *Lixus musculus* Say was confused with this species by Pierce (1907b) and Blatchley & Leng (1916) (Anderson 1992). Kingsolver (1972) did not recognize *L. musculus* Say as a valid species because the types are lost and the descriptions are too vague. Natural enemies of the weevil larvae were reported by Pierce (1907b), including *Glyptomorpha rugator* Say (Pyralidae) which was found boring into stems and consuming weevils at various stages of development. *Neocatolaccus tylodermae* Ashmead (Pteromalidae), *Eurytoma tylodermatis* Ashmead (Eurytomidae), *Eupelmus (=Cerambycobius) cyaniceps* Ashmead (Eupelmidae), and *Glyptomorpha novitus* Cr. (Pyralidae) were also reported as parasites by Pierce (1907b). Blatchley & Leng (1916) included this species in their key to the species of the genus.

Lixus scrobicollis Boheman 1836: 84

Range: Mexico, and widespread throughout the United States east of the Rocky Mountains (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH). Hidalgo Co.: Santa Ana National Wildlife Refuge; 3 mi. SW of Mission (TAMU).

Seasonal Activity: March through July and October.

Plant Associations: Larvae develop in the stems of *Ambrosia cumanensis* Kunth (= *psilostachya*) in Victoria and *A. trifida* L. in Dallas, Texas (Pierce 1907a). Pierce (1907b) reported it to be collected on cotton at Dallas, *Helianthus* sp. at San Antonio, strawberry at Denison, and *Verbesina encelioides* (Cav.) Benth. & Hook. at Kerrville, Texas.

General Information: Blatchley & Leng (1916) included this species in their key to the species of the genus. Pierce (1907b) reported that the adults of *L. scrobicollis* deposit their eggs in rows, leaving scars on the stalks of *Ambrosia cumanensis* Kunth and *A. rifida* L. The larvae proceed to hollow out the stem, pupate, and emerge as adults from the pupal chamber. Pierce (1907b) also reported parasites of *L. scrobicollis*, although some are probably predators. They include *Glyptomorpha rugator* Say (Pyralidae), *Glyptomorpha mavaritus* Cr. (Pyralidae), *Vipio belfragei* Cr. (Braconidae), and "*Bracon* (?) *lixi* Ashmead" (Braconidae).

Lixus terminalis LeConte 1876: 157

Range: Canada and widespread in the United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: Anzalduas County Park (CMNC).

Seasonal Activity: May, July, and October.

Plant Associations: Blatchley & Leng (1916) reported that larvae develop in stems of *Polygonum pensylvaticum* L. (exact locality of plant association not given).

General Information: Blatchley & Leng (1916) included this species in their key to the species of the genus.

Microlarinus lypriformis (Wollaston) 1861: 102

Range: Cuba, Old World, Arizona, California, and Washington (O'Brien & Wibmer 1982, 1984); Venezuela, West Indies, Florida, Jamaica, Mexico, Bahamas, and Texas (Bennett 1989).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary (CMNC).

Seasonal Activity: June, July, and October.

Plant Associations: This weevil, known as the puncturevine weevil, has been introduced into the United States and the Caribbean from Europe and Hawaii for

biocontrol of *Tribulus terrestris* L. (puncturevine) in the west and *Tribulus cistoides* L. (false puncturevine) in the West Indies (Stegmaier 1973).

General Information: Descriptions and illustrations of the immature stages are presented by Kirkland & Goeden (1977, 1978). Stegmaier (1973) discussed the biology, ecology and the *Tribulus-Microlarinus* relationship. He also illustrated the developmental stages and listed parasites of the species

Erirhininae, Erirhinini

Dorytomus brevicollis LeConte 1876: 165

Range: Eastern United States to the Rocky Mountains, Montana, Wyoming, Canada, and Mexico (O'Brien 1970b).

Distribution in LRGV: Cameron Co.: Brownsville (O'Brien 1970b).

Seasonal Activity: April, May, and June.

Plant Associations: This species has been found under bark of *Salix nigra* Marsh., on *Maclura pomifera* (Raf.) Schn., *Salix* galls, ex Spanish moss, and reared from *Salix* catkins in Texas (O'Brien 1970b). No plant associations have been established for the LRGV, but *Salix* occurs there.

General Information: Figures of the male and female genitalia, photographs of the adult, biology, and a key for identification are provided by O'Brien (1970b). The genus *Dorytomus* has a Nearctic and Palearctic distribution with the exception of two species in South Africa (O'Brien 1970b). O'Brien & Wibmer (1982) reported 21 species for North America. Most of the members *of Dorytomus* have been collected on willow, cottonwoods and aspens, especially in the spring while the plants are flowering and fruiting and late in the fall. Adults are more active at night (O'Brien 1970b).

Smicronychini

Smicronyx is a large genus with 78 North American species of which 15 are known to occur in the LRGV. Little is known about the biologies of the species of *Smicronyx* of the LRGV, but some members of the genus develop in the seeds and/or stems of *Cuscuta* spp. and may cause galls to form (Anderson 1962), and others are known to develop in the seeds of various Asteraceae and other plants (D.M. Anderson,

pers. comm.). Anderson (1962) revised the genus for North America and provided descriptions, illustrations, and a key to North American species of the genus.

Smicronyx albonotatus Anderson 1962: 251

Range: Gulf Coastal Plain in southern Texas, and basin and range province in Arizona (Anderson 1962).

Distribution in LRGV: Cameron Co.: Brownsville (Anderson 1962); Brownsville, Sabal Palm Grove Sanctuary (CMNC).

Seasonal Activity: April through June, and July.

Plant Associations: Unknown

General Information: This species was described from San Diego, Texas which is about 100 miles north of the LRGV. Anderson (1962) included this species in a taxonomic revision of members of the genus in America north of Mexico.

Smicronyx apionides Casey 1892: 405

Range: Eastern United States, Texas, and Kansas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: June.

Plant Associations: This species has been found on blue weed, *Helianthusciliaris* DC. and dodder, *Cuscuta* sp., in Texas (Anderson 1962).

General Information: Anderson (1962) provided a description of the adult, figures of the male and female genitalia, distribution, and a key for identification.

Smicronyx atratus Dietz 1894: 153

Range: Texas and Colorado (Anderson 1962).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: June.

Plant Associations: According to Anderson (1962), this species has been associated with *Cuscuta* stems in Dallas and Sabinal, Texas.

General Information: The type locality is "Texas." Anderson (1962) provided a description of the adult, figures of the male and female genitalia, distribution, and a key for identification. This species is known mostly from Texas with wide

distribution in the eastern and central part of the state.

Smicronyx constrictus (Say) 1824a: 313

Range: Illinois, Kansas, Minnesota, New Mexico, Missouri (O'Brien & Wibmer 1982), and Texas (TAMU).

Distribution in LRGV: Hidalgo Co., no specific locality (TAMU).

Seasonal Activity: April and May.

Plant Associations: This species has been reared from sunflower seeds, *Helianthus* sp. (exact locality of plant association not given) (Pierce 1907b).

General Information: Anderson (1962) provided a description of the adult, a photograph of the neotype specimen, figures of the male and female genitalia, distribution, and a key to the species. This species has been confused with *Smicronyx sordidus* (*Desmoris constrictus* of some authors) (Anderson 1962).

Smicronyx corniculatus (Fahraeus) 1843: 309

Range: Atlantic and Gulf coastal plains, Appalachian highlands and central lowlands, widespread in Texas (Anderson 1962).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: June.

Plant Associations: This species has been collected on *Ambrosia artemisiifolia* L. (ragweed) in New York, Delaware, and Florida (Anderson 1962). No specific plant associations have been made in the LRGV.

General Information: Anderson (1962) provided a description of the adult, figures of male and female genitalia, antenna, and habitus, distribution, and a key to the species.

Smicronyx corpulentus LeConte 1876: 170

Range: In the southern portion of the interior plains and along the Gulf and Atlantic coastal plains, widespread in Texas (Anderson 1962).

Distribution in LRGV: Cameron Co.: Brownsville. Hidalgo Co.: Mercedes (Anderson 1962).

Seasonal Activity: February through April, June and July.

Plant Associations: This species has been associated with *Monarda citriodora* Cerv., cotton, and alfalfa in the LRGV. It has been collected on *Helenium* sp. flowers, *Aphanostephus skirrhobasis* (DC.) Trel., *Gaillardia pulchella* Foug., developing in *Helenium* heads and *Dalea* (=*Parosela*) *aurea* Nutt. flower heads in Texas, and reared from *Croton capitatus* Michx. in Louisiana (Anderson 1962).

General Information: Anderson (1962) described the adult, presented figures of male and female genitalia, distribution information, and provided a key to the species.

Smicronyx lutulentus Dietz 1894: 170

Range: Southern half of Texas (Anderson 1962).

Distribution in LRGV: Cameron Co., no specific locality (CMNC); Brownsville, Esperanza Ranch; Brownsville, Los Borregos; San Benito (NMNH). Starr Co., no specific locality (CMNC).

Seasonal Activity: March through June, September and October.

Plant Associations: This species has been extracted from "pods of *Abutilon*," has been found in copulation on *Parthenium hysterophorus* L., and has been found on *Ambrosia texana* Scheele, *Monarda citriodora* Cerv., and cotton (Anderson 1962). Bennett & McClay (1979) reared it from *Parthenium hysterophorus* L. seeds in Mexico.

General Information: The type locality is "Texas." Anderson (1962) described the adult, presented figures of male and female genitalia and distribution, and provided a key to the species. *Smicronyx lutulentus* is known only from southern Texas. Bennett & McClay (1979) reported rearing *S. lutulentus* from seeds of *Parthenium hysterophorus* L. in Mexico and studied this species as a possible biological control agent for this plant. *Smicronyx lutulentus* is common on *P. hysterophorus* L. and *Parthenium confertum* Gray in northern Mexico. Eggs are deposited on the flower heads and the larvae feed inside the seeds. Pupation takes place in the soil (Bennett & McClay 1979).

Smicronyx quadrifer Casey 1892: 388

Range: Alabama, Arizona, Louisiana, Georgia, New Mexico, North Carolina, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: May.

Plant Associations: This species has been reared from stems of *Ambrosia* sp. in Victoria County, Texas (Anderson 1962). Adults feed on *Cuscuta* spp. (dodder) stems (Anderson 1970). No plant associations have been established for the LRGV.

General Information: Anderson (1962) described the adult, presented illustrations of the male and female genitalia, and provided distributional information and a key to the species. Anderson (1970) provided biological information.

Smicronyx sculpticollis Casey 1892: 403

Range: Widespread throughout central, eastern and western United States (Anderson 1962).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: March, June, and July.

Plant Associations: Larvae were found developing in galls of *Cuscuta cephalanthi* Engelman in New Jersey (Weiss and West 1921). Adults have been reared from *Solidago* stems at the point of *Cuscuta* attachment in New York, *Aster* sp. and composite stems at the point of *Cuscuta* attachment, and larvae were found in seed capsules of *Cuscuta pentagona* (=*arvensis*) Engelm. in Maryland, and reared from *Cuscuta pentagona* in Utah (Anderson 1962).

General Information: Anderson (1962) described the adult, presented figures of male and female genitalia, and various morphological features, distribution information, and provided a key to the species. This weevil is also known as the " dodder gall weevil." Biological information and descriptions of the larva and pupa are presented by Weiss and West (1921).

Smicronyx silaceus Casey 1892: 392

Range: Arizona, New Mexico, and Texas (Anderson 1962).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: June and July.

Plant Associations: Unknown

General Information: Anderson (1962) described the adult and provided a figure of male genitalia, distribution information, and a key to the species.

Smicronyx sordidus LeConte 1876: 173

Range: Arizona, California, Colorado, Illinois, Iowa Kansas, Missouri, Nebraska, New Mexico, Oklahoma, Texas, Utah, Washington, West Virginia, and Manitoba (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (TAMU). Hidalgo Co.: McAllen; Mercedes; 3/4 of a mile SW of Weslaco (NMNH); Anzalduas County Park (CMNC).

Seasonal Activity: January, April, May, and June.

Plant Associations: This species has been found on sunflower in the LRGV and on alfalfa, *Senna* (=*Cassia*) sp., and cotton in Texas (Anderson 1962).

General Information: The type locality is "Texas." Anderson (1962) described the adult and presented illustrations of the male and female genitalia, distribution information, and a key to the species. This is also known as the "gray sunflower weevil." This species of *Smicronyx* has one of the most widespread ranges in the North America (Anderson 1962).

Smicronyx squalidus Casey 1892: 407

Range: Widespread in middle and eastern United States (Anderson 1962).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: June and July.

Plant Associations: This species has been reared from the flower and seeds of giant ragweed, *Ambrosia trifida* L. in Illinois (Anderson 1962). There are no plant association records for the LRGV, but giant ragweed occurs there.

General Information: Anderson (1962) described the adult, presented figures of

male and female genitalia, and provided distribution information, and a key to the species. Brownsville seems to be the southernmost distribution.

Smicronyx tessellatus Dietz 1894: 134

Range: Widespread in middle and eastern United States, and in Ontario, Canada (Anderson 1962).

Distribution in LRGV: Hidalgo Co.: 7 mi. north of McAllen (Anderson 1962).

Seasonal Activity: September.

Plant Associations: This species has been collected by sweeping *Ambrosia* sp. near McAllen, Texas (Anderson 1962).

General Information: Anderson (1962) provided an adult description as well as figures of male and female genitalia, distribution information, and a key to the species. The only known biological information is cited above.

Smicronyx triangularis (Dietz) 1894: 120

Range: Gulf Coast of Texas (Anderson 1962).

Distribution in LRGV: Cameron Co.: Laguna Atascosa National Wildlife Refuge, Laguna Madre (CMNC).

Seasonal Activity: October.

Plant Associations: This species has been collected on *Rudbeckia* sp. at Victoria, Texas and on *Rudbeckia amplexicaulis* (Vahl) Cass. and *Rudbeckia* at Columbus, Texas (Anderson 1962).

General Information: The type locality is "Texas." Anderson (1962) described the adult, presented figures of male and female genitalia, and provided distribution information and a key to the species.

Smicronyx tychoides LeConte 1876: 171

Range: Georgia, Iowa, Maryland, Nebraska, New Jersey, New York, North Carolina, Texas, and Ontario (Anderson 1962).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: June.

Plant Associations: This species has been collected on *Ambrosia* and has been reared

from stem galls of *Cuscuta* sp. at Victoria, Texas (Pierce 1907b).

General Information: Anderson (1962) described the adult, presented illustrations of the male and female genitalia, and provided distribution information and a key to the species of the genus.

Stenopelmini

Bagous restrictus LeConte 1876: 187

Range: Canada and widespread in the U.S. (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (Tanner 1943).

Seasonal Activity: May, June, and July.

Plant Associations: Unknown.

General Information: The type locality is "Texas." A key to North American members of the genus is available in LeConte and Horn (1876), Blatchley & Leng (1916), and Tanner (1943). Nothing is known about the biology of the species.

Pnigodes setosus LeConte 1876: 189

Range: Central and southwestern United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville. Hidalgo Co.: San Juan; McAllen; Pharr; Mission; Santa Maria; Mercedes (NMNH).

Seasonal Activity: February, March, and April.

Plant Associations: This species has been reared from the roots of *Lepidium* sp. (Tanner 1943), and larvae have been found in turnip roots (NMNH).

General Information: The type locality is "Texas." A dorsal habitus illustration and figures of female genitalia are presented in Tanner (1943). Tanner (1943), and Burke (1963b) provided keys for identification of the species.

Lissorhoptrus oryzophilus Kuschel 1952: 44

Range: Mexico, Cuba, Central and South America, Japan, and widespread throughout the United States (O'Brien & Wibmer 1982, Booth et al. 1990).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary (RTC); Brownsville, Los Borrejos; Brownsville, Esperanza Ranch (NMNH).

Seasonal Activity: March through July.

Plant Associations: This species is a pest on cultivated rice. The larvae feed at the roots of rice and may feed on grasses and sedges (Booth et al. 1990).

General Information: This weevil is also known as the rice water weevil. A description of the adult is provided by Booth et al. (1990). Lee & Morimoto (1988) described the larva. Biological information was provided by Isely and Schwardt (1934), Bowling (1972), Anon. (1976), Hill (1983), Cave and Smith (1983), Cave et al. (1984), and King & Saunders (1984). Kuschel (1951) presented figures of the male genitalia and various morphological features, and a key to the species of the genus.

Notiodes aeratus (LeConte) 1876: 176

Range: Widely distributed from Mexico to Kansas, west to California, and north to British Columbia and Alberta, Canada (Board 1972).

Distribution in LRGV: Cameron Co.: Brownsville; Brownsville, Los Borrejos (NMNH); 5 mi. W of Brownsville. Hidalgo Co.: Bentsen-Rio Grande State Park (TAMU); Pharr; San Benito (NMNH).

Seasonal Activity: February through November.

Plant Associations: This species has been collected on *Abutilon* sp. in the LRGV (Pierce 1907b). Label data of uncertain localities show that this species has been collected on carrots, beets, cotton, willow, and alfalfa (Burke 1961a), and collected on species of *Paspalum distichum* L., *Polygonum pensylvanicum* L. (=*bicorne*) and *Eleocharis palustris* (L.) Roem. & Schult. (=*macrostachya*) in Texas (Board 1972). Many California specimens were collected on *Scirpus fluviatilus* (Burke 1961a). These plant associations are probably incidental although Board (1972) in an unpublished dissertation states that the California population may have a different host than that of the Texas population. The larvae have been collected from rhizomes of *Marsilea vestita* (=*uncinata*) Hook. & Grev. in Brazos Co., Texas. This species feeds and develops on *Marsilea vestita* Hook. & Grev. (=*uncinata*) and *Marsilea ancyclopoda* A. Br. (=*mexicana* in Board 1972) in Texas.

General Information: The type locality is "Texas." Burke (1961a, 1965) provided figures of male genitalia and lateral views of the head and rostrum. Keys to the members of the genus under the generic name *Endalus* are available in LeConte

and Horn (1876), Tanner (1943), and Burke (1961a). A description of the adult and larva, and biological information are provided by Board (1972).

Notiodes celatus (Burke) 1961: 12

Range: Texas (Burke 1965).

Distribution in LRGV: Hidalgo Co.: 7 mi. S Alamo (TAMU).

Seasonal Activity: April.

Plant Associations: This species has been swept from sedges and other plants near a pond in Brazos Co., Texas (Burke 1961a), and has been reared from *Marsilea vestita* Hook. & Grev. (=*mucronata*) sporocarps (Board & Burke 1971).

General Information: A lateral illustration of the adult and lateral views of the head and rostrum were presented by Burke (1961a, 1965). Board (1972) provided adult and larval descriptions and biological information. Board and Burke (1971) pre sented the life history and habits of this species. Keys to the members of the genus under the generic name *Endalus* are available in LeConte and Horn (1876), Tanner (1943), and Burke (1961a). Adults can be found at the base or among the roots of the *Marsilea vestita* Hook. & Grev. during the day and on the fronds or petioles at night. Eggs are deposited in the sporangia by the adult and larval and pupal development is completed in the sporocarp. *Notiodes celatus* larvae were found to be parasitized by two hymenoptera, *Trimeromicrus* sp. (Pteromalidae) and *Bracon punctatus* (Mues.) (Braconidae) (Board & Burke 1971; Board 1972).

Notiodes punctatus (LeConte) 1876:177

Range: Southern, central and northwestern U.S. (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Boca Chica; Brownsville (Board 1972); 5 mi. W of Brownsville. Hidalgo Co.: 6 mi S of Alamo (TAMU). Willacy Co.: 7 mi. N of Raymondville (Board 1972)

Seasonal Activity: March, April, June, and July.

Plant Associations: This species develops in spikelets of *Eleocharis montevidensis* Kunth. in College Station, Texas, and *E. acutisquamata* Buckl., *E. caribaea* (Rottb.) Blake, *E. palustris* (L.) Roem. & Schult. (=*macrostachya*), *E. obtusa* (Willd.) Schult., *E. tortilis* (Link) Schult. and *Scirpus americanus* Pers. (specific locality not given) (Board 1972).

General Information: The type locality is "Texas." Keys to the members of the genus are available in LeConte and Horn (1876), Tanner (1943), and Burke (1961a). Board (1972) provides a key, a description of the larva and pupa and biological information. Two species of Eulophidae, *Euderus* sp. and *Notanisomorpha collaris* Ashmead, are known parasitize *Notiodes punctatus* (Board 1972).

Notiodes robustus (Schaeffer) 1908: 217

Range: Texas and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (Schaeffer 1908); Brownsville, Esperanza Ranch (Board 1972); Harlingen (TAMU).

Seasonal Activity: July, October, and November.

Plant Associations: Specimens have been collected on *Marisilea* sp. in Kleberg Co., Texas, *Polygonum pensylvanicum* L. (=*bicorne*), and *Paspalum distichum* L. in Lubbock Co., Texas (Board 1972)

General Information: The type locality is Brownsville, Texas. Partial keys to the members of the genus are available in LeConte and Horn (1876), Tanner (1943), and Burke (1961a). Nothing more is known about the biology of this species than that which is mentioned above. Most specimens have been collected at night (Board 1972). Board (1972) provides a key for identification, a detailed description of the adult, and distributional information.

Notiodes setosus (LeConte) 1876: 176

Range: Mexico, Louisiana, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville; 5 mi. WBrownsville;Brownsville, Los Borregos (TAMU); Brownsville, Sabal Palm Grove Sanctuary (RTC). Hidalgo Co.: Weslaco; Alamo (TAMU).

Seasonal Activity: April, May, June, and August through November.

Plant Associations: This species has been found on *Marsilea vestita* Hook. & Grev. (= *mucronata*, =*uncinata*) in the LRGV and in other parts of Texas it has been found on *M. ancyclopoda* A Br. (=*mexicana*), *Polygonum pensylvanicum* L. (=*bicorne*), *Eleocharis palustris* (L.) Roem. & Schult. (=*macrostachya*), and *Paspalum distichum* L. (Board 1972).

General Information: The type locality is "Texas." Burke (1961a) figured the frontal view of the prothorax, and a ventral view of the apical tarsal segments. Keys to the members of the genus are available in LeConte and Horn (1876), Tanner (1943), and Burke (1961a). Adults can be found at the base of the host plant during the day and come out of the ground to feed on the fronds at night. Larvae have not been found (Board 1972). A description of the adult and distributional information is provided by Board (1972).

Onychylis longulus LeConte 1876: 179

Range: Connecticut, Florida, Kansas, Louisiana, Michigan, North Carolina, Virginia, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville, White Wing Dove Res.; Brownsville; 3 mi W of Brownsville (TAMU).

Seasonal Activity: May, June, and October.

Plant Associations: This species has been collected on pickerelweed, *Pontederia cordata* L., at College Station, Texas (Burke 1961c).

General Information: Burke (1961c) presented a lateral view of the prothorax, head, and rostrum and a dorsal outline of the prothorax and elytra. A key to some members of the genus is available in LeConte and Horn (1876), and Burke (1961c). The adults feed on epithelial and staminiferous tissues and flowers. The larvae have not been found (Board 1972). Board (1972) provided a detailed adult description and distributional information.

Derelomini

Notolomus sp. 1

Range: Lower Rio Grande Valley of Texas.

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary (CMNC).

Seasonal Activity: Unknown

Plant Associations: This species has been collected on *Sabal mexicana* Mart. (=texana) (CMNC). Other species of *Notolomus* are known to feed and / or develop on various species of Palmetto, family Arecaceae (Anderson 1992).

General Information: This undescribed pale orange species is known to occur only in the Sabal Palm Grove Sanctuary on *Sabal mexicana* Mart. (*=texana*), an endangered species in the United States. There are only two described species of *Notolomus* in the United States. There is need to revise this genus. This species is considered to be rare, but this may be due to the collection methods used.

Notolomus sp. 2

Range: Lower Rio Grande Valley of Texas.

Distribution in LRGV: Cameron Co.: Brownsville (AHC).

Seasonal Activity: May.

Plant Associations: Unknown

General Information: This undescribed species is separated from *Notolomus*. sp. 1 by its larger size, red elytra, and black thorax.

Andranthobius sp.

(Figure 23)

Range: Lower Rio Grande Valley of Texas.

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary (TAMU).

Seasonal Activity: July and October.

Plant Associations: This species was collected on *Sabal mexicana* Mart. (*=texana*).

General Information: One specimen was collected in July during this study. This species is known to occur only in the Palm Grove on *Sabal mexicana* Mart. (*=texana*), an endangered species in the United States. Like *Notolomus*, it is in need of revision. Two species were described by Champion in 1902 from Mexico, Panama, and Belize.

Fig. 23. *Andranthobius* sp.

Otidocephalinae, Otidocephalini

The genus *Myrmex* is mainly neotropical with most of the species occurring in Central America. Not much is known about the biology of *Myrmex* species, but enough is known to establish that the members of Otidocephalinae have varied biologies. Species of *Myrmex* have been associated with galls on *Quercus*, found feeding on fruiting bodies of fungus, and developing in dead and dying sycamore twigs, in *Phorodendron villosum* (Nutt.) Nutt. and *Phorodendron tomentosum* (DC.) Gray (=*flavescens*)stems, and developing in twigs of *Bumelia lanuginosa* (Michx.) Pers. (Burke et al. 1975; Anderson 1994).

Myrmex myrmex (Herbst) 1797: 56

Range: Mexico and the eastern United States (O'Brien & Wibmer 1982) and Texas.

Distribution in LRGV: Cameron Co.: Brownsville (NMNH), Sabal Palm Grove Sanctuary (CMNC). Willacy Co.: 11 mi. E of Raymondville (TAMU).

Seasonal Activity: March, April, May, and July.

Plant Associations: This species is known to develop in the dead and dying twigs of sycamore caused by sycamore blight (Craighead 1950). Sycamore does not occur

in the LRGV.

General Information: Keys to members of the genus are available in Schaeffer (1907) and Blatchley & Leng (1916).

Myrmex texanus (Schaeffer) 1907: 77

Range: Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (Schaeffer 1907); Brownsville, Sabal Palm Grove Sanctuary (TAMU); 3 mi. E of Jct. 1419 & 4 (CWOB); Laguna Atascosa National Wildlife Refuge, Unit 7. Hidalgo Co.: Santa Ana National Wildlife Refuge; Bentsen-Rio Grande State Park (TAMU).

Seasonal Activity: April, May, June, and August.

Plant Associations: This species has been collected on *Salix nigra* Marsh. (TAMU) which occurs in the LRGV.

General Information: The type locality is Brownsville, Texas. Eight specimens of this species were collected during this study during both day and night in May in the Sabal Palm Grove Sanctuary. Schaeffer (1907) provided a key for identification of the species.

Myrmex uniformis (Champion) 1903: 235

Range: Mexico, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.:Brownsville (NMNH); Southpoint Nursery (CMNC). Hidalgo Co.: Bentsen-Rio Grande State Park (CWOB). Starr Co., no specific locality (CMNC).

Seasonal Activity: May through August.

Plant Associations: Unknown

General Information: The type locality is Brownsville, Texas. A key to members of the genus is available in Schaeffer (1907).

Myrmex ventralis Van Dyke 1930: 151

Range: Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Laguna Atascosa National Wildlife Refuge, Unit 7 (TAMU).

Seasonal Activity: May and July.

Plant Associations: Unknown

General Information: Nothing is known of the biology of this species.

Magdalinae, Magdalini

Magdalis armicollis (Say) 1824a: 312

Range: Widespread throughout central and eastern United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: Bentsen-Rio Grande State Park (TAMU).

Seasonal Activity: January, February, April, June, July, and November.

Plant Associations: This species has been found under dead oak and hickory bark, and developing in and under elm bark (Pierce 1907b, Blatchley & Leng 1916). It has been recorded emerging from *Prosopis glandulosa* Torr. and *Ulmus crassifolia* Nutt. in Bentsen-Rio Grande State Park, Hidalgo Co., Texas (RTC).

General Information: Blatchley & Leng (1916) provided a key to members of the genus, illustrations of the adult, pupa, and larva , and some biological information including their development in elm.

Laemosaccini

Laemosaccus nephele (Herbst) 1797: 54
(Figure 24)

Range: Guatemala, Honduras, Mexico, eastern United States, Texas, Arizona, and New Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: 1.8 mi. E Jct. 281 on hwy. 186; Bentsen-Rio Grande State Park; 1 mi. S of Pharr; Rio Grande City. Starr Co.: Falcon State Park (TAMU).

Seasonal Activity: April and May.

Plant Associations: This species has been recorded from oak and has been reared from galls of *Cynips cornigera* on twigs of *Quercus palustris* DuRoi (exact localities not given) (Blatchley & Leng 1916).

General Information: Schaeffer (1905a) provided a key to some members of the

genus. Ten specimens were collected during this study.

Fig. 24. *Laemosaccus nephele.*

Laemosaccus texanus Champion 1903: 285

Range: Mexico, Arizona, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH); Brownsville, Sabal Palm Grove Sanctuary (CMNC); Brownsville, Santo Tomas (Townsend 1903); Laguna Atascosa National Wildlife Refuge, Unit 7 (TAMU).

Seasonal Activity: March, May, June, and August.

Plant Associations: This species has been collected on live stalks and in cells inside dead stalks of *Abutilon "holosericeum"* and has been found on a live cotton stalk (Townsend 1903).

General Information: The type locality of this species is Brownsville, Texas. Townsend (1903) listed a weevil as *Laemosaccus* sp., but his brief description does not allow definite identification. It is assumed here, based on the description, that he was referring to *Laemosaccus texanus*. Schaeffer (1905a) provided a key to members of the genus.

Curculioninae

Curculio sulcatulus (Casey) 1897: 661

Range: Canada, Mexico, and widespread in the United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Starr Co.; Starr Co.: 8 mi. W El Sauz (TAIU).

Seasonal Activity: November.

Plant Associations: This species is known to develop in acorns of *Quercus* spp. (Gibson 1969).

General Information: Gibson (1969) provided a key to species of the genus, biological information, a distribution map, and figures of the hind leg, head and rostrum of the male and female, and male genitalia. *Quercus virginiana* Mill. is the only oak known to occur in the LRGV. It occurs in extreme northern Hidalgo Co. and in northeastern Willacy Co. (Lonard et al. 1991). The status of *Curculio sulcatulus* in the LRGV needs confirmation. The record from Starr Co. did not have plant association data and Gibson (1969) did not specify which species of oak *Curculio sulcatulus* utilizes as hosts.

Anthonominae, Anthonomini

Brachyogmus ornatus Linell 1897: 51
(Figure 25)

Range: Arizona, southern California, New Mexico, Texas, and northern Mexico (Burke 1968a).

Distribution in LRGV: Cameron Co.: 2 mi. W of Boca Chica Beach (TAMU); Hidalgo Co.: Mission (CMNC); .5 mi. S of Mission (TAMU).

Seasonal Activity: April, July, and October.

Plant Associations: Weevils were observed feeding and developing on *Lycium pallidum* Miers in New Mexico by Burke (1968a). *Lycium pallidum* does not occur in the LRGV, but it is probable that this weevil develops on one or both of the species of *Lycium* that occur there.

General Information: Two specimens of this species were collected during this study on *Lycium* sp. near Boca Chica Beach in October. Burke (1968a) provided

biological information, a distributional map, and descriptions and figures of the larva, pupa, and adult. Burke (1968a) reported larvae feeding on nearly all parts of *Lycium pallidium* Miers flowers, except the corolla. After about six days of pupation the cavity formed by the feeding larva, the adult emerges through a hole in the corolla tube. A common parasite to the weevil larvae is a pteromalid wasp, *Heterolaccus hunteri* (Crawford) (Burke 1968a).

Fig. 25. *Brachyogmus ornatus.*

Smicraulax tuberculatus Pierce 1908: 174

Range: Texas, and Mexico (Anderson 1994).

Distribution in LRGV: Hidalgo Co.: Bentsen-Rio Grande State Park (TAMU).

Seasonal Activity: Adults: most months from April through December. Larvae: January, April and July. Pupae: April, June and August (Texas) (Burke & Hafernik 1971).

Plant Associations: This species has been collected on black persimmon, *Diospyros texana* (Scheele) (Pierce 1908), on *Phoradendron tomentosum* (DC.) Gray (=*flavescens*) on mesquite (Anderson 1994), in fruit and stems of *Phoradendron*

tomentosum (DC.) Gray (=*flavescens*), and on hackberry and mesquite (Burke & Hafernik 1971).

General Information: The type locality is San Diego, Texas, about 100 miles north of the LRGV. Burke and Hafernik (1971) presented figures of the male and female genitalia, metathoracic wing, ventral view of the prothorax, and the pupa. Ahmad & Burke (1972) presented illustrations and a description of the larva. The adults deposit eggs near the stem tips of *Phoradendron tomentosum* (DC.) Gray and the larvae feed in the tips and in the leaf nodes. To facilitate the emergence of the adult, the larvae eat an oval-shaped cavity near the outer wall of the stem. Pupation takes place in the larval tunnels. Burke (1975) provided a figure of the lateral view of the dorsal outline and a dorsal photograph of the species, and a key to the members of the genus. There are three described species of *Smicraulax* from Texas, Arizona, and Mexico. All three species have been associated with *Phoradendron*. Additional collecting localities for Texas and Mexico can be found in Anderson (1994).

Anthonomus

Anthonomus is a speciose group of oval-shaped weevils. Twelve are known to occur in the LRGV. Well-defined species groups in this genus develop on closely related plant species within the same plant family. For example, weevils of the *A. aeneolus* group and other related groups develop on *Solanum* spp., the *A. albopilosus* group on *Croton* spp. and most of the species of the *A. squamosus* group develop on Compositae (Ahmad & Burke 1972). Extensive studies have been done on the boll weevil, *Anthonomus grandis* Boheman, and the pepper weevil, *Anthonomus eugenii* Cano, because of their damage to crops. A key to species of the genus for America north of Mexico is available in Dietz (1891). Other keys for identification include Blatchley & Leng (1916), Burke (1968b), Ahmad & Burke (1972), Clark (1987b, 1990), and Clark & Burke (1985).

Anthonomus aeneolus Dietz 1891: 223

Range: Mexico, Oklahoma, New Mexico, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Laguna Atascosa National Wildlife Refuge, Unit 7; 9.7 mi. E Jct. Rte 1419 on hwy. 4; 3 mi. W Brownsville; 6 mi. W Buena

Vista; 3 mi. W Los Fresnos; Los Indios; Santa Maria (TAMU); Sabal Palm Grove Sanctuary (CMNC); Brownsville; Olmito (NMNH); Port Isabel (Clark & Burke 1996). Hidalgo Co. (CMNC); Las Palomas Wildlife Management Area, Peñitas Unit; 1.8 mi. E Jct.281 on hwy 186; Bentsen-Rio Grande State Park; Delta Lake; 3 mi. SW Mission; Donna; Edinburg; McAllen;Mission; Santa Ana National Wildlife Refuge; Weslaco. Starr Co.: Falcon State Park; (TAMU); Rio Grande City (Clark & Burke 1996). Willacy Co.: 4 mi. N Raymondville (TAMU).

Seasonal Activity: March through June, August, October, and November.

Plant Associations: This species develops in buds of *Solanum elaeagnifolium* Cav. and in nematode galls on *S. elaeagnifolium* in Hidalgo Co. (Burke 1961b). One pupa was taken from a nematode gall on *S. elaeagnifolium* at Brownsville, Texas (Burke 1968b).

General Information: The pupa of this species was described and illustrated by Burke (1968b). Ahmad & Burke (1972) described and illustrated the larva. Biological information is provided in Schwarz (1884) (as *A. flavicornis*), Pierce (1907b), Burke (1961b, 1968b), Gates & Burke (1972), and Clark &Burke (1996). Keys to the members of the genus which include *A. aeneolus* are available in Dietz (1891), Burke (1968b) (pupae), and Ahmad & Burke (1972) (larvae), and a key to species groups of *Anthonomus* associated with Solanaceae is provided by Clark & Burke (1996). This species, in the LRGV has been referred to in past literature as *A. brevirostris* which is now considered a synonym of *A. aeneolus*. The eggs are sometimes deposited in spongy tissue of galls caused by the nematode, *Nothanguina phyllobia* (Thorne), but the weevil normally develops in flower buds. The larva feeds and creates a cavity in a certain section of the gall. As many as 24 weevils have been found in one nematode gall. Only one weevil usually develops in the flower bud (Clark & Burke 1996). Twenty-one specimens were collected during this study, most of which were collected in April.

Anthonomus albopilosus Dietz 1891: 222

Range: Mexico, central and lower United States (Clark 1988).

Distribution in LRGV: Cameron Co.: Brownsville. Hidalgo Co.: Mission (Sleeper 1958)

Seasonal Activity: May through July, October, and November.

Plant Associations: This species develops in fruit of *Croton capitatus* Michx.

(=*engelmanni*) and *Croton texensis* (Klotzch) Muell (Clark 1988). Burke (1968b) also collected it on *Croton pottsii* (Kl.) Muell. Arg.

General Information: Clark (1988) described the adult in detail. Burke (1968b) provided a description and illustration of the pupa. Ahmad & Burke (1972) provided a description and illustrations of the larva. Biological information is provided in Pierce (1907b) and Burke (1968b). Keys to the species of the genus which include *A. albopilosus* are available in (Dietz 1891), Clark (1988), Burke (1968b) (pupae), and Ahmad & Burke (1972) (larvae).

Anthonomus eugenii Cano 1894: 378

Range: Central America, Mexico, Puerto Rico, Hawaii, and the southern United States (Clark & Burke 1996).

Distribution in LRGV: Cameron Co.: Brownsville; Olmito (NMNH). Hidalgo Co.: Weslaco (CMNC); Mercedes (TAMU).

Seasonal Activity: January through April, July, October, and September.

Plant Associations: This species is a pest of cultivated peppers, eggplant when near infested pepper fields, and develops in fruit of *Solanum nigrum* L. in California. It also develops in fruit of *Solanum americanum* Mill., which can serve as a reservoir host when previously infested pepper fields are nearby. This species is restricted to feeding and developing on species of *Capsicum* and *Solanum* (Clark & Burke 1996).

General Information: This species was originally described from Mexico. Ahmad & Burke (1972) described the larva, and Burke (1968b) described the pupa. Burke & Woodruff (1980) described the biology, and provided a distribution map, photo graphs of the adult, and figures of the larva and pupa. A complete report on information about this species as well as photographs of the adult and illustrations of the larva is provided by Elmore et al. (1934). Keys to the species group of the genus which include this species are available in Clark (1988), Burke (1968b) (pupae), Ahmad & Burke (1972) (larvae), and (Clark & Burke 1996). This species is commonly known as the pepper weevil.

Anthonomus grandis Boheman 1843: 232

Range: Mexico, Central America, South America, Cuba, Haiti, Dominican Republic, and the southeastern and southwestern United States (Burke et al. 1986).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH); Brownsville, Sabal Palm Grove Sanctuary (RTC). Hidalgo Co.: Bentsen-Rio Grande State Park (CMNC). Willacy Co. (Burke & Clark 1974). Occurs wherever cotton is grown in the LRGV.

Seasonal Activity: April, June, August, September, and October; throughout the cotton growing season.

Plant Associations: Larval development occurs in flower buds and fruit of *Gossypium aridum* (Rose & Standley) Skov., *Gossypium davidsonii* Kell., *Gossypium harknessii* Brandg., *Gossypium laxum* Phill., *Gossypium lobatum* Gentry, *Hampea latifolia* Standley, *Hampea nutricia* Fryxell, *Hampea rovirosae* Standley, *Cienfuegosia rosei* Fryxell, and *Hibiscus pernambucensis* Arruda in Mexico; *Gossypium barbadense* L. in the United States, Cuba, and Mexico; *G. hirsutum* L. in the United States, Mexico, Central America, Dominican Republic, Haiti, Venezuela, Colombia, and Brazil; *Gossypium thurberi* Tod. in Arizona and Mexico; *Cienfuegosia affinis* (H.B.K) Hochr. in Venezuela; *Hibiscus syriaceus* L. in the United States; *Cienfuegosia drummondii* (Gray) Lewton in South Texas; *Thespesia populnea* L. (Soland) in South Texas (introduced as an ornamental), Colombia, and Venezuela (Cross et al. 1975, Burke et al. 1986). The most impor tant host is *Gossypium hirsutum* (cotton).

General Information: This species is commonly known as the boll weevil and is a major pest of cotton. *Anthonomus grandis* was probably introduced into Texas from Mexico around 1892 (Burke et al. 1986). There are many publications available on the species. Berger (1913) presented photographs of the adult, larval stages, and pupa. Detailed life history information is presented in Hunter & Hinds (1905) and Hunter & Pierce (1912). The male and female reproductive systems are described and illustrated in Burke (1959a). The pupa and larva are described in Burke (1968b) and Ahmad & Burke (1972), respectively. Burke & Clark (1976) presented biological information on *Cienfuegosia drummondii* (Gray) Lewton as a boll weevil host in southern Texas. Information on the origin and dispersal of this species was provided by Burke et al. (1986). Keys to the members of the genus are available in (Dietz 1891), Burke (1968b) (pupae), Ahmad & Burke (1972)

(larvae), and Burke et al. (1984).

Anthonomus leucostictus Dietz 1891: 193

(Figure 26)

Range: Southern Texas (LRGV) to Big Bend and northeastern and north-central Mexico (Monterrey and the state of Durango) (Clark 1990).

Distribution in LRGV: Cameron Co.: 10 mi. W of Boca Chica Beach; Brownsville; 8 mi. E Brownsville; 10 mi. E of Rio Hondo; Palmito Battleground (Clark 1990); Brownsville, Sabal Palm Grove Sanctuary; 9.7 mi. E Jct. Rte. 1419 on hwy. 4 (TAMU); 7.6 mi. W of Boca Chica Beach (ERC); Southpoint Nursery (CMNC). Hidalgo Co.: Santa Ana National Wildlife Refuge; 2 mi. S of Linn (Clark 1990); Anzalduas County Park (CMNC); 1.8 mi. E Jct. 281 on hwy 186 (TAMU). Starr Co.: Falcon State Park (CMNC).

Seasonal Activity: April through July, September and October.

Plant Associations: This species develops in the fruit of *Zanthoxylum fagara* (L.) Sarg. (Burke & Gates 1974).

General Information: The type locality is "Texas." Burke and Gates (1974) presented biological information on this species, and Clark (1990) revised the subgenus *Anthonomocyllus* to which it belongs, providing a key for identification, descriptions, photographs of the adult, illustrations of various morphological structures, and the male genitalia. Thirty-four specimens were collected at the Sabal Palm Grove Sanctuary during the day and night, beating and sweeping in April, May, July, and October during this study. This species is common in the LRGV. *Anthonomus xanthoxyli*, which also belongs to this subgenus, occurs in the LRGV and also develops on *Zanthoxylum fagara* (L.) Sarg. The two species are easily separable on the basis of morphological characters.

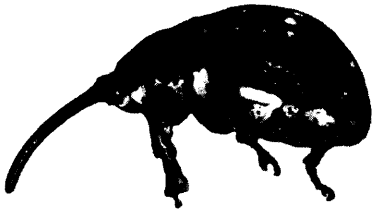


Fig. 26. *Anthonomus leucostictus.*

Anthonomus ligatus Dietz 1891: 245

Range: Mexico, Arizona, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Southpoint Nursery (CMNC); Brownsville (NMNH). Hidalgo Co.(CMNC); Bentsen-Rio Grande State Park (TAIU). Starr Co.: Salineño (TAMU).

Seasonal Activity: January, May through August, and October.

Plant Associations: This species develops in the stems of *Leucosyris spinosa* (Benth.) Greene (=*Aster spinosus*) and *Aster subulatus* Michx. and has been found feeding in the flower heads of *A subulatus* Michx. in southern Texas (Burke 1968b). It usually develops in flower heads rather than stems (Burke, pers. comm.).

General Information: Burke (1968b) provided a description and illustration of the pupa and biological information. Additional biological information is available in Gates & Burke (1972), and Ahmad & Burke (1972). Ahmad & Burke (1972) described and illustrated the larva. Keys to the members of the genus are available in (Dietz 1891), Burke (1968b) (pupae), and Ahmad & Burke (1972) (larvae). One specimen was collected at Salineño in July during this study.

Anthonomus schwarzi Clark & Burke 1985: 126

Range: Extreme southern Texas, Mexico, Cuba, and Jamaica (Clark & Burke 1985).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary (TAMU). Hidalgo Co.: Bentsen-Rio Grande State Park (CMNC).

Seasonal Activity: July and October.

Plant Associations: This species has been taken on *Malpighia glabra* L. and *Croton watsoni* Standl. (probably accidental on the latter) (Clark & Burke 1985). *Anthonomus schwarzi* belongs to a group of mostly Neotropical species which develop in the fruit of Malpighiaceae (Clark & Burke 1985).

General Information: Clark & Burke (1985) described the adult and provided photographs, distributional maps, phylogenetic information, illustrations of various morphological structures and male and female genitalia. They also provided a key to the members of the *Anthonomus venustus* species group, to which this species belongs. There are 21 species in this mainly Neotropical group, three of which extend their northern ranges into southern areas of Arizona, Florida, and Texas. Six specimens of this species were collected in the Sabal Palm Grove in October during this study. Five of these specimens were collected on *Malpighia glabra* L.

Anthonomus solarii Champion 1910: 188

Range: Mexico, Nicaragua, Texas (O'Brien & Wibmer 1982), and Florida (Anderson 1992).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH); Los Fresnos (CMNC); Brownsville, Sabal Palm Grove Sanctuary (TAMU). Hidalgo Co. (AHC); Delta Lake (CMNC).

Seasonal Activity: April, June through August, and October.

Plant Associations: This species has been reared from seed capsules of *Malvastrum coromandelium* (L.) Gke. at Weslaco (Burke 1968b) and seed capsules of *M. americanum* (L.) Torr. at Brownsville (Burke & Gates 1974). It has also been collected on *Sida acuta* Burm. (Ahmad & Burke 1972). See the following species for an account of another small *Anthonomus* that develops on the same plants in southern Texas.

General Information: Burke (1968b) provided a description and illustration of the pupa, biological information, and a key to pupae of the genus. In an earlier paper,

Burke (1962) discussed the taxonomy of the species and provided a figure of the male genitalia. One specimen was collected during this study in the Sabal Palm Grove Sanctuary in October. This is a fairly common species in the LRGV that develops on hosts that are abundant along roadsides and in waste areas.

Anthonomus squamans Champion 1903: 192

Range: Mexico and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (Burke & Gates 1974). Hidalgo Co.: Delta Lake. Starr Co.: Salineño (TAMU).

Seasonal Activity: May, June, July, November, and December.

Plant Associations: This species has been reared from seed capsules of *Malvastrum americanum* (L.) Torr., and buds of *Malvastrum coromandelianum* (L.) Gke in southern Texas. It also develops on *Callirhoe involucrata* (Torr.) Gray,*Malvastrum* aurantiacum (Scheele) Walp., and *Sphaeralcea lindheimeri* Gray. It has been collected on *Abutilon fruticosum* Pen. & Rich. (=*incanum*), *Malavastrum corchorifolium* (Desr.) Britton, *Malachra capitata* L., *Modiola caroliniana* (L.) G. Don, *Sida cordifolia* L., *S. acuta* Burm., and *Callirhoe leiocarpa* Martin (exact plant association localities not given) (Burke & Gates 1974). This species develops on some of the same plant species as *Anthonomus solarii*, but seems to prefer buds as opposed to seed capsules as developmental sites. *Anthonomus squamans* also has a wider host range (Burke & Gates 1974).

General Information: Ahmad & Burke (1972) provided a description and illustration of the larva. Description and illustration of the pupa and biological information is presented by Burke (1968b). Keys to the immature members of the genus are available in Burke (1968b) (pupae), and Ahmad & Burke (1972) (larvae). Five specimens were collected during this study at Delta Lake in July and one specimen at Salineño in November.

Anthonomus testaceosquamosus Linell 1897: 50

Range: Texas and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary; 9.7 mi. E Jct. Rte. 1419 on hwy. 4 (TAMU); Brownsville; San Benito. Hidalgo (NMNH); Hidalgo Co.: Delta Lake (TAMU).

Seasonal Activity: January, February, May, June, and September,through November.

Plant Associations: This species has been reared from flower buds of *Abutilon* (possibly *abutiloides* (Jacq.) Britt. & P.), from flower buds of *Allowissadula* (=*Pseudoabutilon*) *lozanii* (Rose) Bates (Tamaulipas, Mexico), and from *Sida* sp. It has also been collected on *Malvastrum corchorifolium* (Desr.) Britton, and *Allowissadula* (=*Wissadula*) *holosericea* (Scheele) Bates (Burke & Gates 1974).

General Information: The type locality is Brownsville, Texas. Ahmad & Burke (1972) described and illustrated the presumed larva. Burke (1968b) described and illustrated the presumed pupa. It was later determined after examination of additional material by Burke & Gates (1974) that the larvae and pupae questionably assigned to *A. testaceosquamosus* are actually members of this species. Keys to the immature members of the genus are available in Burke (1968b) (pupae), and Ahmad & Burke (1972) (larvae). Twenty-nine specimens of this species were collected during this study. Twenty-seven were collected at Delta Lake, in November. This is a common species in the LRGV that only seems to occur in southern Texas and northeastern Mexico.

Anthonomus unipustulatus Champion 1903: 183
(Figure 27)

Range: El Salvador, Guatemala, Mexico, and the Lower Rio Grande Valley, Texas (Clark 1987b).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary; 7.6 mi. W of Boca Chica Beach (TAMU). Hidalgo Co.: Weslaco (Clark 1987b).

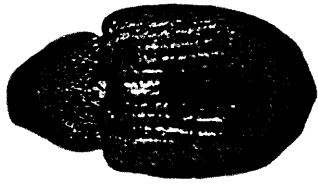
Seasonal Activity: May, July, August, and October.

Plant Associations: This species has been reared from fruit of *Malpighia glabra* L. at Brownsville, Texas (Clark 1987b).

General Information: Burke (1968b) described and illustrated the pupa, and Ahmad and Burke (1972) described and illustrated the larva. Clark (1987b) revised the six Neotropical species of the *unipustulatus* group. Three of these species are known to have host plants in the family Malpighiaceae and only *Anthonomus unipustulatus* extends its distribution northward into the LRGV. Clark (1987b) also described the adult in detail, presented photographs of various morphological structures, and male genitalia, and provided a key to the members of the *Anthonomus unipustulatus* species group. During the present study, 66 specimens

were collected in Sabal Palm Grove in May, July, and October, some on *Malpighia glabra* L.

A)



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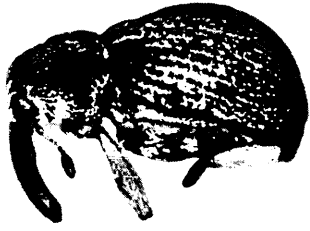


Fig. 27. *Anthonomus unipustulatus*, **A)** dorsal, **B)** lateral.

Anthonomus xanthoxyli Linell 1897: 49

Range: Southern Texas, and Mexico (Clark 1990).

Distribution in LRGV: Cameron Co.: Brownsville; Palmito Battleground; 10 mi. E Rio Hondo (Clark 1990); Brownsville, Sabal Palm Grove Sanctuary (TAMU). Hidalgo Co.: Bentsen-Rio Grande State Park (Clark 1990); Santa Ana National Wildlife Refuge; Anzalduas County Park (CNNC). Starr Co.: Rio Grande City (Clark 1990).

Seasonal Activity: May through August, October, and November.

Plant Associations: This species develops in fruit of *Zanthoxylum fagara* (L.) Sarg. (Burke 1962; Burke & Gates 1974). It occurs in association with *Anthonomus leucostictus* on this plant.

General Information: The type locality is San Diego, Texas, which is about 100 miles north of the LRGV. In his revision of the *Anthonomus tenuirostris* species group, Clark (1990) treated the taxonomy of this species, described the adult in detail, and provided photographs of the adult, various morphological structures, and male genitalia. Four specimens of this species were collected during this study in the Sabal Palm Grove in July while beating and sweeping during the day and night.

Narberdia aridulus Burke 1976: 541

Range: Northeastern Mexico, and southern and southwestern Texas (Burke & Rector 1976).

Distribution in LRGV: Cameron Co.: Brownsville (TAMU).

Seasonal Activity: January, April, June, July, August, and November (Mexico & Texas) (Burke & Rector 1976).

Plant Associations: Specimens of *N. aridulus* have been found in the seeds of *Bernardia myriceafolia* (Scheele) Wats. Brownsville, Texas and pupae have been found in seeds of *Bernardia obovata* I.M. Johnst. in Upton Co., Texas. (Burke & Rector 1976).

General Information: Burke and Rector (1976) described this genus and species as new, and included biological information, figures and descriptions of the larva and pupa, figures of male and female genitalia, and photographs of adult. The genus is monotypic and is distributed in dry, semi-arid habitats.

Cionopsis lineola Burke 1981: 294

Range: Lower Rio Grande Valley, Texas (Burke 1981).

Distribution in LRGV: Hidalgo Co.: Bentsen-Rio Grande State Park (Burke 1981); Anzalduas County Park (CMNC).

Seasonal Activity: October.

Plant Associations: This species occurs on *Serjania brachycarpa* Gray in company with *Cionopsis maculata* (Anderson & Burke 1990). This plant probably represents its true host although its immature stages have not been found.

General Information: The type locality is Bentsen State Park, Hidalgo Co., Texas. Burke (1981) provided figures of the male genitalia and photographs of the adult, and a key to the members of the genus. Two of the three species of this genus occur in the LRGV, the third in southern Mexico and Central America.

Cionopsis maculata Burke 1981: 292
(Figure 28)

Range: Southern Texas (LRGV), and San Patricio Co., Texas (Burke 1981).

Distribution in LRGV:Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary (TAMU). Hidalgo Co.: Santa Ana National Wildlife Refuge (RTC); Bentsen-Rio Grande State Park; Anzalduas County Park (CMNC).

Seasonal Activity: October.

Plant Associations: This species develops in seeds of *Serjania brachycarpa* Gray (Anderson & Burke 1990).

General Information: The type locality is Sabal Palm Grove, Audubon Reserve, Cameron Co., Texas. Burke (1981) described and illustrated this species, and provided a key to the members of the genus. Anderson & Burke (1990) described and figured the larva and gave an account of the biology. During the present study, eight specimens were collected during the day on *Serjania brachycarpa* Gray and at blacklight in the Sabal Palm Grove Sanctuary in October.

Pseudanthonomus tomentosulus Dietz 1891: 251

Range: Arizona, Oklahoma, New Mexico, and Texas (Clark 1987a).

Distribution in LRGV: Hidalgo Co.: Weslaco (Clark 1987a).

Seasonal Activity: May and June in Texas.

Plant Associations: This species (as *P. krameriae* Pierce) has been found developing in the buds of *Krameria lanceolata* Torr. (=*secundiflora*) at Dallas, Texas (Pierce 1908) and has been found in flower buds of *Krameria lanceolata* Torr. at College Station, Texas (Burke 1972).

General Information: Descriptions and figures of larva and pupa are presented by Burke (1972) (as *P. krameriae* Pierce). Clark (1987a) described the adult in detail, presented photographs of the adult and male genitalia, and provided a key to the seven Nearctic members of the genus. There are also 19 Neotropical species in this genus Clark (1987a).

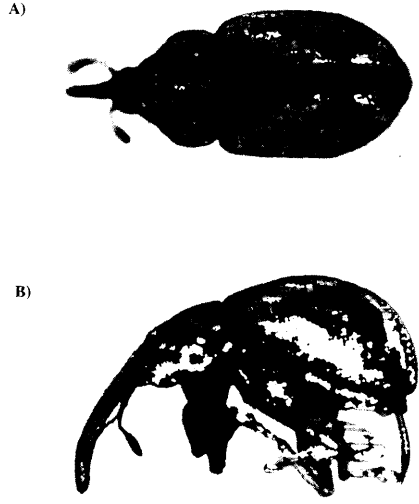


Fig. 28. *Cionopsis maculata*, **A)** dorsal, **B)** lateral.

Rhynchaeninae

Tachyerges niger (Horn) 1873: 462
(Figure 29)

Range: Widespread throughout Canada and the United States (Anderson 1989).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary (TAMU); Southpoint Nursery. Hidalgo Co.(CMNC): Bentsen-Rio Grande State Park (AHC).

Seasonal Activity: April through August and October.

Plant Associations: This species has been found associated with *Salix* spp. in Alberta, Canada, South Dakota, North Dakota, California, Florida, and Texas. Larvae mine the leaves of *Salix* (Anderson 1989). Host associations are unknown for Texas, but the weevils are expected to develop on *Salix* as elsewhere.

General Information: Anderson (1989) revised the genus and presented figures of various morphological structures and of male, and female genitalia, and a key to the species of North America. One specimen was collected during this study in the Sabal Palm Grove Sanctuary in October. The LRGV represents the southernmost distribution of the species. Two species of *Salix* occur in the LRGV.

Fig. 29. *Tachyerges niger*.

Tachyerges salicis (Linnaeus) 1758: 381

Range: Palearctic Region, northern United States, Canada, and southern Texas (Anderson 1989).

Distribution in LRGV: Southern Texas (no specific localities given) (Anderson 1989).

Seasonal Activity: April, May, July, and August.

Plant Associations: This species has been found on *Populus* spp. in Washington, South Dakota, and Oregon and on *Salix* spp in Canada, California, Oregon, Washington, and Texas. In the Palearctic Region, the species is known to mine leaves of *Salix* spp. and *Populus* spp. (Anderson 1989).

General Information: Anderson (1989) revised the genus, presented figures of various morphological structures and of male and female genitalia and provided a key to the species of North America. *Salix* occurs in the LRGV, but *Populus* does not. It is yet to be determined if *T. salicis* occurs in the LRGV.

Tychiinae, Elleschini

Elleschus sp.

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Cameron Co.: Southpoint Nursery (CMNC).

Seasonal Activity: July.

Plant Associations: This species has been swept from willow (CMNC).

General Information: There are 15 species of this genus occurring in North America, Australia, and the Palearctic Region. The Nearctic species are associated with willow (*Salix* spp.) (Clark et al. 1977). There are five described species in North and Central America, with *Elleschus ephippiatus* (Say) being the only one reported from Texas (O'Brien & Wibmer 1982). A key to the members of the genus is available in Blatchley & Leng (1916).

Lignyodini

The tribe Lignyodini, as reclassified by Clark (1982), contains the genus *Lignyodes* with 22 species, five of which are known from the LRGV (O'Brien & Wibmer 1982, 1984). This tribe also contains the genus *Plocetes* with 43 species, one of which occurs in the LRGV. Some species of *Lignyodes* are associated with ash (*Fraxinus* spp.), and *Foresteria* spp., both of the plant family, Oleaceae. Species of *Plocetes* have their hosts in the family Rubiaceae (Clark,1982). Keys to the species of *Lignyodes* and *Plocetes* are available in Clark (1980a, 1980b, 1982).

Lignyodes adamanteus (Clark) 1980: 224

Range: Southern one-half of Texas (Clark 1980b).

Distribution in LRGV: Cameron Co.: Brownsville (los Borregos). Hidalgo Co.: Santa Ana National Wildlife Refuge; Mission. Starr Co.: Falcon State Park (Clark 1980b).

Seasonal Activity: April, May, June, and September.

Plant Associations: This species has been taken on *Forestieria angustifolia* Torr. to the north of the LRGV in Nueces and Refugio counties (Clark 1980b). This plant also occurs in the LRGV (Richardson 1990).

General Information: This species was originally described by Clark (1980b) as *Neotylopterus adamanteus*. Clark (1980b) presented a dorsal habitus and figures of the male and female genitalia, and provided keys to the species of the now recognized subgenus *Neotylopterus*.

Lignyodes helvolus (LeConte) 1876: 214

Range: Northeastern Mexico, southern Canada, widespread throughout the eastern United States to Florida, west to Colorado and Montana (Clark 1980a).

Distribution in LRGV: Cameron Co.: Brownsville (TAMU); St. Tomas, Brownsville (Clark 1980a); Brownsville (Schaeffer 1908 as *"Thysanocnemis balaninoides"*). Willacy Co.: Raymondville (TAMU).

Seasonal Activity: June, July, August, and November.

Plant Associations: Specimens have been collected on *Fraxinus berlandieriana* A. DC. at Brownsville, Texas (Clark 1980a).

General Information: This species is now included in the nominate subgenus *Lignyodes* Clark (1982). Clark (1980a) revised the genus, illustrated and fully described the species. He noted that the specimens from the LRGV differed slightly in integument pattern and scale shape from material found in other parts of its range.

Lignyodes horridulus (Casey) 1892: 426

Range: Widespread in the United States and in southeastern Canada (Clark 1980a).

Distribution in LRGV: Hidalgo Co.: Bentsen-Rio Grande State Park (TAMU).

Seasonal Activity: March.

Plant Associations: This species has been collected on *Fraxinus* and *Forestiera* (=*Adelia*) *pubescens* Nutt. at Dallas, Texas (Clark 1980a). No host associations have been made for the LRGV, but *Fraxinus* and *Forestiera* both occur there (Richardson 1990).

General Information: Complete taxonomic treatment of the species was published by Clark (1980a). *Lignyodes horridulus* belongs in the nominate subgenus *Lignyodes* according to Clark (1982). The LRGV represents the southernmost range of the species.

Lignyodes transversus (Clark) 1980: 228

Range: Gulf Prairies and Marshes, Cross Timbers and Prairies, Edwards Plateau, and southern Texas (Clark 1980b).

Distribution in LRGV: Cameron Co.: Brownsville (Los Borregos) (Clark 1980b); Brownsville, Sabal Palm Grove Sanctuary (TAMU). Hidalgo Co.: Mission (Clark 1980b); .

Seasonal Activity: February, May, and July.

Plant Associations: This species has been taken on *Forestieria angustifolia* Torr. in Refugio Co., Texas, *Prunus angustifolia* Marsh. in Crosby Co., Texas, and on leaves of bell pepper (probably incidental) in Mission, Texas (Clark 1980b).

General Information: The type locality of this species is Corpus Christi, Texas which is about 100 miles north of the LRGV. This species is a member of the subgenus *Neotylopterus*. Clark (1980b) revised the genus *Neotylopterus* and gave a complete taxonomic treatment of *L. transversus*. He later (Clark 1982) transferred

this species to *Lignyodes*. The LRGV represents the southernmost range of the species. One specimen was collected during the present study in the Sabal Palm Grove Sanctuary on Forestieria angustifolia Torr. in July.

Lignyodes varius (LeConte) 1876: 215

Range: Arizona, and Texas (Clark 1980b).

Distribution in LRGV: Starr Co.: Falcon State Park (RTC).

Seasonal Activity: September.

Plant Associations: This species develops in the berries of *Forestieria pubescens* Nutt. at Dallas, Texas (Pierce 1916b). It has also been taken on *Forestieria angustifolia* Torr. at Big Bend National Park, Texas, and on *Prunus angustifolia* Marsh. in Crosby Co., Texas (Clark 1980b).

General Information: The type locality is "Texas." Clark (1982) transferred *L. varius* from *Neotylopterus* to *Lignyodes*. His revision of *Neotylopterus* (Clark 1980b) included taxonomic treatment of this species. He did not report specimens from the LRGV. The record above represents the southernmost range of the species.

Plocetes versicolor (Champion) 1903: 206

Range: Occurs only in Cameron Co., Texas in the United States, and is widespread in Mexico (Clark 1982; Anderson 1991).

Distribution in LRGV: Cameron Co.: La Paloma (Clark 1982); 20 km E Brownsville, "Ebony Loma" (CMNC).

Seasonal Activity: April and October.

Plant Associations: *Plocetes versicolor* has been found on fruiting *Randia rhagocarpa* Standl. 20 km. E. Brownsville ("Ebony Loma"), Cameron Co. (Anderson 1991), and has been intercepted on *Tillandsia* at the United States-Mexico border (Clark 1982).

General Information: Clark (1982) revised the genus, described and illustrated this species, and provided a key to the members of the genus. The LRGV represents the northernmost range of *Plocetes versicolor.* There are 65 known species of this mainly Neotropical genus. Five have known hosts in the family Rubiaceae.

Tychiini

The genus *Sibinia* is a speciose (133 New World species) group of small weevils that are often difficult to identify to species. Ten species are known to occur in the LRGV. The subgenus *Microtychius*, to which all the members of the LRGV belong, develop in seeds or flower buds of the Mimosoideae (Clark 1978). Clark (1978) revised the species of the New World, discussed their biogeography, and provided a key to the members of the genus. There are more than 1000 species of New World Mimosoideae (Clark 1978) of which 18 are known to occur in the LRGV (Richardson 1990). Many species of Mexican *Sibinia* have distributions that are slightly south of the LRGV and do not quite make it to the LRGV from Mexico. Distributional limits of North and Central American species are closely correlated with hosts and the vegetation zones of the hosts. Northern limits of Tropical Deciduous Forest and Thorn Forest vegetative zones include northwestern Mexico (northern Oaxaca to Arizona), northeastern Mexico (Veracruz to Texas), and both northwestern and northeastern Mexico (Clark 1978). Therefore, many of the species that have the LRGV as their northern limit or come close follow the limits of their hosts and/or vegetative zones. *Sibinia* associated with thorn-scrub Mimosoideae have the LRGV as their northern limit.

Sibinia errans (Casey) 1910: 142

Range: Southern Texas, and northeastern Mexico (Clark 1978).

Distribution in LRGV: Hidalgo Co.: Pharr (NMNH).

Seasonal Activity: March, May, and July.

Plant Associations: This species has been reared from flower buds of *Acacia rigidula* Benth. in southern Texas (Clark 1978).

General Information: This species was originally described from Saltillo, Mexico, which is approximately 100 miles southwest of the LRGV. Clark (1978) described and illustrated the species, and provided a key to the members of the genus.

Sibinia fulva (LeConte) 1876: 219

Range: Desert regions of California, New Mexico, Arizona, Texas, and Mexico (Clark 1978).

Distribution in LRGV: Hidalgo Co.: Santa Ana Wildlife Refuge (TAMU).

Seasonal Activity: April (LRGV); March through July (exact localities not given) (Clark 1978).

Plant Associations: This species develops in pods of *Acacia greggii* Gray in Jim Wells Co., Texas, and *Acacia roemeriana* Scheele pods in Brewster Co., Texas (Clark 1978).

General Information: Clark (1978) provided taxonomic and some biological information on this species as well as a key to the members of the genus.

Sibinia inermis (Casey) 1897: 664

Range: Texas and Mexico (Clark 1978).

Distribution in LRGV: Cameron Co.: Brownsville, Esperanza Ranch (Clark 1978); 6 mi. E of Brownsville; 1 mi. and 5 mi. N. of Harlingen (TAMU); Harlingen; Olmito; Port Isabel; Rio Hondo; San Benito (NMNH); Brownsville, Sabal Palm Grove Sanctuary; Southpoint Nursery (CMNC). Hidalgo Co.: 2 mi. S and 4 mi. N of Delfina; 2 mi.S of Linn; Mission; Progresso; Santa Ana Wildlife Refuge; Weslaco; Bentsen-Rio Grande State Park (TAMU); Mercedes (NMNH). Starr Co.: Falcon State Park (CMNC); Roma (NMNH).

Seasonal Activity: Throughout the year except for October (Texas & Mexico, (no specific localities given) (Clark 1978). May, July, October, and November (LRGV).

Plant Associations: This species has been reared from flower buds of *Acacia farnesiana* (L.) Willd. in Texas, and *A. schaffneri* (Wats.) Herm. (exact locality not cited) (Clark 1978).

General Information: The type locality is Brownsville, Texas. The taxonomy and brief biological notes are presented by Clark (1978). Clark (1978) also provided a key to the New World species.

Sibinia ochreosa Casey 1897: 666

Range: Texas (LRGV), Mexico, Central America, and Brazil (Clark 1978).

Distribution in LRGV: Cameron Co.: Brownsville, Esperanza Ranch (Clark 1978); Brownsville; Brownsville, Sabal Palm Grove Sanctuary; White Wing Dove Reserve; La Feria; Laguna Atascosa Wildlife Refuge (TAMU); Southpoint Nursery (CMNC). Hidalgo Co.: 6 mi. and 7 mi. S of Alamo; Santa Ana National Wildlife Refuge (TAMU); Mercedes (NMNH).

Seasonal Activity: July and October.

Plant Associations: This species develops in flower buds of *Mimosa pigra* var. *berlandieri* (Gray) B. (Clark 1978).

General Information: The type locality is Brownsville, Texas. Clark (1978) studied the taxonomy and biology of this species and provided a key to the New World species. In a later paper, Clark (1984) described the larvae and pupae of *S. ochreosa*, and reviewed and keyed the four species of the genus *Sibinia* associated with *Mimosa pigra* L. Five specimens were collected during this study in July on *Mimosa pigra* L.and two specimens collected in October in the Sabal Palm Grove Sanctuary.

Sibinia pallida (Schaeffer) 1908: 218

Range: Southern Texas and northeastern Mexico (Clark 1978).

Distribution in LRGV: Cameron Co.: Boca Chica; 2 mi. W. of Boca Chica; 6, 8, and 20 mi. E of Brownsville; Brownsville (TAMU); Brownsville, Esperanza Ranch (NMNH); Brownsville, Sabal Palm Grove Sanctuary. Hidalgo Co.: Santa Ana National Wildlife Refuge (CMNC); 2 mi. S of Delfina (TAMU).

Seasonal Activity: January through June, August, and October.

Plant Associations: This species develops in flower buds of *Pithecellobium flexicaule* (Benth.) Coult. in southern Texas and northeastern Mexico (Clark 1978).

General Information: The type locality for this species is Brownsville, Texas. The taxonomy and biology as well as a key to the New World species was presented by Clark (1978).

Sibinia ruidula Clark 1978: 148

Range: Southern Texas and Mexico (Clark 1978).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH). Hidalgo Co. (CMNC); 4 mi. N of Delfina (TAMU); Anzalduas County Park (RTC).

Seasonal Activity: March, July, and September.

Plant Associations: It has been reared from *Acacia farnesiana* (L.) Willd. in Texas" and flower buds of *Acacia schaffneri* (Wats.) Herm. in Jim Wells and Kleberg counties, Texas (Clark 1978).

General Information: The type locality is 4 mi. N. Delfina, Hidalgo Co.,Texas. Clark (1978) described and illustrated the species and provided a key to the New World species. *Sibinia ruidula* is often confused with *Sibinia triseriata*. The latter occurs in southern Texas north of the LRGV and northeastern Mexico but has not been recorded from the LRGV. *Sibinia triseriata* will probably be collected in the LRGV because of its known distribution and by the fact that its host plants occur there. Both of these weevils occur on the same plants in sympatry and are closely restricted to the distribution of their host plants (Clark 1978).

Sibinia seminicola Clark 1978: 251

Range: Texas, Mexico, and South America (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co. (CMNC); Brownsville (NMNH).

Seasonal Activity: January , March, April, May, June, and August.

Plant Associations: This species develops in seeds of *Mimosa pigra* var. *berlandieri* (Gray) B. (Clark 1978).

General Information: The type locality is Brownsville, Texas. Clark (1978) described the species and presented biological information and a key to the New World species. In a later paper, Clark (1984) described and illustrated the larvae and pupae, and provided a key to the members of the genus associated with *Mimosa pigra* L.

Sibinia setosa (LeConte) 1876: 218

Range: Arizona, Texas, southern California, Nevada, Utah, New Mexico, Mexico, and the West Indies (Clark 1978).

Distribution in LRGV: Cameron Co. (Rogers et al. 1975); Brownsville; Port Isabel (NMNH); 8 mi E Brownsville (TAMU). Hidalgo Co. (Rogers et al.1975); 4 mi. N Delfina (TAMU); Mercedes (NMNH). Starr Co. (Rogers et al. 1975); Rio Grande City (TAMU); Falcon State Park (CMNC). Willacy Co.(Rogers et al. 1975); San Perlita (TAMU).

Seasonal Activity: February through December (specific localities not cited) (Clark 1978).

Plant Associations: The larvae develop in flower buds of *Prosopis glandulosa* Torr. (specific localities not cited) (Clark 1978). *P. glandulosa* occurs in abundance in the LRGV.

General Information: Rogers et al. (1975) presented descriptions and figures of the larva and pupa (as *Sibinia sulcatula*). Clark (1978) described the adult and provided figures of male and female genitalia and a key to the New World species. According to Rogers et al. (1975), the species has western and eastern forms as well as hybrid groups. These forms come together at the western edge of the Edwards Plateau in Texas, but do not overlap. The eastern form is represented in the LRGV.

Sibinia simplex (Casey) 1892: 421

Range: Mexico, Arizona, New Mexico, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: 2 mi. E of Sullivan City (RTC).

Seasonal Activity: June, July, August, and October.

Plant Associations: This species develops on *Acacia constricta* Gray in Texas and Mexico, and *Acacia neovernicosa* Isely in Texas (Clark 1978). These species of *Acacia* do not occur in the LRGV (Richardson 1990), so the weevil must have other hosts here.

General Information: Clark (1978) treated *S. simplex* taxonomically and provided biological information. The larvae develop in flower buds. They may be parasitized by *Eutrichosoma mirabile* Ashmead (Eutrichosomatidae) and *Tetrastichus* sp. (Eulophidae).

Sibinia suturalis (Schaeffer) 1908: 218

Range: Mexico, Arizona, New Mexico, and western and southern Texas (Clark 1978).

Distribution in LRGV: Cameron Co.: Brownsville (TAMU); Olmito (NMNH). Hidalgo Co.: Bentsen-Rio Grande State Park (AHC); Santa Ana National Wildlife Refuge. Starr Co., Falcon State Park (TAMU).

Seasonal Activity: April through October (exact localities not cited) (Clark 1978).

Plant Associations: This species develops on *Mimosa malacophylla* Gray in the LRGV, and has been collected on *Leucaena pulverulenta* (Schl.) Benth. at Olmito, Cameron Co., Texas (Clark 1978).

General Information: Clark (1978) treated this species taxonomically, and included biological information. He noted that there are several distinct morphological forms of the species. The LRGV form has uniformly gray to yellowish scales.

Cryptorhynchinae, Ithyporini

Rhyssomatus ovalis (Casey) 1892:443

Range: Mexico, Panama, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Starr Co.: Falcon Heights (RTC).

Seasonal Activity: June.

Plant Associations: Unknown

General Information: The type locality is "Texas." A key to some members of the genus is available in Casey (1895), Champion (1904), and Blatchley & Leng (1916). This genus is badly in need of revision. There are many undescribed Neotropical species. There are 47 species in this genus with most of them occur ring in Mexico and Central America.

Rhyssomatus palmacollis (Say) 1831: 27

Range: Mexico, and south-central and eastern United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH). Hidalgo Co.: Mission (AHC); Santa Ana National Wildlife Refuge (TAMU); Anzalduas County Park. Starr Co.: Falcon Heights (RTC).

Seasonal Activity: April, May, July, August, September, and October.

Plant Associations: Specimens have been found developing in the fungus *Cystopus ipomomoea-panduranae* on *Ipomoea pandurata* (L.) Mey in Ohio (Pierce 1907b). It has been collected on *Asclepias latifolia* (Torr.) Raf., and cotton in Texas (Pierce 1907b). It has also been found on sweet potato, *Ipomoea batatas* (L.) Lam., and the larvae have been taken in seeds of *Ipomoea sinuata* Ort. in Victoria, Texas (Mitchell & Pierce 1911). Plant associations for the LRGV are unknown, but *Ipomoea sinuata* Ort. occurs there (Richardson 1990) and may serve as a host in the area.

General Information: Several species of this genus members of the plant family Asclepiadaceae.

Rhyssomatus pruinosus (Boheman) 1845: 13
(Figure 30)

Range: Honduras, Mexico, Arizona, California, New Mexico and Texas (O'Brien & Wibmer 1982).

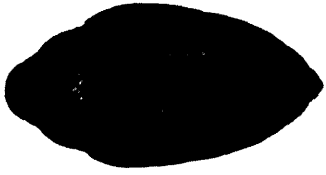
Distribution in LRGV: Cameron Co.: Sabal Palm Grove Sanctuary (TAMU); Brownsville; Brownsville, Esperanza Ranch (NMNH). Hidalgo Co.: Mission; Weslaco; Bentsen-Rio Grande State Park; Santa Ana National Wildlife Refuge. Starr Co: Falcon State Park (TAMU); Falcon Heights; r.a. hwy. 83, 4 mi. W of Sullivan City (RTC).

Seasonal Activity: May through October.

Plant Associations: This species develops in seeds of *Acacia greggii* in southern Texas (Townsend 1903). It has been collected on *Bernardia myricaefolia* (Scheele) Wats., *Condalia hookeri* M.C. Johnst., and *Pithecellobium pallens* (Benth.) Standl. in the LRGV (TAMU). It remains to be determined if either of these are hosts.

General Information: Seventeen specimens were collected during this study at various collecting sites during the day and night in May and July. This is a fairly common and widespread species in the LRGV.

A)



B)

Fig. 30. *Rhyssomatus pruinosus*, **A)** dorsal, **B)** lateral.

Rhyssomatus pubescens Horn 1873: 465

Range: Mexico and California (O'Brien & Wibmer 1982). Texas (CNC). Arizona (TAMU)

Distribution in LRGV: Cameron Co.: Brownsville (CNC).

Seasonal Activity: March and May.

Plant Associations: Unknown

General Information: Nothing more is known about this species.

Rhyssomatus rugulipennis Champion 1904: 328
(Figure 31)

Range: Mexico, Arizona, New Mexico, Texas, and Utah (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: 7.6 mi. W of Boca Chica Beach, "Ebony Loma" (TAMU); Laguna Atascosa National Wildlife Refuge (ERC). Starr Co., La Gloria; 2 mi. W of La Gloria; 15 mi. NE of El Sauz (TAMU).

Seasonal Activity: April, July, and October.

Plant Associations: Specimens of this species have been found on *Cynanchum barbigerum* (Scheele) Shinners in the LRGV (TAMU). This plant is in the family Asclepiadaceae and is most likely the host of this species based on the fact that other species of *Rhyssomatus* have hosts in this family.

General Information: Champion (1904) provides a lateral illustration of the rostrum and a dorsal habitus as well as a key to some members of the genus. One specimen was collected during this study west of Boca Chica Beach in July.

Fig. 31. *Rhyssomatus rugulipennis*.

Rhyssomatus texanus (Sleeper) 1954: 182

Range: Mexico, Oklahoma, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (Sleeper 1954); Sabal Palm Grove Sanctuary (CMNC). Hidalgo Co.: Anzalduas County Park. Starr Co.: Falcon Heights (RTC);

Seasonal Activity: July, September, and October.

Plant Associations: Specimens of this species have been collected on *Ipomoea* (exact locality unknown) (TAMU).

General Information: This species has been collected at light (RTC). No other biological information is available for it.

The genus *Conotrachelus* is a speciose group of over 1000 recognized species occurring in the New World, mainly in Central and South America. The systematics of the genus, especially Neotropical species, is not well known. Eleven species have been recorded from the LRGV. Schoof (1942) provided information and keys to the members of the genus for the north-central United States. Some of the species covered by Schoof (1942) occur in the LRGV. Some species of *Conotrachelus* are pests of cultivated fruits (Blatchley & Leng 1916).

Conotrachelus anaglypticus (Say) 1831: 18

Range: Mexico, Texas, and central and eastern United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: 3 mi. E of Jct. 1419 & 4 (TAMU).

Seasonal Activity: March, May, June, and August.

Plant Associations: According to Brooks (1924), this species damages peaches in the South, and there is a possibility that the larvae occasionally injure cotton bolls.The larvae have been found feeding at bark wounds of apple, pear, pignut, flowering dogwood, tupelo, service berry, red maple, American hornbeam, pignut, sweet birch, red oak, chestnut oak, white oak, sourwood, tulip tree, American chestnut, and American beech (Brooks 1924). Schoof (1942) provided additional host records for this widespread polyphagous species.

General Information: Brooks (1924) presented the life history of this species as well as descriptions, photographs, and illustrations of the adult, larva, and pupa. Schoof (1942) illustrated the male genitalia, and presented a key to north-central members of the genus. This species is known as the cambium curculio.

Conotrachelus belfragei LeConte 1876: 419

Range: Florida and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Sabal Palm Grove Sanctuary (CMNC); Brownsville (NMNH).

Seasonal Activity: March, May, June, and September.

Plant Associations: Adults have been collected on *Bumelia celastrina* H.B.K. in Texas (Anderson 1992). One species of *Bumelia* occurs in the LRGV (Richardson 1990) although *C. belfragei* has not been collected on it.

General Information: This species was originally described from "Texas."

Conotrachelus buchanani Schoof 1942: 51

Range: Eastern and southwestern United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.; Brownsville; Sabal Palm Grove Sanctuary (TAMU). Hidalgo Co.: Bentsen-Rio Grande State Park (CMNC).

Seasonal Activity: March through July, September, and October.

Plant Associations: This species has been collected on *Celtis laevigata* Willd. (=*mississippiensis*) at Victoria, Texas (Schoof 1942).

General Information: Schoof (1942) provided figures of the male genitalia, and a key to members of the genus in the north-central United States.

Conotrachelus cameronensis Sleeper 1954: 182

(Figure 32)

Range: Lower Rio Grande Valley, Texas.

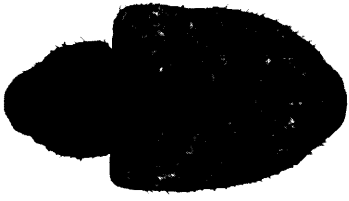
Distribution in LRGV: Cameron Co.: Brownsville (Sleeper 1954); Sabal Palm Grove Sanctuary; 12.5 mi. E of Brownsville on Hwy. 4; Laguna Atascosa National Wildlife Refuge. Hidalgo Co. (TAMU).

Seasonal Activity: April through July, and September through December.

Plant Associations: Specimens of this species have been collected during this study on *Abutilon hypoleucum* Gray while sweeping at night (TAMU). It remains to be determined if this is the host; some species of *Conotrachelus* develop on various species of the family Malvaceae to which *Abutilon* belongs.

General Information: The type locality is Cameron Co., Texas, and paratypes are from Brownsville. In the original description, Sleeper (1954) compared this species with the closely related *Conotrachleus texanus*. Seven specimens were collected during the present study in October, and 30 specimens in May and July while beating and sweeping at night at the Sabal Palm Grove Sanctuary.

A)



B)

Fig. 32. *Conotrachelus cameronensis*, **A)** dorsal, **B)** lateral.

Conotrachelus carolinensis Schoof 1942: 137

Range: Eastern United States, and Arizona (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co. (TAMU).

Seasonal Activity: May, June, and July.

Plant Associations: Specimens of this species have been beaten from peach trees in Georgia and Mississippi and collected in cotton fields in Texas (Schoof 1942). No other plant association information is available.

General Information: Schoof (1942) treated the taxonomy, and provided figures of the male genitalia and a key to the north-central United States members of the genus. This species is closely related to *Conotrachelus anaglypticus*.

Conotrachelus floridanus Fall 1913: 66

Range: Florida, Bahamas, and Texas (Anderson 1992).

Distribution in LRGV: Cameron Co.: Sabal Palm Grove Sanctuary (TAMU). Hidalgo Co.: Bentsen-Rio Grande State Park (CMNC).

Seasonal Activity: May, July, and October.

Plant Associations: Specimens of this species have been collected on *Bumelia celastrina* H.B.K. in southern Florida (Anderson 1992), and *Xylosma flexuosa* (H.B.K.) O. Ktse. and *Bernardia myricaefolia* (Scheele) Wats. in the LRGV (TAMU). *Bumelia celastrina* H.B.K. occurs in the LRGV. It remains to be determined if any of these species are hosts.

General Information: Two specimens were collected during this study in the Sabal Palm Grove Sanctuary in July and October.

Conotrachelus leucophaeatus Fahraeus 1837:417

Range: Indiana, New Jersey, Wisconsin, Alabama, Colorado, New Mexico, Oklahoma, Nevada, Kansas, Nebraska, South Dakota, Texas, Arizona, and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.(TAES). Starr Co.: Rio Grande City (AHC); Salineño (TAMU).

Seasonal Activity: January, March, April, June, July, September, and December.

Plant Associations: According to Pierce (1907b), this species was found developing in

stems of *Euphorbia marginata* Pursh at Dallas, Texas, and Sanderson (1904) reported it developing in *Amaranthus* stems (unknown locality). It has also been reared from *Argemone* in Kansas (Schoof 1942). It has been collected on *Leucaena pulverulenta* (Schl.) Benth. in Santa Tomas, Brownsville (Townsend 1903), and on cotton, corn, and *Argemone mexicana* L. in other areas of Texas (Schoof 1942).

General Information: Schoof (1942) studied the taxonomy of the genus, and provided figures of the male genitalia and a key to the species of the north-central United States. One specimen was collected during this study in July at Salineño.

Conotrachelus obesulus Hustache 1936: 32

Range: Mexico, Georgia, Indiana, Kansas, Missouri, North Carolina, Oklahoma, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Starr Co.: Falcon Heights (RTC).

Seasonal Activity: October.

Plant Associations: Unknown

General Information: Schoof (1942) compared this species with others on the basis of the one specimen he had available at the time of his work. Given its wide distribution, it is surprising that more is not known about this species.

Conotrachelus rubescens Schaeffer 1904: 232
(Figure 33)

Range: Texas (O'Brien & Wibmer 1982).

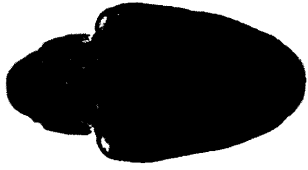
Distribution in LRGV: Cameron Co.: Brownsville (Esperanza Ranch, San Tomas) (Schaeffer 1904); Sabal Palm Grove Sanctuary (TAMU).

Seasonal Activity: April through August.

Plant Associations: Specimens of this species have been collected on *Xylosma flexuosa* (H.B.K.) O. Ktse. in the LRGV (TAMU).

General Information: The type locality is Brownsville, Texas (Esperanza Ranch, San Tomas). Two specimens were collected during this study in October at the Sabal Palm Grove Sanctuary on *Xylosma flexuosa* (H.B.K.) O. Ktse.

A)



B)

Fig. 33. *Conotrachelus rubescens*, **A)** dorsal, **B)** lateral.

Conotrachelus seniculus LeConte 1876: 227

Range: Canada, Mexico, eastern United States, and Arizona (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.; Harlingen; Brownsville; Sabal Palm Grove Sanctuary. Hidalgo Co. (CMNC); Mission (AHC); Santa Ana Wildlife Refuge; Weslaco (NMNH); Mercedes (TAMU). Starr Co.: Falcon Heights (RTC).

Seasonal Activity: January through March, April, June, and September through December.

Plant Associations: Specimens of this species have been reared from roots of *Amaranthus hybridus* L. (=*retroflexus*) (green pigweed) in Virginia and Washington, D.C.. It has been collected on spinach, beanstalks, alfalfa, grass, and cotton bolls and is commonly collected at lights (Schoof 1942).

General Information: Schoof (1942) studied the taxonomy, and provided figures of the male genitalia and a key to the north-central members of the genus. This species is one one of the most commonly collected species of this genus at lights and is often called the amaranth curculio or pigweed weevil.

Conotrachelus texanus Schaeffer 1906: 342
(Figure 34)

Range: Mexico and Texas (O'Brien & Wibmer 1982).

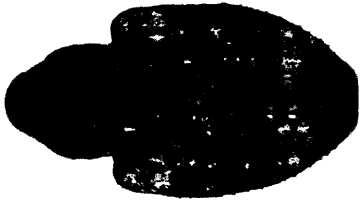
Distribution in LRGV: Cameron Co.: Brownsville; Sabal Palm Grove Sanctuary (TAMU). Starr Co.: Falcon Heights (RTC).

Seasonal Activity: October through December.

Plant Associations: Specimens of this species have been collected on *Abutilon hypoleucum* Gray at night (TAMU). Its true host has not been established, but since some *Conotrachelus* are known to develop on plants of the family Malvaceae, *Abutilon* should be highly suspect as a host of *C. texanus*.

General Information: The type locality is Brownsville, Texas. A key to the members of the species group to which *C. texanus* belongs was provided by Schaeffer (1906). Eleven specimens were collected during this study in October at the Sabal Palm Grove Sanctuary at night.

A)



B)

Fig. 34. *Conotrachelus texanus*, **A)** dorsal, **B)** lateral.

Chalcodermus aeneus Boheman 1837: 388

Range: Central America, Mexico, Texas, and east-central and southern United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co., no specific locality (TAMU); Sabal Palm Grove Sanctuary (CMNC); Brownsville; Brownsville, Esperanza Ranch. Hidalgo Co.: Weslaco (NMNH); Anzalduas County Park (TAMU).

Seasonal Activity: February, April through July, and October.

Plant Associations: This species develops in cow-peas, beans, and string beans. Adults feed on cow-pea leaves and pods and the larvae develop in the seeds (Booth et al.1990).

General Information: *Chalcodermus aeneus* is known as the cowpea weevil. Papp (1979) presented figures of the adult, larva, and pupa. Ainslie (1910) and Peterson (1951) described the larva. Asterlund (1937b) provided a key to the larvae of the genus. Biological information is available in Blatchley & Leng (1916), Hetrick (1947), Dupree & Beckham (1955), and Ward et al.(1981). One specimen was collected during this study in July at Anzalduas County Park.

Chalcodermus collaris Horn 1873: 467

Range: Mexico, and eastern and central United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Laguna Atascosa National Wildlife Refuge (CMNC).

Seasonal Activity: October.

Plant Associations: This species has been reared from seed pods of *Cassia chamaechrista* L. in Illinois (Pierce 1907b), and has been collected on *Eriogonum multiflorum* Benth. in Kenedy Co., Texas (CMNC).

General Information: The type locality is "Texas." Blatchley & Leng (1916) and Papp (1979) illustrated the adult. Asterlund (1937a,1937b) provided detailed biological information, figures and descriptions of the adult, pupa, and larva, and a key to the larval members of the genus. This weevil is often unofficially called the partridge pea weevil.

Chalcodermus semicostatus Schaeffer 1904: 232

Range: Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (Esperanza Ranch) (Schaeffer 1904); Sabal Palm Grove Sanctuary (TAMU).

Seasonal Activity: March, May, June, July, and October.

Plant Associations: Unknown

General Information: The type locality is Esperanza Ranch, Brownsville, Texas. Two specimens was collected during this study in May and October in the Sabal Palm Grove Sanctuary.

Chalcodermus serripes Fahraeus 1837: 385

Range: Mexico, Central America, South America, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: May through August.

Plant Associations: Unknown.

General Information: Champion (1904) illustrated the dorsal habitus, anterior tibia, and lateral view of the head and rostrum of this species.

Chalcodermus vittatus Champion 1904: 324
(Figure 35)

Range: Guatemala, Honduras, Panama, Mexico, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (San Tomas and Esperanza Ranch) (Schaeffer 1904); Sabal Palm Grove Sanctuary; Southpoint Nursery. Hidalgo Co.: Anzalduas County Park; Bentsen-Rio Grande State Park (TAMU).

Seasonal Activity: March, May through July, and September though November.

Plant Associations: This species develops in the seeds of balloon vine, *Cardiospermum halicacabum* L. (Pierce 1916b). It was collected on *C. halicacabum* L. in the Sabal Palm Grove Sanctuary during the present study.

General Information: *Chalcodermus vittatus* is a common species in the LRGV. Thirty-two specimens were collected during this study in October in the

Sabal Palm Grove Sanctuary during both day and night and one specimen in November in Bentsen Rio Grande State Park.

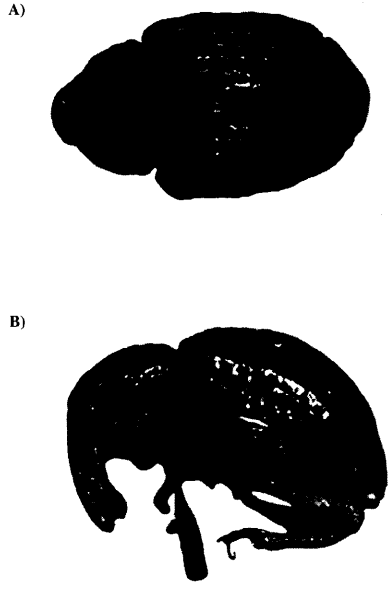


Fig. 35. *Chalcodermus vittatus*, **A)** dorsal, **B)** lateral.

The genus *Gerstaeckeria* has 18 species occurring in North America north of Mexico out of 38 total species occurring in the Western Hemisphere. Six species are known to occur in the LRGV. Species of *Gerstaeckeria* are nocturnal cactus feeders (O'Brien 1970a). O'Brien (1970a) revised the genus, providing illustrations of male and female genitalia, dorsal photographs of the adult , geographical distributions, host information, and a key to the species north of Mexico. Biological information on some species of *Gerstaeckeria* is presented by Mann (1969).

Gerstaeckeria cactophaga Pierce 1912: 166

Range: Arizona, Louisiana, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Boca Chica, 24 mi. E. Brownsville (AHC, as *G. basalis*); Port Isabel (near Brownsville) (Pierce 1912).

Seasonal Activity: May and August.

Plant Associations: Specimens of this species have been collected on prickly pear at night in Jeff Davis Co., Texas (O'Brien 1970a, as *G. basalis*) and on prickly pear at Brownsville, Texas (Mann 1969).

General Information: The type locality is Port Isabel (near Brownsville), Texas. *Gerstaeckeria cactophaga* was once synonymized with *Gerstaeckeria basalis*, but it has since been resurrected. *Gersteackeria basalis* has not been recorded from Texas, therefore, the collection information from the literature for Texas is presumed to be for *Gerstaeckeria cactophaga*.

Gerstaeckeria doddi Fisher 1925: 425

Range: Texas and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (O'Brien 1970a).

Seasonal Activity: December through February, May, June, July, and August (Texas) (Mann 1969) (O'Brien 1970a).

Plant Associations: This species develops in cells near the base of segments of *Opuntia lindheimeri* Engelm. at Uvalde, Texas (Mann 1969). It has also been collected in a stem of "*Cactus grandiflora*" from Mexico (O'Brien 1970a).

General Information: O'Brien (1970a) treated the taxonomy of this species and

provided figures of male and female genitalia, a dorsal photograph of the adult, and a key to the members of the genus north of Mexico. A photograph of the adult is also presented by Papp (1979). Mann (1969) provided biological information on *G. doddi*.

Gerstaeckeria leptocaulis O'Brien 1970: 267

Range: Texas (O'Brien 1970a).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH). Hidalgo Co.: Mission. Starr Co.: 5 mi. N. of Rio Grande City (O'Brien 1970a); Rio Grande City (AHC).

Seasonal Activity: April and July.

Plant Associations: Specimens of this species have been taken on *Opuntia leptocaulis* DC. at night in Uvalde, Texas, and has been found developing in *O. leptocaulis* DC. joints at Laredo, Texas (O'Brien 1970a).

General Information: The systematics of the species is treated by O'Brien (1970a).

Gerstaeckeria nobilis (LeConte) 1876: 241
(Figure 36)

Range: Kansas, Oklahoma, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (O'Brien 1970a); Yucca Ridge, Hwy. 48, 6.2 mi. N jct. 511 (RTC); Palmito Hill (CMNC); 2 mi. W of Boca Chica Beach (TAMU).

Seasonal Activity: May and October.

Plant Associations: Specimens of this species have been found feeding on the fruit of *Opuntia* and developing in joints of *Opuntia macrocentra* Engelm. (=*violacea*), causing masses of black gum to form on the outside of the joint (O'Brien 1970a). According to Mann (1969), the larvae have been found living singly in cells on the the margin the upper segments of *O. lindheimeri* Engelm., *O. "inermis,"* and other prickly pears.

General Information: The systematics of the species was covered by O'Brien (1970a). According to Mann (1969), these weevils can cause considerable damage to prickly pears. Ten specimens were collected in October at night during this study on *Opuntia* 2 miles west of Boca Chica Beach.

A)

B)

Fig. 36. *Gerstaeckeria nobilis,* **A)** dorsal, **B)** lateral.

Gerstaeckeria opuntiae Pierce 1912: 165

Range: Texas (O'Brien 1970a).

Distribution in LRGV: Cameron Co.: Brownsville, Esperanza Ranch (O'Brien 1970a). Starr Co.: 1st dirt road off of Rte. 83W (TAMU).

Seasonal Activity: July, August, September, and November.

Plant Associations: Specimens of this species have been collected on *O. lindheimeri* Engelm. and *O. leptocaulis* DC, and under *Opuntia* sp .(O'Brien1970a).

General Information: O'Brien (1970a) described, illustrated, and keyed this species. A photograph of the adult is presented in Papp (1979). Three specimens were collected during this study in July at night on *Opuntia*.

Gerstaeckeria unicolor Fisher 1928: 5

Range: Mexico, Arizona, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Starr Co.: 5 miles N Rio Grande City (O'Brien 1970a); 1st dirt road off of Rte. 83W after intersect. with 2098W (TAMU).

Seasonal Activity: April, June, July, and August.

Plant Associations: Specimens of this species have been collected on and reared from *Opuntia* (O'Brien 1970a), and has been recorded as damaging to *O."robusta"* in Mexico (Mann 1969).

General Information: O'Brien (1970a) described this species and provided figures of male and female genitalia, a dorsal photograph of the adult, and a key to the members of the genus north of Mexico. Eight specimens were collected during this study in July at night on *Opuntia* sp.

Cryptorhynchina

Phyrdenus divergens (Germar) 1824: 282
(Figure 37)

Range: Central America, Cuba, Mexico, South America, and eastern and central United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co. (CMNC); Sabal Palm Grove Sanctuary (TAMU); Brownsville, Esperanza Ranch; Brownsville (NMNH).

Seasonal Activity: May, June, and October.

Plant Associations: Specimens of this species have been collected on *Solanum americanum* Mill.(=*nigrum*) (exact locality not given) (Blatchley & Leng 1916).

General Information: Papp (1979) provided illustrations of the adult. Six specimens were collected during this study in October and one specimen in May during the day and night in the Sabal Palm Grove Sanctuary. This species is one of two of the genus that occurs both in the Nearctic and Neotropical regions. The remaining four described species in this genus occur only in Mexico and/or the Neotropics.

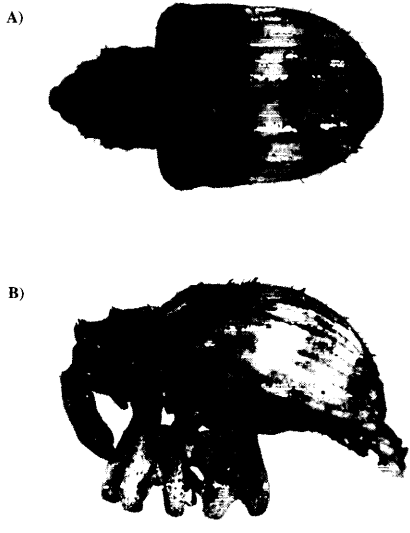


Fig. 37. *Phyrdenus divergens*, **A)** dorsal, **B)** lateral.

The genus *Tyloderma* has thirty described species that have been recorded north of Mexico. Twenty-five of those occur north of Mexico only. These weevils are terrestrial, semi-aquatic, and aquatic. Adults are mainly nocturnal. Many species occur on the plant family Onagraceae, including two of the present study. The genus has been revised for the species north of Mexico by Wibmer (1981).

Tyloderma angustulum Casey 1892: 451

Range: Eastern and southern Texas (Wibmer 1981).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: Collected between January 31st and December 2 (Texas) (Wibmer 1981).

Plant Associations: Specimens of this species has been found in a root of *Oenothera* sp. and has also been collected on cotton and *Anogra pallida* (Lindl.) (Wibmer 1981).

General Information: Wibmer (1981) described the adult, and provided figures of the male and female genitalia and a key to the members of the genus in America north of Mexico.

Tyloderma baridium LeConte 1876: 249

Range: Florida, Louisiana, Nebraska, New Jersey, New Mexico, Oklahoma, Texas, and Mexico (Wibmer 1981).

Distribution in LRGV: Hidalgo Co.: Mission (AHC); Bentsen-Rio Grande State Park (TAMU).

Seasonal Activity: Collected between January 8 and December 25 (Texas)(Wibmer 1981). November (LRGV)

Plant Associations: Specimens of this species have been reared from the roots *Gaura villosa* Torr. (Wibmer 1981). Larvae have been found feeding on the roots of *Oenothera laciniata* Hill (Burke 1959b). Adults have also been found on cotton (Pierce 1907b), and on *Opuntia*. The latter are probably incidental records.

General Information: The type locality is "Texas." Wibmer (1981) redescribed this species and provided figures of the male and female genitalia, a dorsal view, and a key to the members of the genus north of Mexico. One specimen was collected in November during the present study. This species is common in Texas. It is

brachypterous and therefore flightless (Wibmer 1981).

Tyloderma subpubescens Casey 1892: 455
(Figure 38)

Range: Louisiana, Mississippi, Missouri, Texas, Guatemala, Honduras, Mexico, and Nicaragua (Wibmer 1981).

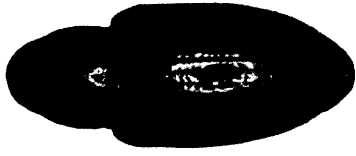
Distribution in LRGV: Cameron Co.: Brownsville; Sabal Palm Grove Sanctuary (TAMU). Hidalgo Co.: Bentsen-Rio Grande State Park (CMNC); Mission (Wibmer 1981).

Seasonal Activity: February, June, July, and October.

Plant Associations: Specimens have been reared from *Polygonum punctatum* Ell. (Mitchell and Pierce 1911), and from stems of *Polygonum pensylvanicum* L. (Wibmer 1981). They have also been found developing in the stems of *Polygonum "portoricense"* (Pierce 1916b). It has been found on *Polygonum hydropiperoides* Michx. and *P. "acuminatum"*. Records from *Marsilea* sp. and lettuce are probably incidental (Wibmer 1981).

General Information: Wibmer (1981) provided a description of the species, illustrations of various morphological structures and the male and female genitalia, and a key to the members of the genus north of Mexico. Two specimens were collected during this study while night sweeping in October in the Sabal Palm Grove Sanctuary.

A)



B)

Fig. 38. *Tyloderma subpubescens*, **A)** dorsal, **B)** lateral.

Maemectes cribratus (LeConte) 1876: 259

Range: Mexico, Kansas, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: Bentsen-Rio Grande State Park (TAMU).

Seasonal Activity: April.

Plant Associations: This species has been found under cow chips and has been associated with tomato fruit (Kissinger 1963a). Nothing is known about its biology.

General Information: A key to the members of the genus is available in Kissinger (1963a). One specimen was collected during this study in April. This is the only one of the nine described species occurring in the United States.

Apteromechus pumilis (Boheman) 1837: 122

Range: Florida, Georgia, and Mississippi (O'Brien & Wibmer 1982). Texas (CNC).

Distribution in LRGV: Cameron Co.: Brownsville (CNC).

Seasonal Activity: May.

Plant Associations: Unknown for Texas. Adults have been collected on *Persea palustris* (Raf.) Sarg. in southern Florida (Blatchley 1928).

General Information: This genus is mainly Neotropical in distribution. Whitehead (1979) presented a generic diagnosis and a key to the four members of the genus of America north of Mexico.

Apteromechus texanus Fall 1925: 88

Range: Arkansas and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Sabal Palm Grove Sanctuary (TAMU); Brownsville, Esperanza Ranch; Brownsville, Los Borrejos (NMNH).

Seasonal Activity: May though August, September, and October.

Plant Associations: Unknown

General Information: The type locality is Brownsville, Texas. Whitehead (1979) presented a generic diagnosis and a key to the members of the genus of America north of Mexico. Two specimens were collected in October in the Sabal Palm Grove Sanctuary during this study.

Cophes fallax (LeConte) 1876: 253

Range: Texas, and eastern and south-central United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville, Esperanza Ranch; Brownsville, Sabal Palm Grove Sanctuary. Hidalgo Co.: Bentsen-Rio Grande State Park; Mercedes; Santa Ana National Wildlife Refuge (TAMU).

Seasonal Activity: January, March through July, and October.

Plant Associations: This species has been reared from fallen hickory branches in Alabama (Kissinger 1963b), and stems of *Cassia* sp. (exact localities not given) (Blatchley & Leng 1916).

General Information: Keys to members of the genus are available in LeConte (1876) and Sleeper (1955). One specimen in October and one in May were collected at night in the Sabal Palm Grove Sanctuary during the present study.

Cophes longiusculus (Boheman) 1837: 217

Range: Mexico, Nicaragua, Panama, Costa Rica, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH); Brownsville Sabal Palm Grove Sanctuary (TAMU).

Seasonal Activity: March, May, June, October, and December.

Plant Associations: This species has been collected as a pupa from a cell in the outer bark of *Salix* sp. (RTC).

General Information: An illustration of the adult is presented by Papp (1979). A key to members of the genus is available in Sleeper (1955). One specimen was collected in October in the Sabal Palm Grove Sanctuary during this study.

Cophes texanus Sleeper 1955: 190

Range: Texas and Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Port Isabel; Brownsville; Esperanza Ranch (NMNH); 7.6 mi. W of Boca Chica Beach (TAMU). Hidalgo Co. (CMNC); Pharr; La Paloma (Sleeper 1955)

Seasonal Activity: April through August, and October.

Plant Associations: Unknown

General Information: The type locality is Pharr, Hidalgo Co., Texas. A key to members of the genus is available in Sleeper (1955). One specimen was collected during this study in May, 7.6 miles West of Boca Chica Beach.

Hohonus lacteicollis (Champion) 1906: 650

Range: Mexico, Arizona, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: July.

Plant Associations: Pupae have been collected and reared from mistletoe on *Celtis* in Arizona (Kissinger 1964). It has been collected on *Phoradendron coryae* Trel. on *Quercus* sp. and *Phoradendron flavescens* (Pursh.) Nutt. on *Juglans major* (Torr.) Heller in Arizona (Anderson 1994).

General Information: Champion (1906) provided dorsal and lateral illustrationsof the adult. An illustration of the adult is also presented by Papp (1979). Some biological information on this species is available in Anderson (1994). The genus contains two species. The other species of *Hohonus* occurs in Mexico, Honduras, Brazil, and Venezuela (Anderson 1994).

Episcirrus brachialis (LeConte) 1884: 31

Range: Texas and northeastern Mexico (Sleeper 1962).

Distribution in LRGV: Cameron Co.: Brownsville (Sleeper 1962); Brownsville, Los Borrejos; Brownsville, Esperanza Ranch (TAMU).

Seasonal Activity: April, May, and June.

Plant Associations: This species has been found on black gum twigs (Sleeper 1962).

General Information: A key to the subspecies of *brachialis* is available in Sleeper (1962). Nothing more is known about the biology of this species.

Eubulus sp., nr. bifasciculatus (LeConte)

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Cameron Co.Brownsville, Sabal Palm Grove Sanctuary (CMNC).

Seasonal Activity: October.

Plant Associations: This species has been found on dead *Bumelia lanuginosa* (Michx.) Pers. (CMNC).

General Information: The genus *Eubulus* is mainly a neotropical one with three out of the 88 known species occurring in America north of Mexico. *Eubulus bifasciculatus* is known only from Panama. The LRGV species could not be positively identified because the genus is large and is badly in need of revision.

Zygopinae, Zygopini

Cylindrocopturus adspersus (LeConte) 1876: 262

Range: Mexico, Arizona, California, Colorado, Kansas, Missouri, New Mexico, Nevada, Texas, and Utah (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary nr. Southmost (RTC).

Seasonal Activity: April.

Plant Associations: This species develops in stems of *Helianthus annuus* L., *Helianthus petiolaris petiolaris* Nutt., and *Helianthus maxmiliani* Schrader in North Dakota (Charlet 1983). It has also been reared from the stems of *Xanthium* (exact locality unknown) (NMNH).

General Information: The type locality is "Texas." Keys to some members of the genus are available in Blatchley & Leng (1916) and (as *Copturus*) in LeConte (1876). This weevil is a major pest of commercially grown sunflower (*Helianthus* spp.), and it is known as the sunflower stem weevil. The larvae feed in the stems destroying the xylem and phloem. This weevil is parasitized by *Nealiolus curculionis* (Fitch) (Braconidae) (Charlet 1983).

Cylindrocopturus armatus Champion 1906: 39

Range: Mexico, Arizona, Colorado, New Mexico, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Los Indios; Boca Chica (TAMU).

Seasonal Activity: June and July.

Plant Associations: Unknown

General Information: Champion (1906) provided dorsal and lateral habitus drawings.

Cylindrocopturus sp., nr. bifasciatus Champion

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Cameron Co.: Boca Chica Beach; 1 mi.. W of Boca Chica Beach (TAMU).

Seasonal Activity: May and October.

Plant Associations: Unknown

General Information: This species "is very close to - if not conspecific with *C. bifasciatus* described from Durango, Mexico" (H. Hespenheide, personal communication, who provided the identification).

Cylindrocopturus longulus (LeConte) 1876: 263

Range: Ontario, eastern United States, California, Oregon, Colorado, and Utah (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: 1 mi. S. of Southmost, Southpoint nurseries, sweeping along river (CMNC).

Seasonal Activity: July.

Plant Associations: Unknown

General Information: Keys to members of the genus are available in Blatchley & Leng (1916), and (as *Copturus*) in LeConte (1876).

Cylindrocopturus nanulus (LeConte) 1876: 261

Range: Washington D.C., Illinois, Indiana, Maryland, Ohio, Florida, Georgia, North Carolina, South Carolina, Texas, and Iowa (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville, Esperanza Ranch (NMNH).

Seasonal Activity: March through May, July, and August.

Plant Associations: The only information available is for Florida, where adults have been collected on foliage of *Ampelopsis* and on *Myrica cerifera* L. (Anderson 1992). *Ampelopsis arborea* (L.) Koehne occurs in the LRGV although the weevil is not known from the plant there.

General Information: This species was described from Georgia, Illinois, and Texas. Keys to some members of the genus are available in Blatchley & Leng (1916) and (as *Copturus*) in LeConte (1876).

Cylindrocopturus sp. 1

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Anzalduas County Park (CMNC).

Seasonal Activity: October.

Plant Associations: Unknown

General Information: This genus in need of revision and all LRGV species could not be positively identified.

Cylindrocopturus sp. 2

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Zapata Co.: Falcon State Park (CMNC).

Seasonal Activity: July.

Plant Associations: This species has been collected on *Prosopis glandulosa* Torr. at Falcon State Park (CMNC).

General Information: Although Zapata Co. is outside of the LRGV as defined here, Falcon State Park lies in both Starr Co. and Zapata Co. so the species is included in this list. This genus is in need of revision and all LRGV species could not be positively identified.

Lechriopini

Lechriops oculata (Say) 1824a: 308

Range: Eastern and midwestern United States, Texas, Canada, Mexico, and Guatemala (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary ; Brownsville; Paloma Blanca Road (TAMU); South Point Nursery (ERC). Hidalgo Co.: Bentsen-Rio Grande State Park (TAMU).

Seasonal Activity: March, April, May, July, September, and October.

Plant Associations: This species has been taken on *Quercus* spp., *Hicoria* sp., *Sassafras* "*sassafras*," *Fraxinus* spp., *Fagus grandifolia* Ehrh., *Viburnum* spp., and *Crataegus* spp. (exact localities of these plant associations not given) (Sleeper 1963). *Quercus* and *Fraxinus* are the only genera listed above that occur in the LRGV (Richardson 1990).

General Information: Sleeper (1963) included this species in a key to members of the genus. This species is common throughout its range based on collection records. The genus is large and most of the species occur in the Neotropics. Seven specimens were collected in May, July, and October in the Sabal Palm Grove Sanctuary during this study.

Ceutorhynchinae, Cnemogonini

Acanthoscelidius sp. 1

(Figure 39)

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Cameron Co.: Boca Chica Beach (TAMU).

Seasonal Activity: May, July, and October.

Plant Associations: This species has been collected during this study in large numbers on *Oenothera* at Boca Chica Beach (TAMU).

General Information: This genus contains thirteen known species. All occur in North America north of Mexico. This is a new and commonly collected species. The general coloration is light gray in color. Eighteen specimens were collected during this study in May, July, and October at Boca Chica Beach at night and during the day on *Oenothera*.

A)

B)

Fig. 39. *Acanthoscelidius* sp, **A)** dorsal, **B)** lateral.

Acanthoscelidius sp. 2

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Willacy Co.: 1.5 mi. S. Kennedy Co. line, hwy 77 .

Seasonal Activity: May.

Plant Associations: Unknown

General Information: This is another new species in this genus. It is black with white setae while *Acanthoscelidius* sp. 1 is light gray. This genus is poorly known taxonomically and has not been revised since Dietz (1896).

Hypocoeloides wickhami (Dietz) 1896: 414

Range: Arkansas and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary (CMNC).

Seasonal Activity: July.

Plant Associations: Unknown

General Information: This species was originally described from Brownsville, Texas. The genus is mainly a Neotropical one with only two of the known 15 species occurring in the United States. The group is in need of revision.

Auleutes asper (LeConte) 1876: 270

Range: Colorado, Iowa, Kansas, Missouri, Montana, Oklahoma, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: February, March, and May.

Plant Associations: Specimens of this species have been taken on *Epilobium* (exact locality not given) (Dietz 1896).

General Information: The type locality is "Texas." Keys to members of the genus are available in Blatchley & Leng (1916), Dietz (1896), and LeConte (1876) (as *Coeliodes*).

Auleutes tuberculatus Dietz 1896: 406

Range: Arizona, Kansas, Missouri, New Mexico, Oklahoma, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary; Southpoint Nursery (TAMU).

Seasonal Activity: May, June, and July.

Plant Associations: Specimens of this species have been collected on *Gaura drummondii* (Spach) T. & G. (= *odorata*) (TAMU).

General Information: Dietz (1896) provided a key to members of the genus. Six specimens were collected during this study in July on *Gaura* sp. in the Sabal Palm Grove Sanctuary.

Ceutorhynchini

Ceutorhynchus pusillus LeConte 1876: 276

Range: Arizona, California, Colorado, Idaho, Oregon, Texas, and Washington (O'Brien & Wibmer 1982).

Distribution in LRGV: Starr Co.: 9 mi. E of Jct. 649 on hwy 2686 (TAMU).

Seasonal Activity: April.

Plant Associations: Unknown

General Information: LeConte (1876) included this species in a key to members of the genus. Three specimens were collected during this study in April.

Baridinae, Baridini

Baris aerea (Boheman) 1844: 141

Range: Mexico, Central America, Grenada, St. Vincent and eastern United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: in a palmetto thicket near Santo Tomas, Brownsville (Townsend 1903). Hidalgo Co. (TAMU).

Seasonal Activity: June.

Plant Associations: Specimens of this species have been collected on *Aster* at

Jacksonville, Texas (Pierce 1907b).

General Information: Blatchley & Leng (1916) included this species in a key to members of the genus.

Baris transversa (Say) 1831:18

Range: Missouri (O'Brien & Wibmer 1982) and Texas (Pierce 1907b).

Distribution in LRGV: Cameron Co.: Santa Tomas, Brownsville (Townsend 1903).

Seasonal Activity: May and June.

Plant Associations: Specimens of this species have been beaten from "*Cnicus virginianus*" at Santa Tomas, Texas and collected on *Ambrosia cumanensis* Kunth (=*psilostachya*) at Victoria, Texas (Pierce 1907b).

General Information: This is large genus that is in need of revision.

Pleisobaris sp.

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Hidalgo Co.: Weslaco (TAMU).

Seasonal Activity: March.

Plant Associations: Specimens of this species have been collected on an avocado blossom (TAMU). Nothing else is known about its possible hosts.

General Information: This genus has six described species occurring mainly in the central and southeastern United States. None has been previously recorded from Texas.

Trepobaris elongata Casey 1892: 519

Range: Mexico, Arizona, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co. (NMNH).

Seasonal Activity: September.

Plant Associations: Unknown

General Information: The type locality is "Texas." This genus contains four described species, three of which occur in Mexico and one, *T. elongata*, that occurs in Arizona, Texas, and Mexico. A second species from the United States remains unidentified.

Trepobaris sp.

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary; ~~Laguna Atascosa National~~ Wildlife Refuge. Hidalgo Co.: Santa Ana National Wildlife Refuge (CMNC).

Seasonal Activity: April, July, and October.

Plant Associations: Unknown

General Information: Based on comparisons with other specimens, it has been established that this species is new.

Aulobaris sp.

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Cameron Co.: Brownsville. Hidalgo Co.: 7 mi. S of Alamo (TAMU).

Seasonal Activity: April and October.

Plant Associations: Unknown

General Information: There are nine described species of *Aulobaris*, and all occur north of Mexico exclusively. Based on comparisons with other specimens, it has been established that this species is undescribed.

Pseudobaris discreta Casey 1892: 554

Range: Mexico and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: One specimen in "palmetto jungle" at Santo Tomas, Brownsville (Townsend 1903).

Seasonal Activity: June.

Plant Associations: Specimens of this species have been beaten from "*Cnicus virginianus*" (Townsend 1903).

General Information: The type locality is "Texas." This species is included in a key to some members of the genus in Casey (1892).

Microbaris galvestonica Casey 1892: 561
(Figure 40)

Range: Texas and northern Mexico (TAMU).

Distribution in LRGV: Cameron Co.: Laguna Atascosa National Wildlife Refuge. Hidalgo Co.: Delta Lake: 7 mi. S Alamo; Willacy Co.: Port Mansfield (TAMU).

Seasonal Activity: April, July, August, and November.

Plant Associations: It has been collected on *Phyla* sp. (TAMU).

General Information: Three specimens were collected in November sweeping *Phyla* at Delta Lake and 9 specimens in July at Port Mansfield during the present study.

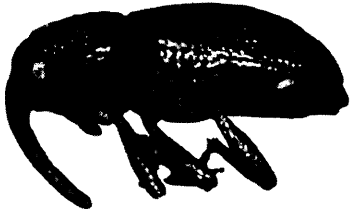


Fig. 40. *Microbaris galvestonica*.

Trichobaris cylindrica Casey 1892: 567

Range: Mexico, Arizona, California, and New Mexico (O'Brien & Wibmer 1982). Texas (CMNC).

Distribution in LRGV: Cameron Co.: 1 mi. S. Southpoint nurseries palm forest (CMNC).

Seasonal Activity: July.

Plant Associations: Specimens have been collected from pupal cells in *Solanum eleagnifolium* Cav. in Arizona (Barber 1935).

General Information: Barber (1935) revised this genus and provided figures of the male genitalia and a key to members of the genus.

Trichobaris mucorea (LeConte) 1858: 79

Range: Mexico, Arizona, California, New Mexico, Texas, and Utah (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville; San Benito (NMNH). Starr Co.: 1 mi. N of Falcon Heights (CMNC).

Seasonal Activity: March, May, July, and August.

Plant Associations: This species develops on tobacco and is an economically important pest. Other records include rearings from fruit of eggplant in Mexico, *Solanum eleagnifolium* Cav. at Brownsville, Texas, *Physalis angulata* L., *Nicotiana trigonophylla* Dun., *N. antennata, N. rustica*, and potato in Arizona, *Physalis* at El Centro, California, and *Datura stramonium* L., and *Datura wrightii* Regel (=*meteloides*) (exact localities not given) (Barber 1935).

General Information: This weevil is known as the tobacco stalk weevil and is a serious pest of tobacco. Barber (1935) revised the genus and provided figures of the male genitalia and a key to species.

Trichobaris texana LeConte 1876: 288

Range: Arizona, Arkansas, Colorado, Oklahoma, Nebraska, New Mexico, Texas, and Northern Mexico (Cuda & Burke 1985).

Distribution in LRGV: Cameron and Hidalgo Counties (distribution map in Cuda & Burke 1985). Cameron Co.: Brownsville; Brownsville, Esperanza Ranch. Hidalgo

Co.: Hidalgo (NMNH).

Seasonal Activity: May and August.

Plant Associations: Specimens of this species have been reared from stems of *Solanum elaeagnifolium* Cav. (Cuda & Burke 1985), and larvae were found boring into stems of *Solanum rostratum* Dun. (Burke 1963a).

General Information: The type locality is "Texas." Cuda & Burke (1985, 1986) provided biological information, distribution, photographs of the adult and compared larvae with those of other species. Females of this species oviposit in leaf petioles and midribs, and the stem is then mined by the maturing larva (Cuda & Burke 1985). Barber (1935) provided figures of the male genitalia of this species and a key to species of the genus.

Madarini

Onychobaris mystica Casey 1892: 531

Range: Arizona, Nevada, New Mexico, Texas, and Utah (O'Brien & Wibmer 1982).

Distribution in LRGV: Southern Texas (Townsend 1903).

Seasonal Activity: June.

Plant Associations: The larvae feed within the segments *Opuntia leptocaulis* DC. in Texas and *Opuntia fulgida* Engelm. in Arizona (Mann 1969). It has been found on *Opuntia leptocaulis* DC. in southern Texas (Townsend 1903).

General Information: Casey (1892) presented a key to species of the genus.

Onychobaris sp.

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Hidalgo Co.: Perezville (RTC).

Seasonal Activity: March.

Plant Associations: Unknown

General Information: This genus contains 37 species, most of which occur north of Mexico. The genus is badly in need of revision. Based on comparisons with other specimens of this genus, it has been established that this species is undescribed.

Madarellus cuneatus Casey 1893: 603

(Figure 41)

Range: Belize, Costa Rica, Guatemala, Honduras, Nicaragua, Mexico, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: 9.7 mi. E Jct. Rte. 1419 on hwy. 4; 6.7 mi. and 7.6 mi. ("Ebony Loma") W of Boca Chica Beach; Brownsville, Sabal Palm Grove Sanctuary; Laguna Atascosa National Wildlife Refuge. Hidalgo Co.: Anzalduas County Park; Bentsen-Rio Grande State Park; 1 mi. S Pharr (TAMU).

Seasonal Activity: February through July, September, and October.

Plant Associations: Adults have been found on stems of *Cissus incisa* (T. & G.) Des Moulins (NMNH). The larvae burrow into galls incited by a lepidopteran on stems of *Cissus* (Burke, pers. comm.).

General Information: Ten specimens were collected during this study in April, July, and October at localities listed above.

Madarellus perditus Casey 1920: 355

Range: Texas (O'Brien & Wibmer 1982).

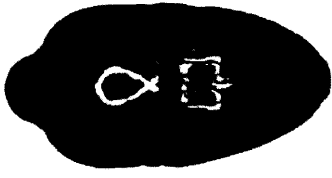
Distribution in LRGV: Cameron Co.: Brownsville (Casey 1920): Brownsville, Sabal Palm Grove Sanctuary (CMNC).

Seasonal Activity: Unknown.

Plant Associations: Unknown.

General Information: The type locality is Brownsville, Texas. Based on comparison of specimens, *M. perditus* appears to be a synonym of *M. cuneatus*, but additional study is necessary to verify this.

A)



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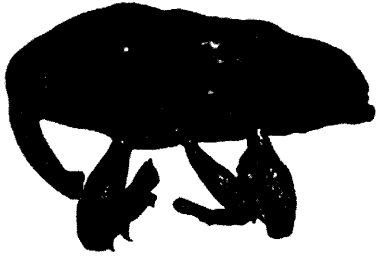

Fig. 41. *Madarellus cuneatus*, **A)** dorsal, **B)** lateral.

Centrinini

Pycnogeraeus striatirostris (LeConte) 1876: 309

Range: Arizona, New Mexico and Texas (O'Brien & Wibmer 1982).
Distribution in LRGV: Hidalgo Co.: N of Elsa (TAMU).
Seasonal Activity: October.
Plant Associations: Unknown.
General Information: The type locality is "Texas." There are four species in this genus. Three occur in the United States exclusively and one occurs in Mexico, Guatemala, and El Salvador.

Odontocorynus sp.

Range: Lower Rio Grande Valley, Texas
Distribution in LRGV: Willacy Co (TAMU).
Seasonal Activity: May.
Plant Associations: Unknown.
General Information: This is a large genus and most of the known speciesoccurring in the United States. The genus is badly in need of revision.

Centrinopus helvinus Casey 1892: 602
(Figure 42)

Range: Nicaragua, Mexico, Iowa, Illinois, Indiana, Michigan, Ohio, Pennsylvania, and Washington D.C. (O'Brien & Wibmer 1982); Texas.
Distribution in LRGV: Cameron Co.: Brownsville; Brownsville, Esperanza Ranch (NMNH); Brownsville, Sabal Palm Grove Sanctuary (TAMU).
Seasonal Activity: May, July, and October.
Plant Associations: Unknown.
General Information: Two specimens were collected during this study in October and one specimen in May in the Sabal Palm Grove Sanctuary.

Fig. 42. *Centrinopus helvinus.*

Nicentrus lineicollis (Boheman) 1844: 221

Range: Mexico, Central America, Arizona, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co (TAMU); Brownsville (NMNH). Hidalgo Co. (TAMU).

Seasonal Activity: April and August.

Plant Associations: Unknown.

General Information: There are many species in this genus with various Nearctic and Neotropical distributions.

Nicentrus sp.

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Cameron Co.: Brownsville, 24 mi. E of Boca Chica Beach.

Seasonal Activity: August.

Plant Associations: Unknown.

General Information: This genus is in need of revision so the LRGV species could not be positively identified.

Eisonyx crassipes LeConte 1880: 217

Range: Mexico, Texas, Kansas and New Mexico (Pakaluk & Carlow 1994).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH). Hidalgo Co.: Bentsen-Rio Grande State Park (TAMU).

Seasonal Activity: February, April, May and October.

Plant Associations: Specimens of this species have been intercepted with *Musa* sp. from Mexico, with sorghum (USNM) in Dimmit Co., Texas, taken on *Physalis "cornuta"* at Dallas (Pierce 1916a), and on *Plantago virginica* L. in Kleberg Co., Texas. Plant associations are unknown for the LRGV.

General Information: The type locality is "Texas." Pakaluk & Carlow (1994) revised the genus, provided a lateral habitus, illustrations of the larvae, and male and female genitalia, various scanning electron micrographs, and a key to the members of the genus. Twenty-two specimens were collected during this study in April and one specimen in May in Bentsen Rio Grande State Park. Many of these specimens were found crawling on the ground at dusk. Nothing more is known about the biology of this species. It is an easily recognizable species because of its shiny black body, large elytral punctures, and has only one claw on each tarsus.

Zygobarella xanthoxyli (Pierce) 1907: 383

Range: Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: Santa Ana National Wildlife Refuge (TAMU).

Seasonal Activity: October.

Plant Associations: This species develops in berries of *Zanthoxylum* (=*Xanthoxylum*) (Pierce 1907a,b). It has been collected on *Zanthoxylum clava-hercules* L. in Kenedy Co.

General Information: Some specimens were collected during this study close to the LRGV in Kenedy County on *Zanthoxylum clava-hercules* L. There are two described species in this genus. One occurs in Texas and the other in Mexico, Guatemala, and Nicaragua (O'Brien & Wibmer 1982). *Zygobarella xanthoxyli* is parasitized by *Sigalphus zygobaridis* Crawford and *Catolaccus incertus* Ashmead (Pierce 1907b).

Catapastus seriatus Casey 1920: 512

Range: Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville; Brownsville, Los Borrejos (NMNH).

Seasonal Activity: July.

Plant Associations: Unknown

General Information: The type locality is Brownsville, Texas. Species of this genus are minute in size.

Catapastus squamirostris Casey 1920: 511

Range: Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary; Laguna Atascosa National Wildlife Refuge (CMNC); Brownsville (NMNH). Hidalgo Co.: Santa Ana National Wildlife Refuge (TAMU).

Seasonal Activity: April, May, June, and October.

Plant Associations: Unknown

General Information: The type locality is Brownsville, Texas. Most of the nine species of *Catapastus* occur in Florida and Texas.

Catapastinus caseyi Champion 1908: 331

Range: Guatemala and Nicaragua (O'Brien & Wibmer 1982), Texas (LRGV).

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary; 8 mi. and 12 mi. E of Brownsville (TAMU).

Seasonal Activity: March, May, June, and October.

Plant Associations: Unknown

General Information: Champion (1908) presented a dorsal habitus and illustrations of various morphological structures of the male. The records presented here are the first for this genus and species in the United States.

Oligolochus sp.

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Hidalgo Co.; 7 mi. S of Alamo (TAMU).

Seasonal Activity: April.

Plant Associations: Unknown

General Information: There are seven species in this genus and all occur in the United States. Buchanan (1932) provides a key to the members of the genus, but this species does not fit his key.

Sibariops mundula Casey 1920: 483

Range: Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: San Benito; Brownsville (NMNH).

Seasonal Activity: March.

Plant Associations: Unknown

General Information: The type locality is Brownsville, Texas. Casey (1920) provided a key to the members of the genus. Most of the species in this large genus occur in the United States.

Sibariops sp.

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary nr. Southmost (RTC).

Seasonal Activity: March and October.

Plant Associations: Unknown

General Information: This genus is in need of revision. This species could not be positively identified.

Trichodirabius longulus (LeConte) 1876: 316

Range: Florida and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville, Esperanza Ranch; Laguna Madre. Hidalgo Co.: Santa Ana National Wildlife Refuge.

Seasonal Activity: February, June, July, and October.

Plant Associations: Unknown

General Information: The type locality is "Texas." There are three species in this genus occurring in Texas, Florida, Louisiana, and Mexico.

Prosaldius blanditus (Casey) 1892: 628
(Figure 43)

Range: Louisiana, Mississippi, and Texas (Buchanan 1932), (O'Brien &Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (CNC); Brownsville, Paloma Blanca Road (TAMU).

Seasonal Activity: July and October.

Plant Associations: Specimens of this species have been collected on *Cyperus ochraceus* Vahl (TAMU).

General Information: Species of this genus were formerly placed in *Anacentrinus*. Twelve specimens were collected during the present study in October near the Sabal Palm Grove Sanctuary on Paloma Blanca Road while sweeping *Cyperus ochraceus* Vahl.

Fig. 43. *Prosaldius blanditus*.

Prosaldius deplanatus (Casey) 1892: 630

Range: Widespread through middle and eastern United States (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.; Brownsville, Sabal Palm Grove Sanctuary. Hidalgo Co.; Santa Ana National Wildlife Refuge (TAMU).

Seasonal Activity: February, March, May, June, October, and December.

Plant Associations: This species is a pest of grain sorghum, sugar cane and corn. Native wild hosts are unknown for the LRGV.

General Information: This weevil is known as the sugarcane rootstalk weevil. A key to the members of the genus (as *Anacentrinus*) is provided by Buchanan (1932). Some biological information is provided by Goode & Randolph (1961). Two specimens were collected during this study in October in the Sabal Palm Grove Sanctuary.

Haplostethops sp.

Range: Lower Rio Grande Valley, Texas.

Distribution in LRGV: Cameron Co.: Brownsville, Sabal Palm Grove Sanctuary (CMNC).

Seasonal Activity: October.

Plant Associations: Unknown

General Information: There are seven described species in this genus in the midwestern United States. This is the first record of a species of the genus in Texas. Casey (1920) provided a key to the members of the genus.

Rhynchophorinae, Sphenophorini

The genus *Sphenophorus*, commonly known as billbugs, contains 71 species distributed in the United States and Mexico. Some are pests of grasses, lawns, and certain grain crops. Others feed on non-economically important sedges and grasses, but little is known about the biologies of the majority of species of the genus (Vaurie 1951). Vaurie (1951) revised the genus (as *Calendra*) for the United States and Mexico and provided descriptions, illustrations and keys to members of the genus.

Sphenophorus coesifrons Gyllenhal 1838: 959

Range: Mexico, southern United States, Arizona, Colorado, and New Mexico (O'Brien & Wibmer 1982).

Distribution in LRGV: Hidalgo Co. (TAMU).

Seasonal Activity: February, March, and May.

Plant Associations: Specimens of this species have been reared from *Phleum pratense* L. (timothy) (locality not given) (Vaurie 1951), and sugarcane (TAMU). It has also been reported to damage corn and rice (localities not given) (Vaurie 1951). Its natural host is unknown.

General Information: Vaurie (1951) provided figures of various morphological structures, the male genitalia, and a key to members of the genus of Mexico and the United States.

Sphenophorus compressirostris (Say) 1824a: 319

Range: Colorado, Kansas, Kentucky, New Mexico, New York, Oklahoma, Tennessee, Texas, and Wisconsin (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: January, June, July, and November.

Plant Associations: Unknown.

General Information: Vaurie (1951) described this species and provided figures of the head and rostrum and the male genitalia, and a key to members of the genus of Mexico and the United States. Nothing is known about its biology.

Sphenophorus costipennis Horn 1873: 420

Range: Widespread throughout the United States and Canada (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (NMNH).

Seasonal Activity: Unknown for LRGV.

Plant Associations: Unknown

General Information: Vaurie (1951) treated the taxonomy of this species and provided a key to members of the genus.

Sphenophorus hoegbergii Boheman 1845: 254

Range: Mexico, Arizona, New Mexico, and Texas (O'Brien & Wibmer 1982).
Distribution in LRGV: Cameron Co.: Brownsville (NMNH).
Seasonal Activity: March, June, and July.
Plant Associations: Unknown
General Information: Vaurie (1951) treated the taxonomy of this species and provided a key to members of the genus.

Sphenophorus venatus vestitus Chittenden 1904: 134

Range: Mexico, Bahamas, Puerto Rico, Martinique, Dominican Republic, Cuba, central and eastern United States and New Mexico (O'Brien & Wibmer 1982).
Distribution in LRGV: Hidalgo Co.: Sullivan City CMNC).
Seasonal Activity: April and October in Texas (Vaurie 1951).
Plant Associations. Specimens of this species have been found boring in rice tap roots (Vaurie 1951). In Florida, hosts include zoysia grass, *Zoysia matrella* (L.) Merr., bermuda grass, *Cynodon dactylon* (L.) Pers., *Paspalum notatum* Flugge, *Stenotaphrum secundatum* (Walt.) Kunze, *Eremochloa ophiuroides* (Munro)Hack., *Zea mays* L., *Saccharum officinarum* L., *Polystichum adiantiforme* Smith (Woodruff 1966), *Cyperus esculentus* L., and *Scirpus tabernaemontani* Gmelin (=*validus*) (Anderson 1992). It is a pest of bermuda grass in Texas.
General Information: Vaurie (1951) treated the taxonomy of this species and provided a key to members of the genus. Woodruff (1966) provided illustrations and brief descriptions of the adult and larva, biological information, and host information. This weevil is known as the hunting billbug or zoysia billbug.

Cactophagus orizabaensis (Chevrolat) 1883: 578

Range: Guatemala and Mexico (O'Brien & Wibmer 1982); Texas (TAMU).
Distribution in LRGV: Cameron Co.: Brownsville (TAMU).
Seasonal Activity: August.
Plant Associations: Two specimens of this species were found in a Brownsville nursery on Devil's Ivy, *Epiphremnum aureum* (TAMU).
General Information: Vaurie (1967) treated the taxonomy of this species. This

record in Robinson's Nursery at Brownsville (TAMU) is the first United States. There is no evidence that this weevil is established in the LRGV. The specimens collected may represent an unestablished introduction.

Scyphophorus acupunctatus Gyllenhal 1838: 857

Range: Mexico, Central America, Old World, Cuba, Dominican Republic, Jamaica, South America, and the southern part of the United States (O'Brien and Wibmer 1982).

Distribution in LRGV: Cameron Co. Hidalgo Co.; Weslaco (TAMU).

Seasonal Activity: January, March, May, June, September, and December.

Plant Associations: (Pierce 1907b) reported this species infesting *Yucca*. Other reported hosts include *Agave americana* L., *Agave mexicana* and *A. cubensis* (Dugès 1881, 1886), *Furcraea tuberosa* in Costa Rica (Champion 1910), *Agave* and *Dasylirion* in Arizona and Mexico (Anderson 1948) *Agave atrovirens*, *A. attenuata*, *A. ferdinandiregis*, *A. lecheguilla* Torr., *A. shawii*, and *Dracaena draco* (Anon. 1959), *Yucca glauca* Nutt. in Kansas (Vaurie 1971), and *Yucca pendula glauca* in Florida imported from California, *Y. aloifolia* and *Y. elephantes* in Florida (Woodruff 1973). In the Eastern Hemisphere, it is a pest of *Agave sisalana* Perrine (Vaurie 1971).

General Information: Vaurie (1971) provided descriptions, ecological information, figures of various morphological structures, and a key to the two species of the genus. Dugès (1881, 1886), Cotton (1924), Anderson (1948) described and illustrated the larvae and pupae. Woodruff (1973) provided figures of the adult and larva, biological and host information, and control methods. This weevil is known as the sisal weevil and has been accidentally introduced in New World *Agave* to different parts of the Old World. More references and biological information on this species can be found in Booth et al.(1990).

Orthognathini

Yuccaborus frontalis sharpi Casey 1892: 688

Range: Mexico, California, and Texas (O'Brien and Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville (TAMU); Brownsville, Esperanza

Ranch; Brownsville, Los Borrejos NMNH). Hidalgo Co.; Weslaco. Starr Co.: 5 mi. N of Roma-Los Saenz (TAMU); Falcon Heights; Falcon State Park (RTC);

Seasonal Activity: March through July, and September.

Plant Associations: The host plant of this weevil is *Yucca* (Vaurie 1970).

General Information: Vaurie (1970) provided figures of various morphological structures. The genus is monotypic.

Sitophilini

Sitophilus oryzae (Linnaeus) 1763: 395

Range: Cosmopolitan (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.Brownsville, Sabal Palm Grove Sanctuary nr. Southmost (RTC).

Seasonal Activity: May.

Plant Associations: This species is a pest of stored grains, including rice, wheat, barley, rye, and corn. (Cotton 1920). It most commonly attacks rice (Booth et al. 1990).

General Information: This weevil is commonly known as the rice weevil. Life history, biological information, descriptions and illustrations of the adult, pupaand larva, and host information are available in Cotton (1920). This species is often confused with *Sitophilus zeamais* Motschulsky which is also a major pest of stored grains. Information and references on the differences between these two species and more references for information pertaining to *Sitophilus oryzae* can be found in Booth et al. (1990). Information on parasites of this species can be found in Cotton (1923).

Cossoninae, Acamptini

Acamptus texanus (Sleeper) 1954: 185

Range: Mexico and Texas (O'Brien and Wibmer 1982).

Distribution in LRGV: Hidalgo Co.: Mission, Bentsen-Rio Grande State Park (AHC).

Seasonal Activity: August and June.

Macrancylus linearis LeConte 1876: 339

Range: Grenada, Mexico, Hawaii, Florida, North Carolina, South Carolina, and Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co.: Brownsville; Port Isabel (NMNH).

Seasonal Activity: June.

Plant Associations: In Florida, specimens of this species have been found under driftwood washup and the species probably develops in wood (O'Brien 1970c).

General Information: Blatchley & Leng (1916), Blatchley (1922), and O'Brien (1970c) reported finding this species under wood on beaches.

Pseudopentarthrum robustum Casey 1892: 697

Range: Texas (O'Brien & Wibmer 1982).

Distribution in LRGV: Cameron Co., Sabal Palm Grove Sanctuary nr. Southmost (RTC).

Seasonal Activity: April and August.

Plant Associations: Specimens of this species have been collected on *Salix* sp.(RTC).

General Information: There are twenty described species in this genus most of which occur in Mexico and other Neotropical regions.

Cotasterini

Caulophilus oryzae (Gyllenhal) 1838: 1075

Range: Europe, Madeira, Hawaii, Puerto Rico, Cuba, Jamaica, Panama, Guatemala, Mexico, California, Florida, Georgia, North Carolina, and South Carolina (O'Brien & Wibmer 1982). Texas (TAMU).

Distribution in LRGV: Cameron Co., Sabal Palm Grove Sanctuary nr. Southmost (RTC).

Seasonal Activity: May.

Plant Associations: This species is a pest of stored products, acorns, avocado, chickpeas, corn, millet, and ginger (Whitehead 1982). In southern Florida, it has been reared from avocado, *Persea americana* Mill. (Anderson 1992).

General Information: This weevil is known as the broad-nosed grain weevil and was formerly referred to under the name *Caulophilus latinasus*. Cotton (1921, 1922) provided life history, biological, and parasite information and, illustrations and descriptions of the adult, pupa and larva. Kuschel (1962) provided a key to the members of the genus. Food records of this species based on interception records were compiled by Whitehead (1982).

	How important is this to you....	How satisfied are you with...
☒ Dallas County ☐ Tarrant County Age: ☐ 11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐ 17 ☐ 18 ☐ 19 ☐ 20 ☐ Adult ☒ Parent Race: ☒ African American ☐ Hispanic ☐ Asian ☐ Caucasian ☐ American Indian ☐ Other Zip Code: 75234 ☐ Male ☐ Female	1= Very important 2= Important 3= Unimportant 4= Completely unimportant	1= Very satisfied 2= Satisfied 3= Unsatisfied 4= Completely unsatisfied

Circle the appropriate number

1. Availability of Mentoring services	1 2 3 4	1 2 3 4
2. Availability of affordable daycare centers	1 2 3 4	1 2 3 4
3. Quality of daycare centers	1 2 3 4	1 2 3 4
4. Affordability of prescription drugs	1 2 3 4	1 2 3 4
5. Quality of teaching in schools	1 2 3 4	1 2 3 4
6. Safety at schools	1 2 3 4	1 2 3 4
7. Affordability of medical services	1 2 3 4	1 2 3 4
8. Quality of medical services	1 2 3 4	1 2 3 4
9. Clean park and recreation centers	1 2 3 4	1 2 3 4
10. Response time of police to emergency calls	1 2 3 4	1 2 3 4
11. Availability of afterschool programs for older youth	1 2 3 4	1 2 3 4
12. Availability of parks and recreation centers	1 2 3 4	1 2 3 4
13. Availability of employment services for adults	1 2 3 4	1 2 3 4
14. Availability of adequate transportation	1 2 3 4	1 2 3 4
15. Opportunity for families to improve and make decisions that affect their community	1 2 3 4	1 2 3 4
16. Availability of supervised after school youth activities	1 2 3 4	1 2 3 4
17. Availability of youth employment opportunities	1 2 3 4	1 2 3 4
18. Opportunities to participate in religious activities at local places of worship	1 2 3 4	1 2 3 4
19. Parenting resources	1 2 3 4	1 2 3 4
20. Access to affordable housing	1 2 3 4	1 2 3 4
21. Access to quality housing	1 2 3 4	1 2 3 4
22. Information about free resources in the city and county	1 2 3 4	1 2 3 4
23. Opportunities to volunteer in the community	1 2 3 4	1 2 3 4

24. Availability of programs for drug and alcohol addiction	1 2 3 4	1 2 3 4
25. Availability of programs for ex-offenders (youth)	1 2 3 4	1 2 3 4
26. Availability of programs for ex-offenders (adults)	1 2 3 4	1 2 3 4
27. Availability of programs for gang prevention	1 2 3 4	1 2 3 4
28. I am able to provide the basic needs for my family (food, clothing, shelter)	1 2 3 4	1 2 3 4
29. Availability of Abstinence education services in the community	1 2 3 4	1 2 3 4
30. Opportunities for youth to go to college	1 2 3 4	1 2 3 4
31. Availability of agencies providing services specific for youth	1 2 3 4	1 2 3 4
32. Church services for youth	1 2 3 4	1 2 3 4
33. Availability of mental health services	1 2 3 4	1 2 3 4
34. Availability of dental services	1 2 3 4	1 2 3 4
35. Availability of services for humanitarian needs (clothing, food, shelter, etc)	1 2 3 4	1 2 3 4
36. Helping youth succeed	1 2 3 4	1 2 3 4
37. Availability of teen pregnancy prevention services	1 2 3 4	1 2 3 4
38. Availability of social services (food stamps, Medicare, housing, etc)	1 2 3 4	1 2 3 4
39. How important is a High School Diploma	1 2 3 4	1 2 3 4
40. How important is it for teens to wait to have sex until they are married	1 2 3 4	1 2 3 4

Comments:

ern limits of their ranges in the LRGV. These species are mixed with various others that have the LRGV as their southern and western limits. Because of this mixing, the LRGV has a unique combination of temperate and tropical components. Some examples of animals that reach their northern limit in the LRGV include the ocelot (which once roamed other areas of Texas), jaguarundi, the blue spiny lizard, 21 species of birds including the chacalaca, white-tipped dove, kiskadee flycatcher, green jay and brown jay (Palm Grove Brochure, Jahrsdoerfer & Leslie 1990). Many neotropical plants reach their northern distributional limit in the LRGV and many temperate plants have the LRGV as their southern limit. This is probably due to the temperature (frost), as well as the isolation of the LRGV which makes it hard for plants and animals to extend their range beyond it. Plants that occur no further north than the LRGV are Montezuma bald cypress, slashleaf heartseed (Lonard et al. 1991). *Acacia farnesiana*, *Amaranthus greggii*, *Mimosa pigra*, *Monantochloe littoralis*, *Rhynchosia americana*, *Sesuvium sessil*, and *Sophora tomentosa* are some of the plant species that occur widely in the tropics but occur no further north than the LRGV. Some plant species that are temperate and have the LRGV as their southern limit include *Baptisia leucophea*, *Chamesyse cordifolia*, and *Helianthus debilis* (Baro de Jones 1992). *Sabal mexicana* Mart. is one example of a plant that occurs in the LRGV and about 200 miles south of the LRGV but nowhere in between. It was once thought to occur only in the LRGV but a "wild" population of this plant was recently discovered about 200 miles north of the LRGV at Garcitas Creek in the Central Coast (Coastal Bend) of Texas (Lockett & Read 1990) although there is a chance that that population escaped from cultivation. Many species of invertebrates which probably can be closely linked to hosts have the LRGV as their northern or southern limit as well. At least 57% of the weevil species in this study have the LRGV as either their northern or southern distributional limit.

Plant Associations

Plant associations for the phytophagous species of weevils are an important part of a zoogeographic analysis. Certain types of plants tend to occur together in certain climates and plant distributions can reflect past and present climates, as well as ecological constraints imposed by climate, soil type, etc. Plant distributions can affect weevil distributions, depending on the particular association.

Plant associations for species of LRGV weevil s are presented in the tables on page 189 and 214. This information was obtained from label data, literature, and personal observations during the collecting trips to the LRGV. The plant classification follows Richardson (1990). The criteria used for the host associations are as follows: 1= definite host, 2=probable host, 3=possible host, 4=probably incidental, * =host association outside of Texas. Of the 436 host associations recorded, 41.3%of the plants are in the families Fabaceae, Malvaceae, and Asteraceae. Approximately 39% of the host associations are definite hosts, although 6% of that number is outside of Texas.

Endemism

Endemic plant species have been recorded from the LRGV. Baro de Jones (1992) recorded 6% endemism in coastal sand dune vegetation. Lonard (1986) recorded 6% endemism of the grasses of the LRGV with 39.6% having west/central North American affinities, and (Baro de Jones 1992) recorded 14.2% having tropical affinities. Percent endemism is not known for the rest of the flora. An insect may be closely tied with its host. Therefore, if a particular plant is endemic and there is a

weevil that develops exclusively on it, the weevil will also be endemic. As an example, *Pselaphorhynchites macrophthalmus* has been collected on *Prosopis reptans* in the LRGV. *Prosopis reptans* var. *cinerascens* is found only in the Tamaulipan Biotic Province and Argentina (Baro de Jones 1992). Because of the limited host range, there is a good possibility that this weevil is endemic to the LRGV.

The LRGV is surrounded by geographic barriers. The Gulf of Mexico is the limiting barrier to the east. The south Texas plains with savannah-like conditions is the barrier to the north. These conditions are due to the eolian sand sheet which is composed of sand blown over time from the barrier islands onto that part of Texas (Price 1958). The Bordas Scarp and more xeric conditions around Starr Co. form the western boundary (Richardson 1990, Lonard et al. 1991). The Rio Grande River forms the southern boundary. Dry conditions in northeastern Mexico probably contributes to the delimitization of the LRGV in the south. The LRGV is essentially surrounded by filters or areas that restrict dispersal for some species, although this was not always the case. Fossil evidence shows that the LRGV was once part of a temperate corridor that ran from the eastern United States through southern Texas into northern Mexico during the mid-Tertiary (Brown & Gibson 1983). It is possible that because the LRGV is isolated somewhat by these barriers, species of weevils might have evolved separately there.

Twenty-seven species of weevils appear to be endemic to the LRGV atthe present time. These include *Pselaphorhynchites macrophthalmus Apion xanthoxyli; Brachystylus* sp. nr. *microphthalmus; Notolomus* sp 1, 2; *Andranthobius* sp. ; *Cionopsis lineola; Elleschus* sp.; *Conotrachelus cameronensis; Ebulus* sp. nr. *bifasciculatus; Cylindrocopturus* sp. nr. *bifasciatus*; *Cylindrocopturus* sp. 1, 2; *Acanthoscelidius* sp. 1, 2; *Pleisobaris* sp.; *Trepobaris* sp.; *Aulobaris* sp.; *Onychobaris* sp.; *Odontocorynus* sp.; *Nicentrus* sp.; *Oligocholus* sp.; *Sibariops* sp.; *Haplostethops*

sp. and *Allopentarthrum* sp. 1, 2. Hovore et al. (1987) found the LRGV cerambycids (Coleoptera) to be mainly Neotropical in origin and found 35% of the species to be endemic. Until more collecting information is gathered, the endemic LRGV weevils represents 12% of the total.

Species Comparisons Within the LRGV and With Other Areas

Species richness (the number of species within a community) is an important component of this zoogeographic analysis. As mentioned previously, 235 species in 97 genera have been recorded from the LRGV. Seven species are excluded from the second part of the analysis (comparing the LRGV with other areas) because they are adventive and this would alter the results of pattern discovery. The seven adventive species include *Cylas formicarius elegantulus*, a pest of sweet potato (Reinhard 1923) that develops on other members of the plant family Convolvulaceae (Reinhard 1923, Mitchell & Pierce 1911). This species was most likely introduced from the Phillipines area (Pierce 1940b); *Microlarinus lypriformis*, introduced into the United States as a biological control agent for puncturevine (Stegmaier 1973); *Anthonomus eugenii*, a pest of peppers (Burke & Woodruff 1980) which is probably an immigrant from neotropical areas; *Anthonomus grandis*, a pest of cotton (Burke et al. 1986) which is probably an immigrant from neotropical areas; *Cactophagus orizabaensis*, found on devil's ivy in a nursery which is likely an accidental introduction from the Neotropics; *Sitophilus oryzae*, a pest of stored grains (Booth et al. 1990) probably of Asiatic origin, and; *Caulophilus oryzae*, a pest of stored grains (Whitehead 1982), probably of neotropical origin.

Therefore, 228 species in 91 genera remain for the second part of the analysis, comparison of the LRGV weevil fauna with that of other areas. The first part of the analysis or species comparison within the LRGV compares four collecting sites that

represent the various habitats of the Lower Rio Grande Valley. They are the Boca Chica Beach area with salt tolerant vegetation and thorn scrub; Sabal Palm Grove Sanctuary with subtropical vegetation including sabal palms; Bentsen Rio-Grande State Park with subtropical thorn-scrub and riparian vegetation; Falcon Dam area with desert thorn scrub and riparian vegetation.

Table 1 includes species of weevils occurring in the four major collecting sites. The Sabal Palm Grove Sanctuary is the most diverse for species of weevil . Seventy-five of the 235 species have been recorded representing 32%. The Palm Grove also has a high plant diversity, containing 300 identified species, or 36%, of 823 total species and varieties excluding grasses. Therefore the Palm Grove contains approximately one third of the plant and weevil diversity for the LRGV. This is a significant number considering the Sabal Palm Grove Sanctuary consists of only 32 acres of "natural" habitat. Bentsen Rio-Grande State Park had the second highest species diversity with 38 species, or 16% of the total. The Boca Chica Beach area with 24 species and Falcon Dam Area with 25 recorded species each has 10% of the total. The remaining 32% were collected at other localities in the LRGV. Only two species have been recorded for all four localities. They are *Colecerus marmoratus* and *Compsus auricephalus*. Table 1 shows the number of taxa collected in the areas mentioned above.

Table 1. Number of taxa collected in specified areas in the Lower Rio Grande Valley.

Locality	Number of genera	Number of species
Boca Chica Beach Area	19	24
Sabal Palm Grove Sanctuary	51	75
Bentsen Rio-Grande Valley State Park	28	38
Falcon Dam Area	15	25

The second part of the analysis involves comparison of the weevil fauna of the LRGV as a whole with that of other areas. Areas that are compared with the LRGV (4226 sq. mi.) are ; Guatemala (42, 000 sq. mi.), with 1173 species in 296 genera (O'Brien & Wibmer 1982); North Dakota (69, 299 sq. mi.), with 238 species in 88 genera (Balsbaugh & Aarhus 1990); Southern Florida (approximately the same area as southern Texas), with 222 species in 100 genera (Anderson & Peck 1994); the combination of Victoria County (Mitchell & Pierce 1911) and Welder Wildlife Refuge (San Patricio County) (1582 sq. mi.), with 145 recorded species; and Big Bend National Park (1106 sq. mi.) with 107 recorded species. Areas available for comparison were limited by the scarcity of curculionid faunal works. Guatemala was chosen as a southern and tropical area for comparison with the LRGV. There are no weevil lists available for states of Mexico for reasonable comparison with the LRGV. Using the weevil list for all of Mexico in O'Brien and Wibmer (1982) would have involved an area too large and diverse for comparison .

North Dakota has a list of weevil species available and is used as a northern area of comparison. Southern Florida represents a tropical area roughly equal to the size of southern Texas and there is a recent list of weevils available for it by Anderson (1992). Big Bend National Park was chosen because it represents an arid region west of the LRGV. Comparison with Victoria County and Welder Wildlife Refuge (San Patricio County) (WWR) was done to allow more precise determination of LRGV endemics and a better indicator of northern versus southern influence. These counties have more-or-less the same habitat and are about 60 miles apart. A list of the weevils of Victoria County was provided by Mitchell & Pierce (1911) and data were also gathered from the TAMU Insect Collection for Victoria County and Welder Wildlife Refuge (San Patricio County). There are probably more species than the number listed here because a recent list of weevils for these counties has not been compiled. These areas were chosen because they are the closest approximations to neighboring provinces with relatively reliable weevil survey data. Comparisons of the LRGV with these areas will help to determine the origins and paths of migrations of weevils of the LRGV.

Similarity indices are used to determine which areas are most similar to the LRGV. This will lead to conclusions about the degree of northern or southern affinities of the weevil fauna of the LRGV. Simpson's index of similarity (Simpson 1947) is used first. The number of species in common between the LRGV and a selected area is divided by the number of weevil species in the area with the least number of species. The result is then multiplied by 100 to yield the percent similarity between the LRGV and the area compared.

Simpson's Index of Similarity

$S = 100 \times C/N_1$

LRGV / Victoria Co., WWR	S = 100 x 58/145	S = 40%
LRGV / Big Bend Natl. Pk.	S = 100 x 20/107	S = 18.7%
LRGV / North Dakota	S = 100 x 28/228	S = 12%
LRGV / southern Florida	S = 100 x 20/222	S = 9%
LRGV / Guatemala	S = 100 x 16/228	S = 7%

Simpson's index of similarity between the LRGV and other areas indicates that the LRGV has a greater Nearctic affinity than Neotropical. This index also shows that even though Guatemala is much more species rich than either North Dakota or Victoria + San Patricio counties, the LRGV has a greater similarity to the northern areas.

Since Simpson's index tends to become unreliable when habitats of very unequal species richness are compared (Thomas, 1993), such as is the case here, Sorensen's coefficient of community (Smith 1992) is also used to measure the percent similarity between two communities. For example, the species richness for North Dakota, southern Florida, and the LRGV are similar, but the species richness of Guatemala is much higher and has a very different habitat from that of North Dakota. The number of species shared between the LRGV and the area being compared is doubled. The result is then divided by the number of species in the LRGV and the compared area. This calculation yields the percent similarity (CC) between the LRGV and the area compared.

Sorensen's Coeffient of Community

CC=2c/s1+s2

LRGV / Victoria Co., WWR	CC = 2 (58)/228 + 145	CC = 31%
LRGV / North Dakota	CC = 2 (28)/228 + 238	CC = 12%
LRGV / Big Bend Nat. Pk.	CC = 2 (20)/228 + 107	CC = 12%
LRGV / southern Florida	CC = 2 (20)/228 + 222	CC = 8.9%
LRGV / Guatemala	CC = 2 (16)/228 + 1173	CC = 2.3%

Resultsusing both indices of similarity are similar. Many species of weevils such as *Epicaerus mexicanus*, *Anthonomus schwarzi*, *Anthonomus unipustulatus*, *Anthonomus xanthoxyli*, *Plocetes versicolor*, and *Sibinia ochreosa*, as well as other organisms, have their northern distributional limits in the LRGV. It was thought at the beginning of this study that because the LRGV has subtropical climate and vegetation, and many tropical species had the northern edge of their range in the LRGV, that the LRGV weevil fauna would have stronger Neotropical than Nearctic affinities. Both Simpson's and Sorenson's indices indicate otherwise. Both results show that the LRGV weevil fauna is more similar to the northern and western areas of comparison. This also indicates that the majority of the weevils that occur in the LRGV probably have northern origins.

Comparison of LRGV and Southern Florida Weevil Faunas

A similar zoogeographic study was done by Anderson (1992), Anderson & Peck (1994) on the Curculionoidea (excluding Scolytinae and Platypodinae) of southern Florida. Comparisons of the results of that study and those of the LRGV are made here.

Both the LRGV and southern Florida seem to be transition zones between Nearc-

tic and northern Neotropical faunas and floras. Florida is a peninsula with islands off of its coast, while southern Texas is continuous with land except for the Gulf of Mexico to the east and the Rio Grande River, the latter hardly a barrier to organisms. Southern Florida has tropical areas to the south and southeastern United States type forests to the north. Southern Florida was found to have a higher percentage of weevils with northern affinities (Anderson & Peck 1994).

The number of weevil species is compared between the LRGV and southern Florida. Anderson (1992) recorded 263 species of 121 genera of Curculionoidea of comparable taxa to my finding of 235 species of 97 genera in the LRGV. Anderson & Peck (1994) estimated that weevils, with over 50,000 described species in the world, comprise about 1/18 of all species of insects. Peck (1989) estimated that there are approximately 5,000 species of insects native to southern Florida. Anderson & Peck (1994) recorded 222 native species of weevils, of the 263 total, plus 66 species of Scolytinae and Platypodinae (unpublished). If this number is multiplied by 18, the total equals 5184, remarkably close to Peck's estimation. If the same formula is used for southern Texas, 228 (native species) x 18, the total would be 4104 species for the LRGV. This number will be higher, though, because Anthribidae, Scolytinae, and Platypodinae numbers for southern Texas were not been added in and the numbers for these groups are unknown. A conservative estimate of 50 species of these groups may be made thus increasing the possible species of insects in the LRGV to 5004. The insect diversity based on species of weevils numbers seems to be very similar for both southern Florida and southern Texas.

Cryptorhynchinae and Baridinae are the most diverse groups of weevils in both the LRGV and southern Florida. These two groups are also the most diverse subfamilies in the New World (Anderson 1994). Numbers of species of *Listronotus, Conotrachelus*, and *Anthonomus* are similar for both regions. Differences in the number of species for

certain genera for the LRGV and southern Florida seem to be due to influences of different habitats and geographical regions (Anderson & Peck 1994). *Acalles* and *Lachnopus* have not been reported from the LRGV, but there are 13 species of *Acalles* and three species of *Lachnopus* recorded from southern Florida, probably due to the West Indies origin of these genera (Anderson & Peck 1994). Fifteen species of *Smicronyx* have been recorded from LRGV and 10 species of *Sibinia* have been recorded from the LRGV, but only one species of *Smicronyx* and no species of *Sibinia* have been reported from southern Florida. The LRGV is closer to arid regions which have hosts that *Smicronyx* and *Sibinia* prefer. *Smicronyx* spp. seem to occur in drier areas although their hosts probably occur in a wet habitat with the dry area (Anderson, pers. comm.). Their absence in southern Florida could be due to the lack of dry areas with which *Smicronyx* hosts are associated or competition from other organisms. *Tyloderma* is a genus of weevils closely associated with wetland habitats, and therefore, the group ismore diverse in southern Florida (Anderson & Peck 1994). Ten species of *Tyloderma* have been recorded from southern Florida. Only three species of *Tyloderma* are known from the LRGV. The smaller number of *Tyloderma* species in the LRGV is probably due to the unfavorable desert influence from the west and the paucity of wetland habitats in the LRGV. Because *Sibinia* tends to be associated with plants that are in drier areas, this probably explains their absence in southern Florida..

In southern Florida, 38% of the total number of species of Curculionoidea belong to seven genera. In the LRGV, the seven most speciose genera make up 36% of the total number of species. The number of monotypic genera represented in the LRGV is 57, comparable with 67 in southern Florida. Some species that are common to both the LRGV and southern Florida include: *Eudiagogus pulcher, Listronotus appendiculatus, Listronotus borrichiae, Listronotus salicorniae, Anthonomus solarii, Apteromechus pumilis, Copes fallax, Phyrdenus divergens, and Macrancylus linearis.*

Distributional Patterns of Selected Genera of LRGV Curculionoidea

Certain groups of weevils were selected for a zoogeographic analysis based on their size and completeness of distributional and host data. The most diverse groups of weevils in the LRGV are the Crytorhynchinae and Baridinae. Thirty-four of the 91 native genera, or 37% of the LRGV weevils, are in these two subfamilies. These two groups are also the most diverse in the New World (Anderson & Peck 1994). Of the 34 species of these two groups, 18 are represented by only one species. Therefore, although the LRGV has high generic diversity for these two subfamilies, the species diversity is fairly low.

Genera represented by the largest number of species in the LRGV are *Listronotus* (17), *Smicronyx* (15), *Apion* (13), *Anthonomus* (12), *Conotrachelus* (11), and *Sibinia* (10). Species of these genera constitute 33% of the total number of species of Curculionoidea in the LRGV. Some distributional patterns for these genera as well as certain species are established here either because they have been included in previous publications with good geographical data or there is adequate geographical information on species on which to base conclusions about origins.

Of the 228 presumably native species of weevils recorded here from the LRGV, 57% have the LRGV as either the northern or southern boundary of their ranges. Others that occur in the LRGV and/or Texas and/or Mexico have disjunct distributions. Some species occur in the LRGV, and won't be found again until approximately 100 miles north of the LRGV and/ or approximately 200 miles south of the LRGV. Many species could be disjunct due to the fact that collection records are poor for those areas north and south of the LRGV.

Apion

There are approximately 1500 species of Apioninae (now generally recognized as the family Apionidae) in the world with approximately 300 species in North and Central America (Kissinger 1968). Species of *Apion* occur in the Western Hemisphere, Europe, and Africa. Kissinger (1968) treated the Apioninae of North and Central America taxonomically and incorporated it with the taxonomy of the world Apioninae. This group is difficult to work with because they are minute, uniform in shape, and lack good taxonomic characters (Kissinger 1968). The genus *Apion* is represented by 13 species in the LRGV. Nine of these 13 have not been recorded south than the LRGV. Two of the 13 species have not been recorded north of the LRGV. Eight species of *Apion* are disjunct to the north of the LRGV, including *Apion amaurum, A. attenuatum, A. ellipticum, A. occidentale, A. persimile, A. subornatum, A. subtinctum,* and *A. xanthoxyli.* These species have been recorded in the LRGV and approximately 100 miles north of it but have not been recorded in the area between. Six species are disjunct to the south of the LRGV including *A. aculeatum, A. buchanani, A. curticorne, A. subornatum, A. subtinctum,* and *A. xanthoxyli.* These species have been recorded in the LRGV and approximately 200 miles south of it but have not been recorded in between. All 13 of the LRGV *Apion* species occur in, more or less, the southern one-half of Texas and/or the LRGV. Three also occur in the southeastern United States: *A. ellipticum, A. importunum* and *A. persimile. Apion subornatum* and *A. curticorne* also occur in the Mexican state of Nuevo Leon which borders the state of Tamaulipas, and *A. buchanani* and *A aculeatum* occur in the Tampico and Veracruz areas of eastern Mexico.

Smicronyx

The genus *Smicronyx* is fairly widespread with species occurring in the Western Hemiphere, Europe, India, and North Africa. The subgenus *Smicronyx* to which *S. albonotatus, S. apionides, S. atratus, S. lutulentus, S. quadrifer, S. sculpticollis, S. silaceus,* and *S. tychoides* belong is thought to have originated before the Pleistocene Epoch of the Cenozoic Era (Anderson 1962). At that time, the climate was more tropical to temperate in the areas of the Palearctic that are now much colder. The parasitic plant (*Cuscuta*) with which this subgenus is associated as a host was probably more widespread than it is at present because of the warmer temperatures in the past. Therefore, *Smicronyx* was also more widespread in the past than at present (Anderson 1962). It is thought by Anderson (1962) that *Smicronyx* at one time occurred worldwide. Some widely separated species resemble each other strongly which led Anderson (1962) to conclude there must have been a land connection between the Nearctic and Palearctic regions after the origin of *Smicronyx*. The subgenera *Pachyphanes* (*S. corpulentus* and *S. triangularis*), *Pseudosmicronyx* (*S. corniculatus, S. squalidus,* and *S. tesselatus*), and *Desmoris* (*S. constrictus* and *S. sordidus*) are thought to have developed through modifications of the characteristics of the subgenus *Smicronyx*. Species of these three subgenera have not been found developing on *Cuscuta* (Anderson 1962). There are 81 species of *Smicronyx* in North and South America, 15 species of which are recorded from the LRGV. Thirteen of these 15 have the LRGV as their southern boundary including *S. albonotatus, S. apionides, S. atratus, S. constrictus, S. corniculatus, S. corpulentus, S. lutulentus, S. quadrifer, S. silaceus, S. squalidus, S. tessellatus, S. triangularis,* and *S. tychoides*. Some of these species are likely occur in Mexico. This is probably due to the lack of collection information from northern Mexico. There are eight species disjunct to the north of the LRGV, including *S. atratus, S. corniculatus, S. lutulentus, S. quadrifer, S. silaceus, S.*

sordidus, S. triangularis, and *S. tychoides.* These eight species have been recorded in the LRGV and approximately 100 miles north of it but have not been recorded in the intervening area. This may be due to the change in habitat or that collectors have not thoroughly collected in that area. Collection information for Mexico is not as thorough as for the United States and the distributions of these species will probably change when more collection records are obtained from that country.

Anthonomini

More than 400 species have been described from this tribe with about one-half occurring in North America (Burke 1968). Eighteen species of the tribe Anthonomini are found in the LRGV. At least two of these, *A. grandis* and *A. eugenii*, are adventive species with a Neotropical origin. Of the 18 anthonomines present, three, including *Cionopsis lineola, C. maculata,* and *Pseudanthonomus tomentosulus* have not been recorded south of the LRGV. Three species have not been recorded north of the LRGV, including *A. leucostictus, A. schwarzi,* and *A unipustulatus.* The remaining nine species range from Central America to the southern United States.

Sibinia

The genus *Sibinia* is subdivided into two subgenera, *Sibinia* and *Microtychius* (Clark 1978). *Microtychius* contains 126 species occurring exclusively in the New World. Species of the subgenus range from the southern United States to northern Argentina. Species of *Microtychius* have hosts in the subfamily Mimosoideae of the family Fabaceae. *Microtychius* is most common in Mexico, followed by Brazil, and the United States. The subgenus *Sibinia* is mainly an Old World group with a few New World species that

are not associated with the subfamily Mimosoideae (Clark 1978). These species are associated with the plant families Caryophyllaceae, Paronycheaceae, Plumbaginaceae, Santalaceae, and Thymelaeaceae. The genus *Sibinia* is represented by 10 species in the LRGV, all belonging to the subgenus *Microtychius*. Four of the 10 species including *S. errans, S. ochreosa S. ruidula*, and *S. seminicola* occur mainly south of the LRGV and reach their northern limits here. *Sibinia fulva, S. inermis, S. pallida, S. setosa, S. simplex*, and *S. suturalis*, occur in the Neotropical Region (Central and/or South America) and/or the southern United States along the Mexican border. The species of *Sibinia* from the LRGV have Neotropical affinities and probably Neotropical origins. Species of *Microtychius* are most common in areas where mimosoid floras are large and diverse, including thorn forest, tropical deciduous forest, temperate and tropical deserts, and semi-desert areas. All the species of *Microtychius* in the United States (18) occur in the southwestern part of the country. Although Mimosoideae occur in Florida, no *Microtychius* have been recorded there (Clark 1978).

Conotrachelus

Conotrachelus is a speciose genus with approximately 60 species occurring in the United States and Canada of the over 1000 described New World species. There are 11 species recorded from the LRGV, five of which have the LRGV as their southern boundary. These species are *C. belfragei, C. buchanani, C. cameronensis, C. carolinensis*, and *C. rubescens*. Two species, *C. belfragei* and *C. floridanus*, occur both in the LRGV and southern Florida on *Bumelia celatrina*.

Gerstaeckeria

Gerstaeckeria are nocturnal feeders on Cactaceae and occur only in the Western Hemiphere (O'Brien 1970). *Gerstaeckeria* has 18 species recorded north of Mexico, six of which occur in the LRGV. Four of these species (*G.cactophaga, G. leptocaulis, G. nobilis*, and *G. opuntiae*) occur no further south than the LRGV.

Sphenophorus

The genus *Sphenophorus* is mainly a New World genus with some species in Europe, Africa, Australia, and Indonesia. The origin of the genus is thought to have been in the United States with few related genera and many species (Vaurie 1951). There are 71 species described from the United States and Mexico. Thirty-six species have been recorded from Texas, five of these occur in the LRGV. Two of the species, including *S. compressirostris* and *S. costipennis*, have not been recorded south of the LRGV.

Other genera

Some information is included here for other groups whose taxonomy and origins are not as well known. The tribe Centrinini has 17 species recorded from the LRGV, 14 of which have the LRGV as either their northern or southern limits. The genus *Myrmex* with four species in the LRGV, has three of the four occurring no further south than the LRGV. Three species of *Tachyerges* occur in the United States. Two of these have been recorded no further south than the LRGV. The tribe Lignyodini has four of five species occurring no further south than the LRGV, and one species with the LRGV as its north-

ern limit.

The LRGV contains many species that have not been recorded south of the LRGV and many species that occur in the Neotropics but extend no further north than the LRGV. Out of the 95 species in the groups listed above, 69% have the LRGV as either their northern or southern limit.

A total of 22 undetermined or undescribed species were recorded in the genera *Brachystylus, Notolomus, Andranthobius, Elleschus, Eubulus, Cylindrocopturus, Acanthoscelidius, Plesiobaris, Trepobaris, Aulobaris, Onychobaris, Odontocorynus, Nicentrus, Oligolochus, Sibariops, Haplostethops,* and *Allopentarthrum.*

See table 2 for a list of weevils occurring in the four major collecting sites. See tables 3 and 4 for lists of Curculionoidea and their plant associates.

Table 2. Species of Curculionoidea (excluding Anthribidae, Scolytinae, and Platypodinae) recorded from the collecting sites of Boca Chica Beach area (BCBA), Sabal Palm Grove Sanctuary (SPGS), Bentsen-Rio Grande State Park (BRGSP), and Falcon Dam area (FDA).

Species	BCBA	SPGS	BRGSP	FDA
Acamptus texanus			+	
Acanthoscelidius sp. 1	+			
Allopentarthrum sp. 1		+		
Allopentarthrum sp. 2		+		
Andranthobius sp.		+		
Anthonomus aeneolus		+	+	+
Anthonomus grandis		+	+	
Anthonomus leucostictus	+	+		+
Anthonomus ligatus			+	
Anthonomus schwarzi		+	+	
Anthonomus solarii		+		
Anthonomus testaceosquamosus		+		
Anthonomus unipustulatus	+	+		
Anthonomus xanthoxyli		+	+	
Apion amaurum	+			
Apion attenuatum		+		
Apion curticorne	+	+		

Table 2. cont.

Species	BCBA	SPGS	BRGSP	FDA
Apion fumitarse		+	+	
Apion subornatum				+
Apion xanthoxyli	+	+		
Apteromechus texanus		+		
Auleutes tuberculatus		+		
Brachyogmus ornatus	+			
Brachystylus sp., nr. microphthalmus		+		
Catapastinus caseyi		+		
Catapastus squamirostris		+		
Caulophilus oryzae		+		
Centrinopus helvinus		+		
Chalcodermus aeneus		+		
Chalcodermus semicostatus		+		
Chalcodermus vittatus		+	+	
Cionopsis lineola			+	
Cionopsis maculata		+	+	
Colecerus marmoratus	+	+	+	+
Compsus auricephalus	+	+	+	+
Conotrachelus belfragei		+		

Table 2. cont.

Species	BCBA	SPGS	BRGSP	FDA
Conotrachelus buchanani		+	+	
Conotrachelus cameronensis		+		
Conotrachelus floridanus		+	+	
Conotrachelus obesulus				+
Conotrachelus rubescens		+		
Conotrachelus seniculus		+		+
Conotrachelus texanus		+		+
Cophes fallax		+	+	
Cophes longiusculus		+		
Cophes texanus	+			
Cylas formicarius elegantulus	+	+		
Cylindrocopturus adspersus		+		
Cylindrocopturus armatus	+			
Cylindrocopturus sp. 2				+
Cylindrocopturus sp., nr. bifasciatus	+			
Eisonyx crassipes			+	
Epicaerus lepidotus	+		+	
Epicaerus mexicanus		+		
Eubulus sp., nr. bifasciculatus		+		

Table 2. cont.

Species	BCBA	SPGS	BRGSP	FDA
Eudiagogus pulcher		+	+	+
Gerstaeckeria cactophaga	+			
Gerstaeckeria nobilis	+			
Gerstaeckeria opuntiae				+
Gerstaeckeria unicolor				+
Haplostethops sp.		+		
Hypocoeloides wickhami		+		
Laemosaccus nephele			+	+
Laemosaccus texanus		+		
Lechriops oculata		+	+	
Lignyodes adamanteus				+
Lignyodes horridulus			+	
Lignyodes transversus		+		
Lignyodes varius				+
Lissorhoptrus oryzophilus		+		
Listronotus hyperodes				+
Listronotus salicorniae	+			
Listronotus texanus				+
Lixus punctinasus		+	+	

Table 2. cont.

Species	BCBA	SPGS	BRGSP	FDA
Madarellus cuneatus	+	+	+	
Madarellus perditus		+		
Maemectes cribratus			+	
Magdalis armicollis			+	
Microlarinus lypriformis		+		
Mitostylus tenuis	+		+	
Myrmex myrmex		+		
Myrmex texanus		+	+	
Myrmex uniformis			+	
Notiodes aeratus			+	
Notiodes punctatus	+			
Notiodes setosus		+		
Notolomus sp. 1		+		
Pandeleteius cinereus			+	
Pandeleteius longicollis		+		
Phyrdenus divergens		+		
Platyomus flexicaulis		+		
Plocetes versicolor	+			
Polydacrys depressifrons		+		

Table 2. cont.

Species	BCBA	SPGS	BRGSP	FDA
Prosaldius deplanatus		+		
Pselaphorhynchites macrophthalmus	+			
Pseudopentarthrum robustum		+		
Rhyssomatus ovalis				+
Rhyssomatus palmacollis				+
Rhyssomatus pruinosus		+	+	+
Rhyssomatus rugulipennis	+			
Rhyssomatus texanus		+		+
Sibariops sp.		+		
Sibinia inermis		+	+	+
Sibinia ochreosa		+		
Sibinia pallida	+	+		
Sibinia setosa				+
Sibinia suturalis			+	+
Sitophilus oryzae		+		
Smicraulax tuberculatus			+	
Smicronyx albonotatus		+		
Smicronyx lutulentus		+		
Tachyerges niger		+	+	

Table 2. cont.

Species	BCBA	SPGS	BRGSP	FDA
Tanymecus confusus		+	+	
Trepobaris sp.		+		
Trichobaris mucorea				+
Tyloderma baridium			+	
Tyloderma subpubescens		+	+	
Yuccaborus frontalis sharpi				+
Totals	24	75	38	25

Table 3. List of Species of Curculionoidea of the LRGV (Excluding Anthribidae, Platypodinae and Scolytinae) and Their Plant Associates.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Acamptus	texanus	Hamamelidaceae	Liquidambar	sp.	1
Acamptus	texanus	Juglandaceae	Carya	sp.	1
Acamptus	texanus	Lauraceae	Persea	sp.	1
Acamptus	texanus	Malvaceae	Hibiscus	sp.	1
Acamptus	texanus	Platanaceae	Platanus	sp.	1
Acamptus	texanus	Salicaceae	Salix	sp.	1
Acanthoscelidius	sp. 1	Onagraceae	Oenothera	sp.	2
Andranthobius	sp. 1	Arecaceae	Sabal	mexicana (=texana)	2
Anthonomus	aeneolus	Solanaceae	Solanum	dimidiatum (=torreryi)	1
Anthonomus	aeneolus	Solanaceae	Solanum	elaeagnifolium	1
Anthonomus	albopilosus	Euphorbiaceae	Croton	capitatus (=engelmanni)	1
Anthonomus	albopilosus	Euphorbiaceae	Croton	pottsii	3
Anthonomus	albopilosus	Euphorbiaceae	Croton	texensis	2
Anthonomus	eugenii	Brassicaceae	Lepidium	spp.	1
Anthonomus	eugenii	Solanaceae	Solanum	americanum (=nigrum)	2
Anthonomus	grandis	Malvaceae	Cienfuegosia	affinis	1*
Anthonomus	grandis	Malvaceae	Cienfuegosia	drummondii	1
Anthonomus	grandis	Malvaceae	Cienfuegosia	rosei	1*

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host association outside of Texas

Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Anthonomus	grandis	Malvaceae	Gossypium	aridium	1
Anthonomus	grandis	Malvaceae	Gossypium	davidsonii	1
Anthonomus	grandis	Malvaceae	Gossypium	harknessii	1
Anthonomus	grandis	Malvaceae	Gossypium	hirsutum	1
Anthonomus	grandis	Malvaceae	Gossypium	laxum	1
Anthonomus	grandis	Malvaceae	Gossypium	lobatum	1
Anthonomus	grandis	Malvaceae	Gossypium	thurberi	1*
Anthonomus	grandis	Malvaceae	Hampea	latifolia	1
Anthonomus	grandis	Malvaceae	Hampea	nutricia	1
Anthonomus	grandis	Malvaceae	Hampea	rovirosae	1
Anthonomus	grandis	Malvaceae	Hibiscus	pernambucensis	1*
Anthonomus	grandis	Malvaceae	Hibiscus	syriaccus	1
Anthonomus	grandis	Malvaceae	Thespesia	populnea	1
Anthonomus	leucostictus	Rutaceae	Zanthoxylum	fagara	1
Anthonomus	ligatus	Asteraceae	Aster	subulatus	1
Anthonomus	ligatus	Asteraceae	Leucosyris	spinosa	1
Anthonomus	schwarzi	Euphorbiaceae	Croton	watsoni	4
Anthonomus	schwarzi	Malpighiaceae	Malpighia	glabra	2

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host association outside of Texas

Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Anthonomus	solarii	Malvaceae	Malvastrum	americanum	1
Anthonomus	solarii	Malvaceae	Malvastrum	coromandelium	1
Anthonomus	squamans	Malvaceae	Abutilon	fruticosum (=incanum)	3
Anthonomus	squamans	Malvaceae	Callirhoe	involucrata	1
Anthonomus	squamans	Malvaceae	Callirhoe	leiocarpa	3
Anthonomus	squamans	Malvaceae	Malachra	capitata	3
Anthonomus	squamans	Malvaceae	Malvastrum	americanum	1
Anthonomus	squamans	Malvaceae	Malvastrum	aurantiacum	1
Anthonomus	squamans	Malvaceae	Malvastrum	corchorifolium	1
Anthonomus	squamans	Malvaceae	Malvastrum	coromandelium	1
Anthonomus	squamans	Malvaceae	Modiola	caroliniana	3
Anthonomus	squamans	Malvaceae	Sida	acuta	3
Anthonomus	squamans	Malvaceae	Sida	cordifolia	3
Anthonomus	squamans	Malvaceae	Sphaeralcea	lindheimeri	1
Anthonomus	testaceosquamosus	Malvaceae	Abutilon	"holosericeum"	2
Anthonomus	testaceosquamosus	Malvaceae	Allowissadula	lozanii	2*
Anthonomus	testaceosquamosus	Malvaceae	Allowissadula (=Wissadula)	holosericea	3
Anthonomus	testaceosquamosus	Malvaceae	Malvastrum	corchorifolium	3

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host association outside of Texas

Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Anthonomus	testaceosquamosus	Malvaceae	Sida	sp.	1
Anthonomus	unipustulatus	Malpighiaceae	Malpighia	glabra	1
Anthonomus	xanthoxyli	Rutaceae	Zanthoxylum	fagara	1
Aphrastus	unicolor	Asteraceae	Coreopsis	basalis (=cardaminaefolia)	3
Aphrastus	unicolor	Asteraceae	Verbesina	encelioides	3
Aphrastus	unicolor	Euphorbiaceae	Bernardia	myricaefolia	3
Aphrastus	unicolor	Fabaceae	Phaseolus	sp.	3
Aphrastus	unicolor	Lamiaceae	Monarda	punctata	3
Aphrastus	unicolor	Malvaceae	Gossypium	*hirsutum*	3
Apion	aculeatum	Fabaceae	Acacia	farnesiana	1
Apion	aculeatum	Fabaceae	Mimosa	pigra berlandieri	2
Apion	aculeatum	Fabaceae	Mimosa	sp.	1
Apion	amaurum	Fabaceae	Dalea (=Parosela)	aurea	3
Apion	amaurum	Fabaceae	Mimosa	borealis	3
Apion	amaurum	Fabaceae	Petalostemum	sp.	1
Apion	attenuatum	Salicaceae	Salix	sp.	3
Apion	buchanani	Euphorbiaceae	Croton	punctatus	2
Apion	buchanani	Malvaceae	Gossypium	hirsutum	4

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host association outside of Texas

Table 3. *cont.*

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Apion	buchanani	Poaceae	Zea	sp.	4
Apion	buchanani	Rutaceae	Citrus	sp.	4
Apion	buchanani	Solanaceae	Capsicum	sp.	4
Apion	curticorne	Asteraceae	Verbesina	virginica	3
Apion	curticorne	Asteraceae	Verbesina (=Actinomerus)	alternifolia	1
Apion	ellipticum	Apiaceae	Chaerophyllum	texanum	2
Apion	fumitarse	Euphorbiaceae	Croton	glandulosus	1
Apion	fumitarse	Fabaceae	Dalea (=Petalostemum)	multiflora	3
Apion	fumitarse	Fagaceae	Quercus	virginiana	3
Apion	fumitarse	Ulmaceae	Celtis	pallida	3
Apion	importunum	Fabaceae	Desmodium	sp.	3
Apion	occidentale	Asteraceae	Helianthus	tuberosus	3
Apion	occidentale	Brassicaceae	Brassica	sp.	3
Apion	subornatum	Fabaceae	Acacia	rigidula	1
Apion	subornatum	Fabaceae	Acacia	roemeriana	1
Apion	subornatum	Fabaceae	Mimosa	borealis	3
Apion	subornatum	Fabaceae	Prosopis	glandulosa (=juliflora)	3
Apion	subornatum	Fabaceae	Prosopis	sp.	1

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Apion	subtinctum	Fabaceae	Rhynchosia (=Dolicholus)	minima	3
Apion	subtinctum	Malvaceae	Malvaviscus	arboreus drummondi	2*
Apion	subtinctum	Sapotaceae	Bumelia	sp.	3
Apion	xanthoxyli	Rutaceae	Zanthoxylum	fagara	1
Apteromechus	pumilis	Lauraceae	Persea	palustris	3*
Auleutes	asper	Onagraceae	Epilobium	sp.	3
Auleutes	tuberculatus	Onagraceae	Gaura	drummondii (=odorata)	3
Baris	aerea	Asteraceae	Aster	sp.	3
Baris	transversa		"Cnicus	virginianus"	3
Baris	transversa	Asteraceae	Ambrosia	cumanensis (=psilostachya)	3
Brachyogmus	ornatus	Solanaceae	Lycium	pallidum	1*
Caulophilus	oryzae		stored products		1
Caulophilus	oryzae	Lauraceae	Persea	americana	1
Chalcodermus	aeneus	Fabaceae	Phaseolus	sp.	3
Chalcodermus	aeneus	Fabaceae	Vigna	unguiculata	1
Chalcodermus	aeneus	Malvaceae	Gossypium	hirsutum	1
Chalcodermus	collaris	Malvaceae	Gossypium	hirsutum	3
Chalcodermus	collaris	Onagraceae	Oenothera	biennis	3*

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Chalcodermus	collaris	Onagraceae	Senna (=Cassia)	chamaechrista	1*
Chalcodermus	collaris	Polygonaceae	Eriogonum	multiflorum	3
Chalcodermus	vittatus	Sapindaceae	Cardiospermum	halicacabum	3
Cionopsis	lineola	Sapindaceae	Serjania	brachycarpa	3
Cionopsis	maculata	Sapindaceae	Serjania	brachycarpa	1
Cleonidius	canescens	Caprifoliaceae	Symphoricarpos	sp.	3
Cleonidius	canescens	Chenopodaceae	Atriplex	canescens	3
Cleonidius	canescens	Fabaceae	Medicago	sativa	3
Cleonidius	canescens	Loasaceae	Mentzelia	sp.	3
Colecerus	marmoratus	Fabaceae	Leucaena	pulverulenta	3
Colecerus	marmoratus	Fabaceae	Pithecellobium	flexicaule	3
Colecerus	marmoratus	Fabaceae	Prosopis	glandulosa	3
Compsus	auricephalus	Asteraceae	Ambrosia	sp.	3
Compsus	auricephalus	Boraginaceae	Ehretia	anacua	3
Compsus	auricephalus	Fabaceae	Acacia	sp.	3
Compsus	auricephalus	Fabaceae	Medicago	sativa	3
Compsus	auricephalus	Fabaceae	Prosopis	glandulosa	3
Compsus	auricephalus	Malvaceae	Gossypium	hirsutum	1

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Compsus	auricephalus	Rosaceae	Prunus	angustifolia	3
Compsus	auricephalus	Sapotaceae	Bumelia	celastrina	3
Compsus	auricephalus	Verbenaceae	Lantana	camara	3
Compsus	auricephalus	Viscaceae	Phoradendron	tomentosum (=flavescens)	3
Conotrachelus	anaglypticus	see annotated bibliography			
Conotrachelus	belfragei	Sapotaceae	Bumelia	celastrina	3
Conotrachelus	buchanani	Ulmaceae	Celtis	laevigata (=mississippiensis)	3
Conotrachelus	cameronensis	Malvaceae	Abutilon	hypoleucum	3
Conotrachelus	carolinensis	Malvaceae	Gossypium	hirsutum	3
Conotrachelus	carolinensis	Rosaceae	Prunus	persica	3*
Conotrachelus	floridanus	Euphorbiaceae	Bernardia	myricaefolia	3
Conotrachelus	floridanus	Flacourtiaceae	Xylosma	flexuosa	3
Conotrachelus	floridanus	Sapotaceae	Bumelia	celastrina	3*
Conotrachelus	leucophaeatus	Amaranthaceae	Amaranthus	sp.	1
Conotrachelus	leucophaeatus	Euphorbiaceae	Euphorbia	marginata	1
Conotrachelus	leucophaeatus	Fabaceae	Leucaena	pulverulenta	3
Conotrachelus	leucophaeatus	Malvaceae	Gossypium	hirsutum	3
Conotrachelus	leucophaeatus	Papaveraceae	Argemone	mexicana	3

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Conotrachelus	leucophaeatus	Papaveraceae	Argemone	sp.	1*
Conotrachelus	leucophaeatus	Poaceae	Zea	mays	3
Conotrachelus	nibescens	Flacourtiaceae	Xylosma	flexuosa	3
Conotrachelus	seniculus	Asteraceae	Amaranthus	hybridus (=retroflexus)	1*
Conotrachelus	texanus	Malvaceae	Abutilon	hypoleucum	3
Cophes	fallax	Juglandaceae	Carya	sp.	1
Cophes	longiusculus	Salicaceae	Salix	sp.	2
Curculio	sulcatulus	Fagaceae	Quercus	spp.	1
Cylas	formicarius elegantulus	Convolvulaceae	Convolvulus	sp.	1
Cylas	formicarius elegantulus	Convolvulaceae	Ipomoea	batatus	1
Cylas	formicarius elegantulus	Convolvulaceae	Ipomoea	pescapreae	1
Cylindrocopturus	adspersus	Asteraceae	Helianthus	annuus	1*
Cylindrocopturus	adspersus	Asteraceae	Helianthus	maxmilani	1*
Cylindrocopturus	adspersus	Asteraceae	Helianthus	petiolaris petiolaris	1*
Cylindrocopturus	adspersus	Asteraceae	Xanthium	sp.	1
Cylindrocopturus	nanulus	Myricaceae	Myrica	cerifera	3*
Cylindrocopturus	nanulus	Vitaceae	Ampelopsis	sp.	3*
Cylindrocopturus	sp. 2	Fabaceae	Prosopis	glandulosa	3

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Dorytomus	brevicollis	Moraceae	Maclura	pomifera	3
Dorytomus	brevicollis	Salicaceae	Salix	nigra	3
Dorytomus	brevicollis	Salicaceae	Salix	sp.	1
Eisonyx	crassipes		Musa	sp.	4*
Eisonyx	crassipes	Plantaginaceae	Plantago	virginica	3
Eisonyx	crassipes	Poaceae	Sorghum	sp.	3
Eisonyx	crassipes	Solanaceae	Physalis	"cornuta"	3
Ellescbus	sp.	Salicaceae	Salix	sp.	3
Epicaerus	mexicanus	Sapindaceae	Serjania	brachycarpa	3
Episcirrus	brachialis	Cornaceae	Nyssa	sylvatica biflora	3
Eubulus	sp., nr. bifasciculatus	Sapotaceae	Bumelia	lanuginosa	3
Eudiagogus	pulcher	Asteraceae	Aster	sericeus	4
Eudiagogus	pulcher	Asteraceae	Dracopis (=Rudbeckia)	amplexicaulis	2
Eudiagogus	pulcher	Asteraceae	Xanthium	sp.	4
Eudiagogus	pulcher	Casuarinaceae	Casuarina	equisetifolia	4
Eudiagogus	pulcher	Chenopodaceae	Beta	vulgaris	3
Eudiagogus	pulcher	Fabaceae	Acacia	sp.	4
Eudiagogus	pulcher	Fabaceae	Cassia	obtusifolia	3

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Eudiagogus	pulcher	Fabaceae	Medicago	sativa	4
Eudiagogus	pulcher	Fabaceae	Phaseolus	vulgaris	4
Eudiagogus	pulcher	Fabaceae	Senna (=Cassia)	occidentalis	3
Eudiagogus	pulcher	Fabaceae	Sesbania	drummondii	1
Eudiagogus	pulcher	Fabaceae	Sesbania	macrocarpa (=exaltata)	1
Eudiagogus	pulcher	Fabaceae	Sesbania	vesicaria	1
Eudiagogus	pulcher	Malvaceae	Gossypium	hirsutum	4*
Eudiagogus	pulcher	Poaceae	Sorghum	bicolor (=vulgare)	4*
Eudiagogus	pulcher	Rosaceae	Crataegus	sp.	4
Eudiagogus	pulcher	Rosaceae	Rubus	sp.	4
Eudiagogus	pulcher	Rutaceae	Zanthoxylum	clava-herculis	3
Eustylus	sp.	Fabaceae	Pithecellobium	flexicaule	3
Gerstaeckeria	cactophaga	Cactaceae	Opuntia	sp.	3
Gerstaeckeria	doddi	Cactaceae	Opuntia	lindheimeri	3
Gerstaeckeria	leptocaulis	Cactaceae	Opuntia	leptocaulis	1
Gerstaeckeria	nobilis	Cactaceae	Opuntia	"cotulla"	3
Gerstaeckeria	nobilis	Cactaceae	Opuntia	macrocentra (=violacea)	1
Gerstaeckeria	opuntiae	Cactaceae	Opuntia	leptocaulis	3

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Gerstaeckeria	opuntiae	Cactaceae	*Opuntia*	lindheimeri	3
Gerstaeckeria	opuntiae	Cactaceae	Opuntia	sp.	3
Gerstaeckeria	unicolor	Cactaceae	Opuntia	"robusta"	2*
Gerstaeckeria	unicolor	Cactaceae	Opuntia	sp.	I
Haplorhynchites	pseudomexicanus	Asteraceae	Helianthus	annuus	3*
Haplorhynchites	quadripennis	Asteraceae	Baccharis	sp.	3
Hohonus	lacteicollis	Viscaceae	Phoradendron	sp.	1*
Isodacrys	ovipennis	Ulmaceae	Celtis	sp.	3
Laemosaccus	texanus	Malvaceae	Abutilon	"holosericeum"	3
Laemosaccus	texanus	Malvaceae	Gossypium	hirsutum	3
Lechriops	oculata	Caprifoliaceae	Viburnum	spp.	3
Lechriops	oculata	Fagaceae	Fagus	grandifolia	3
Lechriops	oculata	Fagaceae	Quercus	spp.	3
Lechriops	oculata	Juglandaceae	Carya (=Hicoria)	sp.	3
Lechriops	oculata	Lauraceae	Sassafras	"sassafras"	3
Lechriops	oculata	Oleaceae	Fraxinus	sp.	3
Lechriops	oculata	Rosaceae	Crataegus	spp.	3
Lignyodes	adamanteus	Oleaceae	Forestieria	angustifolia	3

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Listronotus	texanus	Apiaceae	Aenethum	sp.	1
Listronotus	texanus	Apiaceae	Apium	sp.	3
Listronotus	texanus	Apiaceae	Daucus	sp.	1
Listronotus	texanus	Apiaceae	Petroselinum	sp.	1
Lixus	punctinasus	Polygonaceae	Polygonum	pensylvaticum	1
Lixus	scrobicollis	Asteraceae	Ambrosia	cumanensis (=psilostachya)	1
Lixus	scrobicollis	Asteraceae	Ambrosia	trifida	1
Lixus	scrobicollis	Asteraceae	Helianthus	sp.	3
Lixus	scrobicollis	Asteraceae	Verbesina	encelioides	3
Lixus	scrobicollis	Malvaceae	Gossypium	hirsutum	4
Lixus	scrobicollis	Rosaceae	Fragaria	sp.	4
Lixus	terminalis	Polygonaceae	Polygonum	pensylvaticum	1
Madarellus	cuneatus	Vitaceae	Cissus	incisa	3
Magdalis	armicollis	Fabaceae	Prosopis	glandulosa	1
Magdalis	armicollis	Ulmaceae	Ulmus	crassifolia	1
Meamectes	cribratus	Solanaceae	Lycopersicon	esculentum	4
Microbaris	galvestonica	Verbenaceae	Phyla	sp.	3
Microlarinus	lypriformis	Zygophyllaceae	Tribulus	cistoides	1*

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Microlarinus	lypriformis	Zygophyllaceae	Tribulus	terrestris	1
Mitostylus	tenuis	Asteraceae	Amphiachyris	dracunculoides	1
Mitostylus	tenuis	Asteraceae	Amphiachyris	spp.	3
Mitostylus	tenuis	Asteraceae	Grindelia	squarrosa nuda	3
Mitostylus	tenuis	Asteraceae	Parthenium	sp.	3
Mitostylus	tenuis	Fabaceae	Prosopis	reptans	3
Myrmex	myrmex	Platanaceae	Platanus	occidentalis	1
Myrmex	texanus	Salicaceae	Salix	nigra	3
Narberdia	aridulus	Euphorbiaceae	Bernardia	myriceafolia	1
Narberdia	aridulus	Euphorbiaceae	Bernardia	obovata	1
Notiodes	aeratus	Apiaceae	Daucus	sp.	3
Notiodes	aeratus	Cyperaceae	Eleocharis	palustris	3
Notiodes	aeratus	Cyperaceae	Scirpus	fluviatilus	3*
Notiodes	aeratus	Fabaceae	Medicago	sativa	3
Notiodes	aeratus	Malvaceae	Abutilon	sp.	3
Notiodes	aeratus	Malvaceae	Gossypium	hirsutum	3
Notiodes	aeratus	Marsiliaceae	Marsilea	ancyclopoda	1
Notiodes	aeratus	Marsiliaceae	Marsilea	vestita	1

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Notiodes	aeratus	Poaceae	Paspalum	distichum	3
Notiodes	aeratus	Polygonaceae	Polygonum	pensylvanicum	3
Notiodes	aeratus	Salicaceae	Salix	sp.	3
Notiodes	celatus	Marsileaceae	Marsilea	vestita	1
Notiodes	punctatus	Cyperaceae	Eleocharis	acutisquamata	1
Notiodes	punctatus	Cyperaceae	Eleocharis	caribaea	1
Notiodes	punctatus	Cyperaceae	Eleocharis	montevidensis	1
Notiodes	punctatus	Cyperaceae	Eleocharis	obtusa	1
Notiodes	punctatus	Cyperaceae	Eleocharis	palustris	1
Notiodes	punctatus	Cyperaceae	Eleocharis	tortilis	1
Notiodes	punctatus	Cyperaceae	Scirpus	americanus	1
Notiodes	robustus	Marsileaceae	Marsilea	sp.	3
Notiodes	robustus	Poaceae	Paspalum	distichum	3
Notiodes	robustus	Polygonaceae	Polygonum	pensylvanicum	3
Notiodes	setosus	Cyperaceae	Eleocharis	palustris	3
Notiodes	setosus	Marsileaceae	Marsilea	vestita	3
Notiodes	setosus	Marsiliaceae	Marsilea	ancyclopoda	3
Notiodes	setosus	Poaceae	Paspalum	distichum	3

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Notiodes	setosus	Polygonaceae	Polygonum	pensylvanicum	3
Notolomus	sp. 1	Arecaceae	Sabal	mexicana (=texana)	2
Onychobaris	mystica	Cactaceae	Opuntia	fulgida	1*
Onychobaris	mystica	Cactaceae	Opuntia	leptocaulis	1
Onychylis	longulus	Pontederiaceae	Pontederia	cordata	2
Ophryastes	decipiens	Fabaceae	Acacia	berlandieri	3
Ophryastes	decipiens	Rhamnaceae	Condalia	"lycioides"	3
Ophryastes	tuberosus	Asteraceae	Verbesina	encelioides	3
Ophryastes	tuberosus	Brassicaceae	Brassica	rapa	3
Ophryastes	tuberosus	Brassicaceae	Lepidium	"alyssoides"	3
Ophryastes	tuberosus	Malvaceae	Gossypium	hirsutum	3
Ophryastes	tuberosus	Malvaceae	Sphaeralcea	angustifolia	3
Ophryastes	tuberosus	Polygonaceae	Rumex	hymenosepalus	3
Pandeleteius	cinereus	Cupressaceae	Juniperus	sp.	4
Pandeleteius	cinereus	Fabaceae	Prosopis	sp.	4
Pandeleteius	cinereus	Fagaceae	Quercus	sp.	4
Pandeleteius	cinereus	Juglandaceae	Carya	sp.	4
Pandeleteius	cinereus	Juglandaceae	Juglans	sp.	4

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Pandeleteius	cinereus	Sapotaceae	Bumelia	lanuginosa	4
Pandeleteius	cinereus	Ulmaceae	Ulmus	sp.	4
Pandeleteius	cinereus	Viscaceae	Phoradendron	tomentosum (=flavescens)	1
Pandeleteius	longicollis	Fabaceae	Phaseolus	sp.	4*
Phacepholis	viridis	Malvaceae	Gossypium	hirsutum	3
Phyrdenus	divergens	Solanaceae	Solanum	americanum (=nigrum)	3
Platyomus	flexicaulis	Fabaceae	Pithecellobium	flexicaule	3
Plocetes	versicolor	Rubiaceae	Randia	rhagocarpa	3
Pnigodes	setosus	Brassicaceae	Brassica	sp.	1
Pnigodes	setosus	Brassicaceae	Lepidium	sp.	1
Polydacrys	depressifrons	Boraginaceae	Ehretia	anacua	3
Polydacrys	depressifrons	Rosaceae	Crataegus	sp.	3
Prosaldius	blanditus	Cyperaceae	Cyperus	ochraceus	3
Prosaldius	deplanatus	Poaceae	Saccharum	officinarum	1
Prosaldius	deplanatus	Poaceae	Zea	mays	1
Pselaphorhynchites	macropthalmus	Fabaceae	Pithecellobium	flexicaule	3
Pselaphorhynchites	macropthalmus	Fabaceae	Prosopis	reptans	3
Pseudanthonomus	tomentosulus	Krameriaceae	Krameria	lanceolata (=secundiflora)	1

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Pseudobaris	discreta		"Cnicus	virginianus"	3
Pseudopentarthrum	robustum	Salicaceae	Salix	sp.	3
Rhyssomatus	palmacollis	Asclepiadaceae	Asclepias	latifolia	3
Rhyssomatus	palmacollis	Convolvulaceae	Ipomoea	batatas	3
Rhyssomatus	pruinosus	Euphorbiaceae	Bernardia	myricaefolia	3
Rhyssomatus	pruinosus	Fabaceae	Acacia	greggii	1
Rhyssomatus	pruinosus	Fabaceae	Pithecellobium	pallens	3
Rhyssomatus	pruinosus	Rhamnaceae	Condalia	hookeri	3
Rhyssomatus	rugulipennis	Asclepiadaceae	Cynanchum	barbigerum	3
Ryssomatus	palmacollis	Asclepiadaceae	Asclepias	latifolia	3
Ryssomatus	palmacollis	Convolvulaceae	Ipomoea	batatus	3
Ryssomatus	palmacollis	Convolvulaceae	Ipomoea	pandurata	2*
Ryssomatus	palmacollis	Convolvulaceae	Ipomoea	sinuata	3
Ryssomatus	palmacollis	Malvaceae	Gossypium	hirsutum	3
Scyphophorus	acupunctatus	Agavaceae	Dracaena	draco	1*
Scyphophorus	acupunctatus	Agavaceae	Furcraea	tuberosa	1*
Scyphophorus	acupunctatus	Agavaceae	Yucca	glauca	1*
Scyphophorus	acupunctatus	Amaryllidaceae	Agave	americana	1*

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Scyphophorus	acupunctatus	Amaryllidaceae	Agave	atrovirens	1*
Scyphophorus	acupunctatus	Amaryllidaceae	Agave	attenuata	1*
Scyphophorus	acupunctatus	Amaryllidaceae	Agave	cubensis	1*
Scyphophorus	acupunctatus	Amaryllidaceae	Agave	ferdinandiregis	1*
Scyphophorus	acupunctatus	Amaryllidaceae	Agave	lecheguilla	1*
Scyphophorus	acupunctatus	Amaryllidaceae	Agave	mexicana	1*
Scyphophorus	acupunctatus	Amaryllidaceae	Agave	shawii	1*
Scyphophorus	acupunctatus	Amaryllidaceae	Agave	sisalana	1*
Sibinia	errans	Fabaceae	Acacia	rigidula	1
Sibinia	fulva	Fabaceae	Acacia	greggii	1
Sibinia	fulva	Fabaceae	Acacia	roemeriana	1
Sibinia	inermis	Fabaceae	Acacia	farnesiana	1
Sibinia	inermis	Fabaceae	Acacia	schaffneri	1
Sibinia	ochreosa	Fabaceae	Mimosa	pigra berlandieri	1
Sibinia	pallida	Fabaceae	Pithecellobium	flexicaule	1
Sibinia	ruidula	Fabaceae	Acacia	farnesiana	1
Sibinia	ruidula	Fabaceae	Acacia	schaffneri	1
Sibinia	seminicola	Fabaceae	Mimosa	pigra berlandieri	1

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Sibinia	setosa	Fabaceae	Prosopis	glandulosa	1
Sibinia	simplex	Fabaceae	Acacia	constricta	1
Sibinia	simplex	Fabaceae	Acacia	neovernicosa	1
Sibinia	suturalis	Fabaceae	Leucaena	pulverulenta	3
Sibinia	suturalis	Fabaceae	Mimosa	malacophylla	1
Sitophilus	oryzae		stored grains		1
Smicraulax	tuberculatus	Ebenaceae	Diospyros	texana	3
Smicraulax	tuberculatus	Viscaceae	Phoradendron	tomentosum (=flavescens)	1
Smicronyx	apionides	Asteraceae	Helianthus	ciliaris	2
Smicronyx	apionides	Convolvulaceae	Cuscuta	sp.	2
Smicronyx	atratus	Convolvulaceae	Cuscuta	sp.	2
Smicronyx	constrictus	Asteraceae	Helianthus	sp.	1
Smicronyx	corniculatus	Asteraceae	Ambrosia	artemisiifolia	3*
Smicronyx	corpulentus	Asteraceae	Aphanostephus	skirrhobasis	3
Smicronyx	corpulentus	Asteraceae	Gaillardia	pulchella	3
Smicronyx	corpulentus	Asteraceae	Helenium	sp	1
Smicronyx	corpulentus	Euphorbiaceae	Croton	capitatus	1, 5
Smicronyx	corpulentus	Fabaceae	Medicago	sativa	3

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Smicronyx	corpulentus	Lamiaceae	Monarda	citriodora	3
Smicronyx	corpulentus	Malvaceae	Gossypium	hirsutum	3
Smicronyx	corpulentuus	Fabaceae	Dalea (=Parosela)	aurea	1
Smicronyx	lutulentus	Asteraceae	Ambrosia	trifida texana	3
Smicronyx	lutulentus	Asteraceae	Parthenium	hysterophorus	3
Smicronyx	lutulentus	Lamiaceae	Monarda	citriodora	3
Smicronyx	lutulentus	Malvaceae	Abutilon	sp.	2
Smicronyx	lutulentus	Malvaceae	Gossypium	hirsutum	3
Smicronyx	quadrifer	Asteraceae	Ambrosia	sp.	1
Smicronyx	sculpticollis	Asteraceae	Aster	sp.	1
Smicronyx	sculpticollis	Asteraceae	Solidago	sp.	1
Smicronyx	sculpticollis	Convolvulaceae	Cuscuta	cephalanthi	1*
Smicronyx	sculpticollis	Convolvulaceae	Cuscuta	pentagona (=arvensis)	1*
Smicronyx	sordidus	Asteraceae	Helianthus	sp.	3
Smicronyx	sordidus	Fabaceae	Medicago	sativa	3
Smicronyx	sordidus	Fabaceae	Senna (=Cassia)	sp.	3
Smicronyx	sordidus	Malvaceae	Gossypium	hirsutum	3
Smicronyx	tessellatus	Asteraceae	Ambrosia	sp.	3

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host association outside of Texas

Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Smicronyx	triangularis	Asteraceae	Dracopis (=Rudbeckia)	amplexicaulis	3
Smicronyx	triangularis	Asteraceae	Dracopis (=Rudbeckia)	sp.	2
Smicronyx	tychoides	Asteraceae	Ambrosia	sp.	3
Smicronyx	tychoides	Asteraceae	Cuscuta	sp.	1
Sphenophorus	coesifrons	Poaceae	Saccharum	officinarum	1
Sphenophorus	venatus vestitus	Poaceae	Oryza	sp.	1
Tachyerges	niger	Salicaceae	Salix	spp.	2*
Tachyerges	salicis	Salicaceae	Populus	spp.	3*
Tachyerges	salicis	Salicaceae	Salix	spp.	2
Tanymecus	confusus	Asteraceae	Ambrosia	cumanensis (=psilostachya)	3
Tanymecus	confusus	Asteraceae	Xanthium	strumarium	1
Tanymecus	confusus	Chenopodiaceae	Chenopodium	album	1
Tanymecus	confusus	Fagaceae	Quercus	sp.	3
Tanymecus	confusus	Polygonaceae	Polygonum	sp.	1
Thecesternus	hirsutus	Asteraceae	Parthenium	confertum	1
Thecesternus	hirsutus	Asteraceae	Parthenium	hysterophorus	1
Thecesternus	humeralis	Vitaceae	Vitis	sp.	2
Trichobaris	cylindrica	Solanaceae	Solanum	eleagnifolium	1

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host association outside of Texas

Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Trichobaris	mucorea	Solanaceae	Nicotiana	tabacum	1
Trichobaris	mucorea	Solanaceae	Nicotiana	trigonophylla	3
Trichobaris	mucorea	Solanaceae	Solanum	eleagnifolium	1
Trichobaris	texana	Solanaceae	Solanum	eleagnifolium	1
Trichobaris	texana	Solanaceae	Solanum	rostratum	1
Tyloderma	angustulum	Malvaceae	"Anogra	pallida"	3
Tyloderma	angustulum	Malvaceae	Gossypium	hirsutum	3
Tyloderma	angustulum	Onagraceae	Oenothera	sp.	1
Tyloderma	baridium	Cactaceae	Opuntia	sp.	3
Tyloderma	baridium	Malvaceae	Gossypium	hirsutum	3
Tyloderma	baridium	Onagraceae	Gaura	villosa	1
Tyloderma	baridium	Onagraceae	Oenothera	laciniata	1
Tyloderma	subpubescens	Asteraceae	Lactuca	sp.	4
Tyloderma	subpubescens	Marsileaceae	Marsilea	sp.	4
Tyloderma	subpubescens	Polygonaceae	Polygonum (=Persicaria)	"acuminatum"	3
Tyloderma	subpubescens	Polygonaceae	Polygonum (=Persicaria)	hydropiperoides	3
Tyloderma	subpubescens	Polygonaceae	Polygonum (=Persicaria)	pensylvaticum	1
Tyloderma	subpubescens	Polygonaceae	Polygonum (=Persicaria)	"portoricense"	1

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host association outside of Texas

Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Tyloderma	subpubescens	Polygonaceae	Polygonum (=Persicaria)	punctatum	1
Yuccaborus	frontalis sharpi	Agavaceae	Yucca	sp.	1
Zygobarella	xanthoxyli	Rutaceae	Zanthoxylum	clava-hercules	2
Zygobarella	xanthoxyli	Rutaceae	Zanthoxylum	sp.	1

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host association outside of Texas

Table 4. List of Plants and Their Curculionoidea Associates of the LRGV (Excluding Anthribidae, Platypodinae and Scolytinae).

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
		see annotated bibliography		Conotrachelus	anaglypticus
Abutilon	fruticosum (=incanum)	Malvaceae	3	Anthonomus	squamans
Abutilon	"holosericeum"	Malvaceae	2	Anthonomus	testaceosquamosus
Abutilon	"holosericeum"	Malvaceae	3	Laemosaccus	texanus
Abutilon	hypoleucum	Malvaceae	3	Conotrachelus	cameronensis
Abutilon	hypoleucum	Malvaceae	3	Conotrachelus	texanus
Abutilon	sp.	Malvaceae	2	Smicronyx	lutulentus
Abutilon	sp.	Malvaceae	3	Notiodes	aeratus
Acacia	berlandieri	Fabaceae	3	Ophryastes	decipiens
Acacia	constricta	Fabaceae	1	Sibinia	simplex
Acacia	farnesiana	Fabaceae	1	Apion	aculeatum
Acacia	farnesiana	Fabaceae	1	Sibinia	inermis
Acacia	farnesiana	Fabaceae	1	Sibinia	nuidula
Acacia	greggii	Fabaceae	1	Rhyssomatus	pruinosus
Acacia	greggii	Fabaceae	1	Sibinia	fulva
Acacia	neovernicosa	Fabaceae	1	Sibinia	simplex
Acacia	rigidula	Fabaceae	1	Apion	subornatum
Acacia	rigidula	Fabaceae	1	Sibinia	errans

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host Association outside of Texas

Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Acacia	roemeriana	Fabaceae	1	Apion	subornatum
Acacia	roemeriana	Fabaceae	1	Sibinia	fulva
Acacia	schaffneri	Fabaceae	1	Sibinia	inermis
Acacia	schaffneri	Fabaceae	1	Sibinia	ruidula
Acacia	sp.	Fabaceae	3	Compsus	auricephalus
Acacia	sp.	Fabaceae	4	Eudiagogus	pulcher
Aenethum	sp.	Apiaceae	1	Listronotus	texanus
Agave	americana	Amaryllidaceae	1*	Scyphophorus	acupunctatus
Agave	atrovirens	Amaryllidaceae	1*	Scyphophorus	acupunctatus
Agave	attenuata	Amaryllidaceae	1*	Scyphophorus	acupunctatus
Agave	cubensis	Amaryllidaceae	1*	Scyphophorus	acupunctatus
Agave	ferdinandiregis	Amaryllidaceae	1*	Scyphophorus	acupunctatus
Agave	lecheguilla	Amaryllidaceae	1*	Scyphophorus	acupunctatus
Agave	mexicana	Amaryllidaceae	1*	Scyphophorus	acupunctatus
Agave	shawii	Amaryllidaceae	1*	Scyphophorus	acupunctatus
Agave	sisalana	Amaryllidaceae	1*	Scyphophorus	acupunctatus
Allowissadula	lozanii	Malvaceae	2*	Anthonomus	testaceosquamosus
Allowissadula (=Wissadula)	holosericea	Malvaceae	3	Anthonomus	testaceosquamosus
Amaranthus	hybridus (=retroflexus)	Asteraceae	1*	Conotrachelus	seniculus

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host Association outside of Texas

Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Amaranthus	sp.	Amaranthaceae	1	Conotrachelus	leucophaeatus
Ambrosia	artemisiifolia	Asteraceae	3*	Smicronyx	corniculatus
Ambrosia	cumanensis (=psilostachya)	Asteraceae	1	Lixus	scrobicollis
Ambrosia	cumanensis (=psilostachya)	Asteraceae	3	Baris	transversa
Ambrosia	cumanensis (=psilostachya)	Asteraceae	3	Tanymecus	confusus
Ambrosia	sp.	Asteraceae	1	Smicronyx	quadrifer
Ambrosia	sp.	Asteraceae	3	Compsus	auricephalus
Ambrosia	sp.	Asteraceae	3	Smicronyx	tessellatus
Ambrosia	sp.	Asteraceae	3	Smicronyx	tychoides
Ambrosia	trifida	Asteraceae	1	Lixus	scrobicollis
Ambrosia	trifida texana	Asteraceae	3	Smicronyx	lutulentus
Ampelopsis	sp.	Vitaceae	3*	Cylindrocopturus	nanulus
Amphiachyris	dracunculoides	Asteraceae	1	Mitostylus	tenuis
Amphiachyris	spp.	Asteraceae	3	Mitostylus	tenuis
"Anogra	pallida"	Malvaceae	3	Tyloderma	angustulum
Aphanostephus	skirrhobasis	Asteraceae	3	Smicronyx	corpulentus
Apium	sp.	Apiaceae	3	Listronotus	texanus
Argemone	mexicana	Papaveraceae	3	Conotrachelus	leucophaeatus
Argemone	sp.	Papaveraceae	1*	Conotrachelus	leucophaeatus

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Asclepias	latifolia	Asclepiadaceae	3	Rhyssomatus	palmacollis
Asclepias	latifolia	Asclepiadaceae	3	Ryssomatus	palmacollis
Aster	sericeus	Asteraceae	4	Eudiagogus	pulcher
Aster	sp.	Asteraceae	1	Smicronyx	sculpticollis
Aster	sp.	Asteraceae	3	Baris	aerea
Aster	subulatus	Asteraceae	1	Anthonomus	ligatus
Atriplex	canescens	Chenopodaceae	3	Cleonidius	canescens
Baccharis	sp.	Asteraceae	3	Haplorhynchites	quadripennis
Bernardia	myricaefolia	Euphorbiaceae	3	Aphrastus	unicolor
Bernardia	myricaefolia	Euphorbiaceae	3	Conotrachelus	floridanus
Bernardia	myricaefolia	Euphorbiaceae	3	Rhyssomatus	pruinosus
Bernardia	myriceafolia	Euphorbiaceae	1	Narberdia	aridulus
Bernardia	obovata	Euphorbiaceae	1	Narberdia	aridulus
Beta	vulgaris	Chenopodaceae	3	Eudiagogus	pulcher
Borrichia	frutescens	Asteraceae	3*	Listronotus	borrichiae
Brassica	rapa	Brassicaceae	3	Ophryastes	tuberosus
Brassica	sp.	Brassicaceae	1	Pnigodes	setosus
Brassica	sp.	Brassicaceae	3	Apion	occidentale
Bumelia	celastrina	Sapotaceae	3	Compsus	auricephalus

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host Association outside of Texas

Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Bumelia	celastrina	Sapotaceae	3	Conotrachelus	belfragei
Bumelia	celastrina	Sapotaceae	3*	Conotrachelus	floridanus
Bumelia	lanuginosa	Sapotaceae	3	Eubulus	sp., nr. bifasciculatus
Bumelia	lanuginosa	Sapotaceae	4	Pandeleteius	cinereus
Bumelia	sp.	Sapotaceae	3	Apion	subtinctum
Callirhoe	involucrata	Malvaceae	1	Anthonomus	squamans
Callirhoe	leiocarpa	Malvaceae	3	Anthonomus	squamans
Capsicum	sp.	Solanaceae	4	Apion	buchanani
Cardiospermum	halicacabum	Sapindaceae	3	Chalcodermus	vittatus
Carya	sp.	Juglandaceae	1	Acamptus	texanus
Carya	sp.	Juglandaceae	1	Cophes	fallax
Carya	sp.	Juglandaceae	4	Pandeleteius	cinereus
Carya (=Hicoria)	sp.	Juglandaceae	3	Lechriops	oculata
Cassia	obtusifolia	Fabaceae	3	Eudiagogus	pulcher
Casuarina	equisetifolia	Casuarinaceae	4	Eudiagogus	pulcher
Celtis	laevigata (=mississippiensis)	Ulmaceae	3	Conotrachelus	buchanani
Celtis	pallida	Ulmaceae	3	Apion	fumitarse
Celtis	sp.	Ulmaceae	3	Isodacrys	ovipennis
Chaerophyllum	texanum	Apiaceae	2	Apion	ellipticum

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Chenopodium	album	Chenopodiaceae	1	Tanymecus	confusus
Cienfuegosia	affinis	Malvaceae	1*	Anthonomus	grandis
Cienfuegosia	drummondii	Malvaceae	1	Anthonomus	grandis
Cienfuegosia	rosei	Malvaceae	1*	Anthonomus	grandis
Cissus	incisa	Vitaceae	3	Madarellus	cuneatus
Citrus	sp.	Rutaceae	4	Apion	buchanani
"Cnicus	virginianus"		3	Baris	transversa
"Cnicus	virginianus"		3	Pseudobaris	discreta
Condalia	hookeri	Rhamnaceae	3	Rhyssomatus	pruinosus
Condalia	"lycioides"	Rhamnaceae	3	Ophryastes	decipiens
Convolvulus	sp.	Convolvulaceae	1	Cylas	formicarius elegantulus
Coreopsis	basalis (=cardaminaefolia)	Asteraceae	3	Aphrastus	unicolor
Crataegus	sp.	Rosaceae	3	Polydacrys	depressifrons
Crataegus	sp.	Rosaceae	4	Eudiagogus	pulcher
Crataegus	spp.	Rosaceae	3	Lechriops	oculata
Croton	capitatus	Euphorbiaceae	1*	Smicronyx	corpulentus
Croton	capitatus (=engelmanni)	Euphorbiaceae	1	Anthonomus	albopilosus
Croton	glandulosus	Euphorbiaceae	1	Apion	fumitarse
Croton	pottsii	Euphorbiaceae	3	Anthonomus	albopilosus

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Croton	punctatus	Euphorbiaceae	2	Apion	buchanani
Croton	texensis	Euphorbiaceae	2	Anthonomus	albopilosus
Croton	watsoni	Euphorbiaceae	4	Anthonomus	schwarzi
Cuscuta	cephalanthi	Convolvulaceae	1*	Smicronyx	sculpticollis
Cuscuta	pentagona (=arvensis)	Convolvulaceae	1*	Smicronyx	sculpticollis
Cuscuta	sp.	Asteraceae	1	Smicronyx	tychoides
Cuscuta	sp.	Convolvulaceae	2	Smicronyx	apionides
Cuscuta	sp.	Convolvulaceae	2	Smicronyx	atratus
Cynanchum	barbigerum	Asclepiadaceae	3	Rhyssomatus	rugulipennis
Cyperus	ochraceus	Cyperaceae	3	Prosaldius	blanditus
Dalea (=Parosela)	aurea	Fabaceae	1	Smicronyx	corpulentuus
Dalea (=Parosela)	aurea	Fabaceae	3	Apion	amaurum
Dalea (=Petalostemum)	multiflora	Fabaceae	3	Apion	fumitarse
Daucus	sp.	Apiaceae	1	Listronotus	texanus
Daucus	sp.	Apiaceae	3	Notiodes	aeratus
Desmodium	sp.	Fabaceae	3	Apion	importunum
Diospyros	texana	Ebenaceae	3	Smicraulax	tuberculatus
Dracaena	draco	Agavaceae	1*	Scyphophorus	acupunctatus
Dracopis (=Rudbeckia)	amplexicaulis	Asteraceae	2	Eudiagogus	pulcher

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Dracopis (=Rudbeckia)	amplexicaulis	Asteraceae	3	Smicronyx	triangularis
Dracopis (=Rudbeckia)	sp.	Asteraceae	2	Smicronyx	triangularis
Echinodorus	cordifolius	Alismataceae	2	Listronotus	echinodori
Ehretia	anacua	Boraginaceae	3	Compsus	auricephalus
Ehretia	anacua	Boraginaceae	3	Polydacrys	depressifrons
Eleocharis	acutisquamata	Cyperaceae	1	Notiodes	punctatus
Eleocharis	caribaea	Cyperaceae	1	Notiodes	punctatus
Eleocharis	montevidensis	Cyperaceae	1	Notiodes	punctatus
Eleocharis	obtusa	Cyperaceae	1	Notiodes	punctatus
Eleocharis	palustris	Cyperaceae	1	Notiodes	punctatus
Eleocharis	palustris	Cyperaceae	3	Notiodes	aeratus
Eleocharis	palustris	Cyperaceae	3	Notiodes	setosus
Eleocharis	palustrus (=macrostachya)	Cyperaceae	3	Listronotus	grypidioides
Eleocharis	tortilis	Cyperaceae	1	Notiodes	punctatus
Epilobium	sp.	Onagraceae	3	Auleutes	asper
Eriogonum	multiflorum	Polygonaceae	3	Chalcodermus	collaris
Euphorbia	marginata	Euphorbiaceae	1	Conotrachelus	leucophaeatus
Fagus	grandifolia	Fagaceae	3	Lechriops	oculata
Forestieria	angustifolia	Oleaceae	3	Lignyodes	adamanteus

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Forestieria	angustifolia	Oleaceae	3	Lignyodes	transversus
Forestieria	angustifolia	Oleaceae	3	Lignyodes	varius
Forestieria (=Adelia)	pubescens	Oleaceae	1	Lignyodes	varius
Forestieria (=Adelia)	pubescens	Oleaceae	3	Lignyodes	horridulus
Fragaria	sp.	Rosaceae	4	Lixus	scrobicollis
Fraxinus	berlandieriana	Oleaceae	3	Lignyodes	helvolus
Fraxinus	sp.	Oleaceae	3	Lechriops	oculata
Fraxinus	sp.	Oleaceae	3	Lignyodes	horridulus
Furcraea	tuberosa	Agavaceae	1*	Scyphophorus	acupunctatus
Gaillardia	pulchella	Asteraceae	3	Smicronyx	corpulentus
Gaura	drummondii (=odorata)	Onagraceae	3	Auleutes	tuberculatus
Gaura	villosa	Onagraceae	1	Tyloderma	baridium
Gossypium	aridium	Malvaceae	1	Anthonomus	grandis
Gossypium	davidsonii	Malvaceae	1	Anthonomus	grandis
Gossypium	harknessii	Malvaceae	1	Anthonomus	grandis
Gossypium	hirsutum	Malvaceae	1	Anthonomus	grandis
Gossypium	hirsutum	Malvaceae	1	Chalcodermus	aeneus
Gossypium	hirsutum	Malvaceae	1	Compsus	auricephalus
Gossypium	hirsutum	Malvaceae	3	Aphrastus	unicolor

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host Association outside of Texas

Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Gossypium	hirsutum	Malvaceae	3	Chalcodermus	collaris
Gossypium	hirsutum	Malvaceae	3	Conotrachelus	carolinensis
Gossypium	hirsutum	Malvaceae	3	Conotrachelus	leucophaeatus
Gossypium	hirsutum	Malvaceae	3	Laemosaccus	texanus
Gossypium	hirsutum	Malvaceae	3	Notiodes	aeratus
Gossypium	hirsutum	Malvaceae	3	Ophryastes	tuberosus
Gossypium	hirsutum	Malvaceae	3	Phacepholis	viridis
Gossypium	hirsutum	Malvaceae	3	Ryssomatus	palmacollis
Gossypium	hirsutum	Malvaceae	3	Smicronyx	corpulentus
Gossypium	hirsutum	Malvaceae	3	Smicronyx	lutulentus
Gossypium	hirsutum	Malvaceae	3	Smicronyx	sordidus
Gossypium	hirsutum	Malvaceae	3	Tyloderma	angustulum
Gossypium	hirsutum	Malvaceae	3	Tyloderma	baridium
Gossypium	hirsutum	Malvaceae	4	Apion	buchanani
Gossypium	hirsutum	Malvaceae	4*	Eudiagogus	pulcher
Gossypium	hirsutum	Malvaceae	4	Lixus	scrobicollis
Gossypium	laxum	Malvaceae	1	Anthonomus	grandis
Gossypium	lobatum	Malvaceae	1	Anthonomus	grandis
Gossypium	thurberi	Malvaceae	1*	Anthonomus	grandis

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Grindelia	squarrosa nuda	Asteraceae	3	Mitostylus	tenuis
Hampea	latifolia	Malvaceae	1	Anthonomus	grandis
Hampea	nutricia	Malvaceae	1	Anthonomus	grandis
Hampea	rovirosae	Malvaceae	1	Anthonomus	grandis
Helenium	sp	Asteraceae	1	Smicronyx	corpulentus
Helianthus	annuus	Asteraceae	1*	Cylindrocopturus	adspersus
Helianthus	annuus	Asteraceae	3*	Haplorhynchites	pseudomexicanus
Helianthus	ciliaris	Asteraceae	2	Smicronyx	apionides
Helianthus	maxmilani	Asteraceae	1*	Cylindrocopturus	adspersus
Helianthus	petiolaris petiolaris	Asteraceae	1*	Cylindrocopturus	adspersus
Helianthus	sp.	Asteraceae	1	Smicronyx	constrictus
Helianthus	sp.	Asteraceae	3	Lixus	scrobicollis
Helianthus	sp.	Asteraceae	3	Smicronyx	sordidus
Helianthus	tuberosus	Asteraceae	3	Apion	occidentale
Hibiscus	pernambucensis	Malvaceae	1*	Anthonomus	grandis
Hibiscus	sp.	Malvaceae	1	Acamptus	texanus
Hibiscus	syriaceus	Malvaceae	1	Anthonomus	grandis
Ipomoea	batatas	Convolvulaceae	3	Rhyssomatus	palmacollis
Ipomoea	batatus	Convolvulaceae	1	Cylas	formicarius elegantulus

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Ipomoea	batatus	Convolvulaceae	3	Ryssomatus	palmacollis
Ipomoea	pandurata	Convolvulaceae	2*	Ryssomatus	palmacollis
Ipomoea	pescapreae	Convolvulaceae	1	Cylas	formicarius elegantulus
Ipomoea	sinuata	Convolvulaceae	3	Ryssomatus	palmacollis
Juglans	sp.	Juglandaceae	4	Pandeleteius	cinereus
Juniperus	sp.	Cupressaceae	4	Pandeleteius	cinereus
Krameria	lanceolata (=secundiflora)	Krameriaceae	1	Pseudanthonomus	tomentosulus
Lactuca	sp.	Asteraceae	4	Tyloderma	subpubescens
Lantana	camara	Verbenaceae	3	Compsus	auricephalus
Lepidium	"alyssoides"	Brassicaceae	3	Ophryastes	tuberosus
Lepidium	sp.	Brassicaceae	1	Pnigodes	setosus
Lepidium	spp.	Brassicaceae	1	Anthonomus	eugenii
Leucaena	pulverulenta	Fabaceae	3	Colecerus	marmoratus
Leucaena	pulverulenta	Fabaceae	3	Conotrachelus	leucophaeatus
Leucaena	pulverulenta	Fabaceae	3	Sibinia	suturalis
Leucosyris	spinosa	Asteraceae	1	Anthonomus	ligatus
Liquidambar	sp.	Hamamelidaceae	1	Acamptus	texanus
Ludwigia	repens (=natans)	Onagraceae	1	Listronotus	echinatus
Lycium	pallidum	Solanaceae	1*	Brachyogmus	ornatus

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host Association outside of Texas

Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Lycopersicon	esculentum	Solanaceae	4	Meamectes	cribratus
Maclura	pomifera	Moraceae	3	Dorytomus	brevicollis
Malachra	capitata	Malvaceae	3	Anthonomus	squamans
Malpighia	glabra	Malpighiaceae	1	Anthonomus	unipustulatus
Malpighia	glabra	Malpighiaceae	2	Anthonomus	schwarzi
Malvastrum	americanum	Malvaceae	1	Anthonomus	solarii
Malvastrum	americanum	Malvaceae	1	Anthonomus	squamans
Malvastrum	aurantiacum	Malvaceae	1	Anthonomus	squamans
Malvastrum	corchorifolium	Malvaceae	1	Anthonomus	squamans
Malvastrum	corchorifolium	Malvaceae	3	Anthonomus	testaceosquamosus
Malvastrum	coromandelium	Malvaceae	1	Anthonomus	solarii
Malvastrum	coromandelium	Malvaceae	1	Anthonomus	squamans
Malvaviscus	arboreus drummondi	Malvaceae	2*	Apion	subtinctum
Marsilea	ancyclopoda	Marsiliaceae	1	Notiodes	aeratus
Marsilea	ancyclopoda	Marsiliaceae	3	Notiodes	setosus
Marsilea	sp.	Marsileaceae	3	Notiodes	robustus
Marsilea	sp.	Marsileaceae	4	Tyloderma	subpubescens
Marsilea	vestita	Marsileaceae	1	Notiodes	celatus
Marsilea	vestita	Marsileaceae	3	Notiodes	setosus

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host Association outside of Texas

Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Marsilea	vestita	Marsiliaceae	1	Notiodes	aeratus
Medicago	sativa	Fabaceae	3	Cleonidius	canescens
Medicago	sativa	Fabaceae	3	Compsus	auricephalus
Medicago	sativa	Fabaceae	3	Notiodes	aeratus
Medicago	sativa	Fabaceae	3	Smicronyx	corpulentus
Medicago	sativa	Fabaceae	3	Smicronyx	sordidus
Medicago	sativa	Fabaceae	4	Eudiagogus	pulcher
Mentzelia	sp.	Loasaceae	3	Cleonidius	canescens
Mimosa	borealis	Fabaceae	3	Apion	amaurum
Mimosa	borealis	Fabaceae	3	Apion	subornatum
Mimosa	malacophylla	Fabaceae	1	Sibinia	suturalis
Mimosa	pigra berlandieri	Fabaceae	1	Sibinia	ochreosa
Mimosa	pigra berlandieri	Fabaceae	1	Sibinia	seminicola
Mimosa	pigra berlandieri	Fabaceae	2	Apion	aculeatum
Mimosa	sp.	Fabaceae	1	Apion	aculeatum
Modiola	caroliniana	Malvaceae	3	Anthonomus	squamans
Monarda	citriodora	Lamiaceae	3	Smicronyx	corpulentus
Monarda	citriodora	Lamiaceae	3	Smicronyx	lutulentus
Monarda	punctata	Lamiaceae	3	Aphrastus	unicolor

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Musa	sp.		4*	Eisonyx	crassipes
Myrica	cerifera	Myricaceae	3*	Cylindrocopturus	nanulus
Nicotiana	tabacum	Solanaceae	1	Trichobaris	mucorea
Nicotiana	trigonophylla	Solanaceae	3	Trichobaris	mucorea
Nyssa	sylvatica biflora	Cornaceae	3	Episcirrus	brachialis
Oenothera	biennis	Onagraceae	3*	Chalcodermus	collaris
Oenothera	laciniata	Onagraceae	1	Tyloderma	baridium
Oenothera	sp.	Onagraceae	1	Tyloderma	angustulum
Oenothera	sp.	Onagraceae	2	Acanthoscelidius	sp. 1
Opuntia	"cotulla"	Cactaceae	3	Gerstaeckeria	nobilis
Opuntia	fulgida	Cactaceae	1*	Onychobaris	mystica
Opuntia	leptocaulis	Cactaceae	1	Gerstaeckeria	leptocaulis
Opuntia	leptocaulis	Cactaceae	1	Onychobaris	mystica
Opuntia	leptocaulis	Cactaceae	3	Gerstaeckeria	opuntiae
Opuntia	lindheimeri	Cactaceae	3	Gerstaeckeria	doddi
Opuntia	lindheimeri	Cactaceae	3	Gerstaeckeria	opuntiae
Opuntia	macrocentra (=violacea)	Cactaceae	1	Gerstaeckeria	nobilis
Opuntia	"robusta"	Cactaceae	2*	Gerstaeckeria	unicolor
Opuntia	sp.	Cactaceae	1	Gerstaeckeria	unicolor

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Opuntia	sp.	Cactaceae	3	Gerstaeckeria	cactophaga
Opuntia	sp.	Cactaceae	3	Gerstaeckeria	opuntiae
Opuntia	sp.	Cactaceae	3	Tyloderma	baridium
Oryza	sativa	Poaceae	1	Lissorhoptrus	oryzophilus
Oryza	sp.	Poaceae	1	Sphenophorus	venatus vestitus
Parthenium	confertum	Asteraceae	1	Thecesternus	hirsutus
Parthenium	hysterophorus	Asteraceae	1	Thecesternus	hirsutus
Parthenium	hysterophorus	Asteraceae	3	Smicronyx	lutulentus
Parthenium	sp.	Asteraceae	3	Mitostylus	tenuis
Paspalum	distichum	Poaceae	3	Notiodes	acratus
Paspalum	distichum	Poaceae	3	Notiodes	robustus
Paspalum	distichum	Poaceae	3	Notiodes	setosus
Persea	americana	Lauraceae	1	Caulophilus	oryzae
Persea	palustris	Lauraceae	3*	Apteromechus	pumilis
Persea	sp.	Lauraceae	1	Acamptus	texanus
Petalostemum	sp.	Fabaceae	1	Apion	amaurum
Petroselinum	sp.	Apiaceae	1	Listronotus	texanus
Phaseolus	sp.	Fabaceae	3	Aphrastus	unicolor
Phaseolus	sp.	Fabaceae	3	Chalcodermus	aeneus

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Phaseolus	sp.	Fabaceae	4*	Pandeleteius	longicollis
Phaseolus	vulgaris	Fabaceae	4	Eudiagogus	pulcher
Phoradendron	sp.	Viscaceae	1*	Hohonus	lacteicollis
Phoradendron	tomentosum (=flavescens)	Viscaceae	1	Pandeleteius	cinereus
Phoradendron	tomentosum (=flavescens)	Viscaceae	1	Smicraulax	tuberculatus
Phoradendron	tomentosum (=flavescens)	Viscaceae	3	Compsus	auricephalus
Phyla	sp.	Verbenaceae	3	Microbaris	galvestonica
Physalis	"cornuta"	Solanaceae	3	Eisonyx	crassipes
Pithecellobium	flexicaule	Fabaceae	1	Sibinia	pallida
Pithecellobium	flexicaule	Fabaceae	3	Colecerus	marmoratus
Pithecellobium	flexicaule	Fabaceae	3	Eustylus	sp.
Pithecellobium	flexicaule	Fabaceae	3	Platyomus	flexicaulis
Pithecellobium	flexicaule	Fabaceae	3	Pselaphorhynchites	macropthalmus
Pithecellobium	pallens	Fabaceae	3	Rhyssomatus	pruinosus
Plantago	virginica	Plantaginaceae	3	Eisonyx	crassipes
Platanus	occidentalis	Platanaceae	1	Myrmex	myrmex
Platanus	sp.	Platanaceae	1	Acamptus	texanus
Polygonum	pensylvanicum	Polygonaceae	3	Notiodes	aeratus
Polygonum	pensylvanicum	Polygonaceae	3	Notiodes	robustus

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Polygonum	pensylvanicum	Polygonaceae	3	Notiodes	setosus
Polygonum	pensylvaticum	Polygonaceae	1	Lixus	punctinasus
Polygonum	pensylvaticum	Polygonaceae	1	Lixus	terminalis
Polygonum	sp.	Polygonaceae	1	Tanymecus	confusus
Polygonum (=Persicaria)	"acuminatum"	Polygonaceae	3	Tyloderma	subpubescens
Polygonum (=Persicaria)	hydropiperoides	Polygonaceae	3	Tyloderma	subpubescens
Polygonum (=Persicaria)	pensylvaticum	Polygonaceae	1	Tyloderma	subpubescens
Polygonum (=Persicaria)	"portoricense"	Polygonaceae	1	Tyloderma	subpubescens
Polygonum (=Persicaria)	punctatum	Polygonaceae	1	Tyloderma	subpubescens
Pontederia	cordata	Pontederiaceae	2	Onychylis	longulus
Populus	spp.	Salicaceae	3*	Tachyerges	salicis
Prosopis	glandulosa	Fabaceae	1	Magdalis	armicollis
Prosopis	glandulosa	Fabaceae	1	Sibinia	setosa
Prosopis	glandulosa	Fabaceae	3	Colecerus	marmoratus
Prosopis	glandulosa	Fabaceae	3	Compsus	auricephalus
Prosopis	glandulosa	Fabaceae	3	Cylindrocopturus	sp. 2
Prosopis	glandulosa (=juliflora)	Fabaceae	3	Apion	subornatum
Prosopis	reptans	Fabaceae	3	Mitostylus	tenuis
Prosopis	reptans	Fabaceae	3	Pselaphorhynchites	macropthalmus

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Prosopis	sp.	Fabaceae	1	Apion	subornatum
Prosopis	sp.	Fabaceae	4	Pandeleteius	cinereus
Prunus	angustifolia	Rosaceae	3	Compsus	auricephalus
Prunus	angustifolia	Rosaceae	3	Lignyodes	transversus
Prunus	angustifolia	Rosaceae	3	Lignyodes	varius
Prunus	persica	Rosaceae	3*	Conotrachelus	carolinensis
Quercus	sp.	Fagaceae	3	Tanymecus	confusus
Quercus	sp.	Fagaceae	4	Pandeleteius	cinereus
Quercus	spp.	Fagaceae	1	Curculio	sulcatulus
Quercus	spp.	Fagaceae	3	Lechriops	oculata
Quercus	virginiana	Fagaceae	3	Apion	fumitarse
Randia	rhagocarpa	Rubiaceae	3	Plocetes	versicolor
Rhynchosia (=Dolicholus)	minima	Fabaceae	3	Apion	subtinctum
Rubus	sp.	Rosaceae	4	Eudiagogus	pulcher
Rumex	hymenosepalus	Polygonaceae	3	Ophryastes	tuberosus
Sabal	mexicana (=texana)	Arecaceae	2	Andranthobius	sp. 1
Sabal	mexicana (=texana)	Arecaceae	2	Notolomus	sp. 1
Saccharum	officinarum	Poaceae	1	Prosaldius	deplanatus
Saccharum	officinarum	Poaceae	1	Sphenophorus	coesifrons

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Sagittaria	brevirostra (=engelmanniana)	Alismataceae	1	Listronotus	appendiculatus
Sagittaria	lancifolia	Alismataceae	1*	Listronotus	appendiculatus
Sagittaria	latifolia	Alismataceae	2	Listronotus	appendiculatus
Salicornia	sp.	Chenopodiaceae	3*	Listronotus	borrichiae
Salicornia	virginica	Chenopodaceae	2	Listronotus	salicorniae
Salix	nigra	Salicaceae	3	Dorytomus	brevicollis
Salix	nigra	Salicaceae	3	Myrmex	texanus
Salix	sp.	Salicaceae	1	Acamptus	texanus
Salix	sp.	Salicaceae	1	Dorytomus	brevicollis
Salix	sp.	Salicaceae	2	Cophes	longiusculus
Salix	sp.	Salicaceae	3	Apion	attenuatum
Salix	sp.	Salicaceae	3	Elleschus	sp.
Salix	sp.	Salicaceae	3	Notiodes	aeratus
Salix	sp.	Salicaceae	3	Pseudopentarthrum	robustum
Salix	spp.	Salicaceae	2*	Tachyerges	niger
Salix	spp.	Salicaceae	2	Tachyerges	salicis
Sassafras	"sassafras"	Lauraceae	3	Lechriops	oculata
Scirpus	americanus	Cyperaceae	1	Notiodes	punctatus
Scirpus	fluviatilus	Cyperaceae	3*	Notiodes	aeratus

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Senna (=Cassia)	chamaechrista	Onagraceae	1*	Chalcodermus	collaris
Senna (=Cassia)	occidentalis	Fabaceae	3	Eudiagogus	pulcher
Senna (=Cassia)	sp.	Fabaceae	3	Smicronyx	sordidus
Serjania	brachycarpa	Sapindaceae	1	Cionopsis	maculata
Serjania	brachycarpa	Sapindaceae	3	Cionopsis	lineola
Serjania	brachycarpa	Sapindaceae	3	Epicaerus	mexicanus
Sesbania	drummondii	Fabaceae	1	Eudiagogus	pulcher
Sesbania	macrocarpa (=exaltata)	Fabaceae	1	Eudiagogus	pulcher
Sesbania	vesicaria	Fabaceae	1	Eudiagogus	pulcher
Sida	acuta	Malvaceae	3	Anthonomus	squamans
Sida	cordifolia	Malvaceae	3	Anthonomus	squamans
Sida	sp.	Malvaceae	1	Anthonomus	testaceosquamosus
Solanum	americanum (=nigrum)	Solanaceae	2	Anthonomus	eugenii
Solanum	americanum (=nigrum)	Solanaceae	3	Phyrdenus	divergens
Solanum	dimidiatum (=torreryi)	Solanaceae	1	Anthonomus	aeneolus
Solanum	elaeagnifolium	Solanaceae	1	Anthonomus	aeneolus
Solanum	eleagnifolium	Solanaceae	1	Trichobaris	cylindrica
Solanum	eleagnifolium	Solanaceae	1	Trichobaris	mucorea
Solanum	eleagnifolium	Solanaceae	1	Trichobaris	texana

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Solanum	rostratum	Solanaceae	1	Trichobaris	texana
Solidago	sp.	Asteraceae	1	Smicronyx	sculpticollis
Sorghum	bicolor (=vulgare)	Poaceae	4*	Eudiagogus	pulcher
Sorghum	sp.	Poaceae	3	Eisonyx	crassipes
Sphaeralcea	angustifolia	Malvaceae	3	Ophryastes	tuberosus
Sphaeralcea	lindheimeri	Malvaceae	1	Anthonomus	squamans
stored grains			1	Sitophilus	oryzae
stored products			1	Caulophilus	oryzae
Symphoricarpos	sp.	Caprifoliaceae	3	Cleonidius	canescens
Thespesia	populnea	Malvaceae	1	Anthonomus	grandis
Tribulus	cistoides	Zygophyllaceae	1*	Microlarinus	lypriformis
Tribulus	terrestris	Zygophyllaceae	1	Microlarinus	lypriformis
Ulmus	crassifolia	Ulmaceae	1	Magdalis	armicollis
Ulmus	sp.	Ulmaceae	4	Pandeleteius	cinereus
Verbesina	encelioides	Asteraceae	3	Aphrastus	unicolor
Verbesina	encelioides	Asteraceae	3	Lixus	scrobicollis
Verbesina	encelioides	Asteraceae	3	Ophryastes	tuberosus
Verbesina	virginica	Asteraceae	3	Apion	curticorne
Verbesina (=Actinomerus)	alternifolia	Asteraceae	1	Apion	curticorne

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Table 4. cont.

Plant Genus	Plant species	Plant family	Criterion *	Genus	Species
Viburnum	spp.	Caprifoliaceae	3	Lechriops	oculata
Vigna	unguiculata	Fabaceae	1	Chalcodermus	aeneus
Vitis	sp.	Vitaceae	2	Thecesternus	humeralis
Xanthium	sp.	Asteraceae	1	Cylindrocopturus	adspersus
Xanthium	sp.	Asteraceae	4	Eudiagogus	pulcher
Xanthium	strumarium	Asteraceae	1	Tanymecus	confusus
Xylosma	flexuosa	Flacourtiaceae	3	Conotrachelus	floridanus
Xylosma	flexuosa	Flacourtiaceae	3	Conotrachelus	rubescens
Yucca	glauca	Agavaceae	1*	Scyphophorus	acupunctatus
Yucca	sp.	Agavaceae	1	Yuccaborus	frontalis sharpi
Zanthoxylum	clava-hercules	Rutaceae	2	Zygobarella	xanthoxyli
Zanthoxylum	clava-herculis	Rutaceae	3	Eudiagogus	pulcher
Zanthoxylum	fagara	Rutaceae	1	Anthonomus	leucostictus
Zanthoxylum	fagara	Rutaceae	1	Anthonomus	xanthoxyli
Zanthoxylum	fagara	Rutaceae	1	Apion	xanthoxyli
Zanthoxylum	sp.	Rutaceae	1	Zygobarella	xanthoxyli
Zea	mays	Poaceae	1	Prosaldius	deplanatus
Zea	mays	Poaceae	3	Conotrachelus	leucophaeatus
Zea	sp.	Poaceae	4	Apion	buchanani

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CONCLUSIONS

Curculionoidea have been of interest in the Lower Rio Grande Valley area since the earlier part of the century, but even then the vegetation was in the process of being seriously altered. Further studies are needed in order to ascertain the species composition which have not been collected in the area in recent years. Many of the older specimens in collections have not been collected in recent years, and there is a chance some of these species may be extinct or locally extirpated.

A total of 235 species in 97 genera of Curculionoidea have been recorded from the LRGV. Of this total, about eighty species were collected during collecting trips to the LRGV in October 1990, April 1991, May 1991, July 1991, and November 1991.

The Sabal Palm Grove Sanctuary is the most diverse for weevil species. Seventy-five species have been recorded out of the 235 or 32%. The Palm Grove also has a high plant diversity with 300 identified species out of 823 species and varieties total excluding grasses or 36%. This means that the Palm Grove holds approximately one third of the plant and weevil diversity for the LRGV. This is a significant number considering the Sabal Palm Grove Sanctuary consists of only 32 acres of "natural" habitat. Twenty-four weevil species have been recorded from the Boca Chica Beach area, 38 species from Bentsen-Rio Grande State Park and 25 from the Falcon Dam area.

Many of the plant and animal species reach their northern distribution limits in the LRGV including some of the weevils in this study. It may be that some of the weevil species that have a close knit relationship with one or many of these plants also have the LRGV as their northern limit. There are 70 species listed with no known plant associations. See tables 3 and 4 for plant associations.

Zoogeographic comparisons were made with LRGV weevils and those that occur in Victoria County and Welder Wildlife Refuge (San Patricio County) and North Dakota. Comparisons were made with Big Bend National Park to the west and southern Florida to the east. A comparison was also made with Guatemala which is south of the LRGV. It is concluded that LRGV weevils have more northern affinities based on the results of these comparisons.

This survey can lead to future studies of the area and can be used to determine changes in the present day fauna. An extensive study of the distribution and composition of the weevil species of the Lower Rio Grande Valley was necessary in order to make comparisons of the fauna through time. Turnbull (1979) stated, " How can we detect change in the future if we cannot define the fauna we now have? " It is unfortunate that this study has come so late and after the LRGV has been altered in so many ways.

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VITA

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Tami graduated from Trinity High School May, 1985. In 1989, Tami graduated from Cornell University, in Ithaca, New York with a B. S. in Entomology.

While in graduate school at Texas A&M University, she worked as a graduate student with Dr. Horace R. Burke conducting research on the Curculionoidea. Tami's permanent address is Post Office Box 455, Belmont, New Hampshire 03220.

Onychobaris mystica Casey
Onychobaris sp.

CENTRININI
Catapastus squamirostris Casey
Catapastus seriatus Casey
Catapastinus caseyi Champion
Centrinopus helvinus Casey
Eisonyx crassipes LeConte
Haplostethops sp.
Nicentrus lineicollis (Boheman)
Nicentrus sp.
Odontocorynus sp.
Oligolochus sp.
Prosaldius blanditus (Casey)
Prosaldius deplanatus (Casey)
Pycnogeraeus striatirostris (LeConte)
Sibariops mundula Casey
Sibariops sp.
Trichodirabius longulus (LeConte).
Zygobarella xanthoxyli (Pierce)

RHYNCHOPHORINAE
SPHENOPHORINI
Cactophagus orizabaensis (Chevrolat)
Scyphophorus acupunctatus Gyllenhal
Sphenophorus coesifrons Gyllenhal
Sphenophorus compressirostris (Say)
Sphenophorus costipennis Horn
Sphenophorus hoegbergii Boheman
Sphenophorus venatus vestitus Chittenden

ORTHOGNATHINI
Yuccaborus frontalis sharpi Casey

SITOPHILINI
Sitophilus oryzae (Linnaeus)

COSSONINAE
ACAMPTINI
Acamptus texanus (Sleeper)

RHYNCOLINI
Allopentarthrum sp. 1
Allopentarthrum sp. 2
Macrancylus linearis LeConte
Pseudopentarthrum robustum Casey

COTASTERINI
Caulophilus oryzae (Gyllenhal)

Episcirrus brachialis (LeConte)
Eubulus sp. nr. bifasciculatus
Hohonus lacteicollis (Champion)
Maemectes cribratus (LeConte)
Phyrdenus divergens (Germar)
Tyloderma angustulum Casey
Tyloderma baridium LeConte
Tyloderma subpubescens Casey

ZYGOPINAE
ZYGOPINI
Cylindrocopturus adspersus (LeConte)
Cylindrocopturus armatus Champion
Cylindrocopturus nr. bifasciatus
Cylindrocopturus longulus (LeConte)
Cylindrocopturus nanulus (LeConte)
Cylindrocopturus sp. 1
Cylindrocopturus sp. 2

LECHRIOPINI
Lechriops oculata (Say)

CEUTORHYNCHINAE
CNEMOGONINI
Acanthoscelidius sp. 1
Acanthoscelidius sp. 2
Auleutes asper (LeConte)
Auleutes tuberculatus Dietz
Hypocoeloides wickhami (Dietz)

CEUTORHYNCHINI
Ceutorhynchus pusillus LeConte

BARIDINAE
BARADINI
BARADINA
Aulobaris sp.
Baris aerea (Boheman)
Baris transversa (Say)
Microbaris galvestonica Casey
Pleisobaris sp.
Pseudobaris discreta Casey
Trepobaris elongata Casey
Trepobaris sp.
Trichobaris cylindrica Casey
Trichobaris mucorea (LeConte)
Trichobaris texana LeConte

MADARINI
Madarellus cuneatus Casey
Madarellus perditus Casey

Sibinia errans (Casey)
Sibinia fulva (LeConte)
Sibinia inermis (Casey)
Sibinia ochreosa Casey
Sibinia pallida (Schaeffer)
Sibinia ruidula Clark
Sibinia seminicola Clark
Sibinia setosa (LeConte)
Sibinia simplex (Casey)
Sibinia suturalis (Schaeffer)

CRYPTORHYNCHINAE
ITHYPORINI
Chalcodermus aeneus Boheman
Chalcodermus collaris Horn
Chalcodermus semicostatus Schaeffer
Chalcodermus serripes Fahraeus
Chalcodermus vittatus Champion
Conotrachelus anaglypticus (Say)
Conotrachelus belfragei LeConte
Conotrachelus buchanani Schoof
Conotrachelus cameronensis Sleeper
Conotrachelus carolinensis Schoof
Conotrachelus floridanus Fall
Conotrachelus leucophaeatus Fahraeus
Conotrachelus obesulus Hustache
Conotrachelus rubescens Schaeffer
Conotrachelus seniculus LeConte
Conotrachelus texanus Schaeffer
Rhyssomatus ovalis (Casey)
Rhyssomatus palmacollis (Say)
Rhyssomatus pruinosus (Boheman)
Rhyssomatus pubescens Horn
Rhyssomatus rugulipennis Champion
Rhyssomatus texanus (Sleeper)

CRYPTORHYNCHINI
TYLODINA
Gerstaeckeria cactophaga Pierce
Gerstaeckeria doddi Fisher
Gerstaeckeria leptocaulis O'Brien
Gerstaeckeria nobilis (LeConte)
Gerstaeckeria opuntiae Pierce
Gerstaeckeria unicolor Fisher

CRYPTORHYNCHINA
Apteromechus pumilis (Boheman)
Apteromechus texanus Fall
Cophes fallax (LeConte)
Cophes longiusculus (Boheman)
Cophes texanus Sleeper

MAGDALINAE
MAGDALINI
Magdalis armicollis (Say)

LAEMOSACCINI
Laemosaccus nephele (Herbst)
Laemosaccus texanus Champion

CURCULIONINAE
Curculio sulcatulus (Casey)

ANTHONOMINAE
ANTHONOMINI
Anthonomus aeneolus Dietz
Anthonomus albopilosus Dietz
Anthonomus eugenii Cano
Anthonomus grandis Boheman
Anthonomus leucostictus Dietz
Anthonomus ligatus Dietz
Anthonomus schwarzi Clark & Burke
Anthonomus solarii Champion
Anthonomus squamans Champion
Anthonomus testaceosquamosus Linell
Anthonomus unipustulatus Champion
Anthonomus xanthoxyli Linell
Brachyogmus ornatus Linell
Narberdia aridulus Burke
Smicraulax tuberculatus Pierce

BRADYBATINI
Cionopsis lineola Burke
Cionopsis maculata Burke
Pseudanthonomus tomentosulus Dietz

RHYNCHAENINAE
Tachyerges niger (Horn)
Tachyerges salicis (Linnaeus)

TYCHIINAE
ELLESCHINI
Elleschus sp.

LIGNYODINI
Lignyodes adamanteus (Clark)
Lignyodes helvolus (LeConte)
Lignyodes horridulus (Casey)
Lignyodes transversus (Clark)
Lignyodes varius (LeConte)
Plocetes versicolor (Champion)

TYCHIINI

LIXINI
Lixus punctinasus LeConte
Lixus scobicollis Boheman
Lixus terminalis LeConte
Microlarinus lypriformis (Wollaston)

ERIRHININAE
ERIRHININI
Dorytomus brevicollis LeConte

SMICRONYCHINI
Smicronyx albonotatus Anderson
Smicronyx apionides Casey
Smicronyx atratus Dietz
Smicronyx constrictus (Say)
Smicronyx corniculatus (Fahraeus)
Smicronyx corpulentus LeConte
Smicronyx lutulentus Dietz
Smicronyx quadrifer Casey
Smicronyx sculpticollis Casey
Smicronyx silaceus Casey
Smicronyx sordidus LeConte
Smicronyx squalidus Casey
Smicronyx tessellatus Dietz
Smicronyx triangularis (Dietz)
Smicronyx tychoides LeConte

STENOPELMINI
Bagous restrictus LeConte
Lissorhoptrus oryzophilus Kuschel
Notiodes aeratus (LeConte)
Notiodes celatus (Burke)
Notiodes punctatus (LeConte)
Notiodes robustus (Schaeffer)
Notiodes setosus (LeConte)
Onychylis longulus LeConte
Pnigodes setosus LeConte

DERELOMINI
Andranthobius sp.
Notolomus sp. 1
Notolomus sp. 2

OTIDOCEPHALINAE
OTIDOCEPHALINI
Myrmex myrmex (Herbst)
Myrmex texanus (Schaeffer)
Myrmex uniformis (Champion)
Myrmex ventralis Van Dyke

BRACHYDERINI
Mitostylus tenuis Horn

TANYMECINI
Isodacrys ovipennis (Schaeffer)
Pandeleteius cinereus (Horn)
Pandeleteius longicollis Champion
Tanymecus confusus Say
Tanymecus texanus Van Dyke

OTIORHYNCHINAE
EUSTYLINI
Aphrastus unicolor Horn
Brachystylus sp. nr. microphthalmus
Compsus auricephalus (Say)

LEPTOPIINAE
PROMECOPINI
Colecerus marmoratus (Horn)
Eudiagogus pulcher Fahraeus

OPHRYASTINI
Ophryastes decipiens LeConte
Ophryastes tuberosus LeConte

RHYTIRRHININAE
Listronotus appendiculatus(Boheman)
Listronotus borrichiae O'Brien
Listronotus distinctus Henderson
Listronotus dorsalis (Dietz)
Listronotus echinatus (Dietz)
Listronotus echinodori O'Brien
Listronotus grypidioides (Dietz)
Listronotus hirtellus (Dietz)
Listronotus hyperodes (Dietz)
Listronotus manifestus Henderson
Listronotus nebulosus LeConte
Listronotus pallidus O'Brien
Listronotus salicorniae O'Brien
Listronotus scapularis Casey
Listronotus sparsus (Say)
Listronotus similis Henderson
Listronotus texanus (Stockton)

THECESTERNINAE
Thecesternus hirsutus Pierce
Thecesternus humeralis (Say)

CLEONINAE
CLEONINI
Cleonidius canescens (LeConte)

APPENDIX E

LIST OF CURCULIONOIDEA (EXCLUDING ANTHRIBIDAE, PLATYPODINAE, AND SCOLYTINAE) OF THE LOWER RIO GRANDE VALLEY OF TEXAS (CAMERON, HIDALGO, STARR AND WILLACY COUNTIES)

RHYNCHITIDAE
- RHYNCHITINAE
  - RHYNCHITINI
    - **Haplorhynchites pseudomexicanus Hamilton**
    - **Haplorhynchites quadripennis (Fall)**
    - **Pselaphorhychites macrophthalmus (Schaeffer)**

APIONIDAE
- CYLADINAE
  - CYLADINI
    - **Cylas formicarius elegantulus (Summers)**
- APIONINAE
  - APIONINI
    - **Apion aculeatum Fall**
    - **Apion amaurum Kissinger**
    - **Apion attenuatum Smith**
    - **Apion buchanani Kissinger**
    - **Apion curticorne Fall**
    - **Apion ellipticum Smith**
    - **Apion fumitarse Fall**
    - **Apion importunum Fall**
    - **Apion occidentale Fall**
    - **Apion persimile Fall**
    - **Apion subornatum Fall**
    - **Apion subtinctum Fall**
    - **Apion xanthoxyli Fall**

CURCULIONIDAE
- BRACHYDERINAE
  - ANYPOTACTINI
    - **Polydacrys depressifrons Boheman**
  - NAUPACTINI
    - **Phacepholis viridis (Champion)**
    - **Platyomus flexicaulis (Schaeffer)**
  - BARYNOTINI
    - **Epicaerus elegantulus Champion**
    - **Epicaerus lepidotus Pierce**
    - **Epicaerus mexicanus Boheman**

Rhyssomatus texanus (Sleeper)
Conotrachelus obesulus Hustache
Conotrachelus seniculus LeConte
Conotrachelus texanus Schaeffer

CRYPTORHYNCHINI

Gerstaeckeria opuntiae Pierce
Gerstaeckeria unicolor Fisher

ZYGOPINAE

ZYGOPINI

Cylindrocopturus sp. 2

BARADINAE

BARADINI

Trichobaris mucorea (LeConte)

RHYNCHOPHORINAE

ORTHOGNATHINI

Yuccaborus frontalis sharpi Casey

APPENDIX D

SPECIES OF CURCULIONOIDEA (EXCEPT ANTHRIBIDAE, PLATYPODINAE, AND SCOLYTINAE) KNOWN FROM THE FALCON DAM AREA, STARR COUNTY, TEXAS.

APIONIDAE
APIONINAE
APIONINI
Apion subornatum Fall
CURCULIONIDAE
OTIORHYNCHINAE
EUSTYLINI
Compsus auricephalus (Say)

LEPTOPIINAE
PROMECOPINI
Colecerus marmoratus (Horn)
Eudiagogus pulcher Fahraeus

RHYTIRRHININAE
Listronotus hyperodes (Dietz)
Listronotus texanus (Stockton)

MAGDALINAE
LAEMOSACCINI
Laemosaccus nephele (Herbst)

ANTHONOMINAE
ANTHONOMINI
Anthonomus aeneolus Dietz
Anthonomus leucostictus Dietz

TYCHIINAE
LIGNYODINI
Lignyodes adamanteus (Clark)
Lignyodes varius (LeConte)
TYCHIINI
Sibinia inermis (Casey)
Sibinia setosa (LeConte)
Sibinia suturalis (Schaeffer)

CRYPTORHYNCHINAE
ITHYPORINI
Rhyssomatus ovalis (Casey)
Rhyssomatus palmacollis (Say)

ANTHONOMINI
Smicraulax tuberculatus Pierce
Anthonomus aeneolus Dietz
Anthonomus grandis Boheman
Anthonomus ligatus Dietz
Anthonomus schwarzi Clark & Burke
Anthonomus xanthoxyli Linell
Clonopsis lineola Burke
Clonopsis maculata Burke

RHYNCHAENINAE
Tachyerges niger (Horn)

TYCHIINAE
LIGNYODINI
Lignyodes horridulus (Casey)
TYCHIINI
Sibinia inermis (Casey)
Sibinia suturalis (Schaeffer)

CRYPTORHYNCHINAE
ITHYPORINI
Ryssomatus pruinosus (Boheman)
Conotrachelus buchanani Schoof
Conotrachelus floridanus Fall
Chalcodermus vittatus Champion
CRYPTORHYNCHINI
Tyloderma baridium LeConte
Tyloderma subpubescens Casey
Maemectes cribratus (LeConte)
Cophes fallax (LeConte)

ZYGOPINAE
LECHRIOPINI
Lechriops oculata (Say)

BARADINAE
MADARINI
Madarellus cuneatus Casey
CENTRININI
Eisonyx crassipes Leconte

COSSONINAE
ACAMPTINI
Acamptus texanus (Sleeper)

APPENDIX C

SPECIES OF CURCULIONOIDEA (EXCEPT ANTHRIBIDAE, PLATYPODINAE, AND SCOLYTINAE) KNOWN FROM BENTSEN-RIO GRANDE STATE PARK, HIDALGO COUNTY, TEXAS.

APIONIDAE
APIONINAE
APIONINI
Apion fumitarse Fall

CURCULIONIDAE
BRACHYDERINAE
BARYNOTINI
Epicaerus lepidotus Pierce
BRACHYDERINI
Mitostylus tenuis Horn
TANYMECINI
Tanymecus confusus Say
Pandeleteius cinereus (Horn)

OTIORHYNCHINAE
EUSTYLINI
Compsus auricephalus (Say)

LEPTOPIINAE
PROMECOPINI
Colecerus marmoratus (Horn)
Eudiagogus pulcher Fahraeus

CLEONINAE
CLEONINI
Lixus punctinasus LeConte

ERRIRHININAE
STENOPELMINI
Notiodes aeratus (LeConte)
OTIDOCEPHALINAE
OTIDOCEPHALINI
Myrmex texanus (Schaeffer)
Myrmex uniformis (Champion)
MAGDALINAE
MAGDALINI
Magdalis armicollis (Say)
LAEMOSACCINI
Laemosaccus nephele (Herbst)

Conotrachelus rubescens Schaeffer
Conotrachelus seniculus LeConte
Conotrachelus texanus Schaeffer
Chalcodermus aeneus Boheman
Chalcodermus semicostatus Schaeffer
Chalcodermus vittatus Champion

CRYPTORHYNCHININI
Phyrdenus divergens (Germar)
Tyloderma subpubescens Casey
Apteromechus texanus Fall
Cophes fallax (LeConte)
Cophes longiusculus (Boheman)
Cophes texanus Sleeper
Eubulus sp., near bifasciculatus Champion

ZYGOPINAE
ZYGOPINI
Cylindrocopturus adspersus (LeConte)
LECHRIOPINI
Lechriops oculata (Say)

CEUTORHYNCHINAE
CNEMOGONINI
Auleutes tuberculatus Dietz
Hypocoeloides wickhami (Dietz)

BARIDINAE
BARIDINI
Trepobaris sp.
MADARINI
Madarellus cuneatus Casey
Madarellus perditus Casey
CENTRININI
Centrinopus helvinus Casey
Catapastus squamirostris Casey
Catapastinus caseyi Champion
Sibariops sp.
Prosaldius deplanatus (Casey)
Haplostethops sp.

RHYNCHOPHORINAE
SITOPHILINI
Sitophilus oryzae (LeConte)

COSSONINAE
RHYNCOLINI
Allopentarthrum sp. 1
Allopentarthrum sp. 2
Pseudopentarthrum robustum Casey
COTASTERINI
Caulophilus oryzae (Gyllenhal)

ERIRRHININAE
SMICRONYCHINI
Smicronyx albonotatus Anderson
Smicronyx lutulentus Dietz
BAGOINI
Lissorhoptrus oryzophilus Kuschel
Notiodes setosus (LeConte)
DERELOMINI
Notolomus sp. 1
Andranthobius sp.

OTIDOCEPHALINAE
OTIDOCEPHALINI
Myrmex myrmex (Herbst)
Myrmex texanus (Schaeffer)

MAGDALINAE
LAEMOSACCINI
Laemosaccus texanus Champion

ANTHONOMINAE
ANTHONOMINI
Anthonomus aenoelus Dietz
Anthonomus grandis Boheman
Anthonomus leucostictus Dietz
Anthonomus schwarzi Clark & Burke
Anthonomus solarii Champion
Anthonomus testaceosquamosus Linell
Anthonomus unipustulatus Champion
Anthonomus xanthoxyli Linell
Cionopsis maculata Burke

RHYNCHAENINAE
Tachyerges niger (Horn)

TYCHIINAE
LIGNYODINI
Lignyodes transversus (Clark)
TYCHIINI
Sibinia inermis (Casey)
Sibinia ochreosa Casey
Sibinia pallida (Schaeffer)

CRYPTORHYNCHINAE
ITHYPORINI
Rhyssomatus pruinosus (Boheman)
Rhyssomatus texanus (Sleeper)
Conotrachelus belfragei LeConte
Conotrachelus buchanani Schoof
Conotrachelus cameronensis Sleeper
Conotrachelus floridanus Fall

APPENDIX B

SPECIES OF CURCULIONOIDEA (EXCEPT ANTHRIBIDAE, PLATYPODINAE, AND SCOLYTINAE) KNOWN TO OCCUR IN THE SABAL PALM GROVE SANCTUARY, CAMERON COUNTY, TEXAS.

APIONIDAE
- CYLADINAE
  - CYLADINI
    - **Cylas formicarius elegantulus (Summers)**
- APIONINAE
  - APIONINI
    - **Apion attenuatum Smith**
    - **Apion curticorne Fall**
    - **Apion fumitarse Fall**
    - **Apion xanthoxyli Fall**

CURCULIONIDAE
- BRACHYDERINAE
  - ANYPOTACTINI
    - **Polydacrys depressifrons Boheman**
  - NAUPACTINI
    - **Platyomus flexicaulis (Schaeffer)**
  - BARYNOTINI
    - **Epicaerus mexicanus Boheman**
    - **Tanymecus confusus (Say)**
    - **Pandeleteius longicollis Champion**
- OTIORHYNCHINAE
  - EUSTYLINI
    - **Brachystylus sp., nr. microphthalmus**
    - **Compsus auricephalus (Say)**
- LEPTOPIINAE
  - PROMECOPINI
    - **Colecerus marmoratus (Horn)**
    - **Eudiagogus pulcher Fahraeus**
- CLEONINAE
  - LIXINI
    - **Lixus punctinasus LeConte**
    - **Microlarinus lypriformis (Wollaston)**

ANTHONOMINI
Brachyogmus ornatus Linell
Anthonomus leucostictus Dietz
Anthonomus unipustulatus Champion

TYCHIINAE
LIGNYODINI
Plocetes versicolor (Champion)
TYCHIINI
Sibinia pallida (Schaeffer)

CRYPTORHYNCHINAE
ITHYPORINI
Rhyssomatus rugulipennis Champion
CRYPTORHYNCHINI
Gerstaeckeria cactophaga Pierce
Gerstaeckeria nobilis (LeConte)
Cophes texanus Sleeper

ZYGOPINAE
ZYGOPINI
Cylindrocopturus armatus Champion
Cylindrocopturus nr. bifasciatus Champion

CEUTORHYNCHINAE
CNEMOGONINI
Acanthoscelidius sp. 1

BARADINAE
MADARINI
Madarellus cuneatus Casey

APPENDIX A

SPECIES OF CURCULIONOIDEA (EXCEPT ANTHRIBIDAE, PLATYPODINAE, AND SCOLYTINAE) KNOWN FROM BOCA CHICA BEACH AREA, CAMERON COUNTY, TEXAS.

RHYNCHITIDAE
- RHYNCHITINAE
  - RHYNCHITINI
    - **Pselaphorhynchites macropthalmus (Schaeffer)**

APIONIDAE
- CYLADINAE
  - CYLADINI
    - **Cylas formicarius elegantulus (Summers)**
- APIONINAE
  - APIONINI
    - **Apion amaurum Kissinger**
    - **Apion curticorne Fall**
    - **Apion xanthoxyli Fall**

CURCULIONIDAE
- BRACHYDERINAE
  - BARYNOTINI
    - **Epicaerus lepidotus Pierce**
  - BRACHYDERINI
    - **Mitostylus tenuis Horn**
- OTIORHYNCHINAE
  - EUSTYLINI
    - **Compsus auricephalus (Say)**
- LEPTOPIINAE
  - PROMECOPINI
    - **Colecerus marmoratus (Horn)**
- RHYTIRRHININAE
  - **Listronotus salicorniae O'Brien**
- ERRIRHININAE
  - STENOPELMINI
    - **Notiodes punctatus (LeConte)**
- ANTHONOMIINAE

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Table 3. cont.

Genus	Species	Plant family	Plant Genus	Plant species	Criterion *
Lignyodes	helvolus	Oleaceae	Fraxinus	berlandieriana	3
Lignyodes	horridulus	Oleaceae	Forestieria (=Adelia)	pubescens	3
Lignyodes	horridulus	Oleaceae	Fraxinus	sp.	3
Lignyodes	transversus	Oleaceae	Forestieria	angustifolia	3
Lignyodes	transversus	Rosaceae	Prunus	angustifolia	3
Lignyodes	varius	Oleaceae	Forestieria	angustifolia	3
Lignyodes	varius	Oleaceae	Forestieria (=Adelia)	pubescens	1
Lignyodes	varius	Rosaceae	Prunus	angustifolia	3
Lissorhoptrus	oryzophilus	Poaceae	Oryza	sativa	1
Listronotus	appendiculatus	Alismataceae	Sagittaria	brevirostra (=engelmanniana)	1
Listronotus	appendiculatus	Alismataceae	Sagittaria	lancifolia	1*
Listronotus	appendiculatus	Alismataceae	Sagittaria	latifolia	2
Listronotus	borrichiae	Asteraceae	Borrichia	frutescens	3*
Listronotus	borrichiae	Chenopodiaceae	Salicornia	sp.	3*
Listronotus	echinatus	Onagraceae	Ludwigia	repens (=natans)	1
Listronotus	echinodori	Alismataceae	Echinodorus	cordifolius	2
Listronotus	grypidioides	Cyperaceae	Eleocharis	palustrus (=macrostachya)	3
Listronotus	salicorniae	Chenopodaceae	Salicornia	virginica	2

* 1=Definite Host, 2=Probable Host, 3=Possible Host, 4=Probably Incidental, *=Host association outside of Texas