



Updated checklist of treehoppers of Panama (Hemiptera: Membracidae) with plant associations

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Abstract

An updated checklist of treehoppers (Hemiptera: Membracidae) of Panama is provided with known province distribution data. The world catalogue of Membracoidea, through April, 1997, lists 68 genera, 162 species, and 1 subspecies from Panama (McKamey, 1998). Flynn (2012) listed all known species from Panama, documenting range extensions for 29 genera, 107 species, and 1 subspecies previously unknown from Panama, bringing the treehopper fauna from Panama to 97 genera, 269 species, and 2 subspecies. Inspection of 768 additional specimens since 2012 (new total of 3,595 specimens for the study), in addition to published literature, has added 2 new genera and 40 new species bringing the treehopper fauna to 100 genera (increase of 3 genera), 313 species (increase of 44 species) from 2012, and 2 subspecies. Many new provincial sites were added to each species with an updated provincial map showing numbers of species in each province. Updated species counts per Province (with increase): Bocas del Toro 65 (+10), Chiriquí 162 (+11), Veraguas 26 (+3), San Blas 8 (+1), Herrera 9 (+1), Darién 72 (+13), Los Santos 4 (+1), Coclé 43 (+9), Colón 187 (+79), and Panamá 150 (+32). Tables listing published checklists and keys for Nearctic and Neotropical treehoppers are presented.

Key words: Membracidae, treehoppers, checklist, Panama, nearctic checklist citations, neotropical checklist citations

Resumen

Se proporciona una lista actualizada de chicharritos (Hemiptera: Membracidae) conocidos de Panamá con datos de distribución por provincia. El catálogo mundial de Membracoidea, hasta abril, 1997, enumera 68 géneros, 162 especies y 1 subespecie de Panamá (McKamey, 1998). Flynn (2012) enumeró y documentó todas las especies conocidas de Panamá, documentando extensiones de rango para 29 géneros, 107 especies y 1 subespecie previamente desconocidas de Panamá, elevando la fauna de chicharritos de Panamá a 97 géneros, 269 especies y 2 subespecies. La inspección de 768 especímenes adicionales desde 2012 (nuevo total de 3,595 especímenes para el estudio), además de la literatura publicada, ha agregado 2 géneros nuevos y 40 especies nuevas, lo que eleva la fauna de chicharritos a 100 géneros (aumento de 3 géneros, 313 especies (aumento de 43 especies) desde 2012, y 2 subespecies. Se agregaron muchos sitios provinciales nuevos a cada especie con un mapa provincial actualizado que muestra el número de especies en cada provincia. Se conta por especies actualizado por provincia (con aumento): Bocas del Toro 65 (+10), Chiriquí 162 (+11), Veraguas 26 (+3), San Blas 8 (+1), Herrera 9 (+1), Darién 72 (+13), Los Santos 4 (+1), Coclé 43 (+9), Colón 187 (+79), y Panamá 150 (+32). Se presentan tablas que enumeran las listas de verificación publicadas y las claves para los chicharritos neártico y neotropical.

Introduction

Treehoppers encompass three families of hemipterous insects (Membracidae, Aetalionidae, and Melizoderidae) that are distinguished by unusual shapes of the pronotum, which is usually enlarged and projecting posteriorly over the body. The development and variety of these shapes are at their peak in the neotropics. Numerous checklists and keys to species of treehoppers are available for the Nearctic Region (TABLE 1) but there have been few faunal distribution studies of treehoppers done in the neotropics, even fewer with keys (TABLE 2). No separate faunal study or checklist of the treehoppers of Panama had been published prior to Flynn (2012).

Since McKamey's World Catalogue of Membracoidea (1998), the following revisionary works have been published that include Panama genera: Albertson and Dietrich (2005, 2006), Andrade (2003, 2004), Creão-Duarte (1996), Creão-Duarte and Sakakibara (1996, 2000a, 2000b), Cryan & Deitz (1999a), Cryan *et al.* (2003), England *et al.* (2020), Flynn (2003, 2014, 2018, 2019, 2020a, 2020b), Sakakibara (1998, 1999, 2002, 2005), Sakakibara and Creão-Duarte (2002), and Sakakibara and Evangelista (2008). These works have created new genera, synonymized genera, revised subgenera, and added new species to the listed 97 genera, 269 species, and 2 subspecies from Panamá known from Flynn (2012). The updated checklist of the treehoppers of Panama presented below lists only the Membracidae. Five species of Aetalionidae have also been recorded from Panama (McKamey 1998) but I have not confirmed these records by examining specimens,

Materials and methods

The following updated checklist of species is based on a total of 3,551 specimens (increase of 725 since 2012) studied from two field seasons of collecting in Panama. Field collecting was done in Chiriqui, Panama, and Darien provinces during January 2005 and May 2006 between wet and dry seasons, when insect activity is at its highest. These are supplemented with specimens from numerous collections and institutions listed below. Abbreviations for the institution holdings examined follows Arnett Jr., R.H., Samuelson, G.A. and G.M. Nishida (1993) except for the private collections.

(DJFC) USA, North Carolina, Gastonia, Dawn J. Flynn Collection

(DMWC) Panama, Balboa, Smithsonian Tropical Research Institute, Don Windsor Collection,

(FSCA) USA, Florida, Gainesville, Florida State Collection of Arthropods

(HWIC) Panama, Balboa, Smithsonian Tropical Research Institute, Henk Wolda Collection

(MIUP) Museo de Invertebrados "G.B. Fairchild," Universidad de Panamá

(NCSU) USA, North Carolina, Raleigh, North Carolina State University Insect Collection

(STRI) Panama, Balboa, Smithsonian Tropical Research Institute

(UDCC) USA, Delaware, Newark, University of Delaware

(UGCA) USA, Georgia, Athens, University of Georgia

(USNM) USA, Washington, DC, United States National Museum of Natural History

Each specimen was examined under a binocular microscope and genitalia were dissected when needed for species identification. Keys and descriptions from published works for Neotropical treehopper genera and species known from Central and South America were consulted for identifications. Published catalogues, country checklists, and new published country papers for Central American and South American species were consulted for additional distribution records (see TABLE 2). When needed, verification of species identifications was done by examining authoritatively identified specimens in institutions visited and discussions with other acknowledged authorities. All specimens were identified by the author.

Following the species name is the author of the species with citation where original description was published. If there is a bracket following the species author and citation, it indicates a recent move of the taxon and the author/paper where the move was published. A name following an asterisk (*) indicates a new record for that species in Panama since the 2012 published checklist, verified through a visual identification of one or more specimens. A double-asterisk (**) indicates a new record for that species in Panama through literature citation only (i.e., specimens were not seen by the author) since the 2012 published checklist. Following a (*) and (**) is a list of the provinces (Map 1) in Panama (underlined) where each species has been recorded, municipalities, number of specimens seen for each gender, and deposition location for voucher specimens if the record is taken from a seen specimen. Species records for the country of Panama *only* (no province given) is noted by verbiage 'Country (Panama) only' with literature citation following the species. Species records that lack more precise locality data are noted by verbiage 'Province only' with literature citation following the species. Literature citations also follow province records where no specimens have been seen by the author from that province. The letter suffixes following citation dates are those used in the major bibliographic references for the Membracoidea through 1998: Metcalf and Wade (1965a); Deitz and Kopp (1987a); Deitz (1989a); McKamey (1998). Post 1998 references have no letter suffixes (except when

two articles were published by the same author(s) in the same year as cited by this author). Brackets following a literature citation, gives URL for accessing the paper (when known). A plus sign '+', following the bracketed URL, indicates a fee to download the paper.

Discussion

Interest in treehoppers has spawned a number of checklists for both the Nearctic and Neotropical regions. However, there is a disparity in the number of states and/or provinces covered versus countries. Checklists and keys to the Nearctic region (TABLE 1) cover 18 continental states, 18 areas (including Washington, DC), 5 Canadian provinces, and 5 Canadian areas. Among the papers for the Nearctic are 6 keys for 7 continental states, 1 key for North America (Van Duzee 1908a) and 1 checklist for North America (Van Duzee 1917b).

In contrast, a listing of the checklists and keys to the Neotropical Region (TABLE 2) includes 12 countries (minus islands), 8 areas, a series of keys by Goding covering all of South America (1926e, 1928a, 1928e, 1929e), Fowler's *Biologia Centrali-Americana* (1894b, 1894c, 1895a-f, 1896b-e) covering Central America and Godoy *et al.*'s (2006) book on generic identification for tropical America, focusing on Costa Rica. Also, seven Caribbean islands and two Caribbean areas are cited. Keys to Neotropical treehoppers are available for Uruguay (Goding 1914a), Ecuador (Goding 1920c), Chile (Goding 1925b, Linnavuori and DeLong 1978a), Panama (Flynn 2012), Puerto Rico (Osborn 1935a, Ramos 1957a), Guyana (Haviland 1925a), and the Dominican Republic (Ramos 1979a). Despite this past progress towards documenting the Neotropical fauna, the distributions of most species and faunistic components of most countries remain poorly known. The contribution of this updated checklist for Panama will add much new distributional information for treehoppers in Central America.

Presence of ten species recorded in literature as occurring in Panama could not be confirmed (TABLE 3). Among these, *Alchisme veruta* Fowler is the only one originally described from Panama. No specimens of these species were seen, from Panama, to verify their presence, but they are included to provide a complete literature review. Examination of more specimens is needed to determine the validity of the published records.

Among the species listed for Panama, an additional two are questionable: *Alchisme turrita* (Germar), and *Tolania fraterna* Stål. Complete discussion is found under each species account.

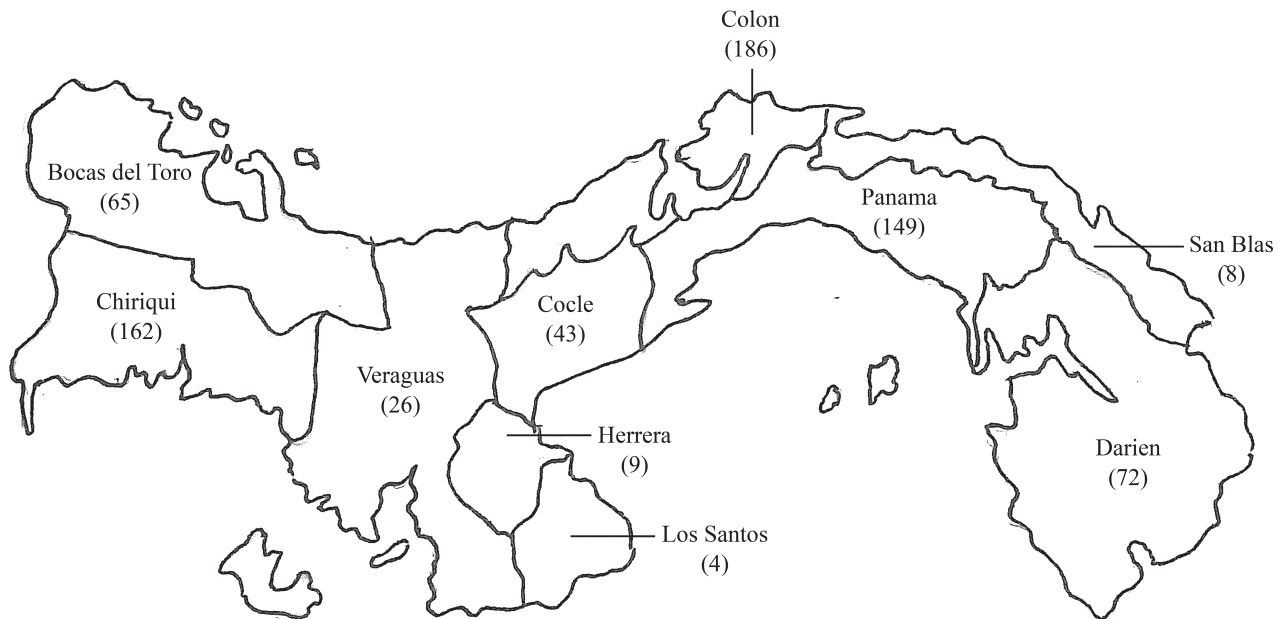
Barro Colorado Island (BCI) is located in Gatun Lake in the middle of the Panama Canal. Curran (1929a) provided notes on a few of the more common species found in the 1929 survey of the island while it was still part of the Canal Zone. In 1977, BCI, with five adjacent peninsulas administered by the Smithsonian Institution (Smithsonian Tropical Research Institute (STRI)), were designated the Barro Colorado Nature Monument (but not entered into force until 1979). It is visited by researchers from throughout the world. Henk Wolda sampled extensively in many areas in Panama, including on BCI for 7 years (1977-1983), using UV light traps, many of which were at three levels from the ground to the canopy (Wolda 1979a, 1980a, 1980b, 1982a, 1983a). A list of the 107 species (increase of 36 from 2012) recorded from Barro Colorado Island, Colon Province, most of which came from H. Wolda's collection at STRI, is found in TABLE 4.

The Panama Canal traverses both Colon and Panama Provinces and many specimen data labels examined listed collection location "Canal Zone" but did not delineate from which province the specimen was collected. Those species, with such unspecified Canal Zone province data, are listed in TABLE 5. As a result of the Torrijos-Carter Treaty of 1977, the "Canal Zone" is now known as the "Canal Area (previously known as the Canal Zone)" of Panama. However, the "Canal Zone" designation is retained here to facilitate finding voucher specimens in the future.

Plant and treehopper association data was collected from identified specimen labels or from literature cited. TABLE 6 lists these plant species, by family except for *Luehea seemanii* Triana and Planch (Malvaceae) which is shown in TABLE 7.

MAP 1 delineates each province of Panama, with the number of species found in each province cited under each province abbreviation. San Blas is now known as Comarca de Guna Yala but is listed by San Blas as it is the more familiar name. Examination of the updated number of species recorded from each Province shows the most species are still found in Chiriqui (162), Colon (186), and Panama (150) provinces. The fewest species recorded were from Herrera (9), San Blas (8), and Los Santos (4). The low species diversity in the aforementioned three Provinces is most likely due to: (1) undersampling; (2) poor habitats in Los Santos and Herrera provinces (vegetationally depauperate) because the area consists almost entirely of cattle ranches; and (3) political issues in San Blas (predominantly Indian Reservation where it is difficult to get permission to collect). The Panama Canal,

which traverses both Colon and Panamá Provinces, and the presence of the University of Panama in the Panama Province, appear to provide opportunities for more extensive collecting. Barro Colorado Island (BCI) administered by SmithsonianInstitute, as an international biosphere reserve, is visited and studied by thousands of scientists worldwide, providing extensive sample data.



MAP 1. Map of Panama Provinces with number of species () recorded from each Province: San Blas (= Comarca de Guna Yala), [Canal Zone = “Canal Area” (17): for species list see Table 5].



FIGURE 1. *Polyglypta dorsalis* Burmeister taken at Fortuna Dam, Chiriqui Province, Panama (© Dawn Flynn).

TABLE 1. List of treehopper species checklists and keys for the Nearctic Region (and Areas). An * indicates those checklists that have keys.

| <u>Checklist State (Area)</u> | <u>Citation</u> |
|--|---|
| California (San Diego County) | Van Duzee, E.P. 1914a |
| Colorado | Gillette, C.P. and C.F. Baker 1895a |
| Connecticut | Britton, W.E. 1920a, 1938c |
| Connecticut* | Funkhouser, W.D. 1923c |
| Delaware | Mason, L.E. and J.E. Loye 1981a |
| Delaware (Water Gap Nat. Rec. Area) | Wallace 2008 |
| Delaware (deciduous woodlot) | Mason, L.E. and Loye, J.E. 1981b |
| Florida | Osborn, H. 1921a |
| Iowa | Hookum, D.W. 1931a |
| Iowa (prairie) | Hendrickson, G. O. 1928a, 1930a |
| Indiana | Deay, H.O. and G.E. Gould 1935a |
| Kansas* | Lawson, P.B. 1922a |
| Kentucky | Freytag, P.H., Covell Jr., C.V. and D.D. Kopp 1981a |
| Kentucky (pin oak) | Johnson, M.P. and P.H. Freytag 1997 |
| Maryland (Little Orleans Campground) | Bartlett, C.R. <i>et al.</i> 2008 |
| Maryland (marshes) | Bickley, W.E. and T.R. Seek 1975a |
| Missouri* | Kopp, D.D. and T.R. Yonke 1973a–c, 1974a |
| Missouri (Tucker Praire) | Kopp, D.D. and T.R. Yonke 1970a |
| Missouri | Kopp, D.D. and T.R. Yonke 1970b, 1971a |
| Nebraska | Jones, H.C. 1937a |
| New Jersey | Smith, J.B. 1910a |
| New Mexico (White Sands Nat. Mon.) | Stroud, C.P. 1950a |
| New York (Adirondack Mountains) | MacGillivray, A.D. and C.O. Houghton 1903a |
| New York | Leonard, M.D. 1928a |
| New York (Cayuga Lake Basin)* | Funkhouser, W.D. 1917a |
| North America* | Van Duzee, E.P. 1908a |
| North America (catalogue) | Goding, F.W. 1894a |
| North America (catalogue and checklist) | Van Duzee, E.P. 1917b |
| North America (catalogue) | Poole, R.W. <i>et al.</i> 1997 |
| North Carolina | Brimley, C.S. 1938a; Dietrich <i>et al.</i> 1999 |
| Ohio* | Osborn, H. 1940a |
| Oklahoma* | Dennis, C.J. 1965a |
| Oklahoma (SE Okla. woods) | Dennis, C.J. 1964c |
| Oklahoma (Southern Okla. wood) | Dennis, C.J. 1963a |
| Oregon (Benton, Josephine, and Yamhill Co) | Dalton, D.T. <i>et al.</i> 2020 |
| Pennsylvania (Pocono Till Barrens) | Wallace, M.S and S.M. Maloney 2010 |
| Pennsylvania (western) | Wirtner, P.M. 1904a |
| South Dakota | Severin, H.C. 1921b, 1923b, 1927a |
| Tennessee/NC (Gr.Smokey Mts Nat Park) | Wallace, M.S. <i>et al.</i> 2003 |
| Utah | Jorgensen, D.D. 1935a |
| Washington, DC Vicinity | McAtee, W.L. 1921a |
| Wisconsin* | Dennis, C.J. 1952b |

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TABLE 1. (Continued)

| <u>Checklist State (Area)</u> | <u>Citation</u> |
|--------------------------------------|--|
| Wisconsin | Dennis, C.J. 1951a |
| Wisconsin (Univ. of Wisc. Arboretum) | Dennis, C.J. and R.J.Dicke (1953a) |
| Canada | Brodie, W. and J. E. White 1883a |
| Canada and Alaska | Maw, H.E. <i>et al.</i> 2000 |
| Canada (Alberta) | Strictland, E.H. 1953a |
| Canada (British Columbia) | Downes, W. 1920a |
| Canada (Nova Scotia)* | Brittain, W.H. 1918a |
| Canada (Ontario) | Lerch, E.C. 1933a |
| Canada (Mukoka Lake Dist, Ontario) | Van Duzee, E.P. 1889b |
| Canada (Como, Quebec) | Moore, G.A. 1907a |
| Canada (Hudson Heights, Quebec) | Moore, G.A. 1944a |
| Canada (Quebec) | Moore, G.A. 1950a, 1950b; Larivière & Larochelle 1988a |
| Canada (Quinze Lake, Quebec) | Van Duzee, E.P. 1908b |
| Canada (Rainbow River District) | Brimley, J.F. 1929a |

TABLE 2. List of treehopper species checklists and keys for the Neotropical Region (and Areas). An * indicates those checklists that have keys.

| <u>Checklist Country (Area)</u> | <u>Citation</u> |
|---|--|
| Argentina | Bo Box, H.E. 1929b; Christensen, J.R. 1943a |
| Bahamas | Metcalf, Z.P. 1954c |
| Brazil | da Costa Lima, A.M. 1942a |
| Brazil (northeastern) | Rothea, R.R.A.D. <i>et al.</i> 2019 |
| Brazil (southeastern) | Lopes, J.F. 1995 |
| Brazil (Vale de Paraiba) | Benassi, V.L.R.M. <i>et al.</i> 2016; Neto, F.L. (2018) |
| British Guiana (Kartabo)* | Haviland, M.D. 1925a |
| Central America | Fowler, W. 1894b, 1894c, 1895a–f, 1896b–e |
| Chile* | Goding, F.W. 1925b; Linnavuori, R.E. and D.M. DeLong 1978a |
| Colombia | Richter, L. 1940a, 1941b, 1942c, 1945a, 1955a |
| Colombia*(key to genera) | Flórez-V, C. <i>et al.</i> 2015 |
| Cuba | Osborn, H. 1926c, Metcalf, Z.P. and S.C. Bruner 1925b |
| Tropical America (emphasizing Costa Rica) | Godoy, C. <i>et al.</i> 2006 |
| Dominican Republic* | Ramos, J.A. 1979a |
| Dominican Republic (Mona Island) | Ramos, J.A. 1947a |
| Ecuador | Campos, F. 1921a, Goding, F.W. 1920a, 1920b, 1921a |
| Ecuador* | Goding, F.W. 1920c |
| French Guyana | Lapéze, J. 2021 |
| Greater Antilles (Zoogeography) | Ramos, J.A. 1988a |
| Guatemala | Funkhouser, W.D. 1943d |
| Haiti | W Wolcott, G.N. 1927b |
| Hispaniola | Perez-Gelabert, D.E. 2020 |
| Mexico | Pinedo Escatel, J.A. 2014; Rodriguez-Juárez, J.G. and J.A. Pinedo Escatel 2018 |

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TABLE 2. (Continued)

| Checklist Country (Area) | Citation |
|---------------------------------|---|
| Nearctic (including Mexico) | Deitz, L.L. and M.W. Wallace 2012 |
| Nicaragua | Maes, J.M. 1998 |
| Panama (Barro Colorado Island) | Curran, C.H. 1929a |
| Peru | Ceballos-Bendezú, I. 1967a, 1980a |
| Peru (Kallanga, Cusco) | Ceballos-Bendezú, I. 1981a |
| Peru (Manu National Park) | Costa, J.F. 2009 |
| Peru (Madre de Dios) | Lin, C.-P. <i>et al.</i> 2019 |
| Peru (Panguana) | Schulze, K. <i>et al.</i> 2016 |
| Puerto Rico | Wolcott, G.N. 1950a |
| Puerto Rico* | Osborn, H. 1935a, Ramos, J.A. 1957a |
| South America and the Antilles* | Goding, F.W. 1926e, 1928a, 1928e, 1929e |
| Uruguay* | Goding, F.W. 1914a |
| West Indies (Vincent Island) | Goding, F.W. 1893b |

TABLE 3. Listing of 10 species (alpha by genus) recorded in literature from the country of Panama only (no Province(s) given) with literature citation.

| Species | Originally described from | Literature Citation |
|---|---------------------------|---|
| <i>Alchisme turrita</i> (Germar) | Brazil | Goding 1929e: 207 |
| <i>Alchisme veruta</i> Fowler | Panama | Fowler 1894c: 33 as <i>Triquetra veruta</i> |
| <i>Cladonota inflata</i> (Fowler) | Guatemala | Haupt 1953a: 35 as <i>Sphongophorus inflatus</i> |
| <i>Cladonota robustula</i> (Fowler) | Guatemala | Peláez 1945a:64 |
| <i>Enchenopa multicolorata</i> Fowler | Mexico | Goding 1928e: 210 |
| <i>Hebeticoides acuta</i> Fowler | Guatemala | Buckton 1903b: 119 as <i>Hebeticoides acutus</i> |
| <i>Heteronotus glandiferus</i> (Lesson) | Brazil | Buckton 1903b: 141 as <i>Heteronotus vulnerans</i> (Germar) |
| <i>Heteronotus reticulatus</i> (Burmeister) | Brazil | Goding 1929e: 249 as <i>Heteronotus vulnerans</i> (Germar) |
| <i>Talipes appendiculata</i> (Fonseca) | Brazil | Sakakibara 2012:573 |
| <i>Umbonia amazali</i> Fairmaire | N.A. | Goding 1929e: 205 |
| <i>Vanduzea decorata</i> Funkhouser | Peru | McKamey 1998: 239 |

TABLE 4. Listing of 99 (increase of 28 species from Flynn 2012) species (alpha by genus) recorded from Barro Colorado Island, Colon Province, Panamá.

| Species | Species | Species |
|--|--|---|
| <i>Adippe alliacea</i> (Germar) | <i>Cymbomorpha prasina</i> Germar | <i>Membracis dorsata</i> Fabricius |
| <i>Adippe inaequalis</i> Fowler | <i>Cyphonia clavata</i> (Fabricius) | <i>Membracis flava</i> Richter |
| <i>Amastris affinis</i> Bromfield | <i>Cyphonia trifida</i> (Fabricius) | <i>Membracis fuscata</i> (Fabricius) |
| <i>Amastris angulata</i> Broomfield | <i>Darnis latior</i> Fowler | <i>Membracis mexicana</i> Guérin- Meneville |
| <i>Amastris concolor</i> Broomfield | <i>Darnis trifasciata</i> Fabricius | <i>Micrualis binaria</i> (Fairmaire) |
| <i>Amastris finitima</i> Broomfield | <i>Enchenopa ansera</i> Funkhouser | <i>Micrualis henki</i> Sakakibara |
| <i>Amastris flava</i> Broomfield | <i>Enchenopa bifusifera</i> Walker | <i>Micrualis infuscata</i> (Sakakibara) |
| <i>Amastris froeschneri</i> Broomfield | <i>Enchenopa costaricensis</i> Schmidt | <i>Micrualis trifurcata</i> (Goding) |
| <i>Amastris obtegens</i> (Fabricius) | <i>Enchnopa ignidorsum</i> Walker | <i>Micrualis tripuncata</i> (Fairmaire) |

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TABLE 4. (Continued)

| <u>Species</u> | <u>Species</u> | <u>Species</u> |
|--|---|--|
| <i>Amastris panamensis</i> Broomfield | <i>Enchenopa lanceolatum</i> (Fabricius | <i>Nassunia bipunctata</i> (Fairmaire) |
| <i>Amastris subangulata</i> Broomfield | [formerly in <i>Enchophyllum</i>] | <i>Neotynelia pubescens</i> (Fabricius) |
| <i>Amastris triviale</i> Broomfield | <i>Enchenopa squamigera</i> (Linnaeus) | <i>Neotynelia vertebralis</i> (Fairmaire) |
| <i>Amastris vicina</i> Broomfield | <i>Enchophyllum dubium</i> Fowler | <i>Notocera bituberculata</i> (Fowler) |
| <i>Anchistrotus maculatus</i> (Guérin-Meneville) | <i>Enchophyllum malaleucum</i> (Walker) | <i>Notocera cerviceps</i> (Fowler) |
| <i>Anobilia nigra</i> Tode | <i>Endioastis caviceps</i> Fowler | <i>Poppea zebrina</i> Funkhouser |
| <i>Aspona bullata</i> Stål | <i>Erechtia carinata</i> (Funkhouser) | <i>Potnia gladiator</i> (Walker) |
| <i>Aphetea inconspicua</i> Fowler | [formerly in <i>Trinarea</i>] | <i>Potnia granadensis</i> (Fairmaire) |
| <i>Aphetea nigropicta</i> Funkhouser | <i>Guayaquila compressa</i> (Walker) | <i>Procyrta pectoralis</i> (Fabricius) |
| <i>Bolbonota aurosericea</i> Stål | <i>Guayaquila contorta</i> Dietrich | <i>Rhexia semiatra</i> (Fairmaire) |
| <i>Bolbonota corrugata</i> Fowler | <i>Guayaquila fasciata</i> Dietrich | <i>Smiliorhachis proxima</i> Berg |
| <i>Bolbonota cuneata</i> Fowler | <i>Guayaquila fusiformis</i> (Fowler) | <i>Stictopelta acutula</i> (Germar) |
| <i>Bolbonota globosa</i> Fairmaire | <i>Guayaquila gracilicornis</i> (Stål) | <i>Stilbophora gilviceps</i> (Stål) |
| <i>Bolbonota inaequalis</i> (Fabricius) | <i>Harmonides dispar</i> (Fabricius) | <i>Sundarion apicalis</i> (Germar) |
| <i>Bolbonota inconspicua</i> (Fabricius) | <i>Harmonides panamensis</i> Creão-Duarte | <i>Sundarion bimaculata</i> (Fairmaire) |
| <i>Bolbonota pictipennis</i> Fairmaire | and Sakakibara | <i>Tolania femoralis</i> (Stål) |
| <i>Bolbonota rufonotata</i> Fowler | <i>Harmonides reticulata</i> (Fabricius) | <i>Tolania opponens</i> (Walker) |
| <i>Brachybelus cruralis</i> Stål | <i>Heteronotus spinosus</i> Laporte | <i>Tolania semipellucida</i> (Stål) |
| <i>Calloconophora caliginosa</i> (Walker) | <i>Heteronotus trinodosus</i> Butler | <i>Tomogonia vittatipennis</i> (Fairmaire) |
| <i>Calloconophora pinguis</i> (Fowler) | <i>Horiola ferruginea</i> Fairmaire | <i>Trachytalis retrofasciata</i> (Lethierry) |
| <i>Campylenchia hastata</i> (Fabricius) | <i>Horiola picta</i> (Coquebert) | <i>Tragopa albimacula</i> (Germar) |
| <i>Centrotus obscurus</i> (Germar) | <i>Hypsoprora coronata</i> (Fabricius) | <i>Tragopa bugabensis</i> Fowler |
| [<i>Incertae sedis</i> , formerly in <i>Tolania</i>] | <i>Idioderma virescens</i> Van Duzee | <i>Tragopa insignis</i> Fowler |
| <i>Ceresa vitulus</i> (Fabricius) | <i>Ishnocentrus fowleri</i> Schmidt | <i>Tropidarnis tectigera</i> Fowler |
| <i>Chelyoidea aenea</i> (Perty) | <i>Ishnocentrus inconspicuous</i> Buckton | <i>Tynelia globosa</i> (Haviland) |
| <i>Chelyoidea nitida</i> Buckton | <i>Ishnocentrus niger</i> Stål | <i>Tynelia longula</i> (Burmeister) |
| <i>Cladonota apicalis</i> (Stål) | <i>Lallemandia nodosa</i> Funkhouser | <i>Vanduzzea segmentata</i> (Fowler) |
| <i>Cladonota biclavata</i> (Westwood) | <i>Leioscyta nitida</i> Fowler | |

TABLE 5. Listing of 17 species (alpha by genus) recorded from Canal Zone = “canal area” (Panama/Colon Provinces unspecified).

| <u>Species</u> | <u>Species</u> |
|---|--|
| <i>Amastris angulata</i> Broomfield | <i>Microtalis bella</i> Goding |
| <i>Atypa bucktoni</i> Goding | <i>Microtalis henki</i> Sakakibara |
| <i>Campylenchia hastata</i> (Fabricius) | <i>Microtalis trifurcata</i> (Goding) |
| <i>Centrodontus flavus</i> Funkhouser | <i>Polyglypta lineata</i> Burmeister |
| <i>Enchenopa ansera</i> Funkhouser | <i>Potnia brevicornis</i> (Fairmaire) |
| <i>Enchenopa ignidorsum</i> Walker | <i>Sundarion apicalis</i> (Germar) |
| <i>Hypsoprora anatina</i> Fowler | <i>Sundarion bimaculata</i> (Fairmaire) |
| <i>Ishnocentrus inconspicuous</i> Buckton | <i>Trachytalis retrofasciata</i> (Lethierry) |
| <i>Microtalis atrovana</i> Goding | |

TABLE 6. Panama treehopper species and plant associations [from identified specimen labels, personal communication, or from literature cited which were unverified by this paper’s author. This author suspects the host listings for Godoy *et al.* 2006 are collection plants and not hosts. No literature citation behind a Membracid genus/species indicates the plant association data was taken directly from a specimen label].

| Plant Family | Plant Species | Membracid Species |
|---------------|---|---|
| Acanthaceae | <i>Apheladdra</i> sp.—host | <i>Enchenopa</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Jacobinia</i> sp.—host | <i>Membracis</i> sp. [Godoy <i>et al.</i> 2006] |
| Aizoaceae | <i>Tetragonia</i> sp.—host | <i>Membracis</i> sp. [Godoy <i>et al.</i> 2006] |
| Anacardiaceae | Family only—host | <i>Aconophora mexicana</i> Stål [Dietrich and Deitz 1991a] |
| | | <i>Campylocentrus</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Anacardium</i> sp.—host | <i>Aconophora</i> sp., <i>Calloconophora</i> sp., <i>Erechtia</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. Godoy <i>et al.</i> 2006] |
| | <i>Anacardium occidentale</i> L.—host | <i>Guayaquila gracilicornis</i> (Stål) [Dietrich and Deitz 1991a] |
| | <i>Mangifera</i> sp.—host | <i>Aconophora</i> sp., <i>Bolbonota</i> sp., <i>Erechtia</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Rhus</i> sp.—host | <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Schinus</i> sp.—host | <i>Calloconophora</i> sp., <i>Guayaquila</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Spondias</i> sp.—host | <i>Campylocentrus</i> sp., <i>Guayaquila</i> sp., <i>Umbonia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Spondias mombin</i> L. | <i>Anchistrotus obfuscata</i> (Buckton); <i>Anobilia nigra</i> Tode; <i>Cladonota apicalis</i> (Stål) [Flynn 2018]; <i>Cyphotes quadrinodosus</i> Fonseca & Diringshofen; <i>Enchenopa lanceolata</i> (Fabricius); <i>Guayaquila fasciata</i> Dietrich; <i>Guayaquila gracilicornis</i> (Stål) [Dietrich and Deitz 1991a]; <i>Tolania opponens</i> (Walker); <i>Tragopa albimacula</i> (Germar) |
| | <i>Spondias radlkoferi</i> Donn. Sm. | <i>Anchistrotus obfuscata</i> (Buckton) |
| | not determinate | <i>Campylocentrus</i> sp. [Godoy <i>et al.</i> 2006] |
| Annonaceae | Family only—host | <i>Potnia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Annona</i> sp.—host | <i>Aconophora</i> sp., <i>Calloconophora</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp., <i>Metcalfiella</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Annona squamosa</i> L.—host | <i>Guayaquila gracilicornis</i> (Stål) [Dietrich and Deitz 1991a] |
| | <i>Cananga</i> sp.—host | <i>Guayaquila</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Desmopsis</i> sp.—host | <i>Amastris</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Desmopsis panamensis</i> (B.L. Robb.) Saff.—host | <i>Amastris triviale</i> Broomfield [Loye 1992a]; <i>Bolbonotus pictipennis</i> Fairmaire [Loye 1992a]; <i>Guayaquila compressa</i> (Walker) [Loye 1992a] |
| | <i>Desmopsis panamensis</i> (B.L. Robb.) Saff. | <i>Adippe alliacea</i> (Germar) [Loye 1992a]; <i>Amastris froeshneri</i> Broomfield; <i>Aphetea inconspicua</i> Fowler [Loye 1992a] |
| | <i>Guanabanus</i> sp.—host | <i>Aconophora</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Guanabanus</i> sp.—host | <i>Aconophora mexicana</i> Stål [Dietrich and Deitz 1991a] |
| | <i>Guatteria</i> sp.—host | <i>Heteronotus</i> sp. [Godoy <i>et al.</i> 2006] |
| Apiaceae | <i>Xylopi</i> sp.—host | <i>Bolbonota</i> sp., <i>Tragopa</i> sp. [Godoy <i>et al.</i> 2006] |
| | not determinate | <i>Potnia</i> sp. [Godoy <i>et al.</i> 2006] |
| | Family only—host | <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Daucus</i> sp.—host | <i>Campylenchia</i> sp. [Godoy <i>et al.</i> 2006] |
| Apocynaceae | not determinate | <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Alamanda</i> sp. | <i>Bolbonota pictipennis</i> Fairmaire |
| | <i>Apocynum</i> sp.—host | <i>Campylenchia</i> sp., <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| Aquifoliaceae | <i>Ilex</i> sp.—host | <i>Umbonia</i> sp. [Godoy <i>et al.</i> 2006] |
| Araceae | <i>Monstera</i> sp.—host | <i>Membracis</i> sp. [Godoy <i>et al.</i> 2006] |

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TABLE 6. (Continued)

| <u>Plant Family</u> | <u>Plant Species</u> | <u>Membracid Species</u> |
|---------------------|--|--|
| Araliaceae | <i>Didymopanax</i> sp.—host | <i>Calloconophora</i> sp., <i>Guayaquila</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Shefflera</i> sp. | <i>Membracis mexicana</i> Guérin-Meneville [Gonzales <i>et al.</i> 2021] |
| Areaceae | <i>Phoenix</i> sp.—host | <i>Umbonia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Raphia taedigera</i> (Mart.) Mart | <i>Guayaquila gracilicornis</i> (Stål) |
| | <i>Roystonea</i> sp.—host | <i>Umbonia</i> sp. [Godoy <i>et al.</i> 2006] |
| Asclepidaceae | <i>Asclepias</i> —host | <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| Asteraceae | Family only—host | <i>Aconophora compressa</i> Walker [Dietrich and Deitz 1991a]; <i>Cyphonia</i> sp., <i>Enchophyllum</i> sp., <i>Metcalfiella</i> sp. [Godoy <i>et al.</i> 2006] |
| | | <i>Vanduzea</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Actinomeris</i> sp.—host | <i>Entylia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Ageratina</i> sp.—host | <i>Micrutalis</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Ambrosia</i> sp.—host | <i>Acutalis</i> sp., <i>Entylia</i> sp., <i>Micrutalis</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Artemisia</i> sp.—host | <i>Entylia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Aspilia</i> sp.—host | <i>Antonae</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Aster</i> sp.—host | <i>Acutalis</i> sp., <i>Entylia</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Baccharis</i> sp.—host | <i>Aconophora</i> sp., <i>Bolbonota</i> sp., <i>Metcalfiella</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Bidens</i> sp.—host | <i>Acutalis</i> sp., <i>Entylia</i> sp., <i>Polyglypta</i> sp., <i>Stictocephala</i> sp., <i>Umbonia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Calea</i> sp.—host | <i>Antonae</i> sp., <i>Bolbonota</i> sp., <i>Entylia</i> sp., <i>Hypsoprora</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Callistephus</i> sp.—host | <i>Acutalis</i> sp., <i>Campylenchia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Chrysanthemum</i> sp.—host | <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Cirsium</i> sp.—host | <i>Campylenchia</i> sp., <i>Entylia</i> sp., <i>Enchenopa</i> sp., <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Clibadium grandifolium</i> S. F. Blake | <i>Hemikyptha marginata</i> (Fabricius) |
| | <i>Conyza</i> sp.—host | <i>Enchenopa</i> sp., <i>Entylia</i> sp., <i>Micrutalis</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Dahlia</i> sp.—host | <i>Entylia</i> sp., <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Dahlia pinnata</i> Cav. (as <i>rosea</i> Cav.) | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Erechtites</i> sp.—host | <i>Entylia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Erigeron</i> sp.—host | <i>Acutalis</i> sp., <i>Campylenchia</i> sp., <i>Entylia</i> sp., <i>Micrutalis</i> sp., <i>Spissistilus</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Erythrina rubrinervia</i> Kunth | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Espeletia</i> sp.—host | <i>Antonae</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Eupatorium</i> sp.—host | <i>Acutalis</i> sp., <i>Campylenchia</i> sp., <i>Cyphonia</i> sp., <i>Entylia</i> sp., <i>Poppea</i> sp., <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Helianthus</i> sp.—host | <i>Acutqalis</i> sp., <i>Campylenchia</i> sp., <i>Entylia</i> sp., <i>Micrutalis</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Indigofera suffruticosa</i> Mill. | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Lactuca</i> sp.—host | <i>Campylenchia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Lasianthaea</i> sp.—host | <i>Acutalis</i> sp., <i>Campylocentrus</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Mantanoa</i> sp. | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |

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TABLE 6. (Continued)

| <u>Plant Family</u> | <u>Plant Species</u> | <u>Membracid Species</u> |
|---------------------|---|---|
| | <i>Mikania</i> sp.—host | <i>Entylia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Montanoa</i> sp.—host | <i>Acutqalis</i> sp., <i>Bolbonota</i> sp., <i>Cladonota</i> sp., <i>Membracis</i> sp., <i>Polyglypta</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Nuerolaena lobata</i> (L.) Cass—host | <i>Cyphonia clavata</i> (Fabricius) [Loye 1992a] |
| | <i>Piptocarpha</i> sp.—host | <i>Bocydium</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Senecio megaphyllus</i> (Greenm.) H. Rob. and Cuatrec. | <i>Enchenopa recticornuta</i> Strümpel and Strümpel; <i>Entylia carinata</i> (Forster) |
| | <i>Taraxacum</i> sp.—host | <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Verbesina</i> sp.—host | <i>Antonae</i> sp., <i>Enchenopa</i> sp., <i>Entylia</i> sp., <i>Polyglypta</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Vernonia</i> sp.—host | <i>Acutalis</i> sp., <i>Cladonota</i> sp., <i>Darnis</i> sp., <i>Micrutalis</i> sp., <i>Stictolobus</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Vernonia arborescens</i> Swartz | <i>Cyphonia trifida</i> (Fabricius) [Loye 1992a] |
| | <i>Vernonia canescens</i> (H.B.& K.) | <i>Cyphonia trifida</i> (Fabricius) |
| | <i>Vernonia patens</i> H.B.K.— host | <i>Cladonota</i> nymph [Loye 1992a = <i>Sphongophorus</i>]; <i>Cyphonia clavata</i> (Fabricius) [Loye 1992a] |
| | <i>Zinnia</i> sp.—host | <i>Cladonota</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Zinnia elegans</i> Cav. not determinate | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] <i>Cyphonia</i> sp., <i>Enchophyllum</i> sp., <i>Metcalfiella</i> sp., <i>Vanduzea</i> sp. [Godoy <i>et al.</i> 2006] |
| Balsaminaceae | <i>Impatiens</i> sp.—host | <i>Acutalis</i> sp., <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| Betulaceae | <i>Alnus</i> sp.—host | <i>Campylenchia</i> sp., <i>Entylia</i> sp., <i>Stictocephala</i> sp., <i>Telamona</i> sp. [Godoy <i>et al.</i> 2006] |
| Bignoniaceae | <i>Jacaranda</i> sp.—host | <i>Umbonia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Macfadyena</i> sp.—host not determinate | <i>Umbonia</i> sp. [Godoy <i>et al.</i> 2006] <i>Darnis</i> sp., <i>Notocera</i> sp. [Godoy <i>et al.</i> 2006] |
| Bombacaceae | <i>Catostemma</i> sp.—host | <i>Cymbomorpha</i> sp., <i>Darnis</i> sp., <i>Heteronotus</i> sp., <i>Lycoderes</i> sp., <i>Notocera</i> sp., <i>Potnia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Cordia</i> sp.—host | <i>Amastris</i> sp., <i>Metcalfiella</i> sp., <i>Guayaquila</i> sp. [Godoy <i>et al.</i> 2006] |
| Boragomaceae | <i>Cordia alliodora</i> (Ruiz and Pav.) Oken | <i>Anchistrotus obfuscata</i> (Buckton); <i>Guayaquila gracilicornis</i> (Stål); <i>Guayaquila palleescens</i> (Stål) |
| Brassicaceae | <i>Brassica</i> sp.—host | <i>Micrutalis</i> sp. [Godoy <i>et al.</i> 2006] |
| Cannabaceae | <i>Cannabis</i> sp.—host | <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Trema micrantha</i> (L.) Blume | <i>Hypsoprora adusta</i> Creo-Duarte and Sakakibara |
| Caprifoliaceae | <i>Diervilla</i> sp.—host | <i>Cyrtolobus</i> sp., <i>Enchenopa</i> sp., <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Lonicera</i> sp.—host | <i>Spissistilus</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Sambucus</i> sp.—host | <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Viburnum</i> sp.—host | <i>Cyrtolobus</i> sp., <i>Enchenopa</i> sp., <i>Entylia</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Telamona</i> sp. [Godoy <i>et al.</i> 2006] |
| Caricaceae | <i>Carica</i> sp.—host | <i>Aconophora</i> sp., <i>Adippe</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Carica mexicana</i> (A.DC.) L.O. Williams—host | <i>Guayaquila fusiformis</i> (Fowler [Dietrich and Deitz 1991a]) |

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TABLE 6. (Continued)

| <u>Plant Family</u> | <u>Plant Species</u> | <u>Membracid Species</u> |
|---------------------|--|---|
| | <i>Carica papaya</i> L.—host | <i>Guayaquila palleescens</i> (Stål) [Dietrich and Deitz 1991a] |
| Casuarinaceae | <i>Casuarina</i> sp.—host | <i>Bolbonota</i> sp., <i>Enchophyllum</i> sp. <i>Membracis</i> sp., <i>Umbonia</i> sp. [Godoy et al. 2006] |
| Cecropiaceae | <i>Cecropia</i> sp.—host | <i>Bolbonota</i> sp., <i>Enchenopa</i> sp., <i>Notocera</i> sp., <i>Oeda</i> sp. [Godoy et al. 2006] |
| | <i>Pourouma</i> sp.—host | <i>Adippe</i> sp., <i>Tragopa</i> sp. [Godoy et al. 2006] |
| | not determinate | <i>Cladonota</i> sp. [Godoy et al. 2006] |
| Celastraceae | <i>Celastrus</i> sp.—host | <i>Enchenopa</i> sp., <i>Erechtia</i> sp., <i>Tragopa</i> sp. [Godoy et al. 2006] |
| Chenopodiaceae | <i>Atriplex</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| | <i>Chenopodium</i> sp.—host | <i>Entylia</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| Chrysobalanaeae | <i>Cupania sylvatica</i> Seem.—host | <i>Guayaquila compressa</i> (Walker) [Loye 1992a] |
| Clusiaceae | Family only [label says Guttiferae] | <i>Amastris inornata</i> Broomfield |
| | <i>Mammea</i> sp.—host | <i>Bolbonota</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Rheedia edulis</i> (Seem.) Pl. Tr.—host | <i>Harmonides</i> sp. [Loye 1992a] |
| | <i>Vismia</i> sp. | <i>Amastris inornata</i> Broomfield; <i>Amastris finitima</i> , <i>Aphetea bicolor flava</i> Goding; <i>Cladonota apicalis</i> (Stål) [Flynn 2018]; <i>Horiola picta</i> (Coquebert); |
| | <i>Vismia</i> sp.—host | <i>Bocydium</i> sp., <i>Bolbonota</i> sp., <i>Guayaquila</i> sp., <i>Leioscyta</i> sp., <i>Lycoderes</i> sp., <i>Tragopa</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | not determinate | <i>Tylopelta</i> sp. [Godoy et al. 2006] |
| Combretaceae | <i>Grislea</i> sp.—host | <i>Guayaquila</i> sp. [Godoy et al. 2006] |
| | <i>Laguncularia</i> sp.—host | <i>Enchophyllum</i> sp. [Godoy et al. 2006] |
| | <i>Terminalia</i> sp.—host | <i>Membracis</i> sp. [Godoy et al. 2006] |
| Connaraceae | <i>Cnestidium rufescens</i> Planch.—host | <i>Bolbonota corrugata</i> Fowler [Loye 1992a] |
| | <i>Connarus turczaninowii</i> Triana—host | <i>Harmonides</i> sp. [Loye 1992a] |
| | <i>Connarus turczaninowii</i> Triana—host | <i>Horiola picta</i> (Coquebert) [Loye 1992a] |
| Convolvulaceae | <i>Ipomoea carnea</i> Jace | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Ipomoea</i> sp.—host | <i>Cladonota</i> sp., <i>Ceresa</i> sp. [Godoy et al. 2006] |
| | <i>Maripa panamensis</i> (Hemsl.)—host | <i>Harmonides</i> sp. [Loye 1992a] |
| | <i>Maripa panamensis</i> (Hemsl.)—host | <i>Horiola picta</i> (Coquebert) [Loye 1992a] |
| | <i>Maripa panamensis</i> (Hemsl.) | <i>Aphetea inconspicua</i> Fowler [Loye 1992a] |
| Cornaceae | <i>Cornus</i> sp.—host | <i>Acutalis</i> sp., <i>Cyrtolobus</i> sp., <i>Micrutalis</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| Cucurbitaceae | Family only | <i>Campylocentrus hamifer</i> (Fairmaire) |
| | <i>Chayota</i> sp.—host | <i>Campylocentrus</i> sp. [Godoy et al. 2006] |
| | <i>Citrullus</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| | <i>Cucumis</i> sp.—host | <i>Antianthe</i> sp., <i>Membracis</i> sp., <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| | <i>Cucurbita</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] |

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TABLE 6. (Continued)

| Plant Family | Plant Species | Membracid Species |
|-----------------|--|---|
| | <i>Frantzia</i> sp.—host | <i>Campylocentrus</i> sp. [Godoy et al. 2006] |
| | <i>Sechium</i> sp.—host | <i>Campylocentrus</i> sp., <i>Vestistilus</i> sp. [Godoy et al. 2006] |
| | <i>Secyos edulis</i> Jacquin (as <i>Chayote edulis</i>) | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| Cunoniaceae | <i>Weinmannia</i> sp.—host | <i>Alchisme</i> sp. [Godoy et al. 2006] |
| Cyperaceae | <i>Dichromena</i> sp.—host | <i>Micrutilus</i> sp. [Godoy et al. 2006] |
| Dilleniaceae | <i>Doliocarpus</i> sp.—host | <i>Guayaquila</i> sp. [Loye 1992a]; <i>Addipe</i> sp. [Godoy et al. 2006] |
| | <i>Doliocarpus major</i> Gmel.—host | <i>Adippe inaequalis</i> Fowler [Loye 1992a]; <i>Bolbonota corrugata</i> Fowler [Loye 1992a]; <i>Harmonides</i> sp. [Loye 1992a]; |
| | <i>Tetracera portobellensis</i> Beurl.—host | <i>Bolbonota corrugata</i> Fowler [Loye 1992a]; <i>Campylenchia hastata</i> (Fabricius) [Loye 1992a]; <i>Guayaquila</i> sp. [Loye 1992a]; <i>Horiola picta</i> (Coquebert) [Loye 1992a]; <i>Membracis tectigera</i> Olivier [Loye 1992a as <i>Membracis fuscata</i>] |
| Dioscoreaceae | <i>Dioscorea</i> sp. | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| Ebenaceae | <i>Diospyros</i> sp.—host | <i>Bolbonota</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| Ericaceae | <i>Cavendishia</i> sp.—host | <i>Centriculus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| Erythroxylaceae | <i>Erythroxylum</i> sp.—host | <i>Harmonides</i> sp. [Godoy et al. 2006] |
| Euphorbiaceae | Family only—host | <i>Calloconophora caliginosa</i> (Walker) [Dietrich and Deitz 1991a] |
| | Family only—host | <i>Guayaquila fusciformis</i> (Fowler) [Dietrich and Deitz 1991a] |
| | <i>Acalypha diversifolia</i> Jacq. | <i>Enchenopa melaleuca</i> Walker |
| | <i>Acalypha</i> sp.—host | <i>Enchophyllum</i> sp., <i>Micrutilus</i> sp., <i>Poppea</i> sp. [Godoy et al. 2006] |
| | <i>Alchornea</i> sp.—host | <i>Aconophora robusta</i> Dietrich [Dietrich and Deitz 1991a]; <i>Calloconophora caliginosa</i> (Walker) [Dietrich and Deitz 1991a]; <i>Amastris</i> sp., <i>Heteronotus</i> sp., <i>Guayaquila</i> sp., <i>Hyphinoe</i> sp. [Godoy et al. 2006] |
| | <i>Croton</i> sp.—host | <i>Aconophora robusta</i> Dietrich [Dietrich and Deitz 1991a]; <i>Calloconophora caliginosa</i> (Walker) [Dietrich and Deitz 1991a]; <i>Alchisme</i> sp., <i>Enchophyllum</i> sp., <i>Guayaquila</i> sp., <i>Micrutilus</i> sp. [Godoy et al. 2006] |
| | <i>Croton gossypifolius</i> Vahl—host | <i>Calloconophora obliqua</i> Dietrich [Dietrich and Deitz 1991a] |
| | <i>Hura crepitans</i> L. | <i>Calloconophora pinguis</i> (Fowler) |
| | <i>Jatropha urens</i> (L.) Arthur | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Jatropha</i> sp.—host | <i>Cladonota</i> sp., <i>Entylia</i> sp., <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Mabea occidentalis</i> Benth.—host | <i>Poppea zebrina</i> Funkhouser [Loye 1992a] |
| | <i>Ricinus communis</i> L. | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Sapium</i> sp.—host | <i>Tolania</i> sp. [Godoy et al. 2006] |
| | not determinate | <i>Bolbonota</i> sp., <i>Erechtia</i> sp., <i>Philya</i> sp. [Godoy et al. 2006] |
| Fabaceae | Family only—host | <i>Aconophora mexicana</i> Stål [Dietrich and Deitz 1991a] |
| | <i>Acacia</i> sp.—host | <i>Guayaquila</i> sp., <i>Heteronotus</i> sp., <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Albizia</i> sp.—host | <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Amorpha</i> sp.—host | <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Amphicarpaea</i> sp.—host | <i>Enchenopa</i> sp. [Godoy et al. 2006] |
| | <i>Arachis</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| | <i>Bauhinia</i> sp.—host | <i>Calloconophora</i> sp. [Godoy et al. 2006] |
| | <i>Caesalpinia</i> sp.—host | <i>Enchenopa</i> sp., <i>Umbonia</i> sp. [Godoy et al. 2006] |

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TABLE 6. (Continued)

| Plant Family | Plant Species | Membracid Species |
|--------------|---|--|
| | <i>Cajanus cajan</i> (L.) Millsp.—host | <i>Guayaquila pallescens</i> (Stål) [Dietrich and Deitz 1991a] |
| | <i>Cajanus cajan</i> (L.) Millsp. | <i>Enchenopa squamigera</i> (Linnaeus); <i>Vanduzea segmentata</i> (Fowler) |
| | <i>Cajanus</i> sp.—host | <i>Aconophora</i> sp., <i>Enchenopa</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp., <i>Micrutalis</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Calliandra</i> sp. | <i>Amastris affinis</i> Broomfield; <i>Amastris inornata</i> Broomfield; <i>Heteronotus trinodosus</i> Butler; <i>Hypheodana cuneata</i> Fowler |
| | <i>Calliandra</i> sp.—host | <i>Bolbonota</i> sp., <i>Membracis</i> sp., <i>Umbonia</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Calliandra magdalenae</i> (Berero ex. DC) Benth. | <i>Amastris angulata</i> Broomfield; <i>Bolbonota corrugata</i> Fowler; <i>Amastris</i> sp. |
| | <i>Calycophyllum</i> sp.—host | <i>Cyphonia</i> sp. [Godoy et al. 2006] |
| | <i>Cassia moschata</i> Kunth | <i>Guayaquila pallescens</i> (Stål); <i>Hypsoprora coronata</i> (Fabricius); <i>Micrutalis binaria</i> (Fairmaire); <i>Tomogonia vittatipennis</i> (Fairmaire) |
| | <i>Cassia</i> sp.—host | <i>Amastris</i> sp., <i>Bolbonota</i> sp., <i>Enchenopa</i> sp., <i>Poppea</i> sp., <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| | <i>Cercis</i> sp.—host | <i>Enchenopa</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Crotalaria pallida</i> Aiton var. <i>obovata</i> (G.Don) Polhill | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Crotalaria</i> sp.—host | <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Cytisus</i> sp.—host | <i>Enchophyllum</i> sp. [Godoy et al. 2006] |
| | <i>Delonix</i> sp.—host | <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Desmanthus</i> sp.—host | <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Desmodium</i> sp.—host | <i>Spissistilus</i> sp., <i>Tylopelta</i> sp. [Godoy et al. 2006] |
| | <i>Dialium</i> sp.—host | <i>Adippe</i> sp., <i>Enchenopa</i> sp. [Godoy et al. 2006] |
| | <i>Diphysa</i> sp.—host | <i>Bolbonota</i> sp., <i>Enchophyllum</i> sp., <i>Polyglyptodes</i> sp. [Godoy et al. 2006] |
| | <i>Dipteryx</i> sp.—host | <i>Bolbonota</i> sp. [Godoy et al. 2006] |
| | <i>Enterolobium</i> sp.—host | <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Eperua</i> sp.—host | <i>Cyphotes</i> sp., <i>Lycideres</i> sp., <i>Notocera</i> sp., <i>Potnia</i> sp. [Godoy et al. 2006] |
| | <i>Erythrina poeppigiana</i> (Walp.) O.F. Cook - host | <i>Calloconophora pinguis</i> (Fowler) [Dietrich and Deitz 1991a] |
| | <i>Erythrina</i> sp.—host | <i>Bolbonota</i> sp., <i>Calloconophora</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Flemingia strombilifera</i> (L.) W. T. Aiton | <i>Bolbonota corrugata</i> Fowler |
| | <i>Flemingia</i> sp.—host | <i>Bolbonota corrugata</i> Fowler [Loye 1992a] |
| | <i>Gleditsia</i> sp.—host | <i>Micrutalis</i> sp. [Godoy et al. 2006] |
| | <i>Gliricidia maculata</i> (Kunth) Steud. - host | <i>Calloconophora obliqua</i> Dietrich [Dietrich and Deitz 1991a] |
| | <i>Gliricidia</i> sp.—host | <i>Aconophora</i> sp., <i>Calloconophora</i> sp., <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Glycine</i> sp.—host | <i>Campylocentrus</i> sp., <i>Entylia</i> sp., <i>Micrutalis</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Glycyrrhiza</i> sp.—host | <i>Campylenchia</i> sp. [Godoy et al. 2006] |
| | <i>Hymenaea</i> sp.—host | <i>Bolbonota</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Inga cocleensis</i> Pitt.—host | <i>Bolbonota corrugata</i> Fowler [Loye 1992a] |
| | <i>Inga cocleensis</i> Pitt.—host | <i>Campylenchia hastata</i> (Fabricius) [Loye 1992a] |
| | <i>Inga marginata</i> Willd.—host | <i>Heteronotus trinodosus</i> Butler [Loye 1992a] |

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TABLE 6. (Continued)

| Plant Family | Plant Species | Membracid Species |
|--------------|---|---|
| | <i>Inga marginata</i> Willd.—host | <i>Horiola picta</i> (Coquebert) [Loye 1992a] |
| | <i>Inga quaternata</i> Poepp.—host | <i>Cladonota biclavata</i> (Westwood) [Loye 1992a as <i>Sphongophorus guernii</i> Fairmaire] |
| | <i>Inga sapindoides</i> Willd | <i>Cymbomorpha prasina</i> Germar [Loye 1992a] |
| | <i>Inga</i> sp. | <i>Cladonota biclavata</i> (Westwood); <i>Umbonia spinosa</i> (Fabricius) |
| | <i>Inga</i> sp.—host | <i>Anchistrotus</i> sp., <i>Alchisme</i> sp., <i>Bolbonota</i> sp., <i>Cymbomorpha</i> sp., <i>Enchenopa</i> sp., <i>Enchophyllum</i> sp., <i>Heteronotus</i> sp., <i>Ishnocentrus</i> sp., <i>Membracis</i> sp., <i>Notocera</i> sp. [Godoy et al. 2006] |
| | <i>Lespedeza</i> sp.—host | <i>Stictocephala</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Lupinus</i> sp.—host | <i>Aconophora laminata</i> Fairmaire [Dietrich and Deitz 1991a]; <i>Aconophora</i> sp. [Godoy et al. 2006] |
| | <i>Lysiloma</i> sp.—host | <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Macroptilium</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| | <i>Medicago</i> sp.—host | <i>Campylenchia</i> sp., <i>Ceresa</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Melilotus</i> sp.—host | <i>Campylenchia</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Mimosa</i> sp.—host | <i>Potnia</i> sp., <i>Umbonia</i> sp. |
| | Mimosoideae subfamily | <i>Umbonia crassicornis</i> (Amyot and Serville) |
| | <i>Mora</i> sp.—host | <i>Darnis</i> sp., <i>Notocera</i> sp., <i>Stictopelta</i> sp. [Godoy et al. 2006] |
| | <i>Myrospermum</i> sp.—host | <i>Aconophora</i> sp. [Godoy et al. 2006] |
| | <i>Parkinsonia</i> sp.—host | <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Penacletbra</i> sp.—host | <i>Bolbonota</i> sp., <i>Darnis</i> sp., <i>Enchenopa</i> sp., <i>Heteronotus</i> sp., <i>Lycoderes</i> sp., <i>Nassunia</i> sp., <i>Notocera</i> sp., <i>Sundarion</i> sp. [Godoy et al. 2006] |
| | <i>Phaseolus</i> sp.—host | <i>Bolbonota</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| | <i>Pisum</i> sp.—host | <i>Aconophora</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Pithecellobium</i> sp.—host | <i>Anchistrotus maculatus</i> (Guérin-Meneville) [Loye 1992a]; <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Pithecellobium</i> sp. | <i>Amastris angulata</i> Broomfield, <i>Amastris inornata</i> Broomfield |
| | <i>Prosopis</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| | <i>Psoralea</i> sp.—host | <i>Campylenchia</i> sp., <i>Stictocephala</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Pterocarpus officinalis</i> Jacq.—host | <i>Calloconophora caliginosa</i> (Walker) [Dietrich and Deitz 1991a] |
| | <i>Pterocarpus</i> sp. | <i>Cladonota biclavata</i> (Westwood) |
| | <i>Pterocarpus</i> sp.—host | <i>Calloconophora</i> sp., <i>Guayaquila</i> sp. [Godoy et al. 2006] |
| | <i>Robinia</i> sp.—host | <i>Acutalis</i> sp., <i>Enchenopa</i> sp., <i>Micrutalis</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Senna</i> sp.—host | <i>Guayaquila</i> sp. [Godoy et al. 2006] |
| | <i>Sesbania</i> sp. | <i>Membracis mexicana</i> Guérin-Meneville |
| | <i>Sesbania</i> sp.—host | <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Swartzia</i> sp.—host | <i>Enchenopa</i> sp. [Godoy et al. 2006] |
| | <i>Tachigali</i> sp. inflorescence | <i>Enchenopa lanceolata</i> (Fabricius) |
| | <i>Tachigali</i> sp.—host | <i>Heteronotus</i> sp. [Godoy et al. 2006] |
| | <i>Tamarindus</i> sp.—host | <i>Umbonia</i> sp. [Godoy et al. 2006] |

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TABLE 6. (Continued)

| <u>Plant Family</u> | <u>Plant Species</u> | <u>Membracid Species</u> |
|---------------------|--|--|
| | <i>Trifolium</i> sp.—host | <i>Campylenchia</i> sp., <i>Ceresa</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Vatairea erythrocarpa</i> Ducke—host | <i>Membracis tectigera</i> Olivier [Loye 1992a as <i>Membracis fuscata</i>] |
| | <i>Vicia</i> sp.—host | <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Vigna</i> sp.—host | <i>Guayaquila</i> sp., <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| | not determinate | <i>Aconophora</i> sp., <i>Campylenchia</i> sp., <i>Ceresa</i> sp., <i>Entylia</i> sp., <i>Leioscyta</i> sp., <i>Metcalfiella</i> sp., <i>Philya</i> sp., <i>Stictocephala</i> sp., <i>Stictopelta</i> sp., <i>Tylopelta</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| Fagaceae | <i>Quercus</i> sp.—host | <i>Cyrtolobus</i> sp., <i>Enchenopa</i> sp., <i>Entylia</i> sp., <i>Guayaquila</i> sp., <i>Microcentrus</i> sp., <i>Micrutalis</i> sp., <i>Platycotis</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Telamona</i> sp., <i>Vanduzea</i> [Godoy et al. 2006] |
| Flacourtiaceae | <i>Azara</i> sp.—host | <i>Alchisme</i> sp. [Godoy et al. 2006] |
| | <i>Cesaeria</i> sp.—host | <i>Potnia</i> sp. [Godoy et al. 2006] |
| | <i>Dovyalis</i> sp.—host | <i>Bolbonota</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Xylosma</i> sp.—host | <i>Potnia</i> sp. [Godoy et al. 2006] |
| Geraniaceae | <i>Geranium</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| Hamamelidaceae | <i>Liquidambar</i> sp.—host | <i>Cyrtolobus</i> sp., <i>Telamona</i> sp. [Godoy et al. 2006] |
| | not determinate | <i>Platycotis</i> sp. [Godoy et al. 2006] |
| Heliconiaceae | <i>Heliconia metallica</i> Planch.—host | <i>Harmonides</i> sp. [Loye 1992a] |
| Hypericaceae | <i>Vismia baccifera</i> (L.) Tr. & Pl.—host | <i>Bolbonota corrugata</i> Fowler [Loye 1992a] |
| | <i>Vismia baccifera</i> (L.) Tr. & Pl.—host | <i>Campylenchia hastata</i> (Fabricius) [Loye 1992a] |
| Iridaceae | <i>Gladiolus</i> sp.—host | <i>Aconophora marginata</i> Walker [Dietrich and Deitz 1991a]; <i>Aconophora</i> sp. [Godoy et al. 2006] |
| Juglandaceae | <i>Juglans</i> sp.—host | <i>Cyrtolobus</i> sp., <i>Enchenopa</i> sp., <i>Entylia</i> sp., <i>Metcalfiella</i> sp., <i>Microcentrus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| Lauraceae | <i>Chlorocardium</i> sp.—host | <i>Darnis</i> sp., <i>Nassunia</i> sp., <i>Notocera</i> sp., <i>Potnia</i> sp. [Godoy et al. 2006] |
| | <i>Cinnamomum</i> sp.—host | <i>Bolbonota</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Nectandra</i> —host | <i>Adippe</i> sp., <i>Centruchoides</i> sp., <i>Enchenopa</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Nectandra globosa</i> (Aubl.) Mez.—host | <i>Adippe inaequalis</i> Fowler [Loye 1992a] |
| | <i>Nectandra globosa</i> (Aubl.) Mez.—host | <i>Enchenopa dubia</i> (Fowler) [Loye 1992a as <i>Enchophyllum dubium</i>] |
| | <i>Ocotea</i> sp.—host | <i>Guayaquila fusiformis</i> (Fowler) [Dietrich and Deitz 1991a]; <i>Aconophora</i> sp., <i>Addipe</i> sp., <i>Bolbonota</i> sp., <i>Guayaquila</i> sp. [Godoy et al. 2006] |
| | <i>Persea</i> sp.—host | <i>Antianthe</i> sp., <i>Bolbonota</i> sp., <i>Centruchoides</i> sp., <i>Ceresa</i> sp., <i>Entylia</i> sp., <i>Erechtia</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Persea americana</i> Mill. | <i>Metcalfiella monogramma</i> (Germar) [McKamey 1991c] |
| | <i>Persea drymifolia</i> Cham. and Schlect | <i>Metcalfiella monogramma</i> (Germar) [McKamey 1991c] |
| | <i>Persea grawtissima</i> Gaertn. | <i>Metcalfiella monogramma</i> (Germar) [McKamey 1991c] |
| | <i>Phoebe</i> sp.—host | <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Rhodostemonodaphne</i> sp.—host | <i>Membracis</i> sp. [Godoy et al. 2006] |

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TABLE 6. (Continued)

| <u>Plant Family</u> | <u>Plant Species</u> | <u>Membracid Species</u> |
|---------------------|---|---|
| Leguminosae | <i>Machaerium seemanii</i> Benth. ex. Seem. | <i>Rhexia semiatra</i> (Fairmaire) |
| Liliaceae | <i>Aspidistra</i> sp.—host | <i>Bolbonota</i> sp. [Godoy <i>et al.</i> 2006] |
| Loranthaceae | Family only—host | <i>Guayaquila pallescens</i> (Stål) [Dietrich and Deitz 1991a] |
| | <i>Scruthanthus</i> sp.—host | <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy <i>et al.</i> 2006] |
| Lythraceae | <i>Lagerstroemia</i> sp.—host | <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Lawsonia inermis</i> L.—host | <i>Guayaquila pallescens</i> (Stål) [Dietrich and Deitz 1991a] |
| Malpighiaceae | <i>Byrsonima crassifolia</i> (L.) H.B.K.—host | <i>Atymna</i> sp. [Loye 1992a] |
| | <i>Byrsonima crassifolia</i> (L.) H.B.K.—host | <i>Campylenchia hastata</i> (Fabricius) [Loye 1992a] |
| | <i>Byrsonima crassifolia</i> (L.) H.B.K.—host | <i>Cladonota</i> nymph [Loye 1992a = <i>Sphongophorus</i>] |
| | <i>Byrsonima</i> sp. [McKamey pers. communication] | <i>Membracis foliataarcuata</i> (DeGeer) |
| | <i>Byrsonima</i> sp.—host | <i>Vanduzea</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Heteropterys laurifolia</i> (L.) A. Juss.—host | <i>Chelyoidea nitida</i> Buckton [Loye 1992a] |
| | <i>Hiraea reclinata</i> Jacq.— host | <i>Chelyoidea nitida</i> Buckton [Loye 1992a] |
| | <i>Hiraea reclinata</i> Jacq.— host | <i>Potnia gladiator</i> (Walker) [Loye 1992a] |
| Malvaceae | <i>Gossypium</i> sp.—host | <i>Entylia</i> sp., <i>Spissistilus</i> sp., <i>Umbonia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Hampea</i> sp.—host | <i>Bolbonota</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Herrania purpurea</i> (Pitt.) R.E. Schult.—host | <i>Horiola picta</i> (Coquebert) [Loye 1992a] |
| | <i>Hibiscus</i> sp.—host | <i>Guayaquila</i> sp., <i>Membracis</i> sp., <i>Spissistilus</i> sp., <i>Umbonia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Malachra</i> sp.—host | <i>Vanduzea</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Sterculia apetalia</i> (Jacq.) H. Karst. | <i>Anobilia nigra</i> Tode |
| | | <i>Enchenopa costaricensis</i> Schmidt |
| | | <i>Guayaquila fasciata</i> Dietrich [Dietrich and Deitz 1991a] |
| | <i>Theobroma cacao</i> L.—host | <i>Aconophora laminata</i> Fairmaire, <i>Calloconophora caliginosa</i> (Walker), <i>Calloconophora piguis</i> (Fowler), <i>Guayaquila roreriana</i> Goding [Dietrich and Deitz 1991a] |
| Melastomataceae | <i>Bellucia</i> sp.—host | <i>Lycoderes</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Conostegia</i> —host | <i>Bolbonota</i> sp., <i>Enchenopa</i> sp., <i>Endioastus</i> sp., <i>Lycoderes</i> sp., <i>Membracis</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Miconia affinis</i> D. C.—host | <i>Bolbonota corrugata</i> Fowler [Loye 1992a] |
| | <i>Miconia argentea</i> (S.W.) D.C.—host | <i>Bolbonota pictipennis</i> Fairmaire [Loye 1992a] |
| | <i>Miconia argentea</i> (S.W.) D.C.—host | <i>Horiola picta</i> (Coquebert) [Loye 1992a] |
| | <i>Miconia</i> sp.—host | <i>Enchenopa squamigera</i> (Linnaeus) |
| | <i>Miconia</i> sp. | <i>Bolbonota globosa</i> Fairmaire |
| | | <i>Bolbonota pictipennis</i> Fairmaire |
| | | <i>Tragopa bugabensis</i> Fowler |

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TABLE 6. (Continued)

| <u>Plant Family</u> | <u>Plant Species</u> | <u>Membracid Species</u> |
|---------------------|---|---|
| | <i>Miconia</i> sp.—host | <i>Bocydium</i> sp., <i>Calloconophora</i> sp., <i>Endioastus</i> sp., <i>Lycoderes</i> sp., <i>Micrutalis</i> sp. [Godoy et al. 2006] |
| | <i>Mouriri myrtilloides</i> (Sw.) Poir.—host | <i>Endioastis caviceps</i> Fowler [Loye 1992a] |
| | not determinate | <i>Guayaquila</i> sp. [Godoy et al. 2006] |
| Meliaceae | <i>Azadirachta</i> sp.—host | <i>Aconophora</i> sp., <i>Spissistilus</i> sp., <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Guarea</i> sp.—host | <i>Bolbonota</i> sp. [Godoy et al. 2006] |
| | <i>Trichilia</i> sp.—host | <i>Calloconoophora</i> sp., <i>Hebeticoides</i> sp., <i>Heteronotus</i> sp. [Godoy et al. 2006] |
| Monimiaceae | <i>Siparuna</i> sp.—host | <i>Adippe</i> sp., <i>Leioscyta</i> sp. [Godoy et al. 2006] |
| | not determinate | <i>Cladonota</i> sp., <i>Guayaquila</i> sp., <i>Tylopelta</i> sp. [Godoy et al. 2006] |
| Moraceae | <i>Ficus</i> sp.—host | <i>Guayaquila gracilicornis</i> (Stål) [Dietrich and Deitz 1991a], <i>Aconophora</i> sp., <i>Bolbonota</i> sp., <i>Metcalfiella</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Maclura</i> sp.—host | <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Morus rubra</i> L. | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| Musaceae | <i>Musa paradisiaca</i> L. (pro sp.) [acuminata x balbisiana], as <i>Musa paradisiaca</i> | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Musa</i> sp. | <i>Tolania semipellucida</i> Stål |
| Myricaceae | <i>Morella</i> sp.—host | <i>Platycotis</i> sp. [Godoy et al. 2006] |
| | <i>Myrica</i> sp.—host | <i>Guayaquila</i> sp., <i>Platycotis</i> sp. [Godoy et al. 2006] |
| Myrtaceae | <i>Callistemon</i> sp.—host | <i>Guayaquila</i> sp., <i>Membracis</i> sp., <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Calyptanthus</i> sp.—host | <i>Bolbonota</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Eucalyptus</i> sp.—host | <i>Guayaquila</i> sp., <i>Metcalfiella</i> sp. [Godoy et al. 2006] |
| | <i>Eugenia coloradensis</i> Standl.—host | <i>Horiola picta</i> (Coquebert) [Loye 1992a] |
| | <i>Eugenia oerstediana</i> Berg—host | <i>Endioastus caviceps</i> Fowler [Loye 1992a] |
| | <i>Eugenia oerstediana</i> Berg—host | <i>Potnia gladiator</i> (Walker) [Loye 1992a] |
| | <i>Eugenia</i> sp.—host | <i>Bolbonota</i> sp., <i>Enchenopa</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Myrcia</i> sp.—host | <i>Leioscyta</i> sp. [Godoy et al. 2006] |
| | <i>Psidium</i> sp.—host | <i>Membracis</i> sp. [Godoy et al. 2006] |
| Nyctaginaceae | <i>Neea</i> sp.—host | <i>Aconophora</i> sp., <i>Ishnocentrus</i> sp. [Godoy et al. 2006] |
| | <i>Neea</i> sp.—host | <i>Guayaquila fusciformis</i> (Fowler) [Dietrich and Deitz 1991a] |
| Onagraceae | <i>Epilobium</i> sp.—host | <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Ludwigia</i> sp.—host | <i>Guayaquila gracilicornis</i> (Stål) [Dietrich and Deitz 1991a] |
| | <i>Oenothera</i> sp.—host | <i>Entylia</i> sp. [Godoy et al. 2006] |
| Oxalidaceae | <i>Averrhoa</i> sp.—host | <i>Membracis</i> sp. [Godoy et al. 2006] |
| Papaveraceae | <i>Bocconia frutescens</i> L. | <i>Ennya pacifica</i> (Fairmaire) |
| Passifloraceae | <i>Passiflora</i> sp.—host | <i>Antianthe</i> sp., <i>Cladonota</i> sp., <i>Enchophyllum</i> sp., <i>Entylia</i> sp., <i>Guayaquila</i> sp. [Godoy et al. 2006] |
| Pedaliaceae | <i>Sesamum</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| Phytolaccaceae | <i>Rivina</i> sp.—host | <i>Hebeticoides</i> sp. [Godoy et al. 2006] |
| Pinaceae | <i>Pinus</i> sp.—host | <i>Cyrtolobus</i> sp., <i>Entylia</i> sp., <i>Microcentrus</i> sp., <i>Micrutalis</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Telamona</i> sp. [Godoy et al. 2006] |

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TABLE 6. (Continued)

| Plant Family | Plant Species | Membracid Species | |
|--------------|-----------------------------------|---|---|
| Piperaceae | <i>Piper auritum</i> Kunth—host | <i>Aconophora mexicana</i> Stål [Dietrich and Deitz 1991a] | |
| | <i>Piper auritum</i> Kunth—host | <i>Guayaquila gracilicornis</i> (Stål) [Dietrich and Deitz 1991a] | |
| | <i>Piper dilatatum</i> Rich.—host | <i>Bolbonota corrugata</i> Fowler [Loye 1992a] | |
| | <i>Piper dilatatum</i> Rich.—host | <i>Campylenchia hastata</i> (Fabricius) [Loye 1992a] | |
| | <i>Piper</i> sp.—host | <i>Calloconophora caliginosa</i> (Walker), <i>Calloconophora obtusa</i> (Walker), <i>Guayaquila roreriana</i> Goding [Dietrich and Deitz 1991a]; <i>Membracis</i> sp. [Godoy et al. 2006]; <i>Metheisa lucillodes</i> Fowler, <i>Cladonota apicalis</i> (Stål) [Flynn 2018] | |
| | <i>Trema micrantha</i> (L.) Blume | <i>Cladonota biclavata</i> (Westwood) [Flynn 2020b] | |
| | not determinate | <i>Aconophora</i> sp., <i>Achisme</i> sp., <i>Bolbonota</i> sp. [Godoy et al. 2006] | |
| Platanaceae | <i>Platanus</i> sp.—host | <i>Platycotis</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Telamona</i> sp. [Godoy et al. 2006] | |
| Poaceae | <i>Andropogon</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] | |
| | <i>Arundinaria</i> sp.—host | <i>Acutalis</i> sp. [Godoy et al. 2006] | |
| | <i>Avena</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] | |
| | <i>Bromus</i> sp.—host | <i>Ceresa</i> sp. [Godoy et al. 2006] | |
| | <i>Cynodon</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] | |
| | <i>Hordeum</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] | |
| | <i>Oryza</i> sp.—host | <i>Ceresa</i> sp., <i>Spissistilus</i> sp. [Godoy et al. 2006] | |
| | <i>Panicum</i> sp.—host | <i>Cladonota</i> sp. [Godoy et al. 2006] | |
| | <i>Pennisetum</i> sp.—host | <i>Guayaquila</i> sp. [Godoy et al. 2006] | |
| | <i>Poa</i> sp.—host | <i>Stictocephala</i> sp. [Godoy et al. 2006] | |
| | <i>Saccharum</i> sp.—host | <i>Bolbonota</i> sp. [Godoy et al. 2006] | |
| | <i>Sorghum</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] | |
| | <i>Spartina</i> sp.—host | <i>Micrutalis</i> sp. [Godoy et al. 2006] | |
| | <i>Sporobolus</i> sp.—host | <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] | |
| | <i>Trichloris</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] | |
| | <i>Tripsacum</i> sp.—host | <i>Spissistilus</i> sp. [Godoy et al. 2006] | |
| | <i>Triticum</i> sp.—host | <i>Ceresa</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] | |
| | <i>Zea</i> sp.—host | <i>Alchisme</i> sp., <i>Bolbonota</i> sp., <i>Membracis</i> sp., <i>Spissistilus</i> sp., <i>Umbonia</i> sp. [Godoy et al. 2006] | |
| | | <i>Urochloa mutica</i> (Forrsk.) T. Q. Nguyen | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | | not determinate | <i>Alchisme</i> sp., <i>Antianthe</i> sp. [Godoy et al. 2006] |
| Polygalaceae | <i>Monnina</i> sp.—host | <i>Aconophora</i> sp. [Godoy et al. 2006] | |
| | <i>Polygala</i> sp.—host | <i>Campylenchia</i> sp. [Godoy et al. 2006] | |
| Polygonaceae | <i>Coccoloba</i> sp. | <i>Harmonides dispar</i> (Fabricius) | |
| | | <i>Harmonides reticulata</i> (Fabricius) | |
| | <i>Coccoloba</i> sp. - host | <i>Membracis</i> sp. [Godoy et al. 2006] | |
| | <i>Rumex</i> sp.—host | <i>Acutalis</i> sp., <i>Entylia</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] | |
| Proteaceae | <i>Grevillea</i> sp.—host | <i>Bolbonota</i> sp., <i>Guayaquila</i> sp. [Godoy et al. 2006] | |
| | <i>Macadamia</i> sp.—host | <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] | |
| Punicacaceae | <i>Punica</i> sp.—host | <i>Guayaquila</i> sp. [Godoy et al. 2006] | |

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TABLE 6. (Continued)

| <u>Plant Family</u> | <u>Plant Species</u> | <u>Membracid Species</u> |
|---------------------|---|---|
| Ranunculaceae | <i>Clematis</i> sp.—host | <i>Microtalis</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Ranunculus</i> sp.—host | <i>Entylia</i> sp. [Godoy et al. 2006] |
| Rhamnaceae | <i>Ceanothus</i> sp.—host | <i>Microcentrus</i> sp., <i>Notocera</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| Rosaceae | <i>Cydonia</i> sp.—host | <i>Enchophyllum</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Fragaria</i> sp.—host | <i>Campylenchia</i> sp. [Godoy et al. 2006] |
| | <i>Malus</i> sp.—host | <i>Guayaquila</i> sp. [Godoy et al. 2006] |
| | <i>Prunus</i> sp.—host | <i>Bolbonota</i> sp., <i>Cyrtolobus</i> sp., <i>Echenopa</i> sp., <i>Entylia</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp., <i>Metcalfiella</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Pyrus</i> sp.—host | <i>Bolbonota</i> sp., <i>Enchophyllum</i> sp., <i>Erechtia</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp., <i>Metcalfiella</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Rosa</i> sp.—host | <i>Guayaquila gracilicornis</i> (Stål) [Dietrich and Deitz 1991a]; <i>Bolbonota</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Rubus</i> sp.—host | <i>Cyrtolobus</i> sp., <i>Entylia</i> sp., <i>Metcalfiella</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| Rubiaceae | <i>Coffea</i> sp.—host | <i>Aconophora</i> sp., <i>Alchisme</i> sp., <i>Antianthe</i> sp., <i>Bolbonota</i> sp., <i>Enchenopa</i> sp., <i>Guayaquila</i> sp., <i>Hyphinoe</i> sp., <i>Membracis</i> sp., <i>Metcalfiella</i> sp., <i>Polyglypta</i> sp., <i>Spissistilus</i> sp., <i>Vestistilus</i> sp. [Godoy et al. 2006] |
| | <i>Coffea arabica</i> L.—host | <i>Guayaquila fusiformis</i> (Fowler), <i>Guayaquila gracilicornis</i> (Stål), <i>Guayaquila pallescens</i> (Stål) [Dietrich and Deitz 1991a]; |
| | <i>Coffea arabica</i> L. | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Ferdinandusa</i> sp.—host | <i>Membracis</i> sp. [Godoy et al. 2006] |
| | <i>Galium</i> sp.—host | <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Hamelia</i> sp.—host | <i>Guayaquila fusiformis</i> (Fowler) [Dietrich and Deitz 1991a] |
| | <i>Hamelia</i> sp.—host | <i>Guayaquila gracilicornis</i> (Stål) [Dietrich and Deitz 1991a]; <i>Aconophora</i> sp., <i>Amastris</i> sp., <i>Bolbonota</i> sp., <i>Campylenchia</i> sp., <i>Darnis</i> sp., <i>Enchenopa</i> sp., <i>Erechtia</i> sp., <i>Guayaquila</i> sp., <i>Ishnocentrus</i> sp., <i>Membracis</i> sp., <i>Microtalis</i> sp., <i>Potnia</i> sp., <i>Stylocentrus</i> sp., <i>Tragopa</i> sp. [Godoy et al. 2006] |
| | <i>Isertia</i> sp.—host | <i>Guayaquila fusiformis</i> (Fowler) [Dietrich and Deitz 1991a]; <i>Aconophora</i> sp., <i>Bolbonota</i> sp., <i>Campylenchia</i> sp., <i>Enchenopa</i> sp., <i>Guayaquila</i> sp., <i>Ishnocentrus</i> sp. [Godoy et al. 2006] |
| | <i>Isertia haenkaena</i> D.C.—host | <i>Bolbonota corrugata</i> Fowler, <i>Membracis flava</i> Richter, <i>Membracis tectigera</i> Olivier as <i>Membracis fuscata</i> [Loye 1992a] |
| | <i>Uncaria</i> sp.—host | <i>Guayaquila gracilicornis</i> (Stål) [Dietrich and Deitz 1991a]; <i>Aconophora</i> sp., <i>Guayaquila</i> sp., <i>Horiola</i> sp. [Godoy et al. 2006] |
| | <i>Uncaria tomentosa</i> (Willd. Ex Schult) DC. | <i>Aphetea inconspicua</i> Fowler |
| | <i>Warszewiczia</i> sp.—host | <i>Membracis</i> sp. [Godoy et al. 2006] |
| | Not determinate | <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| Rutaceae | <i>Citrus</i> sp.—host | <i>Guayaquila pallescens</i> (Stål) [Dietrich and Deitz 1991a]; <i>Aconophora</i> sp., <i>Bolbonota</i> sp., <i>Enchenopa</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp., <i>Metcalfiella</i> sp., <i>Umbonia</i> sp. [Godoy et al. 2006] |
| | <i>Zanthoxylum</i> sp.—host | <i>Cyrtolobus</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| | <i>Zanthoxylum setulosum</i> P. Wils.—host | <i>Ceresa vitulus</i> (Fabricius) [Loye 1992a] |
| Sabiaceae | <i>Meliosma</i> sp.—host | <i>Metcalfiella</i> sp. [Godoy et al. 2006] |

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TABLE 6. (Continued)

| <u>Plant Family</u> | <u>Plant Species</u> | <u>Membracid Species</u> |
|---------------------|---|--|
| Salicaceae | <i>Casearia guianensis</i> (Aubl.) Urb.—host | <i>Potnia granadensis</i> (Fairmaire) [Loye 1992a] |
| | <i>Casearia guianensis</i> (Aubl.) Urb.—host | <i>Harmonides</i> sp. [Loye 1992a] |
| | <i>Populus</i> sp.—host | <i>Acutalis</i> sp., <i>Cyrtolobus</i> sp., <i>Enchenopa</i> sp., <i>Entylia</i> sp., <i>Metcalfiella</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Telamona</i> sp. [Godoy et al. 2006] |
| | <i>Salix</i> sp.—host | <i>Acutalis</i> sp., <i>Enchenopa</i> sp., <i>Entylia</i> sp., <i>Metcalfiella</i> sp., <i>Micrutalis</i> sp., <i>Stictocephala</i> sp., <i>Telamona</i> sp. [Godoy et al. 2006] |
| Sapindaceae | <i>Acer</i> sp. [McKamey personal comm.] | <i>Metcalfiella monogramma</i> (Germar) |
| | <i>Cupania</i> sp.—host | <i>Bolbonota</i> sp., <i>Notocera</i> sp. [Godoy et al. 2006] |
| | <i>Dodonaea</i> sp.—host | <i>Guayaquila</i> sp. [Godoy et al. 2006] |
| | <i>Paullinia</i> sp.—host | <i>Notocera</i> sp., <i>Tragopa</i> sp. [Godoy et al. 2006] |
| | <i>Paullinia fibrifera</i> Radlk.— host | <i>Notocera bituberculata</i> (Fowler) [Loye 1992a] |
| | <i>Paullinia turbacensis</i> H.B.K.—host | <i>Notocera bituberculata</i> (Fowler) [Loye 1992a] |
| | <i>Serjania</i> sp. \—host | <i>Aphetea inconspicua</i> Fowler, <i>Notocera cerviceps</i> (Fowler) [Loye 1992a]; <i>Guayaquila</i> sp., <i>Notocera</i> sp. [Godoy et al. 2006] |
| | <i>Serjania</i> sp. | <i>Aphetea inconspicua</i> Fowler, <i>Nassunia bipunctata</i> (Fairmaire), <i>Notocera</i> <i>bituberculata</i> (Fowler) |
| Sapotaceae | <i>Chrysophyllum</i> sp.—host | <i>Guayaquila</i> sp. [Godoy et al. 2006] |
| | <i>Pouteria</i> sp.—host | <i>Bolbonota</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp. [Godoy et al. 2006] |
| Saxifragaceae | <i>Ribes</i> sp.—host | <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| Scrophulariaceae | <i>Bacupa</i> sp.—host | <i>Stictolobus</i> sp. [Godoy et al. 2006] |
| Siparunaceae | <i>Siparuna</i> sp. | <i>Adippe paradalina</i> Fowler |
| | | <i>Leioscyta nitida</i> Fowler |
| Smilacaceae | <i>Smilax</i> sp. | <i>Darnis trifasciata</i> Fabricius; <i>Stictocephala</i> sp. [Godoy et al. 2006] |
| Solanaceae | Family only | <i>Bolbonota bituberculata</i> Stål |
| | <i>Acnistus</i> sp.—host | <i>Antianthe</i> sp., <i>Bolbonota</i> sp., <i>Ceresa</i> sp., <i>Erechtia</i> sp., <i>Guayaquila</i> sp., <i>Membracis</i> sp., <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Brunfelsia</i> sp.—host | <i>Vanduzea</i> sp. [Godoy et al. 2006] |
| | <i>Capsicum</i> sp.—host | <i>Antianthe</i> sp. [Godoy et al. 2006] |
| | <i>Cestrum</i> sp.—host | <i>Alchisme</i> sp., <i>Antianthe</i> sp., <i>Antonae</i> sp., <i>Cladonota</i> sp., <i>Cyphonia</i> sp., <i>Guayaquila</i> sp., <i>Metcalfiella</i> sp. [Godoy et al. 2006] |
| | <i>Cestrum lanatum</i> M. Martens and Galeotti | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Cyphomandra</i> sp.—host | <i>Alchisme</i> sp. [Godoy et al. 2006] |
| | <i>Lycopersicon</i> sp.—host | <i>Antianthe</i> sp., <i>Guayaquila</i> sp., <i>Micrutalis</i> sp., <i>Spissistilus</i> sp. [Godoy et al. 2006] |
| | <i>Markea</i> sp.—host | <i>Harmonides</i> sp., <i>Horiola</i> sp., <i>Tragopa</i> sp. [Godoy et al. 2006] |
| | <i>Nicotiana</i> sp.—host | <i>Alchisme</i> sp., <i>Guayaquila</i> sp. [Godoy et al. 2006] |
| | <i>Physalis</i> sp.—host | <i>Micrutalis</i> sp., [Godoy et al. 2006] |

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TABLE 6. (Continued)

| <u>Plant Family</u> | <u>Plant Species</u> | <u>Membracid Species</u> |
|---------------------|---|---|
| | <i>Solanum</i> sp.—host | <i>Aconophora</i> sp., <i>Antianthe</i> sp., <i>Antonae</i> sp., <i>Bolbonota</i> sp., <i>Ceresa</i> sp., <i>Cladonota</i> sp., <i>Cyphonia</i> sp., <i>Emmya</i> sp., <i>Entylia</i> sp., <i>Guayaquila</i> sp., <i>Ishnocentrus</i> sp., <i>Membracis</i> sp., <i>Micrutalis</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Vanduzea</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Solanum rudepannum</i> Dun.—host | <i>Ishnocentrus fowleri</i> Schmidt [Loye 1992a] |
| | <i>Solanum tuberosum</i> L. | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Witheringia</i> sp.—host | <i>Antianthe</i> sp., <i>Entylia</i> sp. [Godoy <i>et al.</i> 2006] |
| | Not determinate | <i>Entylia</i> sp., <i>Platycotis</i> sp., <i>Potnia</i> sp. [Godoy <i>et al.</i> 2006] |
| Sterculiaceae | <i>Guazuma</i> sp.—host | <i>Umbonia</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Theobroma</i> sp.—host | <i>Aconophora</i> sp., <i>Amastris</i> sp., <i>Bolbonota</i> sp., <i>Calloconophora</i> sp., <i>Guayaquila</i> sp., <i>Horiola</i> sp., <i>Hyphinoe</i> sp., <i>Ishnocentrus</i> sp., <i>Membracis</i> sp., <i>Metcalfiella</i> sp. [Godoy <i>et al.</i> 2006] |
| Theaceae | <i>Camellia</i> sp.—host | <i>Bolbonota</i> sp., <i>Membracis</i> sp. [Godoy <i>et al.</i> 2006] |
| Tiliaceae | <i>Luehea</i> sp.—host | <i>Calloconophora</i> sp., <i>Campylenchia</i> sp. [Godoy <i>et al.</i> 2006—NOTE: <i>Luehea</i> now in Family Malvaceae, see Table 7] |
| | <i>Mollia</i> sp.—host | <i>Adippe</i> sp., <i>Tragopa</i> sp. [Godoy <i>et al.</i> 2006] |
| Ulmaceae | <i>Celtis</i> sp.—host | <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Trema</i> sp.—host | <i>Bolbonota</i> sp., <i>Membracis</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Trema micrantha</i> (L.) Blume—host | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| | <i>Ulmus</i> sp.—host | <i>Cyrtolobus</i> sp., <i>Enchenopa</i> sp., <i>Entylia</i> sp., <i>Stictocephala</i> sp., <i>Telamona</i> sp. [Godoy <i>et al.</i> 2006] |
| Urticaceae | <i>Pourouma</i> sp. | <i>Membracis foliata</i> (Linnaeus) |
| | <i>Boehmeria</i> sp.—host | <i>Guayaquila</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Laportea</i> sp.—host | <i>Stictocephala</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Urtica</i> sp.—host | <i>Campylenchia</i> sp., <i>Spissistilus</i> sp., <i>Telamona</i> sp. [Godoy <i>et al.</i> 2006] |
| | Not determinate | <i>Adippe</i> sp., <i>Bolbonota</i> sp. [Godoy <i>et al.</i> 2006] |
| Verbenaceae | <i>Aegiphila</i> sp.—host | <i>Micrutalis</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Lantana</i> sp.—host | <i>Aconophora</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Lantana camara</i> L.—host | <i>Aconophora compressa</i> Walker [Dietrich and Deitz 1991a] |
| | <i>Lantana glandulosissima</i> Hayek—host | <i>Aconophora compressa</i> Walker [Dietrich and Deitz 1991a] |
| | <i>Priva</i> sp.—host | <i>Cladonota</i> sp. [Godoy <i>et al.</i> 2006] |
| | <i>Priva lappulacea</i> (L.) Pers.—host | <i>Cladonota apicalis</i> (Stål) [Flynn 2018] |
| Viscaceae | <i>Phoradendron</i> sp.—host | <i>Brachybelus</i> sp., <i>Enchenopa</i> sp., <i>Guayaquila</i> sp., <i>Micrutalis</i> sp., <i>Microcentrus</i> sp. [Godoy <i>et al.</i> 2006] |
| Vitaceae | <i>Vitis</i> sp.—host | <i>Micrutalis</i> sp., <i>Spissistilus</i> sp., <i>Stictocephala</i> sp., <i>Telamona</i> sp. [Godoy <i>et al.</i> 2006] |
| Vochysiaceae | <i>Vochysia</i> sp.—host | <i>Tragopa</i> sp., <i>Vanduzea</i> sp. [Godoy <i>et al.</i> 2006] |

TABLE 7. Panama treehopper species collected on *Luehea seemanii* Triana and Planch (Malvaceae) [*host Loye 1992a].

| Species | Species |
|--|---|
| <i>Acutalis fusconervosa</i> Fairmaire | <i>Harmonides panamensis</i> Creo-Duarte and Sakakibara |
| <i>Adippe inaequalis</i> Fowler | <i>Harmonides dispar</i> (Fabricius) |
| <i>Amastris affinis</i> Broomfield | <i>Harmonides reticulata</i> (Fabricius) |
| <i>Amastris angulata</i> Broomfield | <i>Horiola picta</i> (Coquebert) |
| <i>Amastris obtegens</i> (Fabricius) | <i>Hypsoprora anatina</i> Fowler |
| <i>Amastris panamensis</i> Broomfield | <i>Lallemanda nodosa</i> Funkhouser |
| <i>Anobilia nigra</i> Tode | <i>Micrutalis atrovina</i> Goding |
| <i>Aphetea inconspicua</i> Fowler | <i>Micrutalis bella</i> Goding |
| <i>Atypa bucktoni</i> Goding | <i>Micrutalis binaria</i> (Fairmaire) |
| <i>Bolbonota corrugata</i> Fowler* | <i>Micrutalis henki</i> Sakakibara |
| <i>Bolbonota inaequalis</i> (Fabricius) | <i>Micrutalis trifurcata</i> (Goding) |
| <i>Bolbonota inconspicua</i> Fowler | <i>Neotynelia pubescens</i> (Fabricius) |
| <i>Bolbonota pictipennis</i> Fairmaire | <i>Notocera bituberculata</i> (Fowler) |
| <i>Bolbonota rufonotata</i> Fowler | <i>Notocera cerviceps</i> (Fowler) |
| <i>Brachybelus cruralis</i> Stål | <i>Potnia brevicornis</i> Fowler |
| <i>Campylenchia hastata</i> (Fabricius)* | <i>Procyrtia pectoralis</i> (Fabricius) |
| <i>Chelyoidea aenea</i> (Perty) | <i>Smiliorhachis proxima</i> Berg |
| <i>Cymbomorpha prasina</i> (Germar) | <i>Smiliorhachis variegata</i> Fairmaire |
| <i>Enchenopa ansera</i> Funkhouser | <i>Stictopelta acutula</i> (Fairmaire) |
| <i>Enchenopa costaricensis</i> Schmidt | <i>Sundarion apicalis</i> (Germar) |
| <i>Enchenopa ignidorsum</i> Walker | <i>Sundarion bimaculata</i> (Fairmaire) |
| <i>Enchenopa squamigera</i> (Linnaeus) | <i>Tolania opponens</i> (Walker) |
| <i>Erechtia gibbosa</i> (DeGeer) | <i>Tomogonia vittatipennis</i> (Fairmaire) |
| <i>Erechtia sallei</i> (Fowler) | <i>Trachytalis retrofasciata</i> (Lethierry) |
| <i>Eunusa concolor</i> Fonseca | <i>Tragopa albimacula</i> (Germar) |
| <i>Guayaquila contorta</i> Dietrich | <i>Tragopa bugabensis</i> Fowler |
| <i>Guayaquila pallescens</i> (Stål) | <i>Tragopa coccinella</i> Fairmaire |

Results

What follows is a checklist of known species in Panama with new updated range extensions for species previously unknown from Panama. The updated list of Panama treehoppers has added documented range extensions for 2 genera and 40 species previously unknown from Panama. With these new range extensions, the treehopper fauna known from Panama includes 100 genera, 313 species, and 2 subspecies.

Checklist of Treehoppers of Panama (Hemiptera: Membracidae)

Centronodinae Deitz, 1975a: 131 [raised to subfamily level in Deitz & Dietrich, 1993a: 289]

Centronodini Deitz, 1975a: 131

Centronodus denticulus Funkhouser, 1930a: 405:

Cocle: Altos de Campaña; Panama: El Llano Carti Rd; (3♀♀: DJFC, UGCA)

Centrotinae Amyot & Serville, 1843a: 549

Boocerini Goding, 1892a: 254

Brachybelus cruralis Stål, 1869c: 292:

Bocas del Toro: Miramar, Corriente Grande; Chiriquí: Potrerillos, Reserva LaFortuna: El Vivero, Alto Quiel: 5 km NW Boquete, Los Planes, Finca la Suiza, 2.5 km N Horqueta, Bambito; Colon: Pipeline Rd. (canopy knockdown tree *Luehea seemannii*), Barro Colorado Island; Panama: El Llano Carti Rd (16♀♀/8♂♂: DJFC, NCSU, HWIC, UDCC, UGCA)

Campylocentrus brevicornis Fowler, 1896d: 151:

Chiriquí: (Fowler 1896d: 151: Volcán de Chiriquí).

Campylocentrus cavipennis (Fowler, 1896d: 153):

Chiriquí: (Fowler 1896d: 153: Volcán de Chiriquí), Hartmann's Finca (1♀: UGCA),

Campylocentrus curvidens (Fairmaire, 1846b: 515):

Bocas del Toro: Chiriquí Grande; Cocle: Valle de Anton, El Valle; Colon: 8 km E Maria Chiquita, Achiote nr Piña, Fort Randolph, Santa Ridge Rd; Darién: Cana: Cana Station, Cana: Boca de Cupe Trail; Panama: Fort Kobbe, Cerro Campaña, Tumbo Muerto, Coclécito; Veraguas: Alto de Piedra above Santa Fe (22♀♀/12♂♂: STRI, MIUP, UDCC, DJFC)

Campylocentrus gibbicornis (Walker, 1858a: 76):

Bocas del Toro: (Goding 1928a: 401)

Campylocentrus hamifer (Fairmaire, 1846b: 512):

Chiriquí: Cerro Punta, Hartmann's Finca, Los Planes; Darién: P. N Darién, Pirre Est. Rancho Frio, 10 km S El Real, Cana: Cana Mine Trail; Panama: Corazal [on Curcubitaceae], Altos de Chase; Veraguas: 2 km NE Santa Fe (9♀♀/2♂♂: DJFC, STRI, UGCA, MIUP)

Campylocentrus pusillus (Fairmaire, 1846b: 512):

Panama: 0.3 km W El Llano (2♀♀: UGCA)

Campylocentrus sinuatus (Fowler, 1896d: 152):

Chiriquí: (Fowler 1896d: 152 as *Gnamptocentrus sinuatus* Fowler: Volcán de Chiriquí).

Centriculus flavus Goding, 1929d: 171:

Chiriquí: Guadalupe Arriba (1♀: MIUP)

Centriculus rufotestaceus Fowler, 1896d: 157:

Chiriquí: (Fowler 1896d: 157: Volcán de Chiriquí).

Ischnocentrus fowleri Schmidt, 1927a: 150:

Chiriquí: Potrerillos; Colon: Barro Colorado Island (Loye 1992a) (13♀♀/16♂♂: NCSU)

Ischnocentrus inconspicuus Buckton, 1903b: 255:

Canal Zone: Pipeline Road; Colon: Parq. Rec. Lago Gatun, Barro Colorado Island, Coco Solo Hospital; Darién: Cana: P. N Darién, 8.5 km S El Real; Panama: Camino del Oleoducto, Lago Alajuela metros (altura) (6♀♀/5♂♂: STRI, UGCA, MIUP)

Ischnocentrus limpidus Schmidt, 1927a: 151:

Darién: P.N Darian Pirre Est. Rancho Frio, Cana: Mine Trail, River Trail, 2 mi. N

Cana: Escucha Ruido, Boca de Cupe Trail (12♀♀/10♂♂: DJFC, MIUP)

Ischnocentrus niger Stål, 1869c: 293:

Chiriquí: Reserva Fortuna: Continental Divide Trail; Colon: Parque Lago Gatun, S Achiote, Santa Rita Ridge, Barro Colorado Island; Panama: Parque Soberania: Plantation Trail (6♀♀/3♂♂: DJFC, STRI, HWIC)

Ophicentrus notandus Fowler, 1896d: 156:

Chiriquí: (Fowler 1896d: 156): Volcán de Chiriquí.

Centrotini Goding, 1892a

Centrotus obscura (Germar, 1835a: 258): (formerly *Tolania obscura*, Incertae sedis as per Albertson and Dietrich 2006: 992)

Colon: Barro Colorado Island (2♀♀: STRI)

Darninae Amyoy & Serville, 1843a: 544

Cymbomorphini Haupt, 1929c: 234

Cymbomorpha prasina (Germar, 1835a: 234):

Bocas del Toro: Corrienta Grande; Chiriqui: Boquete, Fortuna Dam, Fortuna [Bugaba from Fowler 1895b: 80]; Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*), Panama: Cerro Jefe (4♀♀/12♂♂: HWIC, UGCA, UDCC)

Darnini Goding, 1926e: 305

Aspona bullata Stal, 1862e: 29:

Colon: Barro Colorado Island, (2♂♂: HWIC)

Aspona turgescens Fowler 1894c: 50: *

Chiriqui: Boquete (1♀ HWIC)

Hypheodana cuneata (Fowler, 1894c: 51):

Chiriqui: (Fowler 1894c: 51 as *Aspona cuneata*): Volcán de Chiriquí; Colon: Rio Gaunche [on *Callindra* sp.] (1♀: UDCC)

Hypheodana intermedia (Fowler, 1894c: 51):

Chiriqui: (Fowler 1894c: 51 as *Aspona intermedia*): Bugaba; Veraguas: 2 km NE Santa Fe (1♂: DJFC)

Cyphotes quadrinodosus Fonseca & Diringshofen, 1969a: 155:

Colon: Gatun [Broadhead canopy tree fog #6 on *Spondias mombin*] (1♀: HWIC)

Darnis lateralis (Coquebert, 1801a: 78):

Chiriqui: (Goding 1929e: 215 as synonym of *Darnis latior* Fowler, citing Fowler 1894c: 52): Volcán de Chiriquí.

Darnis latior Fowler, 1894c: 52:

Chiriqui: (Fowler 1894c: 52): Volcán de Chiriquí; Colon: Barro Colorado Island; Darien: P. N Darien: Pirre Est. Rancho Frio; Panama: 9 km ENE El Valle: La Laguna, Cerro Azul, Las Nubes (4♀♀/1♂: DJFC, HWIC, MIUP)

Darnis partita Walker, 1858a: 75:

Chiriqui: Bugaba (Fowler 1894c: 52), Fortuna, Quebrada Aleman Trail; Darien: Camp Pierre Trail; Panama: Cerro Azul, Cerro Campaña (7♀♀/7♂♂: DJFC, HWIC, UGCA)

Darnis trifasciata Fabricius, 1803a: 28:

Chiriqui: (Goding 1929e: 215 as synonym of *Darnis partita* Walker 1858a, citing Fowler 1894c: 52) for Bugaba; Cocle: La Mesa above El Valle [on *Smilax* sp.]; Colon: Barro Colorado Island; Panama: Cerro Azul, Las Nubes (4♀♀/6♂♂: HWIC, MIUP)

Hebeticoides acuta Fowler, 1894c: 53:

(Buckton 1903b: 119): Country (Panamá) only.

Ochrolomia confusus (Fowler, 1894c: 54):

Chiriqui: (Fowler 1894c: 54 as *Hebeticoides confusus*: Volcán de Chiriquí).

Stictopelta acutula (Fairmaire, 1846b: 481):

Chiriqui: Fortuna, Boquete, Quebrada Aleman Trail, Los Planes; Colon: Barro Colorado Island, Quebrada Lopez, Pipeline Rd. (canopy knockdown tree *Luehea seemannii*); Darien: Cana Field Station; Panama: Las Cumbres, Campus de Univ. Panamá, Parque Nac. Soberania (23♀♀/18♂♂: DJFC, STRI, HWIC, UGCA, MIUP)

Stictopelta indeterminata (Walker, 1858b: 148):

Chiriqui: (Fowler 1895a: 59): Bugaba and Caldera; Darien: Cana Station (1♀: DJFC)

Stictopelta nigrifrons Fowler, 1895a: 58:

Bocas del Toro: Miramar (1, gender unknown, no abdomen: HWIC)

Sundarion apicalis (Germar, 1835a: 236):

Colon: Barro Colorado Island, Pipeline Road (Canopy knockdown tree *Luehea seemannii*) (2♀♀/1♂: HWIC, UDCC)

Sundarion auriculata (Stål, 1869c: 254):

Colon: Barro Colorado Island (gender unknown, no abdomen: HWIC)

Sundarion bimaculata (Fairmaire, 1846a: 315):

Bocas del Toro: Miramar; Colon: Barro Colorado Island, Pipeline Road (Canopy knockdown tree *Luehea seemannii*) (3♀♀/3♂♂: HWIC)

Hemikyphini Goding, 1929e: 232

Atypa bucktoni Goding, 1929e: 219:

Colon: Broadhead canopy fogging tree #10 [west side of Lake Gatun], Pipeline Road[from *Luehea seemannii*] (1♀/2♂♂: HWIC)

Hemikyptha marginata (Fabricius, 1775a: 12): **

Bocas del Toro: (Murgas *et al.* 2022: Bosque Protector Palo Seco [on *Clibadium grandifolium*]).

Hyphinoini Haupt, 1929c: 234

Hyphinoe asphaltina (Fairmaire, 1846a: 319):

Darien: P. N Darién Pierre Est. Rancho Frio; Panama: Parque Soberania: Plantation Trail (3 ♀♀: DJFC, MIUP)

Hyphinoe cornuta Distant, 1879a: 12:

Bocas del Toro: 9 km S Punta de Peña (1♂: HWIC)

Hyphinoe diabolica Butler, 1878a: 346:

Chiriqui: 25 km NNE San Felix (1♂: HWIC)

Hyphinoe inermis Goding, 1926a: 107:

Bocas del Toro: Miramar; Cocle: El Cope (3♀♀: HWIC)

Hyphinoe latifrons (Fowler, 1895b: 79):

Chiriqui: (Fowler 1895b: 79: Bugaba), Fortuna (1♂: HWIC)

Hyphinoe obliqua (Walker, 1858a: 73):

Chiriqui: (Buckton 1903b: 122 as *Hyphinoe subfusca* Fowler): Volcán de Chiriquí. *Hyphinoe subfusca* Fowler listed as a synonym of *Hyphinoe tau* Fowler by Funkhouser 1927f: 146 and *Hyphinoe tau* Fowler as a synonym of *Hyphinoe obliqua* (Walker) by McKamey 1998: 158.

Hyphinoe vulpecula Fowler, 1895b: 77:

Chiriqui: (Fowler 1895b: 77: Volcán de Chiriquí); Veraguas: 2 km NW Santa Fe (1♀: DJFC)

Tomogonia vittatipennis (Fairmaire, 1846a: 293):

Colon: Barro Colorado Island, 3 km SW Gatun, Pipeline Rd. [Canopy knockdown tree *Luehea seemannii*]; Panama: near Rodman [Canopy knockdown fog tree #12 on *Cassia moschata*] (4♀♀: DJFC, HWIC)

Tribe Procyrtini Deitz, 1975a: 69

Procyrta pectoralis (Fabricius, 1803a: 21):

Chiriqui: Fortuna; Cocle: El Cope; Colon: Barro Colorado Island, Quebrada Lopez, Pipeline Rd. (canopy knockdown on *Luehea seemannii*); Panama: Las Cumbres, Interamerican Hwy: 3 km E Ipeti, Camino del Oleoducto (19♀♀/10♂♂: DJFC, STRI, HWIC, UDCC, UGCA, MIUP)

Endoiastinae Deitz & Dietrich, 1993a: 293

Endioastini Deitz & Dietrich, 1993a: 289, 293

Endoiastus caviceps Fowler, 1896e: 168:

Colon: Barro Colorado Island: Gigante Peninsula; Panama: Lago Alajuela, Cerro Jefe, El Llano-Carti Rd, nr Gamboa Plantation Rd (2♀♀/4♂♂: DJFC, UDCC, MIUP)

Heteronotinae Goding, 1926e: 310

Heteronotini Goding, 1926e: 310

Anchistrotus maculatus (Guérin-Meneville 1838a :7:

Colon: Barro Colorado Island (Loye 1992a)

Anchistrotus obfuscata (Buckton, 1903b: 168):

Colon: Gatun [Broadhead canopy fog tree #6 on *Spondias mombin*], [Broadhead canopy fog tree #7 on *Cordia alliodora*], [Broadhead canopy fog tree #8 on *Spondias radlkoferi*]; Panama: Las Cumbres, Bayano River Bridge (1♀/3♂♂/1 unknown gender: HWIC)

Darnoides brunneus (Germar, 1835b: 308):

Chiriqui: (Goding 1929e: 226: David).

Heteronotus delineatus complex*

Colon: 20 km NE Portobelo (1♀: UGCA)

Heteronotus glandiferus (Lesson, 1832a: 25):

(Buckton 1903b: 141 as *Heteronotus vulnerans* (Germar)): Country (Panamá) only.

Heteronotus quadrinodosus Fairmaire (1846a: 299): *

Panama: Metropolitano (on *Calliandra* sp.) (1♀, UDCC)

Heteronotus reticulatus (Burmeister, 1833a: 227):

(Goding 1929e: 249): Country (Panama) only.

Heteronotus spinosus Laporte, 1832a: 96

Colon: Barro Colorado Island (2♀♀: HWIC, MIUP)

Heteronotus trinodosus Butler, 1878a: 357:

Bocas del Toro: Miramar; Chiriqui: Fortuna; Cocle: El Valle, Farallón; Colon: Barro Colorado Island, Rio Guanche (on *Calliandra* sp.); Darién: Cana, P. N Darién: Pirre Est. Rancho Frio, Playa Guayabo-bosque S de Jaque; Panama: El Llano-Carti Rd; Las Cumbres, Campus Univ. de Panama, Quebrada Lopez nr Sabanitis (8♀♀/14♂♂: DJFC, HWIC, UDCC, MIUP)

Nassunia bipunctata (Fairmaire, 1846a: 290):

Colon: Barro Colorado Island [on *Serjania* sp., ant attended by *Ectamona tuberculatum* (Olivier)], Pipeline Rd. (on *Serjania* sp., ant attended), 4 km E Margarita; Panama: Panama City, Gamboa [on *Serjania* sp., ant attended] (19♀♀/4♂♂: STRI, HWIC, UDCC)

Nassunia dalmani Stål, 1862e: 31:

Panama: Cerro Campana, Parque Metropolitano (2♀♀/1♂: DJFC, DMWC)

Nassunia trux Breddin, 1901a: 178:

Chiriqui: Fortuna, Continental Divide Trail; Panama: Cerro Campana (3♀♀/1♂: DMWC, HWIC, UGCA)

Rhaxia semiatra (Fairmaire, 1846b: 494):

Chiriqui: Hornito [on *Macherium seemannii*], Bugaba (Fowler 1895c:83 as *Scaphula melanocephala* Fowler); Colon: Barro Colorado Island; Panama: Cerro Galera (1♀/4♂♂: DJFC, HWIC)

Rhaxia viridicollis (Fowler, 1895e: 118):

Chiriqui: Bugaba (Fowler 1895e:118 as *Microtalis viridicollis* (Fowler): Darién: P. N Darién Pierre Station (1 gender unknown, abdomen missing: HWIC)

Smiliorachis proxima Berg, 1883c: 285: *

Colon: Pipeline Road (Canopy knockdown tree *Luehea seemannii*), Barro Colorado Island; Panama: Las Cumbres (9♀♀, 9♂♂: HWIC, UDCC)

Smiliorachis variegata Fairmaire, 1846a: 291:

Colon: Pipeline Rd (Canopy knockdown tree *Luehea seemannii*), (2♀♀/2♂♂: HWIC)

Membracinae Rafinesque, 1815a: 121

Hoplophorionini Goding, 1926e: 304

Alchisme apicalis (Walker, 1851a: 518):

Chiriqui: near Volcán along shore of Laguna de Volcán; Bugaba, (Fowler 1894c: 33); Panama: 0.3 km W El Llano (11♀♀/10♂♂, 1 gender unknown: DJFC, UDCC, UGCA).

Alchisme grossa (Fairmaire, 1846a: 280):

Chiriqui: Candela Renacimiento (1♀: MIUP).

Alchisme turrata (Germar, 1835a: 243):

Alchisme turrata is recorded from Country (Panama) only in Goding 1929e: 207 and in Metcalf & Wade 1965a: 562–563. It is also listed as *A. veruta* (Germar), Country (Panamá) only, in McKamey & Deitz (1996a: 313) who reinstated *A. veruta* as a valid species apart from *A. turrata*. Goding 1929e: 207 synonymized *A. turrata* with *A. veruta* Fowler, citing Fowler's Panama distribution for *A. veruta*. *Alchisme turrata* distribution,

according to McKamey (1998: 178) is Argentina, Brazil, Ecuador, and Peru therefore *A. turrita* was erroneously recorded for Panama.

Alchisme veruta (Fowler, 1894c: 33):

(Fowler 1894c: 33 as *Triquetra veruta* Fowler): Country (Panama) only.

Alchisme virescens (Fairmaire, 1846a: 281):

Chiriqui: 1 km N Boquete; 3 km W Cerro Punta; 15 km NW Volcán; near Volcán along shore of Lagunas de Volcán (7♀♀/3♂♂: DJFC, UDCC).

Metcalfiella costaricensis McKamey, 1991c: 22:

Chiriqui: Palmira arriba-Boquete; Veraguas: 2 km NW Santa Fe (2♀♀: MIUP, DJFC)

Metcalfiella monogramma (Germar, 1835a: 253): *

Chiriqui: (McKamey 1991c: 55: Boquete; McKamey 1991c: 54 - hosts: *Persea gratissima*, *P. drymifolia*, *P. americana*).

Ochropepla corrosa (Fairmaire, 1846a: 272):

Bocas del Toro: Chiriquí Grande (1♂: DJFC)

Ochropepla inaequalis Fowler, 1894c: 44:

Chiriqui: Fortuna Dam, 24 km San Felix Cerro Colorado, Volcán de Chiriquí (Fowler 1894c: 44) (1♀/1♂: NCSU, HWIC),

Potnia brevicornis (Fowler, 1894c: 46):

Chiriqui: near Volcán along the shore of Lagunas de Volcán, near Bambito along Bambito Volcán Barú;

Colon: Pipeline Road (Canopy knockdown tree *Luehea seemannii*) (6♀♀/6♂♂: UDCC, DJFC)

Potnia dubia (Fowler, 1894c: 45):

Chiriqui: (Fowler 1894c: 45 as *Ochropepla dubia*: Volcán de Chiriquí).

Potnia gladiator (Walker, 1851a: 567):

Chiriqui: near Chiriquí; Colon: Barro Colorado Island; Panama: Cerro Galera, Gamboa Plantation Road (5♀♀/5♂♂: DJFC, HWIC, UDCC)

Potnia granadensis (Fairmaire, 1846a: 273):

Chiriqui: Bugaba, Volcán de Chiriquí, Boquete, Caldera and David (Fowler 1894c: 46 as *Potnia brevicornis* Fowler), Las Lagunas-Volcán, near Bambito along Bambito Volcán Barú; near Volcán along the shore of Lagunas de Volcán, Fortuna Continental Trail, near Candela; Colon: Barro Colorado Island [on *Casearia* sp.] (9♀♀/1♂: DJFC, UDCC, MIUP, STRI)

Umbonia amazili Fairmaire, 1846a: 277:

(Goding 1929e: 205): Country (Panama) only.

Umbonia ataliba Fairmaire, 1846a: 278:

Chiriqui: near Volcán along shore of Lagunas de Volcán (1♀: UDCC)

Umbonia crassicornis (Amyot & Serville, 1843a: 543):

Bocas del Toro: El Guabo, Punta Peña; Chiriqui: Gualaca, between Gualaca and Los Planes [on mimosoid sp.: subfamily Mimosoideae]; Cocle: Rio Grande; Darien: P. N Darién Cruce de Mono; Panama: Vera Cruz, Campus Universidad de Panama, Arraijan (17♀♀/16♂♂: STRI, UDCC, MIUP)

Umbonia spinosa (Fabricius, 1775a: 675):

Panama: Gamboa, Cerro Campaña, Fort Kobbe; Veraguas: 10 km N Santiago [on *Inga* sp.] (22♀♀/3♂♂: DJFC, STRI, UDCC).

Hoplophorioni Incertae sedis

Ochropepla concinna Fowler, 1894c: 41:

Chiriqui: (Fowler 1894c: 41: Volcán de Chiriquí).

Aconophorini Goding, 1892a: 255

Aconophora compressa Walker, 1851a: 541:

Chiriqui: Las Lagunas 4 km W Hato del Volcán; Rio Serano Rd, Mina Cerro Colorado; Boquete, Rio Colorado, Fortuna (6♀♀/1♂: DJFC, STRI, HWIC); Rio Chiriquí (Dietrich & Deitz, 1991a: 115), 2 km N El Volcán (Dietrich & Deitz, 1991a: 115), Boquete (Dietrich & Deitz, 1991a: 115), Las Lagunas near Hato del Volcán

- (Dietrich & Deitz, 1991a:115); Colon: Barro Colorado Island (Loye 1992a) [misidentified as *Guayaquila compressa* (Walker)]; Herrera: Viejo (Dietrich & Deitz, 1991a:115) [Dietrich and Deitz 1991a:116: hosts—*Lantana camara*, *L. glandulosissima*]
- Aconophora flavipes*** (Germar, 1835a: 238):
Chiriqui: 2 km W Cerro Punta (1♀: DJFC).
- Aconophora laminata*** Fairmaire, 1846a: 294:
Chiriqui: Fortuna Dam area, Ridge Trail N of N Fork Quebrada Arena (Dietrich & Deitz, 1991a: 119), Galera de Chorcha, Las Lagunas 4 km W Hato del Volcán, 15 km NW Volcán, N Santa Clara, 3 km W Cerro Punta; Pila, Parque Amistad Las Nubes Continental Divide Trail; Rio Sereno Road; Las Lagunas, Boquete, Volcan; Veraguas: 2 km NW Santa Fe (11♀♀/3♂♂: DJFC, DMWC, HWIC, MIUP, NCSU, STRI, UDCC)
- Aconophora marginata*** Walker, 1851a: 540:
Chiriqui: (Fowler 1895a: 65: Volcán de Chiriquí).
- Aconophora mexicana*** Stål, 1864a: 70:
Chiriqui: Volcán de Chiriquí (Fowler 1895a: 62), El Valle de Nubes 12 mi (19.2 km) NW Rovira (Deitrich & Deitz 1991a: 102); Darien: 10 km S El Real Rio Pirre and Rancho Fria Trail (Deitrich & Deitz 1991a: 102); Panama: Cerro Campana; Canal Zone: Farfan Beach (Deitrich & Deitz 1991a:102) (1♀: UDCC)
- Aconophora robusta*** Dietrich, 1991a: 122:
Chiriqui: Boquete (Deitrich & Deitz 1991a: 122), Potrerillos (3♀♀/1♂: NCSU)
- Calloconophora caliginosa*** (Walker, 1858b: 135):
Bocas del Toro: Corriente Grande; Chiriqui: Fortuna, Boquete; Cocle: Cerro Calvario; Colon: Barro Colorado Island; Panama: K1 Road Fort Kobbe (5♀♀/4♂♂: DJFC, HWIC)
- Calloconophora obliqua*** Dietrich 1991a: 76:
Panama: El Llano-Carti Road; Darien: Santa Fe (Dietrich and Deitz 1991a: 76) (1♀, 1♂: HWIC, UDCC)
- Calloconophora obtusa*** (Walker, 1851a: 542):
Bocas del Toro: 9 km S Punta de Peña, Chiriquí Grande; Darien: Cana River Trail, Camp Pirre Trail; Panama: Cerro Campana, Parque Metropolitano; Veraguas: Alto de Piedra above Santa Fe (8♀♀: DJFC, DMWC)
- Calloconophora pinguis*** (Fowler, 1895a: 64):
Bocas del Toro: (Dietrich & Deitz 1991a: 92): Chiriquí Grande & Changuinola; Chiriqui: (Dietrich & Deitz 1991a: 92): Bugaba, Volcán de Chiriquí, Blue Mountain; Colon: Broadhead Canopy Fogging Tree #3 (*Hura crepitans* L.), (Dietrich & Deitz 1991a: 92): Barro Colorado Island, Cocoli, Summit, Gatun, Pedregal; Darien: Cana, (Dietrich & Deitz 1991a: 92): 10 km S El Real, Rancho Fria (3♀♀/1♂: DJFC, HWIC).
- Calloconophora pugionata*** (Germar, 1821a: 20):
Chiriqui: Bugaba (Goding 1929e: 230 synonymized *Membracis pugionata* Germar with *Aconophora nitida* Fowler and used *A. nitida* distribution in Panama. Dietrich and Deitz 1991a: 101 synonymizes *Aconophora nitida* Fowler with *Aconophora mexicana* Stål. Dietrich and Deitz 1991a: 86 gives *C. pugionata* hosts as *Bauhinia holophylla* and *Didymopanax vinosum* which are native to South America. They cite no record from Panama which the author believes invalidates the presence of *Calloconophora pugionata* in Panama.
- Guayaquila attenuata*** Dietrich 1991a: 62:
Chiriqui: near Volcan along the shore of Lagunas de Volcan; Colon: (Dietrich and Deitz 1991a: 62: Gatun).
- Guayaquila contorta*** Dietrich 1991a: 36:
Bocas del Toro: Corriente Grande, Miramar; Chiriqui: 10 mi W Boquete, 3 km W Cerro Punta, (Dietrich & Deitz 1991a: 36): Volcán Barú, El Valle de Nubes, 22.4 km NW Rovira; Colon: Barro Colorado Island, Pipeline Road (tree *Luehea seemannii*); Darien: Pirre Station Darién National Park, Cerro Sapo; Panama: Cerro Jefe (13♀♀/1♂: HWIC, STRI, UGCA)
- Guayaquila emarginata*** Dietrich 1991a: 29: *
Colon: Canal Zone Pipeline Road (1♀: UDCC)
- Guayaquila fasciata*** Dietrich 1991a: 60:
Chiriqui: Fortuna; Colon: Broadhead Canopy Fogging Trees 1 and 6, Pipeline Road 3 km NW Gamboa, Barro Colorado Island, Bohio Peninsula, (Dietrich and Deitz 1991a: 60): Fort Gulick (1♀/ 9♂♂: DJFC)
- Guayaquila fusiformis*** (Fowler, 1895a: 69):
Bocas del Toro: El Guabo, Isla Colón; Pta. Pena; Chiriqui: Las Nubes, 5 km E Chiriquíquito, Reserva la Fortuna

el Vivero, Fortuna, (Dietrich & Deitz 1991a: 52); Fortuna Continental Divide Trail: Volcán de Chiriquí; Colon: Barro Colorado Island; Panama: Cerro Jefe, Cerro Campana Parque National Altos de Campana; Veraguas: Alto de Piedra above Santa Fe (6♀/19♂♂: DJFC, HWIC, MIUP, UDCC, UGCA).

Guayaquila gracilicornis (Stål, 1869a: 35):

Bocas del Toro: Chiriquí Grande, 5 km W of Chiriquí Grande, El Guapo, Isla Colón; Chiriqui: 10 mi W of Boquete, Fortuna, P. N Volcán Barú, (Dietrich and Deitz 1991a: 54): Bugaba, Rovira, Volcán de Chiriquí, between Gorgona and Monte Lirji; Cocle: El Valle, 5 km N El Cope, (Dietrich and Deitz 1991a: 54): Agua Dulce, Las Sabaras, Nuevo Limón; Colon: Canal Zone: Pipeline Rd 7 mi NW Gamboa, Santa Rita, Barro Colorado Island, Gatun, 13.5 km NE Sabanita, Fort Gulick; Darien: Cana Locomotive Trail; Panama: Panamá City: La Cresta, San Miguelito Los Andes, La Alameda, Universidad of Panamá; Canal Zone: Ancon, Farfan Beach, Fort Kobbe, Currundu; Altos de Campaña, Cerro Campana, Arroijan, Las Cumbres, El Llano-Carti Rd, Capira: Lidice, Cerro Batea, Bosque de Tumbo Muetto, Lago Alajuela, Bayano: 18.4 km W Ipeti, El Llano, Parque Metroplitano, (Dietrich and Deitz 1991a: 54): “El Cermeno”, Balboa, Summitt, Puma; Veraguas: Alto de Tiedra above Santa Fe; (103♀/32♂♂: DJFC, HWIC, MIUP, NCSU, STRI, UGCA, UDCC,)

Guayaquila pallescens (Stål, 1869a: 35):

Chiriqui: Rio Sereno Road, Volcancitos, Rio Colorado, Boquete, (Dietrich and Deitz 1991a: 24: Las Lagunas nr El Hato); Colon: Achiotte Rd, Gatun; Darien: (Dietrich and Deitz 1991a: 24: 10 km S El Real, Rio Pirre); Herrera: El Limón; Panama: nr Rodman, Cerro Campaña; (15♀/5♂♂: DMWC, HWIC, MIUP, UDCC)

Guayaquila roreriana Goding, 1920b: 159:

Colon: Santa Rita: Ridge Rd.; Panama: Cerro Campana (1♀/1♂: DJFC, UDCC)

Guayaquila tenuicornis (Walker, 1858a: 70):

Country (Panamá) only (Goding 1929e: 231). Dietrich and Deitz (1991a:58) do not include Panamá in their distribution of *G. tenuicornis* therefore Goding’s listing of Panamá is probably in error.

Hypsoprini Haupt, 1929c: 230

Cladonota (Falculifera) apicalis (Stål, 1869c: 273):

Bocas del Toro: 3 km W of Isla Colón, Isla Colón, Corriente Grande, Changuinola, 1 km below Fortuna Continental Divide Trail, Chiriquí Grande; Chiriqui: Los Planes, 1 km SE Fortuna Dam “Blow Area”, Fortuna, Mina Cerro Colorado, Las Lagunas 48 km W Hato del Volcán, Bambito, Boquete, Finca La Suiza; Cocle: El Valle, El Cope, Altos de Campana; Colon: 5 km SW Portobelo, Achiotte, 4 km SW

Gatun, Barro Colorado Island, Canal Zone-7 km SW Gatun Locks, 5 km SW of Portobello, Fort Sherman-Piña Road, 1 km W of Salud; Darien: Rio Tuquesa, Esp. Rancho Frio Pirre P. N Darién; Herrera: Cerro Alto Higo 15 km SW Las Minas; Los Santos: Cerro Canajagua; Panama: Cerro Campana, La Laguna 9 km ENE of El Valle, Las Cumbres, 18 km SE Impeti along Darién Hwy; Veraguas: Alto de Piedra above Santa Fe, Bahia Honda Rio Limón, Bahia Honda Playa Limón, 2 km NE Santa Fe (42♀/24♂♂/1 unknown (no abdomen): DJFC, DMWC, HWIC, MIUP, UDCC, UGCA)

Cladonota (Falculifera) bolivari (Peláez, 1945a: 96):

Bocas del Toro: Chiriquí Grande, 7-12 km N Continental Divide, 4 km S Chiriquí Grande (oil tanks), 5 km W Chiriquí Grande, Oil Storage Facility Road approx. 5 km SE Chiriquí Grande; Chiriqui: nr Candela, Continental Divide Trail; Panama: Cerro Campana (12♀/2♂♂/1 unknown gender- missing abdomen: DJFC, STRI, UDCC, UGCA)

Cladonota (Falculifera) zeledoni (Peláez, 1967a: 209):

Bocas del Toro: 7-12 km N Continental Divide, Chiriquí Grande, 5 km W Chiriquí Grande, Isla Colón-3 km E of Bocas del Drago, 1 km below Fortuna Continental Divide Trail (1♀/12♂♂: DJFC, UDCC)

Cladonota (Lobocladisca) biclavata (Westwood, 1840a: 432):

Cocle: Anton; Colon: Barro Colorado Island, Fort Davis Atl.; Panama: Las Cumbres, Fort Kobbe (Canal Zone) (6♀/10♂♂: HWIC, MIUP, STRI, UGCA)

Cladonota (Lecythifera) inflata (Fowler, 1894c: 30):

(Haupt 1953a: 35): Country (Panamá) only.

Cladonota (Lecythifera) robustula (Fowler, 1894c: 29):

(Peláez 1945a: 64): Country (Panamá) only.

Hypsoprora adusta Creão-Duarte & Sakakibara, 2004: 42:

Panama: Ilano-Carti Road km 8-10 (1♀: STRI)

Hypsoprora anatina Fowler, 1894c: 26:

Colon: Pipeline Road (tree *Luehea seemannii*); Chiriqui: (Fowler 1894c: 26): Bugaba, Volcán de Chiriquí;
Cocle: El Valle (1♀/2♂♂: HWIC)

Hypsoprora coronata (Fabricius, 1803a: 14):

Colon: Barro Colorado Island; Darien: Cana (Airstrip); Panama: nr Rodman (2♀♀/3♂♂: DJFC, HWIC)

Hypsoprora trituberculata (Stål, 1869c: 278):

Chiriqui: (Fowler 1894c: 25: Bugaba).

Notocera bituberculata (Fowler, 1894b: 24):

Bocas del Toro: Corriente Grande; Chiriqui: Potrerillos, Los Planes, Alanje, (Fowler 1894b: 24): Bugaba, Volcán de Chiriquí Caldera, David, San Lorenzo; Cocle: El Valle, Rio Santa Maria, Altos de Campana; Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*), Zona del Canal Fort Sherman, Gigante Peninsula, Piña Road, Fort Gulick (Canal Zone), Madden Dam; Darien: Cruce de Mono P. N Darién, 8.5 km S El Real; Los Santos: (Fowler 1894: 24): Peña Blanca; Panama: Altos de Majé Chepo, Cerro Azul, Cerro Campana, Zona del Canal Fort Kobbe, Cerro Galera, Curundu (Canal Zone—Contracters Area), Las Cumbres, Brisas del Mar Vera Cruz, Parq. Metropolitano, Arraijan, Gamboa nr Plantation Road, Gamboa; Veraguas: Alto de Piedra above Santa Fe (42♀♀/29♂♂: DJFC, DMWC, FSCA, HWIC, MIUP, NCSU, STRI, UDCC, UGCA)

Notocera brachycera (Fairmaire, 1846a: 264) [as *Notocera bovina* Stål, synonym per McKamey 1998: 195].

Bocas del Toro: 3 km W Fortuna Hwy at Continental Divide; Darien: P. N Darién Pirre Esp. Rancho Frio; Panama: Cerro Campana Road, Isla Taboga (3♀♀/2♂♂: DMWC, HWIC, UGCA, MIUP)

Notocera cerviceps (Fowler, 1894b: 24):

Bocas del Toro: Chiriquí Grande; Chiriqui: (Fowler 1894b: 24 as *Pterygia cerviceps* Fowler): Bugaba Caldera; Cocle: Altos de Campana; Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*); Limbo (Hunt Club) north of Gamboa; Panama: Camino del Oleoducto; San Blas: Nusagrande [Lodge]; (6♀♀/2♂♂: DJFC, HWIC, STRI, UGCA)

Notocera dispar Strümpel, 1972b: 47:

Chiriqui: 7 km W Chiriquícito (1♂: UGCA)

Notocera satanus (Lesson, 1832a: Plate 56):

Chiriqui: Fortuna-Boquete Road nr Caldera; Herrera: 6 km SW of Paris; Panama: Cerro Galera, Lago Ala juela, Madden Forest (2♀♀/4♂♂: UDCC, MIUP, STRI)

Notocera spinidorsa Goding, 1929d: 171:

Bocas del Toro: Rio Changuinola; Colon: Pipeline Road 10 mi NW Gamboa; Darien: Cana; Panama: Cerro Campana (4♀♀/1♂: DJFC, HWIC, STRI)

Notocera tuberosa (Fairmaire, 1846a: 266):

Chiriqui: Potrerillos (1♀: NCSU)

Philya ascendens (Walker, 1851a: 493):

Chiriqui: 2 km W Caldera (1♀: DMWC)

Membracini Rafinesque, 1815a: 121

Bolbonota (Bolbonota) aurosericea Stål, 1862e: 24:

Bocas de Toro: Chiriqui-Grande-David Road; Colon: Barro Colorado Island (3♀♀: HWIC, UDCC)

Bolbonota (Bolbonota) cuneata Fowler, 1894b: 17:

Bocas del Toro: Chiriquí Grande; Chiriqui: (Fowler 1894b: 17): Bugaba, Volcán de Chiriquí; Colon: Barro Colorado Island (1♀/10♂♂: DJFC, UDCC)

Bolbonota (Bolbonota) globosa Fairmaire, 1846a: 257:

Bocas del Toro: oil storage facility road approx. 5 km SE Chiriquyí Grande; Chiriqui: 4 km N of Boquete nr bridge, Potrerillos; Colon: Barro Colorado Island; Panama: Cerro Campana, Parque Metropolitano (10♀♀, 5♂♂: DJFC, DMWC, NCSU, STRI, UDCC)

Bolbonota (Tubercunota) bituberculata Stål, 1862e: 24:

Bocas del Toro: 2 km S Punta de Peña, 9 km S Punta de Peña, Chiriquí Grande, 5 km W of Chiriquí Grande, Isla Colón 3 km E Bocas del Drago, Oil Storage Facility Road; Chiriqui: North Santa Clara; Colon: 20 km NE

Portobelo; Panama: Capira Lidice, nr Gamboa Pipeline Rd km 1.3-2.0 (18♀♀/3♂♂: DJFC, HPSC, UDCC, UGCA, MIUP)

Bolbonota (Bolbonota) inconspicua Fowler, 1894b: 18:

Bocas del Toro: Chiriquí Grande, Isla Colón, 7-12 km N Continental Divide, Corriente Grande; Chiriqui: Los Planes, Fortuna-Caldera-Boquete Road; Colon: Fort Sherman (Piña Road), Pipeline Road (canopy knockdown tree *Luehea seemannii*), Barro Colorado Island, Chagres Bridge; Darien: Pirre Station Darién Nat. Park, Cana Mine Trail, Cana River Trail, Cana Boca de Cupe Trail, Camp Pirre; Panama: Parque Metropolitano, Lago Alajuela metros (altura), Las Cumbres, Cerro Campana, Gamboa Plantation Road, nr. Gamboa; San Blas: Nusagano, Ina Trail (29♀♀/27♂♂: DJFC, DMWC, HWIC, MIUP, UDCC, UGCA)

Bolbonota (Bolbonota) nigrata Funkhouser, 1914d: 361: *

Bocas del Toro: Isla Colón 3 km E Boca del Drago (1♀: DJFC)

Bolbonota (Bolbonota) pictipennis Fairmaire, 1846a: 258:

Bocas del Toro: Isla Colón, Chiriquí Grande; Chiriqui: Fortuna, Los Planes, 6 km S Los Planes; Cocle: La Mesa above El Valle; Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*), Quebrada Lopez, Santa Rita Ridge Road (12 km ESE Colón), Santa Rita Ridge Road; Darien: 8.5 km S El Real; Panama: El Llano-Carti Road km 8 & 9, Parque Metropolitano, Cerro Campana, Las Cumbres, Fort Clayton (Canal Zone), Cerro Azul, Lego Alajuela metro (altura), Pipeline Road km 10.5 (on *Miconia* with ants); Veraguas: Alto de Piedra above Santa Fe (40♀♀/3♂♂: DJFC, DMWC, HWIC, MIUP, UDCC)

Bolbonota (Bolbonota) pusilla Fairmaire, 1846a: 258:

Bocas del Toro: Oil Storage Facility Road aprox. 5 km SE Chiriquí Grande; Chiriqui: Potrerillos, 5 km N Boquete near bridge, Fortuna-Caldera-Boquete Road; Darien: 2 mi N Cana Escucha Ruido (21♀♀/22♂♂, 1 unknown gender: DJFC, NCSU, UDCC)

Bolbonota (Tubercunota) corrugata Fowler, 1894b: 19:

Bocas del Toro: Isla Colón, Chiriquí Grande; Chiriqui: Boquete, Rio Colorado; Cocle: 5 km N El Cope; Colon: Barro Colorado Island, Fort Sherman Piña Road, 4 km SW Gatun, 5 km SW Portobelo, Isla Galeta Road, Santa Rita Ridge Road, Pipeline Road (canopy knockdown tree *Luehea seemannii*), Coco Solo Hospital (Canal Zone), Chagras Bridge, 20 km NE Portobelo, Achiotte, Fort San Lorenzo; Darien: Cana, 8.5 km S El Real, Cana River Trail, Cana Boca de Cupe Trail, Cana Mine Trail; Panama: Fort Kobbe, Cerro Galera (Canal Zone), Arraijan, Cerro Campana, Curundu (Canal Zone), Venado Beach N of Arraijan, El Llano-Carti Road, Las Cumbres, 7 km SE Gamboa, 9 km E Chepo, San Mgto. Los Andes, 3 km S Torti Cerro Sin Nombre, Bayano 18.4 km W Ipeti, Gamboa, Lago Alajuela metros (altura), Pipeline Road, (Fowler 1894b: 19): Taboga Island, San Miguel in Pearl Island (121♀♀/16♂♂: DJFC, STRI, HWIC, MIUP, UDCC, UGCA,)

Bolbonota (Tubercunota) inaequalis (Fabricius, 1803a: 22):

Bocas del Toro: Corriente Grande, 5 km W Chiriquí Grande; Colon: Pipeline Road (canopy knockdown tree *Luehea seemannii*), Barro Colorado Island, Piña Road, Santa Rita Ridge Rd.; Darien: Cana River Trail; Panama: Fort Kobbe (Canal Zone), Los Cumbres, Madden Forest, Panamá City San Miguelito Los Andes, Pipeline Road nr Gamboa 1.3-2.0 km, Llano-Carti Road; San Blas: 2.5 km S Campamento Nusaghandi (5♀♀/29♂♂: DJFC, HWIC, MIUP, UDCC)

Bolbonota (Tubercunota) insignis Fowler, 1894b: 17:

Bocas del Toro: Miramar; Chiriqui: (Fowler 1894b: 17): Bugaba, Volcán de Chiriquí; Darien: 8.5 km S El Real, Cana Air Strip (4♀♀: DJFC, HWIC, MIUP)

Bolbonota (Bolbonota) melana (Germar, 1835a: 229): *

Bocas del Toro: Isla Colón, 5 km S Almirante; Colon: Fort Sherman (20♀♀/24♂♂: DJFC, UDCC)

Bolbonota (Bolbonota) rufonotata Fowler, 1894a: 416:

Colon: Pipeline Road (canopy knockdown tree *Luehea seemannii*); Barro Colorado Island (2♂♂: HWIC)

Campylenchia hastata (Fabricius 1787a: 263:

Colon: Barro Colorado Island (Loye 1992a)

Enchenopa albidorsa (Fairmaire, 1846a: 251):

Darien: P. N Darién Pirre Est. Rancho Frio, 10 mi S de El Real, Villa Darién; Panama: Cerro Campana; Veraguas: Santa Fe, Altos Piedras (7♀♀/1♂♂: DJFC, MIUP, UDCC)

Enchenopa ansera Funkhouser, 1943d: 456:

Chiriqui: Rio Colorado; Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*); Panama: Las Cumbres, Arraijan (9♀♀/1♂♂: HWIC)

Enchenopa anseriformis Strümpel and Strümpel, 2014: 99: *

Colon: Barro Colorado Island (1♀♀: UGCA)

Enchenopa bifusifera Walker, 1858b: 125:

Chiriqui: Rio Colorado; Colon: Barro Colorado Island; Panama: Cerro Campana, Las Cumbres (3♀♀/3♂♂: NCSU, HWIC)

Enchenopa binotata (Say, 1824a: 301):

Chiriqui: near Bambito, Portrerillos (Arriba); Panama: Cerro Campana (7♀♀/2♂♂: DJFC, NCSU, UDCC)

Enchenopa castanea Strümpel and Strümpel, 2014: 39: *

Panama: Las Cumbres (1♀♀: UDCC)

Enchenopa costaricensis Schmidt, 1924b: 292: *

Colon: Barro Colorado Island, Broadhead Canopy fogging (tree #1), Pipeline Road (canopy knockdown tree *Luehea seemannii*) (7♀♀/5♂♂: HWIC)

Enchenopa dubia Fowler, 1894b: 8 [moved, as *Enchophyllum dubium*, to *Enchenopa*, per Strümpel and Strümpel 2014: 81]:

Bocas del Toro: Corriente Grande; Chiriqui: Volcan de Chiriquí (Fowler 1894b: 8), Potrerillos, Fortuna, Reserva la Fortuna on Continental Divide Trail, Fortuna Continental Divide Trail; Colon: Fuerte Sherman, Barro Colorado Island (Loye 1992a) (14♀♀/12♂♂: DJFC, NCSU, HWIC, UDCC, UGCA)

Enchenopa gladius (Fabricius, 1803a: 13):

Chiriqui: (Fowler 1894b: 11: Bugaba); Darien: Cerro Pirre area (McKamey pers. comm)

Enchenopa hastata (Fabricius, 1787a: 263) [synonymized with *Enchenopa squamera* (Linnaeus) by Strümpel and Strümpel 2014: 71:

Bocas del Toro: Corriente Grande; Chiriqui: Cerro Punta, 6 km S Los Planes; Cocle: Altos de Campana, Cerro Campana; Colon: Isla Galeta Road, Quebrada Lopez, Achiote, Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*), Rio Guanache; Panama: Fort Kobbe (Canal Zone), Cerro Campana, Arraijan, Pedro Miguel Paraiso, Ciudad Panamá La Alameda, Capira Lidice, El Cangrejo Panamá City, Cerro Azul, Cerro Batea, 3 km SW Torti, 5.7 kmE El Llano, El Llano-Carti Road, Pipeline Road; Veraguas: Coiba Isla, 2.1-4.5 km S Santa Fe, 9 km S Santa Fe (44♀♀/11♂♂: DJFC, HWIC, MIUP, UDCC, UGCA) move data to *squamigera*.

Enchenopa ignidorsum Walker, 1858b: 124:

Chiriqui: Rio Colorado, 6 km S Los Planes, Los Planes; Colon: Barro Colorado Island, Canal Zone Pipeline Road (canopy knockdown tree *Luehea seemannii*); Darien: Cana Locomotive Trail, Cana Mine Trail, Cana River Trail, Cana Station; Panama: Fortuna (18♀♀/5♂♂: DJFC, HWIC)

Enchenopa lanceolata (Fabricius, 1787a: 263): [*Enchophyllum lanceolatum* synonym per Strümpel, 2014: 85]

Chiriqui: Portrerillos, (Fowler 1894b: 14): Bugaba, Volcán de Chiriquí; Cocle: Alto de Campana; Colon: Barro Colorado Island; Darien: Cana Station; Panama: Cerro Galera; Veraguas: Parque Nac. Santa Fe (12♀♀/1♂♂: DJFC, HWIC, NCSU, UGCA)

Enchenopa melaleuca Walker, 1858a: 59: [moved as *Enchophyllum melaleucum* to *Enchenopa*, per McKamey 2022: 94]

Bocas del Toro: Isla Colón, Miramar; Cocle: El Valle, Colon: Barro Colorado Island, Fuerte Sherman, Parq. Rec. Lago Gatun, Canal Zone Pipeline Road; Darien: Cana, 1 mi. N Cana Escucha Ruido, Cana Mine Trail; Panama: Cerro Campana, Cerro Galera, El Llano-Carti Road, Arraijan, Cerro Azule Las Nubes, Cerro Jefe, Camino Plantation P.N. Soberania, Cerro Campana Parque Nacional Altos de Campana, nr Gamboa Pipeline Road km 1.3-2.0, Gamboa Plantation Road (40♀♀/11♂♂: DJFC, DMWC, HWIC, MIUP UDCC, UGCA)

Enchenopa monoceros (Germar, 1821a: 28):

Chiriqui: Fortuna; Panama: Los Cumbres (6♀♀/4♂♂: HWIC)

Enchenopa multicarinata Fowler, 1894b: 11

(Goding 1928e: 210 and Metcalf and Wade 1965: 1308): Country (Panamá) only.

Enchenopa recticornuta Strümpel and Strümpel, 2014: 89:

Bocas del Toro: 1 km below Fortuna on Continental Divide Trail, Chiriquí Grande; Chiriqui: N Sta. Clara, 7 km NW Hato del Volcán, Fortuna, Reserva la Fortuna Continental Divide Trail, La Fortuna Continental Divide Trail, near Chiriquícito; Darién: Cana River Trail (14♀♀/2♂♂: DJFC)

Enchenopa richteri Strümpel and Strümpel, 2014: 91: *

Bocas del Toro: 5 km W Chiriquí Grande; Darién: Boca de Cupe Trail, Cana Airstrip, Cana Mine Trail, Cana River Trail (17♀♀/11♂♂: DJFC, UDCC)

Enchenopa sericea Walker 1851a: 493:

Chiriqui: Rio Colorado, Rio Sereno Road, Bambito, Volcán, Volcancitos, Portrerillos, 3 km W Cerro Punta, 1 km N Boquete Park Nal Volcan Baru; Colon: Piña Road; Panama: Chagres Bridge (20♀♀/10♂♂: DJFC, HWIC, MIUP, NCSU, UDCC)

Enchenopa serratipes Buckton, 1903b: 49: *

Darién: 8.5 km S El Real (1♀: DJFC)

Enchenopa squamigera (Linnaeus, 1758a: 435) [= *Enchenopa hastata*, synonymized by Strümpel and Strümpel 2014: 71]:

Bocas del Toro: Corriente Grande; Chiriqui: Cerro Punta, 6 km S Los Planes; Cocle: Altos de Campana, Cerro Campana; Colon: Isla Galeta Road, Quebrada Lopez, Achiote, Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*), Rio Guanache; Panama: Fort Kobbe (Canal Zone), Cerro Campana, Arraijan, Pedro Miguel Paraiso, Ciudad Panamá La Alameda, Capira Lidice, El Cangrejo Panamá City, Cerro Azul, Cerro Batea, 3 km SW Torti, 5.7 kmE El Llano, El Llano-Carti Road, Pipeline Road; Veraguas: Coiba Isla, 2.1-4.5 km S Santa Fe, 9 km S Santa Fe (51♀♀/12♂♂: DJFC, HWIC, MIUP, UDCC, UGCA)

Enchenopa tatei Goding, 1928e: 211: * [moved from *Campylenchia* per McKamey 2022: 94]:

Chiriqui: Fortuna; Cocle: El Cope (1♀/1♂: HWIC, MIUP)

Enchophyllum fulica (Germar, 1835a: 225):

Darién: P. N Darién Pirre Est. Rancho Frio (1♀: MIUP)

Eunusa concolor Fonseca, 1974a: 59:

Colon: Pipeline Road (canopy knockdown tree *Luehea seemannii*); Panama: Gamboa (5♀♀/3♂♂: DJFC, MIUP, UDCC)

Leioscyta nitida Fowler, 1894b: 14:

Chiriqui: Fowler 1894b:14: Bugaba, Volcán de Chiriquí; Cocle: Altos de Campana; Colon: Barro Colorado Island Canal Zone; Darién: Cana Mine Trail; Panama: Cerro Campana, Parque Nacional Altos de Campaña, Cerro Galera (31♀♀/10♂♂: DJFC, STRI, HWIC, UDCC, UGCA, MIUP)

Leioscyta similis Fonseca & Diringshofen, 1969a: 147: *

Colon: Piña Road Canal Zone (1 gender unknown, no abdomen: HWIC)

Membracis dorsata Fabricius, 1803a: 11:

Bocas del Toro: Chiriquí Grande, Miramar; Colon: Barro Colorado Island Canal Zone, Galeta TTC Canal Zone; Panama: 6 km S Ipeti, Gamboa, Las Cumbres, nr Gamboa Pipeline Rd., km 1.3-2.0 (23♀♀/9♂♂: DJFC, HWIC, MIUP, UDCC)

Membracis flava (Richter 1947a: 390:

Colon: Barro Colorado Island (Loye 1992a)

Membracis foliata (Linnaeus, 1758a: 705):

Darién: Cervania del Pirre Rancho Frio (2♂♂: HWIC)

Membracis foliataarcuata (DeGeer, 1773a: 206):

Colon: 4 km SW Gatun; Darién: 10 km S El Real, Pirre Station Darién National Park, Cerro Pirre (collected on *Byrsonima* sp.: McKamey pers. comm.); Panama: Las Cumbres (5♀♀: DJFC, HWIC, MIUP)

Membracis mexicana Guérin-Méneville, 1838a: 364:

Bocas del Toro: Chiriquí Grande, Isla Colón 3 km E Bocas del Drago; Chiriqui: Dst. Renacimiento Santa Clara, Galerade Chorcha, Boquete, Route 1 Carretera Interamericana nr Tolé, David plant association: *Schefflera* sp. (González *et al.* 2021: 10); Cocle: Penonomé, Interam. Hwy at Napa (on *Sesbania* sp. foliage); Colon: Barro Colorado Island, Canal Area Pipeline Rd. 7 km NW Gamboa; Darién: Camp Pirre; Panama:

Rio Caimito Chorrera, Tumbo Muerto, Tocumen; Veraguas: 20 km S Santa Fe Rio Sta. Maria (13♀♀/11♂♂: DJFC, NCSU, STRI, HWIC, HPSC, UDCC, MIUP)

Membracis peruviana Fairmaire, 1846a: 249:

Bocas del Toro: Miramar (1♀/1♂: HWIC)

Membracis tectigera Olivier 1792a: 668:

Colon: Barro Colorado Island (Loye 1992a as *Membracis fuscata* (Fab.))

Membracis trimaculata Fairmaire, 1846a: 245:

Cocle: El Copé; Colon: Fort Sherman Mojinga Swamp, 9 km E Chepo Road; Darién: Cana Parque Nacional Darién; Panama: Cerro Campana Capira (7♀♀/2♂♂: DJFC, HWIC, MIUP, NCSU)

Tropidoscyta torva (Germar, 1835a: 228) (restored original combination, from *Erechtia*, per Sakakibara 2012: 575):

Panama: Cerro Azul Las Nubes (1♀/1♂: MIUP)

Tylopelta gibbera (Stål, 1869a: 46):

Bocas del Toro: Oil Storage Facility Road approx. 5 km SE of Chiriquí Grande, Isla Colón 3 km W Bocas del Toro; Chiriquí: Potrerillos, San Lorenzo, Boquete, Fortuna-Caldera-Boquete Road, Fortuna-Boquete Road: 22 km from junction with David Fortuna Road; Panama: Cerro Campana (31♀♀/5♂♂: DJFC, HWIC, NCSU, UDCC)

Membracini Incertae sedis

Leioscyta ferruginea Funkhouser, 1922a: 6:

Chiriquí: La Fortuna Continental Divide Trail (2♀♀: DJFC)

Talipedini Deitz, 1975a: 40

Erechtia abbreviata (Fabricius, 1803a: 23):

Darién: Cana Camp Pirre (1♀/3♂♂: DJFC)

Erechtia carinata (Funkhouser, 1922a: 11) (*Trinaria carinata* synonym per Sakakibara 2012: 566. Originally described by Funkhouser as *Ochropepla carinata*):

Colon: Barro Colorado Island Canal Zone (1♂: UGCA)

Erechtia gibbosa (DeGeer, 1773a: 211) (*Erechtia bicolor* Walker 1858 synonym as per Sakakibara 2012: 565):

Colon: Pipeline Road (canopy knockdown tree *Luehea seemanii*); Panama: Cerro Galera (4♀♀: DJFC, HWIC)

Erechtia sallaei (Fowler, 1894b: 13) (*Erechtia uniformis* Fowler synonym per Sakakibara 2012: 570):

Bocas del Toro: Isla Colón 3 km W Bocas del Toro; Chiriquí: Los Planes, nr Volcán along shore of Lagunas de Volcán, Portrerillos, N Santa Clara, Fortuna; Colon: Pipeline Road (canopy knockdown tree *Luehea seemanii*); Darién: Cruce de Mono P. N[Darién]; Panama: El Llano-Carti Road, Las Cumbres (4♀♀/2♂♂: DJFC, HWIC, MIUP, UDCC)

Talipes appendiculatus (Fonseca, 1936a): *

(Sakakibara 2012: 573): Country (Panamá) only.

Nicomiinae Haupt, 1929c: 237

Nicomiini Haupt, 1929c: 237

Nicomia buccina Albertson, 2005: 248:

Panama: Province only (Albertson and Dietrich 2005)

Nicomia nigrifasciata Albertson, 2005: 254:

San Blas: Province only (Albertson and Dietrich 2005)

Tolaniini Haupt, 1929c: 228

Tolania alida Albertson, 2006: 938:

Panama: Province only (Albertson and Dietrich 2006: 938); Darién: Cana Station (1♂: DJFC)

Tolania albira Albertson, 2006: 953

San Blas: Province only (Albertson and Dietrich 2006: 953); Darién: Cana Station (1♂: DJFC)

Tolania nr cactina Albertson, 2006: 942: *

Cocle: 5 km N El Cope Contintntal Divide; Panama: Cerro Campana (1♀/1♂: HWIC)

Tolania curvata Albertson, 2006: 942:

Chiriqui: Fortuna (1♀, HWIC)

Tolania femoralis Stål, 1862e: 37:

Colon: Barro Colorado Island Canal Zone, Fort San Lorenzo; Panama: Camino del Oleoducto (2♀♀/1♂: DJFC, UGCA)

Tolania fraterna Stål, 1862e: 37:

Chiriqui: Boquete (1♀: HWIC). Questionable citation for Panamá. Goding (1927a: 191), Funkhouser (1927f: 494), and Metcalf & Wade (1965a: 1518) all synonymized *Tolania fraterna* Stål with *Tolania obtusa* Fowler, giving *T. obtusa*'s Panamá distribution for *T. fraterna* Stål. Albertson and Dietrich (2006: 933) give Brazil as the only distribution for *T. fraterna* and reinstate *T. obtusa* Fowler as a valid species. Specimen identified by the author from HWIC was identified prior to Albertson and Dietrich's 2006 revision, using the only key at the time from Goding 1927a: 190. Specimen warrants re-examination to validate identification as either *T. fraterna* or *T. obtusa*.

Tolania grallator Albertson, 2006: 943:

Chiriqui: Fortuna (1♂: HWIC)

Tolania hispida Albertson, 2006: 939:

Bocas del Toro: Province only (Albertson and Dietrich 2006: 939); Coclé, Chiriqui: 7 km SE Fortuna Dam Blow Area, Mina Cerro Colorado; Panama: Cerro Campana (1♀/3♂♂; DJFC)

Tolania jocosa Albertson, 2006: 943:

Panama: (Albertson and Dietrich 2006: 945: Cerro Campana).

Tolania mckameyi Albertson, 2006: 945:

Chiriqui: Fortuna; Cocle: (Albertson and Dietrich 2006: 945): Province only; Darien: Camp Pirre Trail, Panama: Cerro Campana (2♀♀/2♂♂: DJFC, HWIC)

Tolania obtusa Fowler, 1896e: 166:

Province only (Albertson and Dietrich 2006: 950): Chiriquí, Darién, Panamá, Veraguas; Colon: Quebrada Lopez (2♀♀: DJFC)

Tolania opponens (Walker, 1858b: 159):

Bocas del Toro: Miramar, Corriente Grande; Chiriqui: Fortuna; Colon: Pipeline Road (canopy knockdown tree *Luehea seemannii*), Barro Colorado Island; Panama: Cerro Campana [in 2012 Checklist was misidentified as *Tolania armata* Goding], Las Cumbres, Cerro Galera (canopy fog tree #15 *Spondias mombin*), El Llano-Carti Road (22♀♀/8♂♂, 1 gender unknown: HWIC)

Tolania periculosa Albertson, 2006: 939:

Province only (Albertson and Dietrich 2006: 941): Bocas del Toro, Chiriquí, Coclé, Herrera; Colón: Fort Sherman; Darien: Cana Mine Trail; Panama: El Llano-Carti Road Kilometer 7.5 (2♀♀/1♂: DJFC)

Tolania semipellucida Stål, 1858a: 249:

Colon: Barro Colorado Island, Ft. Gulick; Darien: Province only (Albertson and Dietrich 2006: 978); Panama: Las Cumbres (3♀♀/4♂♂: UDCC)

Tolania tumida Albertson, 2006: 962:

Chiriqui: Province only (Albertson and Dietrich 2006: 962); Darien: Cana Camp Pirre (1♂: DJFC)

Smiliinae Stål, 1866a: 83

Acutalini Fowler, 1895c: 87

Acutalis fusconervosa Fairmaire, 1846b: 498:

Chiriqui: Potrerillos, Los Planes, Conception, Los Anastacios, (Fowler 1895e:114: Bugaba, Volcán de Chiriquí, David); Cocle: El Valle de Coclé, Altos de Campana; Colon: Pipeline Road (canopy knockdown tree *Luehea seemannii*); Herrera: Cerro Alto Higo 15 km SW Las Minas; Panama: Las Cumbres, Cerro Campana, Lago Alajuela metros altura (16♀♀/18♂♂: DJFC, HWIC, MIUP, NCSU, STRI, UGCA)

Thrasymedes pallescens (Stål, 1869c: 247):

Chiriqui: Volcán, Volcancitos, Bambito (6♀♀/1♂: HWIC)

Thrasymedes variata (Fowler, 1895d: 111):

Chiriqui: (Funkhouser 1927f: 232 as *Thrasymedes dubia* Funkhouser: Province only).

Amastrini Goding, 1926e: 312

Amastris affinis Broomfield, 1976a: 397:

Bocas del Toro: Miramar; Colon: Canal Zone Pipeline Road (canopy knockdown tree *Luehea seemannii*), Piña Road, R. Guanache, Barro Colorado Island, Holotype locality: Canal Zone Mojinga Swamp (HOLOTYPE 1♂: Broomfield 1976a: 397); Panama: Las Cumbres, Parq. Metropolitano (8♀♀/9♂♂: HWIC)

Amastris angulata Broomfield, 1976a: 386:

Colon: Canal Zone Pipeline Road (canopy knockdown tree *Luehea seemannii*), Barro Colorado Is, Quebrada Lopez; Panama: Puma Island, Las Cumbres, Canal Zone Pipeline Road (canopy knockdown tree *Luehea seemannii*), Gamboa HW mile

13 (9♀♀/31♂♂, 1 no abdomen: DJFC, HWIC, MIUP, STRI, UDCC)

Amastris antica (Germar, 1821a: 16): Broomfield 1976a: 421: Nomen dubium. Goding

1929e: 265 synonymized *Amastris antica* (Germar) with *Amastris obtegens* (Fabricius), citing *Amastris obtegens* Panamá distribution.

Amastris concolor Broomfield, 1976a: 366:

Colon: Barro Colorado Island; Panama: Las Cumbres (4♀♀/4♂♂: HWIC, STRI)

Amastris finitima Broomfield 1976a: 388: *

Bocas del Toro: Corriente Grande; Colon: Barro Colorado Island; Panama: Pipeline Rd. km 11, near Gamboa Pipeline Rd, near Gamboa Pipeline Rd km 1.3-3.0, near Gamboa Pipeline Rd km 0-3.0, Gamboa Cerro Pelado (2♀♀/12♂♂ 1 no abdomen: DJFC, HWIC, UDCC)

Amastris flava Broomfield 1976a: 393: *

Colon: Barro Colorado Island; Darien: 8.5 km S El Real; Panama: Las Cumbres (2♀♀/6♂♂: HWIC)

Amastris froeschneri Broomfield, 1976a: 385:

Colon: (Broomfield 1976a: 385: Type locality: Barro Colorado Island HOLOTYPE 1♂; PARATYPES 1♂/2♀♀:), Barro Colorado Island (5♀♀/8♂♂: HWIC, UDCC)

Amastris inornata Broomfield, 1976a: 404:

Colon: Rio Guanache; Panama: Gamboa Cerro Pelado, near Gamboa, near Gamboa Plantation Road, near Gamboa Pipeline Road km 0-3.0 and km 1.3-2.0, Pipeline Road km 11 (12♀♀/2♂♂/1 (no abdomen): STRI, UDCC)

Amastris obtegens (Fabricius, 1803a: 11): *

Bocas del Toro: Miramar; Chiriqui: Caldera in Chiriquí (Fowler 1895d: 92). Goding 1929e: 265 makes *A. obtegens* a junior synonym of *A. flavifolia* Stoll, 1788; Colon: Barro Colorado Island, Canal Zone Pipeline Road (canopy knockdown tree *Luehea seemannii*); Panama: Las Cumbres (7♀♀/5♂♂: HWIC)

Amastris panamensis Broomfield, 1976a: 411:

Panama: (HOLOTYPE 1♀: Broomfield 1976a:411, Pacora); Colon: Pipeline Rd., Barro Colorado Island (4♂♂: HWIC, UDCC, UGCA)

Amastris pseudomaculata Broomfield 1976a: 399: **

Colon: (Broomfield 1976a: 399: PARATYPES 2♂♂, Mojinga Swamp Canal Zone); Panama: (Broomfield 1976a: 399: HOLOTYPE: 1♂, Rio Las Lajas nr Coronado Beach).

Amastris robusta Broomfield, 1976a: 381: *

Colon: Quebrada Lopez; Panama: Interamerican Hwy 3 km E of Impeti (2♀♀/1♂: DJFC)

Amastris specialis Broomfield, 1976a: 400:

Chiriqui: Los Planes; Colon: Quebrada Lopez; San Blas: Nusagandi (3♂♂: DJFC)

Amastris subangulata Broomfield, 1976a: 378:

Colon: Quebrada Lopez, Barro Colorado Island Canal Zone; Panama: Las Cumbres (4♂♂: DJFC, HWIC)

Amastris triviale Broomfield, 1976a: 384: *

Colon: Barro Colorado Island, Quebrada Lopez; Panama: Laga Alajuela Metros (altura) (8♀♀/32♂♂: DJFC, HWIC)

Amastris undulata Broomfield, 1976a: 392:

Colon: Quebrada Lopez, Fort Sherman (2♂♂: DJFC)

Amastris vicina Broomfield, 1976a: 387: *

Colon: Barro Colorado Island, Coco Solo CZ; Panama: Las Cumbres, Laga Alajuela Metros (altura) (2♀♀/4♂♂: HWIC)

Amastris vitallina Broomfield, 1976a: 367: *

Colon: Quebrada Lopez; Panama: near Gamboa Pipeline Rd. km 0-3.0 (2♀♀: DJFC, UDCC)

Harmonides dispar (Fabricius, 1803a: 32):

Colon: Barro Colorado Island Canal Zone, Parque Lago Gatun, Pipeline Road (canopy knockdown tree *Luehea seemannii*); Darien: Cana Airstrip; Panama: Lago Alajuela metros (altura), El Llano-Carti Road km 9, Camino del Oleoducto, Las Cumbres, Madden Forest (19♀♀/18♂♂: DJFC, HWIC, MIUP, STRI, UDCC, UGCA,)

Harmonides panamensis Creão-Duarte and Sakakibara, 2000a: 309:

Colon: PARATYPES 3 ♀♀, 2 ♂♂ Barro Colorado—C.Z./Lights; Barro Colorado Island Canal Zone, Fort Sherman; Panama: El Llano-Carti Rd. km 8, Howard AFB, Pan River Chilibre (Madden Dam Road), Madden Forest, Las Cumbres, Parque Metropolitano, Pipeline Road (canopy knockdown tree *Luehea seemannii*). (Creão-Duarte and Sakakibara 2000a: 311): HOLOTYPE 1 ♂ from Panama: PANAMA-Panama/El Llano-Carti Rd.; 2 ♀♀ from Panamá-Canal Zone/Pipeline Road/canopy knockdown/*Luehea seemannii*, nr. Gamboa, Plantation Road; Colon: Barro Colorado Island (12♀♀/14♂♂/1♂ (no abdomen, gender based on size): DJFC, DMWC, HWIC, MIUP, UDCC, UGCA)

Harmonides reticulata (Fabricius, 1803a: 29):

Cocle: El Valle; Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*), Limbo Hunt Club north of Gamboa, Piña Road, Quebrada Lopez (12 km W Colón), Santa Rita Ridge Road; Darien: Cana River Trail, Cana Field Station; Panama: Anton, El Llano-Carti Road km 8, Las Cumbres, Tumbo Muerto, Parque Metropolitano, Parque Nac. Soberania Camino Plantacion, Alajuela, Lago Alajuela metro (altura), Cerro Galera Canal Zone (56♀♀/51♂♂, 1 (undetermined gender): DJFC, DMWC, HWIC, MIUP, STRI, UGCA)

Idioderma virescens Van Duzee, 1909a: 208: *

Colon: Barro Colorado Island Canal Zone; Panama: Maje Bayano River (1♀/1♂: HWIC, UDCC)

Lallemandia nodosa Funkhouser, 1922a: 33:

Colon: Quebrada Lopez, Barro Colorado Island, Portobello, Coro Solo Canal Zone, Canal Zone Pipeline Road (canopy knockdown tree *Luehea seemannii*); Panama: Las Cumbres, Pearl [Perlas] Isla San Jose (12♀♀/13♂♂:DJFC, HWIC, NCSU, USNM)

Neotynelia pubescens (Fabricius, 1803a: 29): * (moved from *Tynelia* as per Creão-Duarte and Sakakibara 2000b: 566):

Bocas del Toro: Corriente Grande, Miramar; Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*), Quebrada Lopez; Panama: Las Cumbres, Camino del Oleoducto (15♀♀/15♂♂: DJFC, HWIC, STRI, UDCC, UGCA)

Neotynelia vertebralis (Fairmaire, 1846b: 491): (moved from *Tynelia* as per Creão-Duarte and Sakakibara 2000b: 567):

Colon: Barro Colorado Island Canal Zone, Fort Sherman (1♀/1♂: DJFC, UDCC)

Tynelia globosa (Haviland, 1925a: 250): * [Creão-Duarte and Sakakibara 2000b mention *T. globosa* (as *Boothos globosa*) in their *Tynelia* revision (2000b: 562) but do not place it in either *Tynelia* or *Neotynelia*]. McKamey (1998: 234) considers it a valid species]:

Colon: Barro Colorado Island (2♀♀/2♂♂: HWIC)

Tynelia longula (Burmeister, 1835a: 143):

Colon: Barro Colorado Island; Panama: Las Cumbres (4♀♀: HWIC)

Vanduzea albifrons (Fowler, 1895d: 93):

Bocas del Toro: Miramar (1♂: HWIC)

Vanduzea decorata Funkhouser, 1940a: 287:

(McKamey 1998: 239): Country (Panamá) only.

Vanduzea mayana Funkhouser, 1943d: 480:

Darien: 8.5 km S El Real; Panama: Arraijan, Lago Alajuela; Las Cumbres (6♀♀/9♂♂: MIUP, UDCC)

Vanduzea segmentata (Fowler, 1895d: 93):

Chiriqui: Potrerillos, North Santa Clara, 15 km NW Volcán, Hartmann's Finca, Los Planes, (Fowler 1895d: 93); Volcán de Chiriquí; Cocle: Penonomé; Colon: Barro Colorado Island, Quebrada Lopez; Panama: Las Cumbres, Maje Bayano River, Ancon (Tivoli Bldg.), Ciudad Panamá (La Alameda), Paraiso-Pedro Miguel, Ciudad Panamá (Bella Vista), Nazareno La Chorrera, Cerro Batea, Campus Universitario de Panamá, 0.3 km W El Llano, Parque metropolitano (30♀♀/23♂♂: DJFC, MIUP NCSU, HWIC, UDCC, UGCA)

Ceresini Goding, 1892a: 256

Anisostylus elongatus (Fowler 1895d:110):

Chiriqui: Bambito (1♀: UDCC)

Antonae ciliata (Fairmaire, 1846a: 287):

Darien: Cerro Pirre (1♀: HWIC); Country only as *Centrogonia ciliata*: Buckton 1903b: 221, Metcalf and Wade 1965a: 828.

Iithucia elegans (Fowler 1895d:107):

Chiriqui: (Fowler 1895d: 107 as *Centrogonia elegans* Fowler: Volcán de Chiriquí).

Ceresa viridilineata Funkhouser 1943d: 472: *

Chiriqui: Potrerillos (3♀♀: DJFC, NCSU)

Ceresa vitulus (Fabricius, 1775a: 677):

Chiriqui: Los Planes, Potrerillos, Volcán de Chiriquí (Buckton 1903b: 171, Fowler 1895d: 102); Colon: Barro Colorado Island, Quebrada Lopez; Panama: Arraijan, Cerro Campana, Las Cumbres (5♀♀/2♂♂: DJFC, NCSU, UDCC)

Cyphonia clavata (Fabricius, 1787a: 264):

Bocas del Toro: Almirante, Chiriquí Grande; Chiriqui: Potrerillos, Vagala 10 km NW David, Alante; Cocle: La Mesa above El Valle Cerro Caracoral, El Valle, Valle de Antón; Colon: Barro Colorado Island, Santa Rita Ridge Road 12 km ESE Colón, Lago Alajuela (metros altura); Darien: 8.5 km S El Real, Cerro Pirre (Est. Inrendre), Cana (River Trail), Cana (Airstrip), 2 mi N Cana Escucha Ruido; Panama: Cerro Campana, El Llano-Carti Road km 9, Canal Zone Cerro Galera, Isla Saboga (Perlas Island), Las Cumbres, El Llano-Carti Road km 13.6, Campus Universitario U.P., Cerro Azul Camino (alrededor del lago), Tumba Muerto, Gamboa (hw mile 13.2); Veraguas: Cerro Tute 4 km W Santa Fe (33♀♀/26♂♂: DJFC, HWIC, MIUP, NCSU, STRI, UDCC, UGCA)

Cyphonia trifida (Fabricius, 1787a: 12):

Colon: Barro Colorado Island, Lago Alajuela; Darien: 10 km S El Real, Cana (Airstrip), Camp Pirre Trail; Panama: Cerro Jefe nr lake (4♀♀/3♂♂: DJFC, HWIC, MIUP)

Paraceresia bifasciata (Fairmaire, 1846a: 286):

Darien: Cana River Trail (1 gender unknown, no abdomen: DJFC)

Poppea capricornis Fowler, 1895d: 99:

Bocas del Toro: Changuinola, Miramar; Chiriqui: (Fowler 1895d: 99: Bugaba) (4♀♀: HWIC)

Poppea formosa (Butler 1877a: 214):

Chiriqui: Potrerillos, Fortuna, Las Lagunas, Volcán (9♀♀/1♂: NCSU, UDCC)

Poppea setosa Fowler, 1895d: 97:

Chiriqui: Fortuna; Colon: Lago Alajuela; Panama: Tumba Muerto, Lago Alajuela metros (altura) (5♀♀/2♂♂: HWIC)

Spissistilus cornutus (Fowler, 1895d: 110):

Chiriqui: (Fowler 1895d: 110 as *Stictocephala cornuta* Fowler: Bugaba).

Spissistilus festinus (Say, 1830a: 243):

Chiriqui: Bambito, Rio Sereno Road, Boquete, Volcán; Colon: Buena Vista Finca Lechera; Herrera: Llano Bonito; Panama: Tumbo Muerto, Tocumen, Qda. Chanis, Campus Univ. de Panamá (13♀♀/20♂♂: HWIC, MIUP)

Stictolobus minor (Fowler, 1895d: 105):

Cocle: no location given; Darién: Cana Mine Trail, Cana Station, Cana Boca de Cupe Trail, Cana Airstrip, Cana River Trail; Panamá: Lago Alajuela metros (altura), Llano Largo Chorrera (5♀♀/6♂♂:DJFC, MIUP)

Vestistilus patruelis (Stål, 1864a: 69): *

Chiriquí: Potrerillos, Rio Colorado (6♀♀/3♂♂: DJFC, NCSU, UDCC)

Vestistilus testaceus (Fairmaire, 1846a: 284):

Chiriquí: 3 km W Cerro Punta, Los Planes 15 km NE Gualaca, Los Planes, Potrerillos, Volcan, Boquete, Zambrano, Cerro Colorado Hine Camp; Los Santos: Las Pablas; Panamá: 8 km S Ipeti; Veraguas: El Rodeo (9♀♀/6♂♂: DJFC, HWIC, NCSU, STRI)

Vestistiloides cuprea (Funkhouser, 1927e: 160)) (moved from *Ceresa* as *Ceresa cuprea* per Andrade 2003a: 2): *

Bocas del Toro: (Goding 1928d: 137 as *Ceresa nigra* Goding: Guabito).

Vestistiloides nigrovittata (Fowler, 1895d: 104) (moved from *Vestistilus* per Andrade 2003: 1):

Chiriquí: Fortuna, Continental Divide Trail; Veraguas: Parque Nac. Santa Fe (6♀♀: HWIC, MIUP, UDCC, UGCA)

Vestistiloides unicolornis (Fowler, 1895d: 104) (moved from *Vestistilus* per Andrade 2003: 2):

Chiriquí: 1 km S Cerro Punta, Volcán de Chiriquí (Fowler 1895d: 104 as *Ceresa unicolornis* Fowler). Goding 1929e: 261 synonymized both *Ceresa unicolornis* [sic] Fowler and *Ceresa variabilis* Fowler with *Ceresa brunnicornis* (Germar) with their Panamá location records. Andrade (2003) created the genus *Vestistiloides*: including both *Ceresa unicolornis* Fowler (Type locality: Volcán de Chiriquí, Panamá) and *Ceresa variabilis* Fowler (Type locality: Volcán de Chiriquí, Panamá). Andrade (2004), validated *Ceresa brunnicornis* Fowler as a separate species from *Vesistiloides unicolornis* (Fowler), listing its geographical distribution as Brazil and Argentina, meaning *V. unicolornis* is a valid species (1♂; DJFC).

Vestistiloides variabilis (Fowler, 1895d: 105) (moved from *Vestistilus* per Andrade 2003: 2):

Bocas del Toro: Chiriquí Grande, Quebrada Gato; Chiriquí: Bugaba and Volcán de Chiriquí (Fowler 1895d: 105 as *Ceresa variabilis* Fowler), 2.5 km N Horqueta, 4 km NE Sta. Clara, 1 km N Boquete, Alto Quiel 5 km NW Boquete, Potrerillos, Bambito, Boquete, Volcancitos, Cerro Punta, Fortuna, Rio Colorado; Darién: Pirre Station Darién National Park; Panamá: Campus Universitario de Panamá (Panamá City) (16♀♀/4♂♂: DJFC, HWIC, MIUP, NCSU, UDCC)

Poppea incertae sedis

Poppea zebrina Funkhouser, 1930a: 416:

Colon: Barro Colorado Island; Panamá: Las Cumbres (3♀♀/2♂♂: HWIC). The female lacks the characteristic three-spined pronotal apex (S.H. McKamey, pers. comm.)

Micrutalini Haupt, 1929c: 235

Micrutalis atrovana Goding, 1930b: 22:

Bocas del Toro: Corriente Grande; Colon: Pipeline Road (canopy knockdown tree *Luehea seemannii*); Chiriquí: Los Planes; Panamá: Las Cumbres, El Llano-Carti Road (8♀♀/3♂♂: DJFC, HWIC)

Micrutalis balteata (Fairmaire 1846a: 496):

McKamey 1998: 263: Country (Panama) only

Micrutalis bella Goding, 1929e: 291:

Bocas del Toro: Chiriquí Grande; Colon: Pipeline Road (canopy knockdown tree *Luehea seemannii*); Panamá: Lago Alajuela (1♀/3♂♂: DJFC, MIUP, UDCC)

Micrutalis binaria (Fairmaire, 1846b: 497) [specimens universally originally identified as *M. epphippium* Burmeister]

Bocas del Toro: Corriente Grande; Chiriquí: Potrerillos, Los Planes, 7 km SE Fortuna Dam, Fortuna, Cuesta de Piedra, 2 km W Caldera, Volcan Baru; Cocle: Cerro Campana, Salto Tavida (Travida Arriba); Colon: Barro Colorado Island, Altos de Lago-Madden, Alajuela Lago, Rio Guancho, Pipeline Road (canopy knockdown tree *Luehea seemannii*); Darién: Cana River Trail; Panamá: Llano-Carti Road (km 8), Cerro Jeffe, Nuevo Emperador (Arraijan), nr Rodman (canopy fog tree #12 *Cassia moschata*, Las Cumbres, Cerro Campana, Lago Alajuela, Madden Forest, (46♀♀/30♂♂/4 unknown gender: DJFC, DMWC, FSCA, HWIC, MIUP NCSU, STRI, UDCC, UGCA)

Microtalis calva (Say, 1830a: 242):

Panama: Lago Alajuela (1♀: MIUP)

Microtalis dubia Fowler, 1895e: 119: (revalidated by Sakakibara 1999: 202, listing *M. zeteki* Goding as synonym):

Bocas del Toro: Isla Colón (3 km W Bocas del Toro); Chiriqui: Quebrada Gato (13.5 km W Hato Chami), 3 km W Cerro Punta, Potrerillos, Volcán, Fortuna, Alto Quiel, Rio Sereno Road, nr Santa Clara, 4 km E Cerro Punta; Cocle: Altos de Campana; Panama: Cerro Campana, Cerro Jefe (21♀♀/8♂♂: DJFC, HWIC, NCSU, UDCC, UGCA)

Microtalis flavozonata (Fairmaire, 1846b: 497): [formerly in *Acutalis* (McKamey 1998: 231), N comb. Sakakibara, 1999: 202]

Chiriqui: Guadalupe Arriba (1♀: HWIC)

Microtalis henki Sakakibara, 1999: 211:

Bocas del Toro: Miramar; Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*); Panama: Las Cumbres; San Blas: nr Punta Escoces (5♀♀/3♂♂: HWIC)

Microtalis infuscata Sakakibara 1999: 213

Chiriqui: Alto Quiel, Los Planes; Colon: Barro Colorado Island; Panama: Las Cumbres, 0.3 km W El Llano (7♀♀/3♂♂: DJFC, MIUP, HWIC, UGCA)

Microtalis lugubrina (Stål, 1862e: 32):

Chiriqui: (Fowler 1895e: 120: Volcán de Chiriquí).

Microtalis malleifera Fowler, 1895e: 118:

Cocle: La Mesa above El Valle (1 unknown gender: DJFC)

Microtalis nigromarginata Funkhouser 1940a: 289: *

Darien: Cana Station (1♀/2♂♂: DJFC)

Microtalis pallens Fowler, 1895e: 118:

Colon: Quebrada Lopez; Panama: El Llano-Carti Road (km 8.5 & km 8.0), Cerro Jefe (4♀♀: DJFC)

Microtalis stipulipennis Buckton, 1903b: 178:

Chiriqui: 7 km SE Fortuna Dam (1♀: DJFC)

Microtalis tau Goding, 1930b: 23: *

Chiriqui: Bambito (2♀♀: UDCC)

Microtalis trifurcata (Goding, 1893b: 53): [McKamey 1999: 264 lists *M. trifurcata* Goding as synonym of *Microtalis melanogramma*; Sakakibara (1999:209) revalidated *M. trifurcata*]:

Cocle: Altos de Campana; Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*); Panama: Las Cumbres (26♀♀/9♂♂: HWIC, UGCA)

Microtalis tripunctata (Fairmaire, 1846b: 497): * [*M. tartareoides* Goding listed as synonym per Sakakibara 1999: 210]:

Chiriqui: Alto Quiel, Los Planes; Cocle: Altos de Campana, Cerro la Viega Lodge; Colon: Barro Colorado Island (7♀♀/7♂♂): DJFC, FSCA, HWIC, UDCC, UGCA)

Microtalis incertae sedis

Tragopa ephippium Burmeister, 1836a: 191 (designated in Sakakibara 1999: 218).

Trachytalis retrofasciata (Lethierry, 1890a: 154): (new comb. Sakakibara 1999: 197 from *Acutalis*)

Colon: Pipeline Road (canopy knockdown tree *Luehea seemannii*), Barro Colorado Island (4♀♀/3♂♂: HWIC)

Polyglyptini Goding, 1892a: 257

Adippe alliacea (Germar, 1835a: 249): (*A. concinna* Fowler as per McKamey 1998: 265)

Chiriqui: Hartmann's Finca; Colon: Barro Colorado Island (2♀♀/1 unknown gender, no abdomen: HWIC, UGCA); (Fowler 1896b:135 as *A. concinna*: Bugaba)

Adippe histrio (Walker, 1858a: 71):

Darien: N Darién, Pirre Est. Rancho Frio, Cana Camp Pirre (1♀/3♂♂: DJFC, MIUP).

Adippe inaequalis Fowler, 1896b: 136:

Bocas del Toro: Corriente Grande; Chiriqui: nr Volcán (along shore of Lagunas de Volcán), (Fowler 1896b:136:

Bugaba Volcán de Chiriquí); Colon: Portobelo, Gatun (canopy knockdown tree #4 *Luehea seemanii*), Barro Colorado Island, Barro Colorado Island (Gigante Peninsula), Rio Guanache; Los Santos: (Fowler 1896b:136: Pena Blanca); Panama: Cerro Galera, El Llano-Carti Road; Veraguas: Parque Nac. Sante Fe (24♀/21♂♂, 1 gender unknown: DJFC, HWIC, STRI, UDCC, UGCA)

Adippe inconspicua Fowler, 1896b: 135: *

Panama: Las Cumbres (1♀/3♂♂: HWIC)

Adippe pardalina Fowler, 1896b: 134:

Chiriqui: Potrerillos, (Fowler 1896b: 134): Volcán de Chiriquí; Panama: Cerro Campana (on *Siparuna*) (2♀♀/8♂♂: DJFC, NCSU, UDCC)

Adippe zebrina (Fairmaire, 1846a: 305):

Chiriqui: Potrerillos, La Fortuna Continental Divide Trail, Volcán de Chiriquí (Fowler 1896b:134 as *A. maculata*): (1♂/1 gender unknown: DJFC, NCSU)

Aphetea bicolor flava Goding, 1926d: 280:

Colon: Pipeline Road, Coclecito; Panama: Gamboa nr Pipeline Road (3♀♀, 1♂: DJFC, UDCC)

Aphetea inconspicua Fowler, 1895d: 95:

Chiriqui: nr Chiriquícito; Cocle: Altos de Campana; Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemanii*), nr Coclecito; Panama: Fort Kobbe, El Llano-Carti Road, Las Cumbres, Gamboa nr Pipeline Road (on *Uncaria tomentosa*), Cerro Campana; Veraguas: 2 km NE Santa Fe (16♀♀/24♂♂/2 gender unknown: DJFC, HWIC, MIUP, UDCC, UGCA)

Aphetea maculata Funkhouser, 1927e: 163:

Colon: Pipeline Road (canopy knockdown tree *Luehea seemanii*) (1♀/1♂: HWIC)

Aphetea nigropicta Funkhouser, 1943d: 476: *

Colon: Barro Colorado Island (1♂: MIUP)

Aphetea parvula (Fabricius, 1803a: 32): * [moved from *Darnis* by Sakakibara 1996b: 470).

Darien: 8.5 km S El Real (1♀: MIUP)

Ennya chrysur (Fairmaire, 1846a: 303):

Chiriqui: Mina Cerro Colorado, Las Lagunas (4 km W Hato del Volcán) (2♀♀: DJFC, HWIC)

Ennya conspersa (Stål, 1869c: 236):

Darien: Cana Mine Trail (1♂/1 gender unknown, no abdomen: DJFC)

Ennya pacifica (Fairmaire, 1846a: 302):

Chiriqui: nr Santa Clara, Renacimiento Oeste Clara (2♀♀: STRI)

Entylia carinata (Forster, 1771a: 67): (*E. inaequalis* Butler and *E. mira* Butler synonyms per Remes Lenicov 1973d).

Bocas del Toro: Miramar, Isla Colón, 5 km S Almirante; Chiriqui: Potrerillos, Cerro Pando Road (Volcán), Fortuna, Boquete, Volcancitos, Bambito, Rio Sereno Road, Volcán, Hartmann's Finca, Fortuna (Continental Divide Trail), near Volcán along shore of Lagunas de Volcán, Nina Cerro Colorado, 1 km N Boquete, Reserva Fortuna (Continental Divide Trail); Cocle: El Valle; Panama: Cerro Jefe, Las Cumbres; Veraguas: 2 km NW Santa Fe (31♀♀/43♂♂/2 unknown gender: DJFC, HWIC, NCSU, MIUP, STRI, UDCC, UGCA,)

Metheisa lucillodes Fowler, 1896b: 132:

Chiriqui: 4 km NE Santa Clara, Fortuna (Continental Divide Trail), nr Volcán along shore of Lagunas de Volcán, (Fowler 1896b: 132: Bugaba and Volcán de Chiriquí); Colon: Pipeline Road km 10 (on *Piper* sp.); Darien: 8.5 km S El Real; Panama: Madden Forest, Gamboa (Plantation Road), Cerro Campana Parque Nacional, Altos de Campana (68♀♀/23♂♂: DJFC, MIUP, STRI, UDCC,)

Polyglypta costata Burmeister, 1835a: 142:

Chiriqui: Potrerillos, 3 km N Cerro Punta, 3 km W Cerro Punta, Los Planes, Bambito, Alto Quiel, Volcán, Volcancitos, P. N Volcán Baru, Boquette (Palmira Arriba), Finca la Suiza, Quebrada Aleman Trail, 4 km N Boquette nr bridge, nr Bambito along Bambito Volcan Baru Road, Reserva Fortuna (Continental Divide Trail), Mina Cerro Colorado; Cocle: El Valle, La Mesa (ab. El Valle), La Campana Finca (Valle de Anton), Cerro Cara de Iguana (El Valle de Anton), Altos de Campana; Panama: Cerro Campana, Universidad de Panamá (69♀♀/49♂♂: DJFC, HWIC, HPSC, MIUP, NCSU, UDCC, UGCA)

Polyglypta dorsalis Burmeister, 1836a: 178:

Chiriqui: Los Planes, nr Chiriquícito, Fortuna (Figure 1), Volcán Baru, Horrito (3♀♀/3♂♂: DJFC, MIUP)

Polyglypta lineata Burmeister, 1836a: 179:

Canal Zone: (Funkhouser 1951a: 143).

Polyglyptodes viridis Plummer, 1936a: 688:

Chiriqui: 6 km S Los Planes (4♀♀/2♂♂: DJFC)

Smiliinae Stål, 1866a: 83 [incertae sedis Wallace, 2011: 25]

Antianthe chichiana Funkhouser, 1943d: 476:

Chiriqui: Fortuna, Potrerillos, Rio Colorado, Curundu (Contractor's Area),

Volcancito[s]; Veraguas: Santa Fe, camino a Cerro Tute (11♀♀/4♂♂: HWIC, MIUP)

Antianthe expansa (Germar, 1835a: 245):

Bocas del Toro: Isla Colón 3 km W Bocas del Toro; Chiriqui: Volcancito[s], Bambito, Boquete, Parque Internacional La Amistad, Alanje, nr Parque Nacional Volcan Baru, (Fowler 1896c: 137: Volcán de Chiriquí);

Cocle: La Mesa above El Valle (27♀♀/2♂♂: DJFC, HWIC, UDCC, MIUP)

Antianthe expansa humilis Fowler, 1896c: 138:

Chiriqui: Fowler 1896c:138: Bugaba; Panama: Cerro Campana (1♀: HPSC)

Antianthe foliacea (Stål, 1864a: 71):

Chiriqui: Las Nubes (4 km NW Cerro Punta) (1♂: DJFC)

Aтымna sp.

Colon: Barro Colorado Island (Loye 1992a)

Tropidarnis tectigera Fowler, 1895a: 60:

Colon: Barro Colorado Island (1♂: HWIC)

Telamonini Goding, 1892a: 258

Telamona salvini Distant 1879a: 11:

Chiriqui: 1 km SE Hornito (1♀: DJFC)

Tragopini Stål, 1866a: 83

Anobilia nigra Tode, 1966a: 292:

Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*), Gatun (canopy fog tree #1: *Sterculia apetala*; canopy fog tree #6: *Spondias mombin*) (2♀♀/5♂♂: HWIC)

Chelyoidea aenea (Perty, 1834a: 179) (*Tragopa bucktoni* Funkhouser synonym per McKamey 1998: 294):

Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*); Panama: Cerro Campana, Llano-Carti Road (km 8 & 9), Fort Kobbe, Cerro Galera, Parque Nac. Metropolitano, Las Cumbres (9♀♀/30♂♂, 1 unknown gender -no abdomen: DJFC, HWIC)

Horiola ferruginea Fairmaire, 1846b: 493:

Colon: Barro Colorado Island; Panama: Las Cumbres, Pipeline Road (1♀/3♂♂: UDCC)

Horiola picta (Coquebert, 1801a: Fig. 89):

Colon: Barro Colorado Island, Pipeline Road (canopy knockdown tree *Luehea seemannii*), 8 km SW Gatun (Canal Zone), Quebrada Lopez, 12 km W Colón, Rio Guanche (5 km S Portobelo), Santa Rita Ridge Road, Madden Dam, Achiotte, 20 km NE Portobelo; Darien: 8.5 km S El Real, Cana Field Station; Panama: Llano-Carti Road (km 8 & 9), Las Cumbres, Cerro Campana, Panamá City (La Alameda), Madden Forest, Altos de Campana, Lago Alajuela, Bayano [18.4 km W Impeti], Camino del Oleoducto, Pipeline Road, nr Gamboa on Plantation Road, Gamboa nr Pipeline Road, P. N Altos de Campana, Camino del Oleoducto (43♀♀/53♂♂: DJFC, HWIC, MIUP, STRI, UDCC, UGCA)

Stilbophora gilviceps (Stål, 1862e: 31): *

Cocle: 5 km N El Cope (Continental Divide); Colon: Barro Colorado Island (Canal Zone); Panama: Llano-Carti Rd (km 9), Las Cumbres, Cerro Campana (5♀♀: HWIC)

Stilbophora xanthocephala (Germar, 1821a: 14):

Chiriqui: Goding 1929e: 302 lists *Tragopa bugabensis* Fowler as synonym for *Stilbophora xanthocephala*, giving Fowler's *Tragopa bugabensis* Panamá location (Bugaba) for *Stilbophora xanthocephala*. McKamey 1998: 296–297 lists both *Stilbophora xanthocephala* and *Tragopa bugabensis* as valid species with Panamá locations. No specimens of *Stilbophora xanthocephala* have been seen by the author.

Tragopa albifascia Funkhouser, 1922a: 16:

Colon: Cerro Viejo Mine Road (10 km SW Nombre de Dios) (1♀: DJFC)

Tragopa albimacula (Germar, 1821a: 14): *

Colon: Barro Colorado Island, *Spondias mombin* Panamá Canopy Fogging, Panamá Canal Zone Pipeline Road (canopy knockdown tree *Luehea seemannii*) (4♀♀: HWIC)

Tragopa bugabensis Fowler, 1895c: 85:

Chiriqui: Bugaba (Fowler 1895c: 85); Colon: Barro Colorado Island, Pipeline Road (km 11) (*Miconia* sp.), Pipeline Road (canopy knockdown tree *Luehea seemannii*), 6 km E Maria Chiquita, Santa Rita Ridge Road; Panama: El Llano-Carti Road, Las Cumbres (4♀♀/14♂♂: DJFC, HWIC, MIUP, STRI)

Tragopa coccinella Fairmaire, 1846b: 486: *

Colon: Panamá Canal Zone Pipeline Road (canopy knockdown tree *Luehea seemannii*) (1♀: HWIC)

Tragopa decorata Funkhouser 1914e: 407: *

Hererra: Cerro Alto Higo (1♀: DJFC)

Tragopa discrepans Walker, 1858b: 150: *

Panama: Las Cumbres (7♂♂: HWIC)

Tragopa insignis Fowler, 1895c: 85:

Chiriqui: Bugaba (Fowler 1895c: 85); Colon: Barro Colorado Island (1♂: HWIC)

Stegaspinae, Haupt, 1929e: 227

Microcentrini Deitz, 1975a: 133

Centruchoides laticornis Fowler, 1896e:162:

Chiriqui: 7 km SE Fortuna Dam, 5 km N Hornito, (Fowler 1896e: 162: Bugaba and Volcán de Chiriquí); Vera guas: Alto de Piedra above Santa Fe (3♀♀: DJFC, HWIC, UGCA)

Centruchoides oppugnans (Walker, 1858b: 160):

Bocas del Toro: Corriente Grande; Chiriqui: Continental Divide Trail (1♀/1♂: HWIC, UGCA)

Microcentrus cucullatus (Fowler, 1896e: 161):

Chiriqui: (Fowler 1896e: 161: Volcán de Chiriquí), (Cryan *et al.* 2003:25: Bugaba), Continental Divide Trail (1♀: UGCA)

Microcentrus perditus (Amyot & Serville, 1843a: 577):

Goding 1928a: 397 synonymized *Microcentrus perditus* (Amyot & Serville) with *Centruchoides laticornis* Fowler, listing it under a new name combination of *Centruchoides perditus* (Amyot & Serville), using Fowler's collection sites of Bugaba and Volcán de Chiriquí for *C. laticornis* (Fowler 1896e: 162). McKamey lists *Centruchoides laticornis* Fowler as a valid species found in Panama (McKamey 1998: 300) and perpetuates Goding's citation of *Microcentrus perditus* (Amyot and Serville) being found in Panama (McKamey 1998: 301). Cryan *et al.* (2003: 14) lists *Centruchoides laticornis* Fowler as being found in Panama and Honduras and *Microcentrus perditus* (Amyot & Serville) as only being found outside of the United States in Mexico and Canada (Cryan *et al.* 2003: 35), therefore Goding's record of *M. perditus*'s presence in Panama was an error.

Stegaspini Haupt, 1929c: 228

Lycoderides phasianus Fowler, 1896e: 164: [moved from *Lycoderes* as per Sakakibara 2013: 264].

Chiriqui: 5 km N Hornito, (Fowler 1896e: 164: Bugaba); Colon: Fort Sherman, Santa Ridge Road; Panama: Cerro Jeffe (2♀♀/1♂: DJFC, UDCC)

Lycoderides serraticornis Fowler, 1896e: 165: [moved from *Lycoderes* as per Sakakibara 2013: 264].

Chiriqui: 25 km W Cerro Punta, (Fowler 1896e: 165: Volcán de Chiriquí); Panama: El Llano-Carti Road km 8 (2♀♀: DJFC)

Smerdalea horrescens Fowler, 1896e: 163:

Chiriqui: (Fowler 1896e: 163: Bugaba and Volcán de Chiriquí).

Stegaspis fronditia (Linnaeus, 1758a: 435):

Darien: Cana River Trail; Panama: Llano-Carti Road km 8 (8♀♀/4♂♂: DJFC, UDCC)

Stylocentrus ancora (Perty, 1834a: 179):

Chiriqui: (Goding 1928a: 398: Bugaba).

Stylocentrus championi Fowler, 1896e: 164:

Chiriqui: (Fowler 1896e: 164: Bugaba and Volcán de Chiriquí); Cocle: Altos de Campana; Herrera: Cerro altoHigo (15 km SW Las Minas) (1♀/1♂: DJFC, UGCA)

Umbelligerus convergens Flynn, 2014: 146: *

Chiriqui: (Flynn 2014: 146: HOLOTYPE: Boquete) (1♀: STRI)

Umbelligerus stockwelli Flynn, 2014: 151: *

Panama: (Flynn 2004: 151: HOLOTYPE: Cerro Jeffe) (1♀: USNM)

Umbelligerus woldai Sakakibara, 1981a: 67:

Bocas del Toro: Type locality: Miramar; San Blas: nr Punta Escoces (5♀♀/1♂: HWIC)

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