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DIADASIA, SUBGENUS DASIAPIS, IN NORTH AMERICA (HYMENOPTERA: ANTHOPHORIDAE)

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ABSTRACT. The status of the six species-group names applied to *Diadasia*, subgenus *Dasiapis*, in North America is reviewed and three species are recognized. *D. olivacea* (Cresson) is known only from Mexico. *D. ochracea* (Cockerell) (= *D. blaisdelli* Cockerell) occurs over much of the western United States and adjacent Mexico. *D. tropicalis* (Cockerell) (= *Melissodes spilognathus* Cockerell and *M. tenuicincta* Cockerell, both N. SYN.) is common and widespread in Mexico but occurs in the United States (Arizona, Texas) and ranges south to Honduras and El Salvador; specimens tentatively assigned to *D. tropicalis* have been seen from Venezuela.

The three species are separated by means of a key. Character state variation is briefly discussed and distribution records are cited. Male terminalia are illustrated for the three species, and the known distributions within Mexico and Central America are illustrated in a map.

INTRODUCTION

Dasiapis Cockerell, 1903a (type species: *D. ochracea* Cockerell, 1903a; monobasic) is a small subgenus of *Diadasia* Patton, 1879, with representatives in both North and South America. To date, six species-group names have been proposed for the North American forms, but there has never been any attempt to clarify the relationships of the several names. While some synonymy has been proposed, it has been based on supposition, not upon examination of available material, including the relevant types. In an effort to clarify the status of the North American *Dasiapis* species, I have seen all the types and evaluated them in terms of observable character state variation in large numbers of museum specimens.

DISCUSSION

The species of *Diadasia* in America north of Mexico were first reviewed by Timberlake (1941), but none of the species were treated in detail. The status of the subgenus *Dasiapis* was discussed by Michener (1954), and its most important characteristics were set forth in a table to compare them with those of other subgenera of *Diadasia*. *Dasiapis* may be distinguished from other subgenera of *Diadasia* by the following combination of characteristics: clypeus, or at least base of mandible, yellow-marked; inner mesotarsal and both metatarsal claws of male rounded, the protarsal and outer mesotarsal claws acute; female protarsal claws acute, meso- and metatarsal claws rounded; male middle flagellar segments longer than broad; perostigma moderate in size.

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Adlakha (1969) revised the *Diadasia* in America north of Mexico. All the species were described in detail, male terminalia were illustrated, geographical distributions were cited, and known biologies were described. Adlakha's key to the species was a slight modification of the earlier one by Timberlake (1941). Adlakha's figures of the male terminalia seriously misrepresent the distribution of pilosity. The one United States species of subgenus *Dasiapis* (*D. ochracea*) was stated to be a synonym of the Mexican *D. olivacea*, but without supporting evidence. Most recently, Hurd (in Krombein et al., 1979) listed *D. ochracea* as a presumably valid species but noted that the above synonymy had been proposed.

In addition to the above names, four others apply to North American species of *Dasiapis*: *D. tropicalis* Cockerell, 1918, from Mexico; *D. blaisdelli* Cockerell, 1924, from California; both *Melissodes tenuicincta* and *M. spilognathus*, described by Cockerell (1949), from Honduras were correctly assigned to *Diadasia* by LaBerge (1956). Of these, *D. blaisdelli* has been generally recognized as a synonym of *D. ochracea* (e.g., Michener in Muesebeck et al., 1951; Adlakha, 1969).

After examining the available material I have concluded that there are three species of *Dasiapis* in North America. These may be separated by the following key.

KEY TO NORTH AMERICAN DASIAPIS

- 1a. Male; scopa absent from metatibia and antenna 13-segmented 2
- b. Female; scopa present on metatibia and antenna 12-segmented 4
- 2a. Head width 3.5–3.8 mm; inner eye margins more strongly convergent below, upper interorbital distance about 1.27 times lower; upper frons sharply roughened and slightly shining between well-defined punctures that extend to

- margin of anterior ocellus
 *olivacea* (Cresson)
- b. Head width 2.7–3.3 mm; inner eye margins more weakly convergent below, upper inter-orbital distance about 1.2 times lower; upper frons shiny, weakly tessellate or smooth between weak punctures that do not usually extend to anterior ocellus 3
- 3a. Median one-half or more of disc of mesoscutum either impunctate or with sparse punctures that are little greater in diameter than hairs arising from them and are conspicuously finer than punctures near parapside; femora black *ochracea* (Cockerell)
- b. Center of mesoscutum closely punctate (except occasionally along midline), punctures about equal to those near parapside; femora reddish *tropicalis* (Cockerell)
- 4a. Head width 3.8–4.1 mm; upper frons sharply roughened and slightly shiny between deep punctures, with fine, sharply defined punctures extending to margin of anterior ocellus; clypeal disc, seen from below, depressed or flattened across middle one-third or more, punctures of disc separated by 0.66 times puncture diameter or less *olivacea* (Cresson)
- b. Head width 2.8–3.6 mm; upper frons moderately shiny between obscure punctures, none of which extend to margin of anterior ocellus; clypeal disc, seen from below, regularly convex (slightly depressed along midline in some specimens), punctation various, but usually most punctures separated by more than puncture diameter 5
- 5a. Mesoscutum dull, center of disc without obvious punctures and posterolateral area with punctures (when present) largely effaced by dense tessellation; upper frons (within 1.5 times OD from anterior ocellus) shiny with at most scattered fine, obscure punctures and often with no punctures; femora and tibiae dark brownish *ochracea* (Cockerell)
- b. Center of mesoscutum dull to slightly shiny and densely punctate, punctures not appreciably finer than those near parapside; posterolateral area of mesoscutum subcontiguously punctate; upper frons often with conspicuous punctures that are greater in diameter than hairs arising from them; femora and tibiae usually reddish but may be light red-brown
 *tropicalis* (Cockerell)

Diadasia (Dasiapis) ochracea
 (Cockerell)

Figures 3, 8–9, 11

Dasiapis ochracea Cockerell, 1903a:450; ♂. Cockerell, 1906:74, 100.

Melissodes olivacea: Cockerell, 1903b:77. MISIDENTIFICATION.

Diadasia blaisdelli Cockerell, 1924:54; ♀. Timberlake, 1941:11.

Diadasia ochracea: Timberlake, 1941:2, 6; ♀ ♂. Michener, in Muesebeck, Krombein, and Townes, 1951: 1220. Hurd, in Krombein, Hurd, Smith, and Burks, 1979:2120.

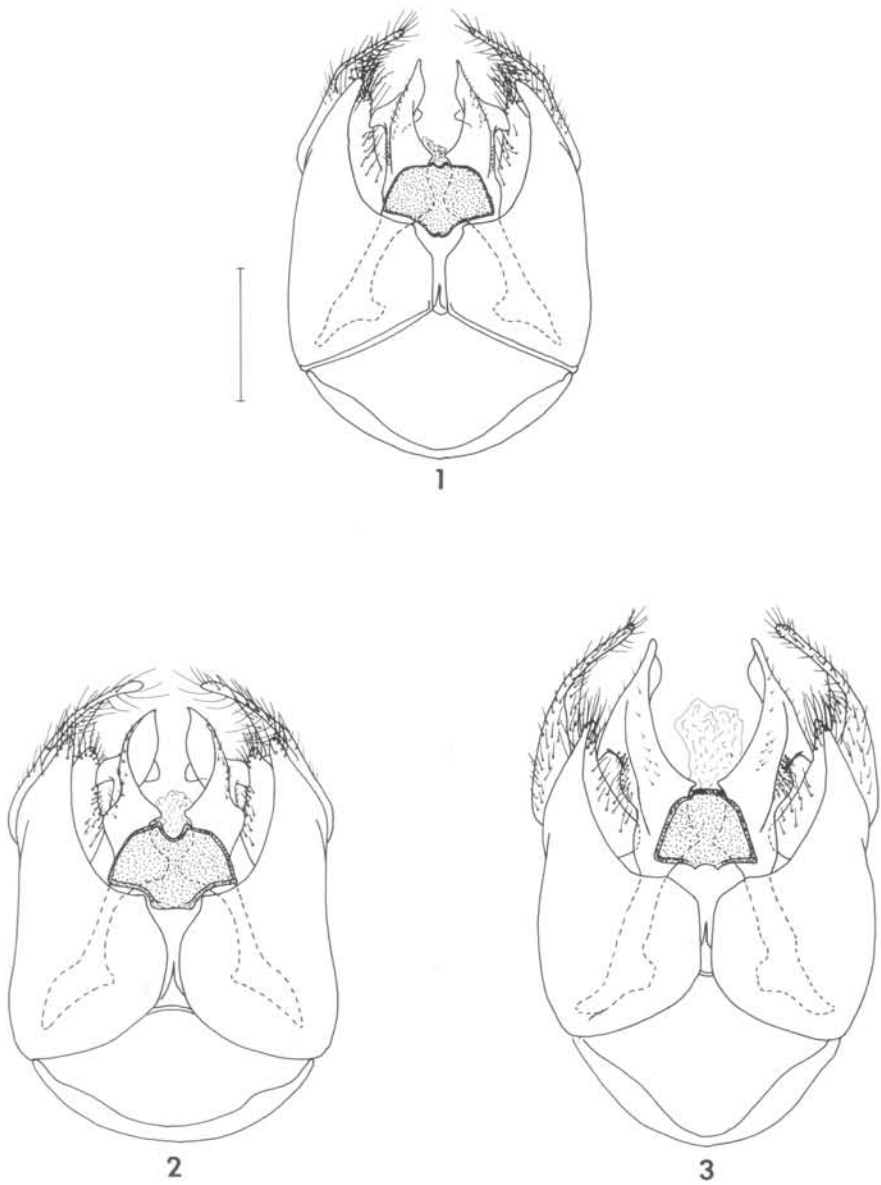
Diadasia olivacea: Linsley and MacSwain, 1957: 215–217 (biology). Adlakha, 1969:55, 60, 126–131. Eickwort, Eickwort, and Linsley, 1977:1–17 (biology). Rozen, Eickwort, and Eickwort, 1978:1–24 (parasite). MISIDENTIFICATION.

The taxonomic status of *D. ochracea* has been confused since 1957, when Linsley and MacSwain quoted the statement made to them by P.H. Timberlake that he believed *D. ochracea* to be a synonym of *D. olivacea*, even though he had not seen the type of either name. Adlakha (1969) was unequivocal about the matter: he treated the two as synonymous, but, again, there is no indication that he studied the types of either. I have examined all of the relevant North American types and concluded that *D. olivacea* and *D. ochracea* are distinct species, as is *D. tropicalis* from Mexico, and that *D. blaisdelli* from California is a synonym of *D. ochracea*, as first suggested by Timberlake (1941). Michener (in Muesebeck et al., 1951) included *D. blaisdelli* as a synonym of *D. ochracea*.

The several biological studies cited above all refer to this species, not to *D. olivacea*. Although the bulk of the floral visitations of *D. ochracea* involve species of *Sphaeralcea* (Malvaceae), there are records from other malvaceous genera also: *Gossypium*, *Malacothamnus*, *Malva*, and *Sida*. Other plants visited, presumably for nectar, are the following: ASTERACEAE: *Baccharis glutinosa*, *Cirsium* sp., *Gaillardia pulchella*, *Helenium hoopesii*, *Helianthus parviflorus*, *Heterotheca subaxillaris*, *Hymenothrix* sp., *Verbena encelioides*, and *Viguiera* sp.; BORAGINACEAE: *Heliotropium curassavicum*; FABACEAE: *Medicago sativa* and *Phaseolus wrightii*; LILIACEAE: *Calochortus* sp.; PAPAVERACEAE: *Argemone* sp.; POLYGONACEAE: *Eriogonum* sp. and *Antigonon leptopus*; PORTULACACEAE: *Portulaca* sp.; ZYGOPHYLLACEAE: *Kallstroemia grandiflora*; and CACTACEAE: *Opuntia* sp. Most of these records are cited in Adlakha (1969).

The range of *D. ochracea* in the United States is dealt with in detail by Adlakha (1969); in summary, this species ranges from Texas west to California, thence north to the State of Washington; it occurs in southern Utah and Colorado. Although there are no records for western Kansas and Oklahoma, *D. ochracea* may occur in suitable habitats in both states. Since Adlakha did not treat the Mexican distribution in detail, the following records are published to supplement the United States records (see Fig. 11).

MEXICO, *Baja California*: 1 ♀, Santo Tomás, 10 May 1938 (C.E. Norland; LACM); 1 ♀, 2 km NE Polvora, 13 July 1953 (R.R. Snelling; LACM), on *Gossypium*; 1 ♀, 6 km SE Paredones, 2 July 1953 (R.R. Snelling; LACM), on *Gossypium*; 1 ♂, 12 km SW Mexicali, 14 July 1953 (R.R.



Figures 1-3. *Diadasia (Dasiapis)* spp., male genital capsule, ventral view: 1, *D. tropicalis*; 2, *D. olivacea*; 3, *D. ochracea*. Scale line = 0.50 mm.

Snelling; LACM), on *Sida hederacea*. Chihuahua: 12 ♀♀, 3 ♂♂, Catarinas, 5800 ft., 25-26 July 1947 (Cazier, Gertsch, Michener, Schrammel; UCD); 1 ♀, 2 ♂♂, 42 mi SW Cámargo, 4900 ft., 15 July 1947 (C.D. Michener; UCD); 1 ♂, 25 mi SW Cámargo, 14 July 1947 (C.D. Michener; UCD); 3 ♂♂, 20 mi SW Cámargo, 13 July 1947 (C.D. Michener; UCD), on *Cevallia sinuata*; 1 ♀, Agua Caliente, Santa Barbara Dist., 14 July 1947 (C.D. Michener; UCD); 2 ♀♀, 1 ♂, 16 mi SE Chihuahua, 11 July 1947 (Gertsch, Michener, Schrammel; UCD); 1 ♀, 65 mi N Chihuahua, 22 Aug. 1964 (R.C. Dickson; UCD); 1 ♀, 30 mi NW Chihuahua, 4900 ft., 27 July 1953 (Univ. Kans. Mex. Exped.; UKAN); 1 ♂, 239 km S Ciudad Juarez, 1 July 1947 (C.D. Michener; UCD), on *Sphaeralcea*; 1 ♀, 5 mi N Escalon, 20 Sept. 1970

(G.E. and R.M. Bohart; BBSL); 1 ♂, 9 mi S Hidalgo de Parral, 22 July 1967 (R.C. Gardner and C.R. Kovacic; UCD); 7 ♂♂, 29 mi E Hidalgo de Parral, 5000 ft., 21 July 1956 (H.A. Scullen; UCD); 1 ♀, 33 mi N, 38 mi E Hidalgo de Parral, 5000 ft., 21 June 1956 (H.A. Scullen; UCD); 1 ♂, 10 mi W Jiménez, 11 Sept. 1950 (R.F. Smith; UCD); 4 ♂♂, 10 mi N Jiménez, 21 Sept. 1970 (G.E. and R.M. Bohart; BBSL); 1 ♂, 17 mi W Jiménez, 4600 ft., 26 July 1953 (Univ. Kans. Mex. Exped.; UKAN), on *Grindelia* sp.; 1 ♂, 21 mi N Jiménez, 9 Sept. 1973 (W.J. Hanson and B.A. Haws; BBSL); 1 ♀, La Cruz, 13 July 1947 (C.D. Michener; UCD), on *Cevallia* sp.; 1 ♀, 2 ♂♂, Delicias, 13 July 1947 (C.D. Michener; UCD); 2 ♂♂, 10 mi S Delicias, 13 July 1947 (C.D. Michener; UCD); 1 ♀, Salaires, 5200 ft., 21 Sept.



Figure 11. Known distribution in Mexico and Central America of *D. ochracea* (solid circles), *D. olivacea* (star), and *D. tropicalis* (open circles).

ft., 17 June 1956 (H.A. Scullen; UCD); 9 ♂♂, 156 mi N Durango, 6400 ft., 20 June 1956 (H.A. Scullen; UCD); 2 ♀♀, El Tascate, 6400 ft., 28 July 1947 (C.D. Michener; UCD); 4 ♀♀, La Loma, 4100 ft., 20 Aug. 1947 (C.D. Michener; UCD); 1 ♂, 34 mi NW La Zarca, 5800 ft., 25 July 1953 (Univ. Kans. Mex. Exped.; UKAN); 1 ♀, Pedricena, 18 Oct. 1968 (G.E. Bohart; BBSL), on *Sphaeralcea* sp.; 1 ♀, Pedricena, 4500 ft., 19 Aug. 1947 (C.D. Michener; UCD); 1 ♀, 20 mi S Rodeo, 21 Aug. 1960 (D.C. Rentz; LACM); 1 ♀, 1 ♂, San Juan del Río, 5200 ft., 30 July 1947 (C.D. Michener; UCD); 8 ♀♀, 1 ♂, Yerbano, 6700 ft., Cuencame Dist., 19 Aug. 1947 (Schrammel; UCD). *Hidalgo*: 2 ♀♀, Actopán, 6500 ft., 27 Aug. 1962 (Ordway and Marston; UKAN), on *Malva* sp.; 3 ♀♀, 7 ♂♂, Ixmiquilpán, 5300 ft., 25 June 1953 (Univ. Kans. Mex. Exped.; UKAN), on *Sphaeralcea* sp.; 1 ♂, same except 29 July 1954, no floral data (UKAN); 1 ♂, Tezontepec, 6600 ft., 21 mi SW Actopán, 27 Aug. 1962 (Ordway and Marston; UKAN); 10 ♂♂, Zimapán, 8 July 1962 (M.S. Wasbauer and J.E. Slansky; UCD). *Jalisco*: 4 ♀♀, 2 ♂♂, 6 mi NE Jalastitlán, 6000 ft., 19 July 1954 (Univ. Kans. Mex. Exped.; UKAN). *Oaxaca*: 1 ♂, Nejapa, 2500–3000 ft., 77 mi W Tehuantepec, 22 Aug. 1963 (H.V. Weems; FSCA). *San Luis Potosí*: 3 ♂♂, 13 mi NW Ciudad del Maíz, 3700 ft., 22 Aug. 1954 (Univ. Kans. Mex. Exped.; UKAN). *Zacatecas*: 1 ♂, Río Grande, 18 Oct. 1968 (G.E. Bohart; BBSL); 1 ♂, 34 mi S Zacatecas, 6900 ft., 15 June 1956 (H.A. Scullen; UCD).

Diadasia (Dasiapis) olivacea
(Cresson)

Figures 2, 4–5, 10, 11

Melissodes olivacea Cresson, 1878:216; ♀ ♂. Cresson, 1916:126; ♀ (lectotype).

Eucera olivacea: Dalla Torre, 1896:242.

Dasiapis olivacea: Cockerell, 1906:100. Lutz and Cockerell, 1920:583.

Cresson (1916) selected as lectotype a female from the original series of both sexes; the statement by Hurd (in Krombein et al., 1979) that the type is a male is incorrect. The type series is from an unspecified Mexican locality, collected by Sumichrast and possibly from the vicinity of Cordoba or Orizaba, (Cresson, 1868). Other than the type, I have seen a series of 10 females and 6 males from 9 km W Tizapán el Alto, 1585 m elev., Jalisco, Mexico, 12 Sept. 1976 (C.D. George and R.R. Snelling; LACM) (see Fig. 11). Both sexes were at flowers of an unidentified malvaceous plant. Females were also at a small nesting site in an area of sparse, tall grass. A few females of the cleptoparasitic anthophorid, *Protepeolus integer* Linsley, were at the nesting site.

Although both sexes are very similar to the better known *D. ochracea*, they are conspicuously larger. The pubescence of the head and body is a darker, more brownish yellow than in *D. ochracea*, though older specimens may prove to be nearly as pale as that species. In addition to the other characteristics cited in the key, it may be noted that the genal and gular areas of *D. olivacea* are distinctly tessellate and only slightly shiny, rather than smooth and shiny as in *D. ochracea*.

Diadasia (Dasiapis) tropicalis
(Cockerell)

Figures 1, 6–7, 11

Dasiapis tropicalis Cockerell, 1918:27; ♀.

Dasiapis olivacea: Cockerell, 1949:462; ♀. MISIDENTIFICATION.

Melissodes tenuicincta Cockerell, 1949:464; ♀. NEW SYNONYMY.

Melissodes spilognathus Cockerell, 1949:468; ♀. NEW SYNONYMY.

Diadasia spilognathus: LaBerge, 1956:1179.

Diadasia tenuicincta: LaBerge, 1956:1179.

I have examined the types of all of the above nominate species and believe them to be conspecific. The type of *D. tropicalis* is from Pueblo Viejo, Veracruz, Mexico, and those of *M. spilognathus* and *M. tenuicincta* are from Zamorano, Honduras; all are in the USNM.

This species is very similar to *D. ochracea*, and the separation of the two is not always an easy matter. It may well be that further study will show that *D. tropicalis* is nothing more than a southern variant of *D. ochracea*.

Both species are present in Mexico, but there appears to be little sympatry (see Fig. 11). In general, *D. ochracea* is a more northern species and is largely confined to the central highlands in Mexico. Although *D. tropicalis* ranges sufficiently far north to barely enter the United States in Texas and Arizona, the main distribution lies in Mexico, where it is principally a lowland species. There are few specimens available from south of Mexico, but the distribution of *D. tropicalis* clearly extends at least to El Salvador. Specimens from several localities in Venezuela may also belong to *D. tropicalis*. Both sexes are available, and they closely resemble the Central American material of *D. tropicalis* in most features. They do differ, however, in that the punctuation of the head and mesosoma tends to be weak and shallow, much as in *D. ochracea*, but in density more like *D. tropicalis*. For the present they are assigned to *D. tropicalis* but may represent another species. The correct placement of these specimens must await the acquisition of additional material and a better understanding of the South American species placed in *Dasiapis*.

The most obvious difference between the two species is, unfortunately, one of color: *D. ochracea* is a dark-legged species, with the femora and tibiae dark brownish, while in *D. tropicalis* the legs, beyond the coxae, are consistently reddish to yellowish red. This is a very consistent difference. In itself, this would hardly be justification for recognizing *D. tropicalis* as a species apart from *D. ochracea*, but this color difference does correlate with the punctuation of the mesoscutum.

Both species have a dull, densely tessellate mesoscutum. In the case of *D. ochracea*, there are scattered minute (about 0.01 mm diam.) punctures over the middle of the mesoscutal disc that are hardly

greater in diameter than the hairs arising from them. Such punctures are conspicuously finer than those adjacent to the parapsidal line. Although the posterolateral area of the mesoscutum of *D. ochracea* is usually without punctures, or with only very minute ones, some specimens do possess larger punctures that are very shallow and difficult to discern.

The mesoscutal punctation of *D. tropicalis* is quite different. In most specimens, the entire disc is closely punctate with well-defined punctures that are about 0.025 mm in diameter. Some specimens may have the punctures of the central part of the disc largely effaced, but these are still coarser than those of *D. ochracea*.

There are also slight differences in the punctation of the upper frons, but so much variation exists that this is an unreliable, only weakly corroborative, character. Usually, the frons immediately below the ocelli is smooth and shiny in *D. ochracea*, with only scattered minute punctures. In *D. tropicalis* this area is often sharply tessellate and with sparse, well-defined coarser punctures in addition to minute punctures.

Nothing is known of the biology of *D. tropicalis* other than that provided by the floral data associated with some of the specimens examined. Most of these are for the family Malvaceae, the apparent usual pollen source for species of *Dasiapis*.

I have examined the following material of *D. tropicalis* (see Fig. 11).

EL SALVADOR: 3 ♀, 5 mi N Quezaltepec, 23 Aug. 1961 (M.E. Irwin; UCD).

GUATEMALA: 3 ♀, 9 ♂, El Progreso, 99 km NE Guatemala City, 21 Sept. 1975 (J.L. Neff; CTMI), on *Sida* "7084" (2 ♀, 2 ♂) and *Tribulus* sp. (1 ♀, 7 ♂).

HONDURAS: 1 ♀, Zamorano, Dec. (Vidales; type of *Melissodes tenuicincta*; USNM No. 58546); 1 ♀, Zamorano, 1 Dec. (A. Pelén; type of *M. spilognathus*; USNM No. 58570).

MEXICO, *Baja California Sur*: 1 ♀, 48 km S Loreto, 425 m, 14 Sept. 1983 (R.R. Snelling; LACM). *Chiapas*: 1 ♂, Ocozocuautla, 14 Sept. 1974 (W. Hanson and G. Bohart; BBSL); 6 ♀, 3 ♂, Tuxtla Gutierrez, Oct. 1954 (N.L.H. Kraus; UKAN); 1 ♂, 9 mi N Villa Flores, 12 Aug. 1963 (F.D. Parker and L.A. Stange; UCD). *Chihuahua*: 1 ♂, Ciudad Juárez, 3700 ft., 28 July 1953 (Univ. Kans. Mex. Exped.; UKAN), on *Sphaeralcea*. *Nayarit*: 1 ♂, Acaponeta, 29 Sept. 1966 (G.E. and A.S. Bohart; BBSL); 1 ♀, Acaponeta, 12 Oct. 1968 (G.E. Bohart; BBSL), on "orange *Cosmos*"; 1 ♀, Ruíz, 29 Sept. 1966 (G.E. and A.S. Bohart; BBSL). *Nuevo León*: 1 ♀, 37 mi NE China, 13 July 1954 (Univ. Kans. Mex. Exped.; UKAN). *Oaxaca*: 1 ♂, 100 mi S Acayucán (Yucatán), in *Oaxaca*, 600 ft., 18 Aug. 1963 (Scullen and Bolinger; UCD); 1 ♀, 19 mi SE El Camarón, 2800 ft., 19 Aug. 1963 (Scullen and Bolinger; UCD); 2 ♂, 18 mi N La Ventosa, 21 Aug. 1966 (J.B. Karren; UKAN), on *Waltheria americana*; 1 ♂, 23 mi S Matías Romero, 14 Aug. 1963 (F.D. Parker and L.A. Stange; UCD); 5 ♀, 1 ♂, 4 mi N Pochutla, 150 m, 11 Oct. 1975 (J.L. Neff; CTMI), on *Sida* "7117"; 1 ♂, 8 mi W Tapanatepec, 400 ft., 10 July 1953 (Univ. Kans. Mex. Exped.; UKAN); 1 ♀, 2 ♂, 12 mi W Tehuantepec, 11 Sept. 1974 (G.E. Bohart and W.J. Hanson; BBSL); 1 ♂, 35 W Tehuantepec, 16 Sept. 1974 (W. Hanson and G. Bohart; BBSL); 2 ♂, 4 mi N Torolapán, 1849 m, 15 Sept. 1975 (J.L. Neff; CTMI), on

Sida "7063"; 1 ♀, 4 mi W Zanatepec, 200 m, 16 Sept. 1975 (J.L. Neff; CTMI); 1 ♀, same locality and collector, 7 Oct. 1975, on *Sida* (CTMI). *San Luis Potosí*: 1 ♂, El Salto, 1600 ft., 24 Aug. 1954 (Univ. Kans. Mex. Exped.; UKAN); 1 ♀, 5 ♂, El Salto, 1250 ft., 4 Sept. 1962 (Ordway and Marston; UKAN); 3 ♀, 4 ♂, El Salto, 20–21 July 1962 (Univ. Kans. Mex. Exped.; UKAN). *Sinaloa*: 1 ♂, Culiacán, 10 Oct. 1968 (G.E. Bohart; BBSL), on *Euphorbia* sp.; 1 ♀, 2 ♂, Guamuchil, 27 Oct. 1966 (G.E. and A.S. Bohart; BBSL; UCD); 1 ♀, 4 ♂, Escuinapa, Sept. 1966 (G.E. and A.S. Bohart; BBSL), 1 ♂, on *Convolvulus* sp.; 1 ♀, 2 ♂, near Guasave, 27 Oct. 1965 (G.E. and A.S. Bohart; BBSL), on *Kallstroemia* sp.; 1 ♀, 5 ♂, Elota, 10 Oct. 1968 (G.E. Bohart; BBSL); 3 ♀, 2 ♂, 16 km N Los Mochis, 152 m, 30 Sept. 1976 (C.D. George and R.R. Snelling; LACM), on *Antigonon leptopus*; 5 ♀, 15 ♂, 20 mi N Los Mochis, 9 Oct. 1968 (G.E. Bohart; BBSL), on "Malvaceae"; 3 ♂, 31 km N Mazatlán, 76 m, 29 Sept. 1976 (C.D. George and R.R. Snelling; LACM); 1 ♂, Mazatlán, 11 Oct. 1968 (G.E. Bohart; BBSL); 1 ♂, Rosarito, 29 Sept. 1966 (G.E. and A.S. Bohart; BBSL) on "tall yell. comp." *Sonora*: 1 ♂, Alamos, 27 Sept. 1966 (G.E. and A.S. Bohart; BBSL), "near *Malva*"; 7 ♀, 6 ♂, Alamos, 8 Oct. 1968 (G.E. Bohart; BBSL), on Malvaceae; 2 ♀, 13 ♂, Alamos, 7 Sept. 1970 (G.E. and R.M. Bohart; BBSL); 3 ♀, 1 ♂, Alamos, 4 Sept. 1970 (W.J. Hanson and T.L. Whitworth; BBSL); 5 ♀, SE of Alamos, 5 Sept. 1970 (W.J. Hanson and T.L. Whitworth; BBSL); 1 ♂, Belén, 28 Sept. 1966 (G.E. and A.S. Bohart; BBSL), on *Convolvulus*; 1 ♀, 10 mi S Guaymas, 8 Oct. 1968 (G.E. Bohart; BBSL), on *Antigonon [leptopus]*; 2 ♀, 25 mi N Guaymas, 26 Sept. 1966 (G.E. and A.S. Bohart; BBSL); 1 ♂, Masiaca, 9 Oct. 1968 (G.E. Bohart; BBSL), on *Kallstroemia*; 2 ♀, 1 ♂, Obregon, 26 Sept. 1966 (G.E. and A.S. Bohart; BBSL). *Tamaulipas*: 1 ♂, 6.2 mi S San Fernando, 8 June 1966 (Univ. Kans. Mex. Exped.; UKAN); 1 ♂, Tampico, 26 Mar. 1951 (W.P. Stephen; UKAN); 1 ♂, 2.6 mi N Nuevo Morelos, 900 ft., 4 Sept. 1962 (Ordway and Marston; UKAN); 1 ♂, 8 mi S Jiménez, 15 June 1953 (Univ. Kans. Mex. Exped.; UKAN), on *Parthenium hysterophorus*; 2 ♀, 1 ♂, Padilla, 15 June 1953 (Univ. Kans. Mex. Exped.; UKAN), on *Cevallia sinuata*; 1 ♀, 1 ♂, 6.6 mi W Antigua Morelos, 400 ft., 3 Sept. 1962 (Ordway and Naumann; UKAN). *Veracruz*: 2 ♂, 5 mi NE Tenajas, 18 Aug. 1963 (F.D. Parker, L.A. Stange; UCD); 1 ♀, Pueblo Viejo, 8 Dec. 1909 (F.C. Bishopp; type of *Dasiapis tropicalis*; USNM No. 22925). *Zacatecas*: 1 ♂, 10 mi S Jalpa, 17 Sept. 1970 (G.E. and R.M. Bohart; BBSL).

UNITED STATES, *Arizona*: 1 ♀, Yaqui Canyon area, 5700 ft., Huachuca Mts., Cochise Co., 29 Aug. 1972 (R.R. Snelling; LACM); 1 ♀, Huachuca Mts., Cochise Co., 30 Aug. 1953 (G.D. Butler; LACM), on *Sida procumbens*. *Texas*: 1 ♂, Progreso, Hidalgo Co., 12 Apr. 1950 (Micheners, Rozens, Beamers, Stephen; UKAN), on *Verbena* sp.

VENEZUELA: 1 ♀, 2 ♂, Falcón, near Marpare, 19 Dec. 1976 (J.L. Neff; CTMI), on *Tribulus*. 1 ♀, 6 ♂, Escuela Naval, Parroquia Catia la Mar, Distrito Federal, various dates between 30 June and 31 Oct. (N. Ramirez, LACM), on *Bastardia viscosa* (2 ♂), undet. Malvaceae (1 ♀, 1 ♂), *Lantana* (1 ♂), *Heliotropium* (1 ♂), and undet. Zygophyllaceae (1 ♂); 1 ♀, Estación Biología de los Llanos, Calabozo [8°56'N, 67°25'W], Guarico, 2 Oct. 1982 (N. Ramirez; LACM), on undet. Malvaceae.

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