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*Edgewater, Maryland*

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## A Revision of the genus *Brachycoryna* (Coleoptera: Chrysomelidae: Hispinae)

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The generic name *Brachycoryna* was first published by Guérin-Meneville (1844) who at that time also described *B. pumila* which was the only included species (type species by monotypy). The locality data given by Guérin's material is "Carthagene" (Cartagena, Columbia). Guérin correctly receives authorship of *Brachycoryna* since a single combined description of a new genus and new species published before 1930 is considered an "indication" for each name (Intern. Code Zool. Nomen., Article 12). Some authors (Weise, 1911a,b; Papp, 1953) had assigned authorship to Baly (1885) who published the first generic description and reported *B. pumila* from Mexico, Guatemala, and Nicaragua. There have only been two other generic descriptions published: Weise (1911b) and Monros and Viana (1947).

*Brachycoryna* is in the tribe Uroplatini (Weise, 1911a) which is characterized by having the last antennal segments very closely united and the antennae appearing as three to eight segmented. The tribe is represented by thirty-two genera. *Brachycoryna* is distinguished by the following combination of characters: antennae short, ending in a club; antennal segments 1 to 6 similar, slender; antennae 7- or 8-segmented; antennal club not longer than the four preceding segments combined; each elytron with four regular costae, third often weak; third tarsal segment obviously bilobed; and the fourth tarsal segment exceeds lobes of the third.

The life cycle and biology are virtually unknown for *Brachycoryna* species, and only one species has a recorded larval host (Van Dyke, 1925). The immature stages are undescribed.

There has been no comprehensive study of *Brachycoryna*. Most of the literature is isolated species descriptions and faunal lists. Both Van Dyke (1925) and Schaeffer (1933) did provide notes to distinguish the new species from previously described ones. Characters mentioned were color, robustness, sheen, arrangement of elytral punctures, elevation of alternate elytral intervals, amount of marginal elytral serration, straightness of elytral intervals, and shape of intermediate antennal segments.

In this study all of the above characters were examined as well as the sculpture of the occiput, the sculpture of the raised areas of the elytra and pronotum, and the male genitalia. The arrangement of elytral punctures was found to be variable in all species examined. The male genitalia was not useful in determining species. All other characters mentioned are of value in distinguishing species.

Types were examined for all species studied except *B. pumila* Guérin and *B. notaticeps* Pic. Lectotypes are designated for *B. hardyi* (Crotch) and *B. montana* (Horn).

Many specimens had label data concerning the plant from which they were collected. Unless the data included "reared from" or "larval host" this data is presented as "collected from".

There have been two other species names associated with *Brachycoryna*: *B. fulvipes* Baly, which is now in *Bruchia* (Weise, 1911a); and *Brachycoryna lateralis* Schaeffer, which is now in *Stenopodius* (Staines, 1986).

Measurements were taken with an ocular micrometer. Pronotal length and width were taken along the midlines. Elytral width was measured at the humeri. Elytral length was measured from the base to apex. Total length was measured from the apex of the frontal sulcus to the apex of the elytra.

### *Brachycoryna* Guérin, 1844:280

Type species: *Brachycoryna pumila* Guérin.

Description- Color variable, either yellow with brownish markings on pronotum and elytra, yellowish-red with black markings, reddish with black markings or black. HEAD: black or dark metallic green; small, vertex not prominent; front vertical; antennae short, 7- or 8-segmented, 1-3 cylindrical, 2 longest, next 2-3 transverse, penultimate expanded, as wide as ultimate, ultimate forming a hirsute, oval club; inserted into pit on front of head; pit is divided by shallow, central keel; mouthparts ventrally directed; occiput with longitudinal sulcus; eyes not prominent; finely faceted; area around eye, except along pit, rugose. PRONOTUM:

wider than long; narrower than elytra; convex; punctures distributed over entire surface, absent along apical margin; lateral margin complete; usually with median callus on disc. SCUTELLUM: small, quadrate. ELYTRA: oblong-oval, longer than wide; sides parallel; apices broadly, evenly rounded; 10 rows of punctures, punctures usually distinct, arranged in pairs, but sometimes becoming confused, plus sutural row of 2 or 3 punctures; each elytron at base slightly explanate, margin more or less irregularly arcuate, briefly overlapping pronotal base; even intervals raised and often costate; intervals 2, 4, and 8 uniting on apical fifth; margin serrate; humeral angles rounded. LEGS: short; tibiae and femur subequal in length; tarsal segments 1 and 2 short, cylindrical, with pad of setae underneath;

3rd segment bilobed, longer than 1 and 2 combined, 1/3 to 2/3 length of 4th, with pad of setae at apex; 4th segment elongate, longer than first three combined; tarsal claws simple; trochanter slightly angular; tibiae gradually widening to apex, tuft of setae at apex; femur widest at middle. VENTER: unicolorous black or dark metallic green; pro- and mesosternum punctate in middle, alutaceous at sides; metasternum with some punctures at base, remaining area alutaceous; abdominal sternum 1 with row of setae along midline; 2 to 4 each with 2 rows of setae dividing segments into thirds; sternum 5 with irregularly placed setae, not arranged in rows; coxal cavities closed behind; pro- and mesocoxae separated by more than diameter of coxa; metacoxae separated by less than diameter of coxa.

#### Key to the species of *Brachycoryna*

1. Head with two yellow maculae; antennae 7-segmented; Argentina, Bolivia, and Paraguay.....*notaticeps* Pic
- Head unicolorous; antennae 8-segmented.....2
2. Spaces between punctures on pronotum and elytra minutely punctate.....3
- Spaces between punctures on pronotum and elytra glabrous.....4
3. Second elytral interval strongly costate; body shiny; generally larger in size (avg. 3.3 mm.); California, Idaho, and Oregon.....*dolorosa* Van Dyke
- Second elytral interval barely raised; body dull; generally smaller species (avg. 3.0 mm.); Alberta and Manitoba, south to Nevada, Arizona, and Colorado.....*montana* Horn
4. Occiput alutaceous; British Columbia to Baja California and Nevada.....
- .....*hardyi* (Crotch)
- Occiput not alutaceous.....5
5. Occiput impunctate, granulose; Pennsylvania to Texas and Oklahoma.....
- .....*melsheimeri* (Crotch)
- Occiput with several deep punctures.....6
6. Elytral margin not obviously serrate; smaller, narrower species (avg. 2.7 mm) Arizona, California, and Mexico.....*longula* Weise
- Elytral margin serrate; larger, broader species (avg. 3.1 mm); Alabama to Arizona, south to Columbia.....*pumila* Guerin

#### *Brachycoryna dolorosa* Van Dyke

*Brachycoryna dolorosa* Van Dyke, 1925:171.

(Holotype and 3 paratypes: Millbrae, California, 17/VIII/19, Van Dyke Collection: CASC, type no. 1640). Papp 1953:91; Uhmann 1957:118; Wilcox 1975:144.

Description- HEAD: black; median sulcus well developed; occiput granulose; antennal pit trapezoidal; antennae inserted above middle of eyes; segments 1 to 7 granulose; 4 to 7 with fringe of setae at apex. PRONOTUM: broader than long, sides straight and parallel for basal 2/3's, convergent anteriorly; irregularly punctured; intervals minutely punctate;

color either shiny black, reddish-brown or yellow; pronotum is not always same color as the elytra; length 0.6 to 0.9 mm (avg. 0.75, n=128); width 0.8 to 1.1 mm. (avg. 0.96). SCUTELLUM: alutaceous. ELYTRA: less than twice as broad and over 3 times as long as pronotum; widest beyond middle; margins very finely serrate; sutural and intervals 2, 4, & 8 costate; 6th costate on basal third; entire surface minutely punctate; color either shiny black, reddish-brown or yellow; yellow specimens have variable black markings; length 2.1 to 3.1 mm (avg. 2.55); width 1.2 to 1.6 mm. (avg. 1.38). LEGS: brownish-yellow; femura and

tibiae darker at joints and dark macula in center of femur; tarsi dark reddish-brown; 3rd segment 1/3 length of 4th. VENTER: black. TOTAL LENGTH: 2.8 to 3.8 mm. (avg. 3.31).

Discussion: this species is quite variable in appearance with three color forms. All three forms can be found in a single population and are not considered subspecies. The species closest in appearance is *B. montana*, it differs from *B. dolorosa* in that the second elytral interval is not strongly costate, the body sheen is dull, and the generally smaller size.

Distribution: California, Idaho, and Oregon.

Specimens examined: California: (CMP); Horato, 16/VIII/38 (NDSU). Alameda Co.- Richmond, 7/V/39 (CASC). Calaveras Co.- Mokel Hill (CASC); Murphys, 8/V/37, 4/VI/38, 6/VI/38 (CASC). Colusa Co.- Williams, 15/IX/37 (MCZC), 11/VIII/38 (UAT, CNC, EGRC). Kern Co.- 5 mi SW Glennville, 24/VI/76 (AJGC). Lassen Co.- Amedee, 21/VII/28 (USNM). Los Angeles Co.- Crystal Lake, 29/VI/50 (CASC). Marin Co.- Berkley, 20/V/19 (CASC). Monterey Co.- Arroyo Seco Camp, 20/V/80 (UCLA); 3 mi NW Carmel Valley, Garland Park, 31/VIII/84 (AJGC); Marina, 29/VI/31 (CASC); Salinas Valley, 20/V/80 (UCLA). Napa Co.- Monticello, 5/IX/30 (CNC); 4/IX/30, 30/IX/20, 30/IX/30 (CASC). Sacramento Co.- Elk Grove, 19/IX/30 (CNC, MCZC). San Benito Co.- 3000 ft., 24/VI/33 (CASC). Santa Barbara Co.- Toro Canyon Co. Pk., 26/VII/85 (AJGC). Santa Clara Co.- Palo Alto, 29/IV/28; San Carlos, 14/VI/47 (CASC). Santa Cruz Co.- Boulder Creek, 11/VII/41 (CASC); Mt. Hermon, 5/IX/31 (CASC), 5-8/IX/31 (AJGC); Santa Cruz, 4/III/36, 29/VI/37 (CASC). San Mateo Co.- 12/IX/20; Burlingame, 10/VIII/09; Millbrae, 17/VIII/19; San Mateo, 12/IX/20 (CASC). Shasta Co.- Redding, 17/X/83 (AJGC). Solano Co.- Winters, 4/VIII/36 (ORUC). Tulare Co.- 2 mi N Woodlake, 29/VI/76 (AJGC). Idaho: Twin Falls Co.- Hollister, 24/VII/31 (USNM). Oregon: Daniels Bend, 2/VIII/44 (ORUC). Harney Co.- Frenchglen, 5500 ft., 7/VIII/58 (ORUC). Utah: Sevier Co.- Cove Fort, 18 mi E, 18/VII/67; Monroe, 4 mi SE, 18/VII/67 (TAMU). Total 188.

Adults collected from: *Madia elegans* D. Don, *M. sativa* Molina, *Holocarpus heermanni* (Greene), *Hemizonia* sp. (Compositae); and *Ceanothus cuneatus* (Hooker) (Rhamnaceae).

### *Brachycoryna hardyi* (Crotch)

*Odontota hardyi* Crotch, 1874:80. (Lectotype and three paralectotypes, here designated: Cal[ifornia], J. L. LeConte Coll[ection]: MCZC, type no. 5030). Van Dyke 1925:171.

*Microthopala melsheimeri*, Horn, 1883:294. Weise 1905:319; Papp 1953:91.

*Brachycoryna horni* Weise, 1905:319. Weise 1911a:30, 1911b:44; Leng 1920:303; Van Dyke 1925:171; McCauley 1938:146; Fender 1945:72; Papp 1953:91.

*Brachycoryna confusa* Hatch, 1971:236. NEW SYNONYMY. Wilcox 1975:145.

*Brachycoryna hardyi* (Crotch). Van Dyke 1925:171; Uhmann 1957:118; Grant 1969:25; Hatch 1971:236; Wilcox 1975:144; Clark 1983:597.

Description- HEAD: black; occiput alutaceous; longitudinal sulcus deep, extending between eyes; antennae inserted between eyes near midpoint; maxillary and labial palps short; mandibles reddish; antennal segments 1 to 6 slightly granulose, with some setae; antennal pit trapezoidal, longer than wide. PRONOTUM: coarse punctures in longitudinal rows; punctures very close together; reddish-yellow sometimes with variable dark markings; median longitudinal callous usually present and it may be darkened; sides parallel; length 0.5 to 0.9 mm (avg. 0.73, n=167); width 0.8 to 1.1 mm (avg. 0.92). SCUTELLUM: alutaceous. ELYTRA: widest at apical third; margins finely serrate; sutural row of three punctures; punctures coarse; 2nd interval raised but not costate; 4th interval slightly costate at base and apical third; 6th interval not raised; 8th interval costate on apical half; sutural margin raised but not costate; reddish-yellow with variable dark markings, or black with reddish markings; length 1.9 to 2.9 mm (avg. 2.27); width 1.1 to 1.7 mm (avg. 1.4). LEGS: coxae black, granular; trochanter reddish-brown; femur brownish-yellow, with scattered long setae; tibiae brownish-yellow; tarsi: with 3rd segment about 1/2 length of 4th, 4th with few scattered setae. VENTER: Abdominal sternal-alutaceous in middle, rugose at sides; black. TOTAL LENGTH: 2.5 to 3.7 mm (avg. 3.25).

Discussion: This is another variable species. Specimens from the northern and southern extremes would appear to be separate species or subspecies based on coloration. However, specimens from the middle part of the range show a gradual

increase in the degree of darkening as you go northward. The reduction of *B. confusa* to synonymy is a result of these observations. A paratype of *B. confusa* in ORUC is a very dark form of *B. hardyi*, there were no characters to separate the specimens into species. The *B. confusa* specimen had the elytral punctures overlapping, but this character is found in lighter colored specimens of *B. hardyi*. The most similar species is *B. melsheimeri*, which can be distinguished from *B. hardyi* by the sculpture of the occiput and the second elytral interval being costate.

Distribution: British Columbia (Grant (1967)) to Baja California.

Pupa: HEAD: inserted into pronotum, barely visible from above; white "suture" present where median sulcus is on adult. PRONOTUM: lateral margin complete; wider than head; divided into thirds by two rows of setae; one pair of setae on each side of median suture on basal 1/4; median suture present; alutaceous; color, pale yellow. MESONOTUM: transverse, with row of setae along midline; wing pads extending to fifth abdominal segment. METANOTUM: transverse, longer than mesonotum; bare. ABDOMINAL STERNA: I-VI; transverse, alutaceous, row of setae along midline; VII-VIII transverse, alutaceous; IX alutaceous, 2 pairs of setae on apical margin, cylindrical; X reduced to a small indistinct ring.

Specimens examined: MEXICO: Baja California: (MCZC); El Taste (AMNH). USA: Arizona: Maricopa Co.- 5/VII/13 (AMNH). Yavapai Co.- Congress Jct., 28/VII/33 (UCLA); Prescott, VI-VII/1894 (MCZC). California: (CASC); S. Madre, 21/V/19 (USNM), VI (CASC); Mt. Lowe, 22/VII/22 (CNC), V (CASC); Santa Cruz Mts., 13/VIII/38 (SEMK); Tallac, VII (CASC); Waterman Canyon, 28/V/16 (CASC); S. B. Mts., 14/VII/1892 (MCZC). Alameda Co.- Hayward, 20/VIII/08 (USNM). Butte Co.- Big Bend Mtn., 20/III/28, 23/V/28 (CASC); Paradise, 10/VIII/47 (CASC). Contra Costa Co.- 14/VI/17 (CASC); Antioch, 6/V/36 (UAT). El Dorado Co.- L. Tahoe (USNM), 5/VII/36 (CASC). Fresno Co.- Camp Greeley, 2800 ft., 22/IV/11 (CASC); 14 mi E Squaw Valley, 5/XII/79 (AJGC); 2 mi N Tollhouse, 15/VI/77 (AJGC); Rte. 168, 5 mi SE Shaver Lk., 2600 ft., 30/VI/80 (UCLA). Kern Co.- 11/VI/06, 18/V/26 (FMNH); Greenhorn Mt., 7/V/31 (UAT,CNC,SEMK); Havilah, 9/VI/13, 13/VI/13 (CASC), 13/VI (MCZC); Hot Springs, 9/VII/15 (CMP); Lebec, 4000 ft., 15/V/28 (CASC); Mineral King Rd., 2000-3000 ft., 5/V (USNM); Mt. Pinos, 27/VII/73

(AJGC). Los Angeles Co.- (CASC); Azusa, 3/VI/39 (WSU); Crystal Lake, 29/VI/50 (UAT); Mt. Wilson, VI/06 (USNM), VI/1900 (FMNH), 18/VI/05 (MCZC), 18/IX/17 (CASC); Pasadena, 25/V/24, 29/V/20 (USNM), VII (CMP); 2 mi E Wrightwood, 9/VI/76 (UCLA); Spunky Canyon Cmpgrd., Bouquet Canyon, 28/V/80 (UCLA); Santa Monica (MCZC). Madera Co.- Ahwahnee (USNM), V (MCZC, UAT,CASC), III (FMNH); Bass Lake, 14/VI/30 (UAT); Chiquita Cr., IV (USNM); Coarsegold, 12/V/42 (CNC); Oakhurst, 26/V/42 (CNC); Sierra Nat. For. (CASC). Marin Co.- Mt. Tamalpais, 28/IV/07 (CASC). Mendocino Co.- Marundel, VII/39 (AMNH). Merced Co.- Merced, 23/IV/33 (CASC). Napa Co.- Monticello, 30/X/30 (SEMK). Nevada Co.- Grass Valley, 3/VIII/48 (USNM). Placer Co.- VIII/16 (CASC), 10/VIII/22 (CMP); Auburn, 31/V/36 (UAT). Plumas Co.- 13/VI/13 (FMNH); Chester, 12/VI/41, 1/VII/51, 12/VII/53, 18/VII/56, 4/VI/60 (OHU); Quincy, 25/VI/48 (OHU). Riverside Co.- 10 mi S Cabazon, 24/V/81 (OHU); 7 mi NW Idyllwild, 8/V/54 (EGRC,UMOC,UAT,CNC,AMNH), 19/VI/41, 26/VI/28, 3/VII/28 (CASC), 3/VIII/35 (SEMK); Keen Camp, 1/VI/39 (AJGC), 24/V/46 (OHU), 6-12/VI/17 (CASC), 1/VI/39 (UCLA); San Jacinto Mts., 29/VII/40 (OHU), 30/VI/33, 31/VII/29, 31/VII/36; Mountain Center, 18/VI/58 (UCLA). Sacramento Co.- 40 mi E Sacramento, 4000 ft., 6/VIII/48 (USNM). San Bernardino Co.- 27/VII/12 (FMNH); Arrowhead, G. P. Mackenzie L., 5/VII/43 (UAT); Camp Baldy, 10/VI/17 (MCZC); Lytle Creek, 8/VI/28 (CASC); Mill Cr., 22/IX/23 (CASC); 15 mi N Redlands, 19/VI/54 (UAT); San Bernardino Mts., 3000 ft., 2/V/52 (CASC); Slover Canyon, 6000 ft., 13/VII/79 (UCLA); Wrightwood, 3/VIII/83 (AJGC), 4 mi NE, 7/VII/81 (EGRC); Palm Springs (MCZC). San Diego Co.- Boulevard, 12/VI/51 (OHU); Laguna Mts., 6000 ft., 24/VIII/24 (CASC); San Diego (CASC). San Joaquin Co.- Stockton, 23/IV/31 (CASC). Santa Barbara Co.- Cuyamaca R. S. P., 19/V/41 (OHU). Shasta Co.- Cayton, 9/VII/13 (CASC); Redding, 16/VI/41 (AMNH). Siskiyou Co.- 2/VI/11, 31/V/11, 1/VI/11, 2/VI/11 (USNM,MCZC), VIII (CASC); 5 mi N Klamath River, 13/IV/76 (AJGC); McCloud, 23/VII/18 (CASC); S. Macdoel, 6 mi. south, 2/VII/56 (AMNH); Medicine Lake, 30/VI/64 (AMNH). Sonoma Co.- (USNM). Tehama Co.- S. Fork Battle Creek, 1000 ft., 16/V/70 (UAT). Trinity Co.- Carrville, 26/VI/13 (CASC). Tulare Co.- (USNM); Ash Mtn. Kwh. Pwr. Sta. #3, 3/V/84, 26/V/84 (AJGC); Camp William, 1948 (USNM); Colony Mill, 5415 ft., 18/V/04 (CASC); Greenhorn Mts., 7/V/31 (CASC); Hot Springs, 7/VII/25 (CMP);

Kaweah (CASC, UCLA, USNM), 7/VI (MCZC); Pine Flat, 4/VII (CASC); Sequoia Nat. Pk., III/32, IV/32 (UAT), 2000-5000 ft., 20/V/29 (CASC), V/31 (TAMU). Tuolumne Co.- Yosemite N. P., 1/VIII/40 (OHU); Yosemite Valley, 21/V/20 (AUA), 17/VI/21, 25/VI/16, 28/VI/21 (CASC). Ventura Co.- Fillmore, 27/VI/37 (CASC). Nevada: (CMP). Oregon: Josephine Co.- Grants Pass, 24/V/50 (ORUC). Klamath Co.- Klamath Falls, 4600 ft., 23/V/58, 5/VI/61 (ORUC), 5/VI/61 (AMNH); Spencer Creek, 9/VI/56 (AMNH); Big Squaw Flat, 25/VII/62 (AMNH); Sun Mt., 30/VIII/61 (AMNH); Algoma, 26/V/75, 24/V/71 (AMNH). Deschutes Co.- Bend, 21/VI/39 (AMNH); Sisters, 26/VI/39 (AMNH). Wasco Co.- Mosier, 24/V/38 (AMNH). Washington: Spokane Co.- Medical Is., 9/V/10 (USNM); Newmans Lake, 11/VI/22 (ORUC). Total 504.

Larval host plant: *Ceanothus lucodermis* Greene, *C. sanguineus* Pursh, and *C. velutinus* Douglas (Rhamnaceae).

***Brachycoryna longula* Weise**

***Brachycoryna longula* Weise, 1907:207.** (Paratype: Nogales, St. Cruz Co., Arizona, 18/IX/06, coll'd by F. W. Nunenmacher, 105603, Charles Schaeffer Collection, H. S. Barber Bequest 1950: USNM). Weise 1911a:30, 1911b:44; Papp 1953:91; Uhmann 1957:118; Wilcox 1975:144.

Description- HEAD: dark metallic green; eyes separated by less than width of eye; occiput punctate; sulcus deep; antennal pit trapezoidal, longer than wide; antennae black; segments 1 to 5 with no setae, 6 with few setae; 7 with numerous setae. PRONOTUM: covered with dense, coarse punctures; punctures at base and apex in almost straight horizontal rows; sides parallel; yellow with a black line on the apical margin and sometimes other variable brownish-yellow markings; length 0.5 to 0.8 mm (avg. 0.63, n=55); width 0.7 to 1.0 mm (avg. 0.81). SCUTELLUM: alutaceous. ELYTRA: reddish-yellow or yellow usually with variable brownish-yellow markings; sutural row of 2 or 3 punctures; punctures deep, coarse, and mostly discrete; 2nd and 4th elytral intervals costate for basal 2/3's; 6th costate at humeri; 8th costate for basal 2/3's; margin not serrate; length 1.6 to 2.4 mm (avg. 2.02); width 1.0 to 1.4 mm (avg. 1.21). LEGS: reddish-yellow; tibiae and femur with darker markings at base and middle; tarsi reddish-brown; 3rd segment 1/2 length of 4th. VENTER: dark metallic green. Total length: 2.25 to 3.1 mm (avg. 2.68).

Discussion: Specimens of *B. longula* seen in natural light show several color forms. However, when the specimens are viewed under intense artificial light they are all the same color. Some larger specimens of *B. longula* look similar to *B. hardyi*. They can be distinguished from *B. hardyi* by the non-alutaceous occiput. The other similar species is *B. pumila*. Specimens of *B. pumila* can be distinguished from *B. longula* by the elytral margin being obviously serrate and their generally larger size.

Distribution: Arizona, California, Nevada, and Mexico. There is a specimen questionably labelled from Wyoming.

Specimens examined: MEXICO: Sonora: Aquamarina, Almos, 2/VI/62 (EGRC); Rio Sonora at Sinoquipe, 13/VI/62 (EGRC). Vera Cruz: El Palmar, 16 W Tetzonapa, 9-15/VI/48 (UAZC). USA: Arizona: Cochise Co.- Chiricahua Mts. near Portal, 28/VII-7/VIII/66 (FSCA); Huachuca M., 10/VIII/50 (OHU). Maricopa Co.- Wickenburg, 17/VII/40 (OHU). Pima Co.- Arivaca, 6/VI/70 (FSCA); Baboquivari Mts., 25-27/VII/52 (CASC), 18/VII/32 (SEMK); Box Cn. Stn., Rita R., 8/VI/57 (MCZC); Greaterville Stn., St. Rita Mts., 5/VIII/78 (UAT), Rosemont, N. End Stn., 4400-6175 ft., 17/VI/77 (UAT); Pantano, 8/IV/68 (FSCA); Sta. Catalina Mts., 15/VIII/38 (CASC), 25/II/68 (FSCA); St. Rita Mts., 18/V, 17/VI, 16/VI (USNM), 17/IX/68 (FSCA), VII (SEMK); Tucson, 20/VII/40 (OHU), 9/IV/06, 1/VI/35, 2/IV/34, 15/VII/39 (CASC), 21/IV/69 (AMNH). Pinal Co.- Silver Bell, 13/VII/70 (UAT). St. Cruz Co.- Nogales, 26/IX/06, 22/IX/06, 1/IX/06, 18/IX/06 (USNM); Patagonia, 5/X/51 (UAT), 2/VIII/24 (CASC); Ruby, 27/VII/41 (SEMK); Tumacacori Mts., 1/IX/46 (UAT); Canelo, 10/VII/57 (UAT); 4 mi W Pena Blanca, 4750 ft., 19-20/VII/78 (AJGC); 5 mi S. Sonoita, 15/VII/77 (AJGC). California: (OHU). Riverside Co.- Palm Springs, 20/VI/46 (OHU), IV (CASC). Tulare Co.- Ash Mtn. Kwh. Pwr. Sta. #3, 3/V/84 (AJGC); Hot Springs, 27/VI/25 (CMP). Nevada: Washoe Co.- Glendale, 15/IV/30 (USNM). ? Wyoming: Goshen Co.- 22/VII/44 (USNM). Total 151.

Adults collected from: *Hymenoclea monogyra* Torrey and Gray and *Franseria dumosa* A. Gray (Compositae).

***Brachycoryna melsheimeri* (Crotch)**

***Microthorhops melsheimeri* Crotch, 1873:83.** (Holotype: pink dot (Middle Atlantic States), J. L. LeConte Coll[ection]: MCZC, type no. 5085; type locality- Pennsylvania (Crotch, 1873). Gemminger & Harold 1876:3611; Horn 1883:294; Ulke

1889:248; Donckier 1899:575; Chittenden 1902:88; Ulke 1902:29; Weise 1905:319; Blatchley 1910:1225; Weise 1911a:30, 1911b:44; McCauley 1938:146; Blackwelder 1946:733.

**Brachycoryna melsheimeri** (Crotch). Leng 1920:303; Papp 1953:91; Wilcox 1954:473; Uhmann 1957:118; Balsbaugh & Hays 1972:187; Wilcox 1975:144; Riley & Enns 1979:80; Clark 1983:597.

Description: HEAD: black; occiput finely granulose; median sulcus shallow, not well defined; antennal pit quadrate; antennae inserted between eyes, near mid-point; segments 1 to 6 granulose, with scattered setae; 7th granulose, fringe of setae at apex; punctate below antennal pit. PRONOTUM: large, coarse punctures evenly distributed over surface, not in longitudinal rows; widest at middle; lateral margins parallel for posterior half, converging anteriorly; median callosus present; reddish-yellow or yellowish-red usually with variable black markings; length 0.5 to 0.8 mm (avg. 0.66, n=20); width 0.75 to 1.0 mm (avg. 0.85). SCUTELLUM: alutaceous. ELYTRA: sutural row of 2 or 3 punctures; all punctures coarse, discrete; 2nd interval costate; 4th more strongly costate; 6th costate except in middle; 8th costate; serrations on elytra margin poorly defined, appear more as tubercles; reddish-yellow with variable black markings; sutural margin raised; widest at middle, punctures sometimes confused; length 1.8 to 2.5 mm (avg. 2.13); width 1.1 to 1.6 mm (avg. 1.27). LEGS: trochanter rounded; femur reddish-yellow; granulose; tibiae reddish-yellow; granulose; tarsi brownish-red; 3rd segment alutaceous, 2/3 length of 4th; 4th elongate, cylindrical, alutaceous. VENTER: black. TOTAL LENGTH: 2.5 to 3.3 mm (avg. 2.87).

Discussion: This species is the most infrequently collected in North America. The appearance throughout its entire range is uniform, but there are some specimens that are almost entirely dark due to the extensive black markings. The most similar species is *B. hardyi*, which can be distinguished by the presence of the alutaceous occiput and the noncostate second elytral interval.

Distribution: Pennsylvania to west Texas.

Specimens examined: Alabama: Lee Co.- 1 Mi. E. of Chawacila, 21/VII/63 (AUA). District of Columbia: (CMP). Louisiana: Webster Par.- Shongaloo, 30/V/82 (EGRC). Missouri: Boone Co.- 24/IV/78 (EGRC); St.

Louis Co.- 31/III/77 (UMOC). Oklahoma: Wichita, N. Forest, 27/VI/36 (SEMK). Latimer Co.- 5 Mi. W. Red Oak, V/81 (EGRC). Pennsylvania: Franklin Co.- Pen Mar (CMP). Montgomery Co.- Arcola, 23/IV (OHU). Pike Co.- Delaware Water Gap, 22/VI (AMNH). Westmoreland Co.- Jeannette, V (CMP); St. Vincent (CMP). Texas: Brewster Co.- Chisos Mts., 18/VII- (OHU). Crosby Co.- 14 Mi. S. Crosbyton, 18/V/80 (EGRC), White River Lk., 2-3/X/82 (EGRC). Jeff Davis Co.- Ft. Davis, 20/VI/47 (SEMK). Jim Wells Co.- 21/VII/28 (SEMK). Wheeler Co.- Shamrock, 9/VIII/70 (SEMK). Total 20.

Adults collected from: *Erigion* sp. (Compositae) (Riley & Enns, 1979).

#### **Brachycoryna montana** (Horn)

**Microthopala montana** Horn, 1883:294. (Lectotype, here designated, : Mont[ana], J. DeConte Coll[ection]: MCZC type 8215. Paralectotype: Mon[tana], MCZC type 3876). Donckier 1899:575; McCauley 1938:146.

**Brachycoryna montana** (Horn) Weise 1905:319, 1911a:30, 1911b:44; Leng 1920:303; Papp 1953:91; Uhmann 1957:119; Hatch 1971:236; Wilcox 1975:144.

Description- HEAD: black; occiput punctate; sulcus deep, pronounced; antennal pit trapezoidal; antennae black; segments 1 to 6 punctate; 7 punctate with fringe of setae at apex. PRONOTUM: apical margin minutely punctate; large, coarse punctures over rest of surface; area between large punctures minutely punctate; parallel at sides; black, dull; length 0.6 to 0.8 mm (avg. 0.71, n=43); width 0.75 to 1.1 mm (avg. 0.89). SCUTELLUM: punctate. ELYTRA: sutural margin raised; 2nd interval raised, more pronounced in middle; 4th raised, more pronounced on apical third; 6th costate except in middle; 8th raised; sutural row with 3 punctures; punctures in double rows, punctures large, discrete; raised area between punctures, elytral intervals, and sutural margin minutely punctate; black, dull; length 1.8 to 2.6 mm (avg. 2.27); width 1.1 to 1.6 mm (avg. 1.30). LEGS: dark brown; femur and tibiae punctate; tibiae with fringe of setae at apex and row of setae on inner margin; 3rd tarsal segment 1/2 length of 4th. VENTER: black. TOTAL LENGTH: 2.5 to 3.4 mm (avg. 3.00).

Discussion: This species is uniform in appearance. The size of the specimens increases as you go farther north. The most similar species is *B. dolorosa*, which can be distinguished from *B. montana* by

having the even elytral intervals strongly costate and the shiny body.

**Distribution:** Alberta, Manitoba, Idaho, Montana, Nevada, Arizona, and Colorado.

**Specimens examined:** CANADA: Alberta: Cypress Hill (UAT); Medicine Hat, 11/V/24, 9/VI/28, 24/VI/31, 3/VI (AMNH), 6/VI/26 (MCZC); 20/V/23 (UAT); 1/VI/24, 6/VII/30, 10/VI/62, 4/VII/25 (CNC), 3/VI/27 (ORUC), 24/V/23, 30/V/31, 5/V/34, 6/VI/32, 3/VI/27, 21/VI/31 (CASC), 8/VI/20, 29/VII/27 (SEMK); Tilley, 5/IV/34 (CASC). Manitoba: Aweme, V/12 (USNM), 21/IX/15, 6/VI/12 (CNC). USA: Arizona: Gila Co.-Globe, IX (MCZC). Colorado: Cannon Walde, 30/VI/16 (USNM). Archuleta Co.-Pagosa Spgs., 22/VII/ (USNM). Boulder Co.-Boulder, 21/VII/03 (CASC). Dakota: (OHU). Idaho: Twin Falls Co.-Hagerman, Blue Gulch, 4/IX/32 (USNM). Montana: (USNM, MCZC). North Dakota: Eddy Co.-Hamar, 27/VII/37 (SEMK); Logan Co.-16/VI/67 (NDSU). McHenry Co.-10/VI/63 (NDSU). McKenzie Co.-Theo. Roos. Mem. Pk., 24/VI/64 (NDSU). Williams Co.-Epping Dam, 6/VIII/67 (NDSU). South Dakota: Pennington Co.-Black Hills, Ditch Creek, 4 mi S of Deerfield, 19/VI/66 (NDSU). Total 51.

Adults collected from: *Artemisia* sp. and *A. tridentata* Nuttall (Compositae).

#### ***Brachycoryna notaticeps* Pic**

***Brachycoryna notaticeps* Pic 1928:4.** (Type not seen; type locality Argentina). Uhmann 1937:336; Blackwelder 1946:729; Monros & Viana 1947:261; Uhmann 1950:269; Papp 1953:91; Uhmann 1957:119.

**Description:** HEAD: black; occiput yellow, alutaceous; median sulcus brown; antennal pit quadrate, keel shallow; antennae brown, 7-segmented; segments 1-5 punctate, glabrous; 6 with ring of setae; 7 hirsute club. PRONOTUM: apical margin black, rest yellow; lateral margins parallel; intervals minutely punctate; usually covered with coarse, dense punctures, callous sometimes impunctate; occasionally scattered brown maculae may be present; length 0.71 to 0.86 mm. (avg. 0.74, n=21); width 0.93 to 1.14 mm. (avg. 1.02). SCUTELLUM: brown, alutaceous. ELYTRA: sutural row of 3 punctures; lateral margins serrate, more pronounced at apex; suture costate; intervals 2, 4, and 8 costate from base to apical fifth; interval 6 costate at base and again on apical third; intervals minutely punctate; may have scattered, irregular brown maculae; length 2.14 to 2.71 mm. (avg. 2.35); width 1.28 to 1.57 mm. (avg. 1.47). LEGS: trochanter reddish; femur and tibiae yellow;

tarsi yellow or reddish; third tarsal segment 1/3 length of 4th. VENTER: black; last abdominal sternum with posterior margin yellow. TOTAL LENGTH: 2.58 to 3.43 mm. (avg. 3.09).

**Discussion:** This species is unusual in that the antennae is 7-segmented. This character, the short third tarsal segment, and the yellow occiput make *B. notaticeps* an easy species to distinguish. In some specimens the costae are difficult to see except when viewed from the apex of the elytra.

**Distribution:** Argentina, Bolivia, and Paraguay.

**Specimens examined:** ARGENTINA: Catamarca, I/36 (USNM). Salta- Amblayo, 2500 m, 1945 (USNM); Cafayate, II/51 (USNM). Tucuman- Reserva Forestal, III/55 (USNM). BOLIVIA: Chuquisaca- Machareti, 22/IV (USNM). PARAGUAY: Central near Nemby, 11/I/83 (EGRC). Total 21.

Host plant: Monros and Viana (1947) record from *Sphaeralcea* sp. (Malvaceae).

#### ***Brachycoryna pumila* Guerin**

***Brachycoryna pumila* Guerin, 1844:280.** (Type locality: Cartagena, Columbia: type not seen, depository unknown). Baly 1885:90; Champion 1894:241; Linell 1897:485; Donckier 1899:572; Weise 1907:207, 1911a:30, 1911b:44; Leng 1920:303; Papp 1953:91; Uhmann 1930a:250, 1930b:163; Blackwelder 1946:729; Monros & Viana 1947:261; Uhmann 1950:269; Berry & Vaquero 1957:19; Uhmann 1957:119; Gibson & Carrillo 1959:128; Wilcox 1975:145.

**Description:** HEAD: black; occiput punctate; median sulcus shallow; antennal pit shallow, trapezoidal; antennal segments 1 to 7 punctate. PRONOTUM: sides parallel; uniformly punctured with large, coarse, discrete punctures; median callous present, may be brownish-yellow; apical margin with 2 horizontal rows of punctures, usually with a black stripe; yellow to reddish-yellow with variable brown markings; lateral margins may have a black stripe; length 0.6 to 0.9 mm (avg. 0.71, n=103); width 0.9 to 1.3 mm (avg. 1.14). SCUTELLUM: alutaceous. ELYTRA: sutural margin raised; sutural row with 3 punctures; punctures large, coarse; 2nd interval raised, costate on apical third; 4th and 8th costate; 6th costate at humeri; elytral margin serrate; apical edges evenly rounded; yellow usually with variable brown markings; length 1.9 to 2.8 mm (avg. 2.31); width 1.2 to 1.75 (avg. 1.53). LEGS: yellowish-red with variable brown markings; femur and tibiae with some punctures; tarsi reddish-brown; 3rd segment



1/2 length of 4th; coxae alutaceous. VENTER: black; abdominal sterna alutaceous; 4th segment with 2 1/2 rows of setae; 5th with 2 1/2 rows of setae and a fringe of setae at apex. TOTAL LENGTH: 2.5 to 3.5 mm (avg. 3.08).

Discussion: this species is very uniform in appearance. Specimens of *B. pumila* are broader than other species in the genus. The only similar species is *B. longula*, which is distinguished by having the elytral margin not obviously serrate and being generally smaller in size.

Distribution: Alabama, Texas, Arizona, south to Columbia, also Jamaica. There is a specimen questionably labelled from Vermont.

Specimens examined: BELIZE: M-tee Dist., 15/VI/06, 1-10/VIII/06 (MCZC), 12/VI/06 (MCZC, USNM). BRITISH WEST INDIES: Jamaica- St. Ana Mt., Diablo Forest Preserve, 13/VII/78 (USNM); St. Elizabeth- Bradd R. at Cheese Rock, 21/X/82 (USNM). COLOMBIA: Bonda (CMNH); Cordoba, Monteria, 10-11/X/71 (AMNH). COSTA RICA: XII/29 (USNM); B. San Jose La Caja (USNM), X/30, III/29, 2/XI/28, IV/28 (USNM); Cartago, Orosi, VII/81 (AMNH); Ciruelas, IV/28 (USNM); Guan, La Pacifica nr. Canas, 22-26/V/84 (EGRC); Waldeck, 28/VII/35 (USNM). GUATEMALA: Esquintla Prov., 14/V/65 (USNM); Haehuetenango, 36 mi NW, 2500 ft., 6/VI/74 (EGRC); Peten, Santa Elena, 120-160 m., VII/76 (AMNH); S. Geronimo (AMNH, USNM). HONDURAS: Cortes- Confradia, 500 ft., 24/VII/74 (EGRC). Olancho- Catacamas, 5 mi. SE, 13/VI/74, 11 mi. NE, 15/VI/74 (EGRC); Tegucigalpa, 10/VIII/18 (AMNH); Valle- 1 mi. W Jicaro Junct., Rio Nacaome, 20/VII/72 (TAMU). MEXICO: Baja California- El Taste (USNM). Chiapas- Cintalapa, 28 mi. W, 25/VI/65, 45 km. SW, 14/VIII/67 (TAMU); Comitán, 31.5 mi. SE, 2300 ft., 13/VIII/67 (TAMU); La Trinitaria, 15 mi. S, 2 mi. E, 27/VII/54 (SEMC), 31 km E, 4800 ft., 14/VIII/67 (TAMU); Ocozacoautla, 13 mi. NW, 24/VI/65 (TAMU); Solusuchiapa, 1 mi. N, 15/VI/65 (TAMU); Tempisque, 3 mi. E, 6/VII/63 (USNM); Terán, 4 mi. N, 19/X/76 (TAMU). Colima- Comala, 10 mi. NE, 17-19/VII/83 (TAMU); Manzanillo, 24 mi. NW, 21/VII/66 (TAMU), 24 mi. W, Hwy 54, 0 ft., 9/VIII/82 (EGRC); Pihuamo, 10 mi S at Rio Tuzpan, 2000 ft., 13/VII/73 (TAMU). Guerrero- Acapulco, 18/VIII/38, 20/VIII/38 (SEMC), 29/VII (USNM); Barra Vieja, 5/IX/84, 10/X/84 (USNM); Caculutla, 9 mi. SE, 14/VII/66 (TAMU); Chilpancingo, 20 mi. S, 3700 ft., 6/VIII/51 (SEMC), Sn. Juan Grande, 23/X/84 (USNM); Sn. Luis-Sn. Pedro, 2/X/84 (USNM); San Marcos, 17 mi.

NW, 1/VII/66 (TAMU); Tierra Colonado, 12 mi. N, 2600 ft., 5/VIII/54 (SEMC); Tecpan de Galeana, 8 mi. SE, 14/VII/66, 20 mi. SE, 14/VII/66 (TAMU). Jalisco- Estacion de Biologia Chamela, 26/IX/85 (UNAM); B. de Navidad Pto. Vallarta, 29/IX/85 (UNAM); Poncitlan, 12 mi. W, 24/VII/66 (TAMU); Autlan, 23 mi. SW, 22/VII/66 (TAMU), 9 mi SW, 11/VIII/82 (EGRC); Ajijic, arroyo N, 12/VIII/64 (UAT); Guadalajara (CMNH); La Barca, 6 mi. W, 2/VII/66 (TAMU); Pan de Barrancas, 12 mi. W, 25/VII/66 (TAMU); Tamuzula, 11 mi. NE, 18/VII/66 (TAMU). Michoacan- Cojumatlan, 2 mi. SE, 23/VII/66 (TAMU); Sahuayo, 7 mi. NE, 5100 ft., 12/VIII/82 (EGRC). Morelos- Caernavaca, 6/VIII/38 (SEMC), 23/IX/84 (USNM), 14 km E., 12/IX/69 (TAMU), 10 mi. E, 30/VII/76 (TAMU); Cautla, 28/VII/38 (SEMC); Pt. de Ixtla (MCZC). Oaxaca- El Cameron, 2.1 mi. NW, 21-22/VII/74 (TAMU), 8 mi. NW, 2800 ft., 2/VI/74 (EGRC); Ixtepéc, 1959 (USNM); Juchitan, 6 mi. N Jct Hwys 190 & 185, 10/VII/54 (SEMC), 2 mi. E, 100 ft., 3/VI/74 (EGRC); Matias Romero, 14 mi. S, 6/VII/71 (TAMU); Niltepec, 14 mi. W, 7/VII/71 (TAMU); Oaxaca City, 15-21/VII/37 (UAT); Santa Cruz, 17/VII/47, 29/II/48 (AMNH); Tapanatepec, 1.5 mi. E, 7/VII/71 (TAMU); Tehuantepec, 4 mi. W, 9/IX/68, 2.5 mi. NE, 9/IX/68, 10.5 mi. W, 22/VII/74 (TAMU), 6 mi. S, 200 ft., 8/VII/53 (SEMC), 13/XII/47-23/I/48, 11/VI/64 (AMNH); Totolapan, 2.1 mi. NW, 21/VII/74 (TAMU); Tuxtepec (USNM); Vale Rio Trujano, 27/VII/37 (UAT). Nayarit- Campostela Rio Lo de Marcos, 42.7 mi. SW, 100 ft., 1/I/72 (TAMU); San Blas, 25/VII/54 (AMNH); Tepic, 2-7/VIII/47, 2-24/IX/47, 35 mi. S, 27/VII/57 (AMNH). Nuevo Leon- Linares, 16 mi. W, Hwy 58, 2400 ft., 11/IX/82, 20 mi. W, 3250 ft., 21/VII/82, 15 mi. W, 1800 ft. (EGRC); Montemorsius, 16 mi. S, 19/VII/54 (SEMC); Monterrey, 9 mi. S, 11/VIII/72 (TAMU); Villa Santiago, 3 mi. W, 12/VIII/72 (TAMU). Puebla- Acatlan, 1.1 mi. W, 13/VII/74 (TAMU); Atlixco, 6150 ft., 29/VI/61 (SEMC); Tlacotepec, 4 mi. SE, Hwy 150, 6000 ft., 31/VIII/82 (EGRC). Sinaloa- Concordia, 4 mi. NE, 28/VII/66 (TAMU); Rosario, 20 mi. SE, 20/VIII/64 (TAMU). San Luis Potosi- Ciudad del Maiz, 10 mi. E, 23/VIII/64 (TAMU); El Naranjo, 13.4 mi. W, 12/VII/73, 13 mi. W, 3200 ft., 30/VI/65 (TAMU); El Salto, 7/VIII/67 (TAMU); El Salto de Agua, 28-30/VII/60 (CNC); Huichihuayan, 25/IX/38 (SEMC); Rio Verde, 10 mi. S, 28/VII/70 (TAMU); Tamazunchale, 29/VIII/36, 12/VI/37 (UAT), 8 mi. N, Hwy 85, 700 ft., 24/VII/82 (EGRC), 1 mi. SW, 7/VII/66 (TAMU); Xilitla, 3.4 mi. W, 23/

VIII/74, 7 mi. W, 22/VIII/74 (TAMU). Tabasco- Cardenas, 12 mi. E, 75 ft., 20/VIII/67 (TAMU). Sonoro- Alamos, 5 mi. W, blacklight, 14/VIII/59 (UAT); Navajoa, 10 mi. E, 26/XI/60 (UAT). Tamaulipas- Bocatoma, 7 km SSE Gomez Farias, 13/VII/82 (TAMU), 30-31/XII/80 (EGRC); Brownsville, 3/III/48, 9/V/39 (USNM); Ciudad Victoria, 20/VIII/47 (AMNH), 70 km N, 6/VIII/67 (TAMU); Gomez Farias, 2 mi. SE, 20/VII/70 (TAMU), 1-3 mi. W, along rd. to Rancho de Cielo, 25-30/III/78, 21/V/79 (EGRC); Forlon, 30/IX/38 (SEMC); Hidalgo, Aqua Frig., 24/IX/38 (SEMC); Llera, 5 mi. N, 4/VI/65 (TAMU); Santa Teresa, 15/V/52 (AMNH); Villahermosa, 21 mi. N, 19/VIII/67 (TAMU). Vera Cruz- Cerro Blanco, 4/VI/61 (NDSU); Cordoba (MCZC), 21/V/46 (AMNH); Jalapa, 21/V/46 (AMNH); Jesus Carranza, 6 mi. N, 200 ft., 25/VI/61 (SEMC); Jicaltepec, Sn. Rafael, 19/VI/1896 (MCZC); Mata Espino, 7 mi. NE, 1/VII/71 (TAMU); Millan, 2/I/08 (USNM); Palma Sola, VIII/72, 25/VIII/73 (NDSU); Papantla, 6/IX/68, 1 mi. W, 28/VI/71 (TAMU); Tampico, 25/II/72 (USNM), 9 mi. N, 6/VI/65, 18.6 mi. S, 13/VIII/72 (TAMU); Vera Cruz, 29/VI/71 (TAMU). Yucatan- Chichen Itza, 11/VII/52 (AMNH); Motul, 11/VII/52 (AMNH); Tixkokob, 5/VII/52 (AMNH); Valladolid, 14/IX/52 (AMNH). NICARAGUA: San Marcos (MCZC); Granada (USNM). Carazo- Diriamba, 1900 ft., 14/VII/74 (EGRC). Managua- 10 mi. NE Managua, 200 ft., 14/VII/74 (EGRC). Matagalpa- 3 mi. W Sebaco, 1500 ft., 16/VII/74 (EGRC). USA: Alabama: Jackson Co.- Langston, 1/VI/48 (USNM). Arizona: Gila Co.- Sierra Ancha Mts., VI (UAT). Pima Co.- Organ Pipe Cactus Nat. Mon., 14/VIII/66 (UAT); Tucson, 2400 ft., 29/VIII/25 (UAT), 16/VIII/40 (OHU). Santa Cruz Co.- Baboquivari Mt. (MCZC); Patagonia, Nogales, 21/VI/48 (USNM); Rock Corral Cn., 3600 ft., 14/VII/77 (UAT); Washington Camp, 24/VIII/47 (USNM). Louisiana: Cameron Par.- Creole, 15 mi E., 18/VI/48 (SEMK). E. Baton Rouge Par.- Baton Rouge, 20/VII/82, 29/IX/82, VIII/81, 23/VI/83, 12/V/83 (EGRC), 8/V/45 (USNM). W. Feliciana Par.- 2 mi W Jackson, Vaughans Bayou, 31/VIII/83 (EGRC). Texas: Atascosa Co.- Pleasanton, 12/VIII/60 (TAMU). Bexar Co.- San Antonio, 8/IV/07 (USNM), 19/V/58 (MCZC), 4/V/58 (TAMU), 25/VI/38 (SEMC). Brazos Co.- College Station, 1/VII/51 (TAMU). Cameron Co.- IX (USNM), 4/IV/50 (OHU); Brownsville, numerous collections ranging from 3/III to 8/X (USNM, UAT, OHU, MCZC, CASC, SEMC, UCLA, AMNH); Los Fresnos, 15/VIII/64, 25/VIII/64, 15/X/65, 20/VI/66 (TAMU); Santa Maria, 3 mi E, 8/V/47

(USNM). Gonzales Co.- Palmetto St. Pk., 30/V/77 (EGRC), 7/VI/69 (TAMU). Guadalupe Co.- Seguin, 26/VI/38 (SEMC). Harris Co.- Houston, 2/VII/48 (USNM). Hidalgo Co.- 7/IV/50, 26/III/57 (OHU); Delta Lake Pk., N of Elsa, 22/III/80 (EGRC); Bentsen- Rio Grande St. Park, 18/VI/69 (TAMU); S. Ana Natl. Refuge, 1/V/76 (TAMU); McAllen, 26/VII/28 (SEMC); Progresso, 1/VII/38 (SEMC). Jackson Co.- Edna, 7/V/07 (USNM). Karnes Co.- 23/VII/28 (SEMC). Orange Co.- 14/VIII/28 (SEMC). Sam Patricio Co.- Sinton, 27/V/71 (TAMU). Uvalde Co.- Uvalde, 19/V/37 (UAT). Victoria Co.- Victoria, 25/III/-(USNM), 3/VI/64 (TAMU); 9 mi NE Victoria, 17/V/79 (EGRC). Utah: Wasatch Co.- Aspen Grove Camp, Mt. Timpanogos, 6800 ft., 6/V/47 (USNM). ? Vermont: Bennington Co. (UAT). Total 530.

Larval host plants: *Sida rhombifolia* L., *S. spinosa* L., *Malvastrum coromandelinum* (L.), *M. americanum* (L.) (Malvaceae). Adults collected from: *Abutilon lignosum* (Cavanilles), *A. peduncularae* Humboldt, Bonpland, & Kunth, *Alcea rosea* L. flower, *Gossypium hirsutum* L., *Abelmoschus esculentus* (L.). (Malvaceae); *Baccharis thesioides* Humboldt (Compositae); *Phaseolus vulgaris* L. foliage (Fabaceae); *Monarda citridora* Cervantes (Lamiaceae).

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**SUPPLEMENT I TO R. C. ZIMMERMAN, "INSECTS OF HAWAII"  
VOL. 7 (1958) MACROLEPIDOPTERA**

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This supplement concerns species of the family Spingidae (pages 425-444) introduced to Hawaii since 1958 and now firmly established. The introductions are connected with the rapid growth of airtraffic between Hawaii and SE Asia since the mid-1970s. Of special interest is the fast interisland colonization as reported in the HAWAII COOPERATIVE ECONOMIC INSECT REPORT (HCEIR), published by the State Department of Agriculture, Honolulu, HI until 1980, subsequently called HAWAII PEST REPORT.

The following species are presented according to the date of their first collection here.

1. *Theretra nessus* (Drury), 14 August 1974 at Campbell Industrial Park, Oahu, nr. Hickam Air Force Base (HAFB), specimen in B. P. Bishop Museum. It spread quickly: 7 November 1974 Kauai (Kokee, approximately 1,100 m elevation); 8 March 1975 Maui; June 1975 Hawaii Island (Hilo); September 1975 Lanai; October 1975 Molokai. Members of the genus *Theretra* are well known as strong and rapid flyers. Larval food plant records are rare, so far all are of *Dioscorea* sp. in the Hawaiian Islands.

2. *Daphnis nerii* (Linnaeus), 18 September 1974 at HAFB, specimen in the US National Museum of Natural History, Washington, DC. On 4 October 1974 HCEIR reported 50 larvae of many instars and many eggs collected at HAFB, Pearl Harbor, and on the roadside oleander (*Nerium oleander*) along Nimitz Highway from the International Airport to Honolulu. The species spread rapidly through-

out Oahu, in November reported already from Mililani through to Manoa, and the 1975 HCEIR annual summary reported the moth had become established on all major islands: Kauai February 1975; Maui August 1975; Lanai September 1975; Hawaii Island and Molokai October 1975; and from the collection of Bishop Museum is added one specimen with very worn and "used" forewings from Midway I. in May 1975!

An interesting contribution to the knowledge of insect distribution by airplane connected with the species under discussion is the following: Inoue (1967, 1974) reported *D. nerii* from Okinawa and Amami-oshima in the Ryuku Islands. He says "that the origin (or origines) of those strugglers [sic] are untraceable for us." The first specimens Inoue reported are from December 1960; then they were abundant in 1966/67 but seemed to have disappeared thereafter, only to reappear in numbers in November/December 1973. This question how *D. nerii*, basically an African species, came to Okinawa can also be solved in all probability in a similar way as its likely coming from Okinawa to Hawaii (there were to my knowledge no specimens of the species intercepted earlier than the first collection in the field at HAFB). In the years before and after Inoue's reports it was necessary to have uninterrupted oil (petrol) supplies to SE Asia for military use. The previously known range for *D. nerii* was throughout Africa, many parts of Europe, Asia Minor through India and Malaysia. From there the route to Okinawa also for the moth seems very possible.