

New Species of North American *Cymatodera* (Coleoptera: Cleridæ)¹

William F. Barr

Department of Entomology
University of Idaho
Moscow, Idaho

The genus *Cymatodera* represents one of the larger groups of North American Cleridae and is one that has not yet been satisfactorily classified. This has been due, in part, to the rarity of many species and the lack of adequate study material, and also, because comparison with many type specimens has not been possible. In spite of these shortcomings however, some progress has been made over the years, especially with regard to recognition and differentiation of the species, which constitutes a necessary phase of study that will ultimately lead to a classification of the genus. As a continuation of this phase of study and also to provide names for some faunistic and biological studies being conducted by other individuals, I am describing in the present paper, 14 new species of *Cymatodera*. Eleven of these species occur exclusively in the United States and three have distributional ranges that extend into Mexico as well.

I am indebted to the individuals, museums and institutions as listed as recipients of paratypes for providing me with specimens used in this study.

Cymatodera hurdi Barr, new species (Figure 1)

Male: Small sized, robust, piceous with a pale elytral fascia; antennae, legs and thoracic sternites dark brown; mouthparts testaceous; head and pronotum piceous; elytra black with a broad, straw-colored fascia at about basal third which is broadest at suture and narrowed and interrupted before lateral margins; abdomen blackish, becoming paler apically. Head finely, sparsely punctured, feebly wrinkled, densely but inconspicuously clothed with short, subrecumbent and suberect, fine pale hairs; front convex;

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eyes rather large, distance between them across front slightly less than one and one-half times the length of last antennal segment; antenna robust, extending to basal third of elytra, segments cylindrical, not distinctly serrate, ratio of lengths of segments one to eleven, 8:4:5:4:6:6:6:6:7:12, last segment elongate, blunt at apex; maxillary palpus with last segment robust, sides broadest in front of middle, feebly narrowing toward apex, apical margin broadly rounded. *P r o t h o r a x* finely, sparsely punctured, feebly rugose, densely but inconspicuously clothed with short, semirecumbent, fine pale hairs, sparsely intermixed with long, erect stiff hairs along sides; pronotum broader along front margin than hind margin (24:21), broadest at middle, about one and one-half times longer than median width (37:25); sides weakly constricted in front of middle, very strongly constricted behind middle; disk convex, abruptly descending to hind margin; antescutellar impression feebly indicated, subbasal tumescences absent. *S c u t e l l u m* rounded; disk flattened, distinctly punctured; hind margin feebly notched at middle. *E l y t r a* densely but inconspicuously clothed with short, suberect, fine pale hairs, sparsely intermixed with long, erect stiff hairs; length along suture about two and one-fourth times the width behind humeri (87:40); postscutellar impression distinct; humeri distinct; sides subparallel; apices rather narrowly rounded at sutural angles; disk feebly convex, striae extending to slightly beyond middle, strial punctures subquadrate, deep and coarse, becoming smaller apically, interstrial spaces at middle, smooth, much narrower than width of strial punctures, finely roughened on apical half. *M e s o s t e r n u m* deeply, moderately punctured at middle. *M e t a s t e r n u m* convex with a strongly indicated, longitudinal impression in front of hind margin at middle and a small, circular median depression near front margin; surface finely, sparsely punctured; midline faintly indicated anteriorly; carinae or tubercles absent. *L e g s* finely punctured, distinctly rugose, densely but inconspicuously clothed with short, semirecumbent pale hairs, sparsely intermixed with longer erect hairs. *A b d o m e n* very finely and densely punctured; sternites three and four with hind margins narrowly membranous; fifth sternite with hind margin shallowly emarginate; sixth sternite short, lateral margins obliquely arcuate, hind margin shallowly emarginate; fifth tergite with hind margin truncate, feebly notched at sides; sixth tergite convex, longer and broader (except at extreme base) than sixth sternite, lateral margins oblique, feebly arcuate, hind margin nearly semicircularly rounded, ventral surface with an indistinct, arcuate, transverse subapical carina. Length: 3.7 mm.

F e m a l e : Distance between eyes slightly more than one and one-half

times the length of last antennal segment. Ratio of lengths of antennal segments one to eleven, 9:4:6:5:7:7:7:7:7:13. A b d o m e n with hind margin of fifth sternite truncate; sixth sternite with lateral and hind margins broadly rounded; fifth tergite with hind margin truncate; sixth tergite convex, lateral and hind margins nearly semicircularly rounded, ventral surface without a subapical carina. Length: 4.7 mm.

Type Material: Holotype male and allotype female (California Academy of Sciences) and two male and three female paratypes from Sabino Canyon, west slope of Santa Catalina Mountains, Pima County, Arizona, July 26, 1948 (F. Werner and W. Nutting collectors).

Additional paratypes designated als follows: Three males and eight females from Tucson, Arizona, August (O. Bryant collector), August 1 and 5, 1932 (F. H. Parker collector) and August 13 (J. N. Knull collector); two males from Robles Ranch, Pima County, Arizona, August 12, 1947; one female from St. Xavier Mission, Tucson, Arizona, July 29, 1924 (E. P. Van Duzee collector); and one male from Madera Canyon, Sante Cruz County, Arizona, 4880 ft., August 12, 1963 (V. L. Vesterby collector). Paratypes in the collections of the California Academy of Sciences, the Field Museum of Natural History, the University of Arizona, the University of California at Davis, J. N. Knull and W. F. Barr.

Distribution: Southcentral Arizona

Discussion: This species is closely related to *C. sobara* Barr which is widely distributed in the southwestern United States and adjacent Mexico. *C. hurdi* can be recognized by the feebly rugose pronotum, by the black elytra with a pale yellow fascia which is broader and not interrupted at the suture and by the coarse strial punctures of the elytra which are much broader than the width of the interstitial spaces.

In acknowledgment of the many favors and assistance given me over the years this species is dedicated to the well-known hymenopterist, Dr. Paul D. Hurd, Jr., formerly of the University of California and now a member of the staff of the Smithsonian Institution, Washington, D. C.

***Cymatodera chisosensis* Barr, new species (Figure 2)**

M a l e : Medium sized, slender, darb brown with a pale elytral fascia; clypeal region of head, mouthparts, pronotum (except for medio-lateral areas), legs and ventral surface testaceous; elytral fascia located in front of middle, very broad, testaceous, constricted and very narrowly interrupted at suture and broadly interrupted at sides except for a narrow, oblique pro-

longation from hind angle which attains the lateral margin, front and hind margins of fascia irregularly arcuate. H e a d very finely, sparsely punctured, densely but inconspicuously clothed with short, semirecumbent, fine pale hairs, moderately intermixed with slightly longer, suberect stiff hairs; front very feeble bi-impressed; eyes moderate in size, distance between them across front about one and one-half times the length of last antennal segment; antenna robust, extending to near basal third of elytra, subcylindrical, segments feebly serrate from fifth segment, ratio of lengths of segments one to eleven, 9:5:5:5:8:8:8:8:8:8:14, last segment pointed at apex; maxillary palpus with last segment robust, sides broadest in front of middle, weakly tapering toward apex, apical margin rounded. P r o t h o r a x very finely and sparsely punctured, nearly smooth, densely but inconspicuously clothed with short, semirecumbent, fine pale hairs, moderately intermixed with short and long, erect and suberect stiff hairs; pronotum broader along front margin than hind margin (35:31), nearly one and two-thirds times longer than median width (50:33); sides weakly constricted in front of middle, strongly constricted behind middle; disk convex with a very faintly indicated transverse impression in front of middle, gradually descending toward hind margin; antescutellar impression moderately distinct, subbasal tumescences absent. S c u t e l l u m subquadrate; disk flattened, heavily punctured; lateral margins very feebly arcuate; hind margin broadly notched at middle. E l y t r a densely but inconspicuously clothed with very short, suberect and subrecumbent, fine pale hairs, moderately intermixed with short, erect and suberect hairs; length along suture about two and one-half times the width behind humeri (144:58); postscutellar impression feebly indicated; humeri distinct; sides parallel; apices rather narrowly rounded at sutural angles; disk convex, striae extending to apical fourth, strial punctures circular, deep, rather small, becoming smaller apically, interstrial spaces smooth, at middle near suture subequal in width to diameter of strial punctures, near sides narrower than diameter of strial punctures. M e s o s t e r n u m very finely, sparsely punctured at middle. M e t a s t e r n u m convex with a longitudinal impression in front of hind margin at middle and a small, but distinct, elongate median depression near front margin; surface rather finely, very sparsely punctured; midline entire; carinae or tubercles absent. L e g s finely, densely punctured and rugose, densely but inconspicuously clothed with short, subrecumbent and suberect pale hairs. A b d o m e n very finely, densely punctured; sternites one to four with truncate hind margin rather broadly membranous; fifth sternite with hind margin very broadly, more or less arcuately emarginate; sixth sternite broader than long, lateral margins strongly oblique, arcuate, hind margin subtruncate; fifth tergite with hind

margin subtruncate; sixth tergite narrower and slightly longer than sixth sternite, lateral margins oblique, straight, hind angles more or less broadly rounded, hind margin subtruncate. Length: 5.7 mm.

F e m a l e : Distance between eyes about one and two-thirds times the length of last antennal segment. Ratio of lengths of antennal segments one to eleven, 10:5:5:5:9:9:9:9:9:9:14. Abdomen with hind margin of fifth sternite truncate; sixth sternite with hind margin broadly rounded; fifth tergite with hind margin truncate; sixth tergite with lateral and hind margins nearly semicircularly rounded. Length: 6.3 mm.

Type Material: Holotype male (California Academy of Sciences) from Chisos Mountains, Big Bend, Texas, July 4, 1946 (E. C. Van Dyke collector) and allotype female (The American Museum of Natural History) from Chisos Mountains Basin, Big Bend National Park, Brewster County (Texas), June 15, 1948 (M. Cazier collector). Paratypes designated as follows: Three males and two females from The Basin, 5000 ft., Big Bend National Park, Brewster County, Texas, July 8–11, 1948 (G. E. Ball collector), June 24, 1963 (G. H. Nelson and family collectors) and August 13, 1962 (H. V. Weems, Jr., collector); four males and five females from Basin area, Big Bend National Park, Texas, April 29, 1957 and May 11, 25, 28 and 29, 1959 (Howden and Becker collectors); one male from Pulliam Canyon, Big Bend National Park, Texas, May 17, 1959 (Howden and Becker collectors); two males and one female from Oak Spring, Big Bend National Park, Texas, May 2 and 8, 1959 (Howden and Becker collectors); one male from Juniper Canyon, Chisos Mountains, Texas, July 13, 1928 (F. M. Gauge collector); one male and one female from Pine Canyon, Big Bend National Park, Texas, 5100 ft., June 5, 1970 (C. W. O'Brien collector); four females from Park Headquarters, Big Bend National Park, Texas, April 29 and 30 and May 5, 1959 (Howden and Becker collectors) and June 9–10, 1948 (H. S. Barber collector); two males and two females from Chisos Mountains, Texas, July 9–12, 1948 (F. Werner and W. Nutting collectors) and July 13 (J. W. Green collector); one male from Fort Davis, Texas, May 31, 1959 (Howden and Becker collectors); and one female from Nombre de Dios, Durango, Mexico, August 5, 1951 (H. E. Evans collector). Paratypes in the collections of the California Academy of Sciences, Canada National Collection, U. S. National Museum, University of Michigan, Texas Tech. University, Florida Dept. of Agriculture, G. H. Nelson and W. F. Barr.

Distribution: Southwestern Texas in the Chisos and Davis Mountains and probably in north central Mexico to southern Durango.

Discussion: *C. chisosensis* is related to *C. decipiens* Fall which occurs in

areas of California, Oregon, Nevada and Idaho. It can be distinguished from that species by its short heavy antennae, by its more slender form, and by the presence of conspicuous, erect and suberect hair on the elytra.

Cymatodera lauta Barr, new species (Figure 3)

Male: Medium sized, moderately robust, light brown; head, pronotum and legs castaneous. **H**e**a**d very finely, sparsely punctured, densely but inconspicuously clothed with short, subrecumbent, fine brownish hairs which are sparsely intermixed with long, suberect stiff hairs; front feebly bi-impresed; eyes moderate in size, distance between them across front about twice the length of last antennal segment; antenna robust, extending nearly to basal fourth of elytra, feebly serrate from fifth segment, segments subcylindrical, ratio of lengths of segments one to eleven, 12:5:8:9:10:9:9:9:9:15, last segment robust, feebly aciculate, narrowly rounded at apex; maxillary palpus with last segment slender, broadest in front of middle, apical margin broadly rounded. **P**r**o**t**h**o**r**a x finely, sparsely punctulate, nearly smooth, densely but inconspicuously clothed with short, subrecumbent, fine pale hairs, which are sparsely intermixed with long, suberect stiff hairs; pronotum broader along front margin than hind margin (47:45), slightly more than one and one-half times longer than median width (72:47); sides very weakly constricted in front of middle, moderately constricted behind middle; disk feebly convex with a broad, indistinct transverse impression in front of middle, moderately descending to hind margin, antescutellar impression faintly indicated, subbasal tumescences absent. **S**c**u**t**e**l**l**u**m** transverse, disk convex, oblique, sparsely punctured; lateral margins arcuate; hind margin notched at middle. **E**l**y**t**r**a densely but inconspicuously clothed with short, subrecumbent, fine pale hairs, moderately intermixed with longer and stiffer erect and suberect hairs; length along suture approximately two and one-third times the width behind humeri (196:85); postscutellar impression wanting; humeri distinct; lateral margins subparallel, slightly expanded at apical fourth; apices rounded but subrectangular at sutural angles; disk flattened, striae extending slightly beyond apical fourth, strial punctures circular, deep, rather small, becoming smaller apically, interstrial spaces smooth, at middle near suture three times the width of strial punctures, subequal to width of strial punctures near sides. **M**e**s**o**s**t**e**r**n**u**m** moderately, rather deeply punctured. **M**e**t**a**s**t**e**r**n**u**m** convex with a longitudinal impression in front of hind margin at middle and a small, circular median depression near front margin; surface nearly smooth; midline entire; carinae or tubercles absent. **L**e**g**s very finely, densely punctured and rugose, densely but inconspicuously clothed with short, subrecumbent and suberect

pale hairs. A b d o m e n moderately punctulate; sternites one to four with a narrow membranous area along the truncate hind margin; fifth sternite broader than long, hind margin broadly, rather deeply emarginate; sixth sternite small, broader than long, lateral margins feebly arcuate, strongly oblique, hind margin shallowly arcuately emarginate; fifth tergite with hind margin shallowly emarginate; sixth tergite broader (except at extreme base) and longer than sixth sternite, lateral margins arcuate, oblique, hind angles more or less narrowly rounded, hind margin rather deeply, arcuately emarginate. Length: 7.3 mm.

F e m a l e : Distance between eyes slightly more than twice the length of last antennal segment. Ratio of lengths of antennal segments one to eleven, 15:6:9:11:11:10:10:10:9:15. Abdomen with fourth sternite slightly swollen transversely at middle, finely scabrous; fifth sternite with hind margin very weakly arcuate; sixth sternite with hind margin nearly semicircularly rounded; sixth tergite with hind margin broadly rounded. Length: 7.9 mm.

Type Material: Holotype male and allotype female (California Academy of Sciences) and two male and four female paratypes from Madera Canyon, Santa Cruz County, Arizona, 4880', (V. L. Vesterby collector). Holotype collected July 18, 1963, allotype July 31, 1963 and paratypes July 11, 18, 23 and 26 and August 12 and 15, 1963. Additional paratypes from Madera Canyon as follows: one female July 10, 1958 (R. L. Westcott collector); one male July 26, 1956 (F. X. Williams collector); one female July 29, 1963 (G. H. Nelson collector); one female July 30, 1947 (H. Wilson collector); one female, 5380 ft., July 31, 1948 (F. Werner and W. Nutting collectors); one female, 6200 ft., August 1-2, 1952 (H. B. Leech and J. W. Green collectors); and one female, 5000 ft., September 2, 1964 (W. Turner collector). Paratypes from other localities as follows: one male from Santa Rita Mountains, Arizona, August 11 (J. N. Knull collector); one male and one female from west slope of Patagonia Mountains, Santa Cruz County, Arizona, 5700 ft., July 28, 1948 and 4400 ft., July 27, 1949 (F. Werner and W. Nutting collectors); one male from Garden Canyon, Huachuca Mountains, Cochise County, Arizona, July 30, 1949 (W. J. and J. W. Gertsch collectors); two females from Calabazas Canyon, Tumacacori Mountains, Santa Cruz County, Arizona, 4000 ft., July 28, 1948 (F. Werner and W. Nutting collectors); one female from Sonoita, Santa Cruz County, Arizona, June 17, 1966, attracted to ultra violet light (W. H. Tyson collector); one female from Bear Valley, Santa Cruz County, Arizona, July 20, 1949 (F. Werner and W. Nutting collectors); one female from Florida Canyon, Santa Rita

Mountains, Pima County, Arizona, July 31, 1948 (G. E. Ball collector); one female from Upper Carr Canyon, Huachuca Mountains, Cochise County, Arizona, August 16, 1966 (R. L. Westcott collector); and one female from Sunnyside Canyon, Huachuca Mountains, Arizona, July 9, 1940 (R. H. Beamer collector). Paratypes in the collections of The American Museum of Natural History, the California Academy of Sciences, University of California at Davis, University of Kansas, J. N. Knull, G. H. Nelson, W. Turner, W. H. Tyson, R. L. Westcott and W. F. Barr.

Distribution: Mountain ranges of southcentral Arizona.

Discussion: This species resembles *C. torosa* Wolcott with which it occurs sympatrically and *C. xanti* Horn and *C. parkeri* Barr with which it occurs allopatrically. Its closest relationship is with the latter species. From *C. torosa*, *C. lauta* can be distinguished by the smooth pronotum, light brown coloration, and the more robust or less elongate antennae. From *C. xanti* it is easily distinguished by the form and structure of the antennae. Separation of *C. lauta* and *C. parkeri* is more difficult and only the males can be identified with certainty by the shape of the hind margin of the last abdominal segment. In general however, *C. lauta* averages slightly larger in size, is slightly darker in color, has the front of the head more flattened and wider in relation to the last antennal segment.

Cymatodera parkeri Barr, new species (Figure 4)

Male: Medium sized, moderately robust, testaceous, head and pronotum darker, abdomen paler. Head very finely, rather densely punctured, densely but inconspicuously clothed with short, subrecumbent, fine pale hairs, intermixed with a few longer, suberect stiff hairs; front convex; eyes moderate in size, distance between them across front about one and one-half times the length of last antennal segment; antenna robust, extending nearly to basal third of elytra, segments subcylindrical, weakly serrate from fourth segment, ratio of lengths of segments one to eleven, 15:6:8:12:12:12:12:11:11:11:19, last segment feebly aciculate, narrowly rounded at apex; maxillary palpus with last segment robust, broadest at about middle, apical margin feebly rounded. Prothorax finely, sparsely punctulate, nearly smooth, densely but inconspicuously clothed with short, recumbent, fine pale hairs and a few longer, suberect stiff hairs; pronotum broader along front margin than hind margin (48:42), broadest at middle, nearly one and one-half times longer than median width (71:49); sides weakly constricted in front of middle, moderately constricted behind middle; disk slightly convex

with a faintly indicated, transverse depression in front of middle, moderately descending to hind margin; antescutellar depression distinct; subbasal tumescences absent. *Scutellum* transverse; disk convex, sparsely punctured; hind margin deeply notched at middle. *Elytra* densely but inconspicuously clothed with short, subrecumbent, fine pale hairs, moderately intermixed with longer and stiffer suberect hairs; length along suture about two and one-fourth times the width behind humeri (193:86); post-scutellar impression wanting; humeri distinct; lateral margins subparallel, gradually expanded at apical third; apices broadly rounded, sutural angles subrectangular, narrowly rounded; disk flattened, striae extending slightly beyond apical fourth, strial punctures circular, deep, moderate in size, becoming smaller and shallower apically, interstrial spaces smooth, at middle near suture approximately twice as wide as the diameter of strial punctures, near sides subequal to width of strial punctures. *Mesosoternum* moderately, rather deeply punctured at middle. *Metasternum* convex with a longitudinal depression in front of hind margin at middle and a small elongate median depression near front margin; surface smooth; midline entire; carinae or tubercles absent. *Legs* very finely, densely punctured and rugose, densely but inconspicuously clothed with short, subrecumbent and suberect pale hairs. *Abdomen* moderately punctulate; sternites one to four with hind margins truncate and narrowly membranous; fifth sternite short, transverse, hind margin broadly and shallowly emarginate; sixth sternite small, broader than long, lateral margins feebly arcuate, strongly oblique, hind margin shallowly emarginate; sixth tergite broader (except at extreme base) and longer than sixth sternite, lateral margins arcuate, hind angles broadly rounded, hind margin subtruncate. Length: 6.8 mm.

Female: Distance between eyes approximately one and three-fourths times the length of last antennal segment. Ratio of lengths of antennal segments one to eleven, 13:5:7:12:10:10:10:10:10:15. Abdomen with fourth sternite slightly swollen transversely at middle, finely scabrous; fifth sternite with hind margin subtruncate; sixth sternite small, hind margin broadly arcuate; fifth tergite with hind margin broadly, shallowly emarginate; sixth tergite weakly sclerotized, translucent, hind margin nearly semicircularly rounded, narrowly reflexed. Length: 6.7 mm.

Type Material: Holotype male and allotype female (California Academy of Sciences) from Pinal Mountains, Arizona, August 5, 1935 (Parker collector). One male paratype from Midgley Bridge, Oak Creek Canyon, Coconino County, Arizona, August 25, 1952 (H. B. Leech and J. W. Green collectors) and one female paratype from Globe, Arizona, September 1,

1933 (Parker collector). Paratypes in the collections of the California Academy of Sciences and W. F. Barr.

Distribution: Mountainous areas of central Arizona.

Discussion: *C. parkeri* and *C. lauta* as discussed under that species, are closely related and their separation may prove difficult at times. In addition to the structural features already mentioned, a consideration of the species' distributional ranges as they are now known may be of value as a taxonomic character. *C. parkeri* has a somewhat restricted range which extends from the Pinal Mountains of central Arizona approximately 130 miles northwestward to Oak Creek Canyon. On the other hand, *C. lauta* has a more limited distributional range in mountainous areas of extreme south central Arizona. At present the distributional ranges of these two species do not overlap.

This species is named after Frank H. Parker of Globe, Arizona in recognition of his many contributions in adding to our knowledge of Arizona insects.

Cymatodera tutoides Barr, new species (Figures 5 and 6)

Male: Medium sized, rather slender, pale testaceous; head and antennae dark testaceous; elytra with umbones faintly darkened and with a broad, irregular dark brown fascia at about apical fourth; legs with apex of femora and base of tibiae darkened. Head very finely, densely punctured, densely, but inconspicuously clothed with short, recumbent, fine pale hairs and suberect stiff hairs; front bi-impressed; eyes moderate in size, distance between them across front approximately one and three-fourths times the length of last antennal segment; antenna moderately robust, extending to about basal fourth of elytra, segments subcylindrical, indistinctly serrate from fourth segment, ratio of lengths of segments one to eleven, 14:6:8:13:13:12:12:12:12:11:16, last segment robust, feebly aciculate, narrowly rounded at apex; maxillary palpus with last segment slender, broadest in front of middle, apical margin broadly rounded. Pronotum finely, densely punctulate, nearly smooth, densely clothed with short, subrecumbent, fine pale hairs, moderately intermixed with longer and stiffer, suberect hairs; pronotum broader along front margin than hind margin (49:43), as broad at middle as along front margin slightly more than one and one-half times longer than median width (75:49); sides feebly constricted in front of middle, moderately constricted behind middle; disk convex with a broad, transverse, feebly indicated impression in front of middle, mo-

derately descending to hind margin; antescutellar impression feebly indicated, subbasal tumescences absent. *Scutellum* oval; disk convex, finely punctured; hind margin notched at middle. *Elytra* densely but inconspicuously clothed with short, subrecumbent, fine pale hairs and longer and stiffer, suberect hairs; length along suture about two and one-half times the width behind humeri (198:80); postscutellar impression feebly indicated; humeri distinct; sides more or less parallel, apices narrowly rounded; disk flattened, striae extending beyond hind margin of subapical fascia, strial punctures circular, deep, moderate in size, becoming smaller apically, interstrial spaces smooth, at middle approximately twice the width of strial punctures. *Mesosternum* finely, very shallowly punctured. *Metasternum* convex with a longitudinal impression in front of hind margin at middle and a small, circular, median depression near front margin; surface nearly smooth; midline entire; carinae or tubercles absent. *Legs* finely, densely but inconspicuously clothed with short, subrecumbent and suberect pale hairs. *Abdomen* indistinctly punctured; sternites one to four with a broad membranous area along hind margin which is truncate; fifth sternite broader than long, hind margin feebly bisinuate; sixth sternite broader than long, lateral margins and hind angles broadly rounded, hind margin subtruncate; fifth tergite with hind margin shallowly emarginate, notched at sides; sixth tergite broader (except at extreme base) and longer than sixth sternite, lateral margins arcuate, hind angles rounded, hind margin shallowly, arcuately emarginate, ventral surface with a short, lateral carina near hind angles. Length: 7.5 mm.

Female: Distance between eyes slightly less than one and three-fourths times the length of last antennal segment. Ratio of lengths of antennal segments one to eleven, 13:6:8:13:11:11:11:10:10:10:17. Abdomen with fifth sternite strongly elevated at middle in front of hind margin which is feebly arcuate; sixth sternite small, hind margin more or less semicircularly rounded; fifth tergite with hind margin shallowly emarginate; sixth tergite with a median depression, lateral margins arcuate, hind margin feebly emarginate, ventral surface not carinate. Length: 7.3 mm.

Type Material: Holotype male and allotype female (U. S. National Museum) and four male and five female paratypes from southwest Hidalgo County, Texas, March 2, 1947 (G. B. Vogt collector). Additional paratypes designated as follows: three males and one female from 25 kilometers east of Santo Domingo, Rt. 170, San Luis Potosi, July 3, 1948 (F. Werner and W. Nutting collectors); one male from Santo Domingo, San Luis Potosi, July 3, 1948 (F. Werner and W. Nutting collectors); one female from 52 kilometers

east of Ciudad del Maiz, 5200 ft., San Luis Potosi, July 4, 1948 (F. Werner and W. Nutting collectors); and one male from Monterrey, Nuevo Leon, November 25 (E. A. Schwarz collector). Paratypes in the collections of the U. S. National Museum, the Museum of Comparative Zoology, G. B. Vogt and W. F. Barr.

Distribution: Extreme southern Texas to central San Luis Potosi.

Discussion: *C. tutooides* bears a remarkable resemblance to *C. tuta* Wolcott and the two species easily can be confused. Only the females can be identified with certainty on the basis of external anatomical features. With *C. tutooides* a distinct subapical ridge occurs on the fifth abdominal sternite. This ridge is absent on *C. tuta*. From the standpoint of distributional occurrence these species are allopatric. *C. tutooides* is known from southern Texas and northeastern Mexico whereas *C. tuta* occurs from southern Arizona and New Mexico to western Texas and northcentral Mexico.

Cymatodera cazierorum Barr, new species (Figure 7)

Male: Medium sized, slender, dark brown; ventral surface, mouthparts and legs testaceous. Head finely, sparsely punctured, densely but inconspicuously clothed with short, recumbent, fine brownish hairs and sparsely clothed with slightly longer and coarser suberect hairs; front convex; eyes moderate in size, distance between them across front about one and one-fourth times the length of last antennal segment; antenna rather stout, extending to about basal third of elytra, segments subcylindrical, moderately serrate from fourth segment, ratio of lengths of segments one to eleven, 14:6:7:13:14:13:13:12:12:12:18, last segment robust, feebly arcuate, narrowly rounded at apex; maxillary palpus with last segment broadest at middle, only slightly narrowed apically, apical margin broadly rounded. **Pronotum:** appearing smooth, densely clothed with short, subrecumbent, fine brownish hairs, sparsely intermixed with longer and coarser, suberect hairs; pronotum broader across front margin than hind margin (45:40), broadest at middle and about one and one-third times longer than median width (64:47); sides weakly constricted in front of middle, strongly constricted behind middle; disk feebly convex, with a faintly indicated transverse impression in front of middle, moderately descending to hind margin; antescutellar impression evident, subbasal tumescences absent. **Scutellum:** transverse; disk flattened, feebly roughened; side margins arcuate; hind margin broadly notched at middle. **Elytra:** densely but inconspicuously clothed with short, suberect brownish hairs, moderately intermixed with longer suberect, stiffer hairs; length along suture approximately two and one-half times

the width behind humeri (186:75); postscutellar depression feebly indicated; humeri distinct; sides more or less parallel; apices rather broadly rounded; disk feebly convex, striae extending to about apical fourth, strial punctures circular, deep, rather small, becoming smaller posteriorly, interstrial spaces smooth, at middle near suture twice the width of strial punctures, near sides subequal to width of strial punctures. *Mesosoternum* finely, rather densely punctured. *Metasternum* convex with a median longitudinal impression in front of hind margin and a faintly indicated, small median depression near front margin; surface nearly smooth; carinae or tubercles absent. *Legs* finely, densely punctured and rugose, densely but inconspicuously clothed with short, subrecumbent and suberect brownish hairs. *Abdomen* indistinctly punctured; sternites one to four with a broad membranous area along the truncate hind margin; fifth sternite broader than long, hind margin broadly, shallowly emarginate; sixth sternite broader than long, lateral margins strongly oblique, hind angles rounded, hind margin shallowly emarginate; fifth tergite with hind margin shallowly emarginate; sixth tergite broader (except at extreme base) and longer than sixth sternite, hind margin deeply notched at middle, ventral surface concave except for a conspicuous transverse carina immediately behind hind margin of sixth sternite. Length: 8.1 mm.

Type Material: Holotype male (The American Museum of Natural History) and one male paratype from the Southwest Research Station, 5 miles west of Portal, Cochise County, Arizona, 5400 ft. The holotype was collected on August 3, 1956 by E. Ordway and the paratype on July 9, 1956 by C. and M. Cazier. One damaged female specimen designated as a paratype from Portal, Arizona, July 25, 1969 (L. S. Hawkins collector) attracted to black light. Paratypes in the W. F. Barr collection.

Distribution: Chiricahua Mountains, Arizona.

Discussion: The slender form, antennal structure and impunctate pronotum allies *C. cazierorum* with *C. longiconis* LeConte. These species can be recognized by the form of the hind margin of the last abdominal tergite. In the male of *C. cazierorum* is deeply notched and in the female it is apparently narrowly subtruncate. With *C. longiconis* the margin is broadly, rather deeply and arcuately emarginate in the male and nearly semicircularly rounded in the female.

This species is dedicated to Carol and Mont Cazier of Tempe, Arizona for their friendship and many courtesies in helping to further my studies on this group of beetles.

Cymatodera zosterops Barr, new species

Male: Medium sized, rather slender, dark brown; head and pronotum dark castaneous, elytra with a broad, pale testaceous median fascia that is narrowly interrupted at lateral margins; legs and abdomen dark testaceous. **Head** finely, densely punctured, densely but inconspicuously clothed with short, subrecumbent, fine pale hairs, sparsely intermixed with longer, suberect stiff hairs; front irregularly convex; eyes moderate in size, distance between them across front approximately one and one-fourth times the length of last antennal segment; antenna moderately robust, extending nearly to middle of elytra, segments subcylindrical, weakly serrate from fourth segment, ratio of lengths of segments one to eleven, 10:7:10:14:13:13:13:13:14:13:22, last segment elongate, sides broadest at middle, apical margin broadly rounded. **Pronotum** finely punctured and slightly rugose, densely but inconspicuously clothed with short, subrecumbent, fine pale hairs, which are sparsely intermixed with long, suberect stiff hairs; pronotum broader along front margin than hind margin (52:45), slightly more than one and one-half times longer than median width (77:48); sides weakly constricted in front of middle, moderately constricted behind middle; disk convex, with a feebly indicated shallow depression in front of middle, abruptly descending to hind margin; antescutellar depression and subbasal tumescences absent. **Elytra** densely but inconspicuously clothed with short, subrecumbent, fine pale hairs, moderately intermixed with longer, suberect stiff hairs; length along suture approximately two and one-third times the width at humeri (203:85), postscutellar impression feebly indicated along suture; humeri distinct; sides subparallel, slightly expanded near apical fourth; apices rather narrowly rounded at sutural angles; disk subflattened, striae extending to about apical fifth, strial punctures circular, deep, rather small, becoming smaller and shallower apically, interstrial spaces smooth, at middle near suture twice as wide as the diameter of strial punctures, at sides subequal to diameter of strial punctures. **Mesosternum** coarsely, sparsely punctured at middle. **Metasternum** convex, with a longitudinal impression in front of hind margin at middle and a small, shallow, circular depression near front margin; surface very finely, sparsely punctured; midline entire; carinae or tubercles absent. **Legs** finely, very densely punctured and rugose, densely but inconspicuously clothed with short, subrecumbent and suberect pale hairs, sparsely intermixed with much longer erect hairs. **Abdomen** finely, shallowly punctured; sternites one to four with hind margin subtruncate and narrowly membranous; fifth sternite transverse, lateral margins arcuate and strongly oblique, hind margin broadly and shallowly, arcuately

emarginate; sixth sternite shortened, hind margin broadly and shallowly, arcuately emarginate. Length: 8.5.

Length: 8.5 mm.

Female: Distance between eyes slightly more than one and one-fourth times the length of last antennal segment. Ratio of lengths of antennal segments one to eleven, 16:8:10:16:15:15:15:15:14:14:23. Abdomen with fourth sternite slightly convex in front of hind margin and very finely roughened; fifth sternite transverse, lateral margins arcuate and oblique, hind margin broadly and slightly arcuate; sixth sternite with hind margin broadly and strongly arcuate. Length: 7.1 mm.

Type Material: Holotype male and allotype female (Canadian National Collection) from Basin Area, Big Bend National Park, Texas, May 2 and May 29, 1959, at light (Howden and Becker collectors). One male and three female paratypes from Fort Davis, Texas, May 31, 1959, at light (Howden and Becker collectors); and one female paratype from Kerrville, Texas, June 19, 1908 (F. C. Pratt collector). Paratypes in the Canadian National Collection and the collections of the U. S. National Museum and W. F. Barr.

Distribution: Western Texas.

Discussion: *C. zosterops* can be readily recognized by the elytral coloration and markings and by the finely, sparsely punctured pronotum which at most may be faintly rugose. Although difficult to characterize, the density and length of the elytral pubescence also appears different than that of *C. lafefascia* Schaeffer, the closest ally of *C. zosterops*. Unfortunately, *C. zosterops* will not run out to the latefascia group in Wolcott's key (1921). In fact, the lengths of the second, third and fourth antennal segments are unlike any species included in this key and thus a new group designation would be necessary to accommodate *C. zosterops*.

***Cymatodera vulgivaga* Barr, new species (Figure 8)**

Male: Medium sized, moderately robust, head and pronotum dark castaneous; antennae brown; mouthparts, legs and ventral surface dark testaceous; elytra dark brown, slightly paler along suture and at apices. Head finely, sparsely punctured, densely clothed with short and long, suberect and erect brownish hairs; front feebly bi-impressed; eyes moderate in size, distance between them across front about one and three-fourths times the length of last antennal segment; antenna moderately robust, extending to near middle of elytra, fourth segment feebly serrate, segments 5–10 more strongly serrate, ratio of lengths of segments one to eleven,

12:5:8:12:11:11:11:10:10:10:17, last segment rather robust, subcylindrical, tapering to blunt apex; maxillary palpus with last segment slender, broadest at middle, apical margin subtruncate. *P r o t h o r a x* finely, sparsely punctured, irregularly rugose, densely clothed with short and long, erect and suberect brownish hairs; pronotum as broad across front margin as hind margin (43:43), broadest at middle, about one and one third times longer than width at middle (58:45); sides feebly constricted in front of middle, moderately constricted behind middle; disk flattened, without transverse impressions, moderately descending to hind margin; antescutellar impression distinct, subbasal tumescences absent. *S c u t e l l u m* transverse, subrectangular; disk slightly depressed, roughened; sides feebly arcuate; hind margin subtruncate. *E l y t r a* densely clothed with short, suberect brownish hairs which are sparsely intermixed with longer hairs; length along suture approximately two and one-half times the width behind humeri (182:73); post-scutellar impression wanting; humeri distinct; sides subparallel; apices broadly rounded; disk feebly convex, striae extending to apical third, strial punctures circular, deep, rather small, becoming smaller apically, interstitial spaces smooth, at middle near suture more than three times the width of strial punctures, near sides approximately twice the width of strial punctures. *M e s o s t e r n u m* finely, densely, shallowly punctured and rugose. *M e t a s t e r n u m* convex with a longitudinal impression in front of hind margin at middle and a small, shallow, median depression near front margin; surface very finely, sparsely punctured, nearly smooth; midline entire; carinae or tubercles absent. *L e g s* finely punctured, rugose, densely but inconspicuously clothed with short, semirecumbent and suberect brownish hairs, sparsely intermixed with long erect hairs. *A b d o m e n* very finely, sparsely punctulate; sternites one to four with hind margins truncate, narrowly membranous; fifth sternite with hind margin very shallowly and broadly, arcuately emarginate; sixth sternite short, lateral margins very strongly oblique, arcuate, hind margin truncate, notched at sides; sixth tergite broader (except at extreme base) and longer than sixth sternite, lateral margins feebly, obliquely arcuate, hind angles broadly rounded, hind margin very shallowly arcuately emarginate. Length: 6.8 mm.

F e m a l e : Distance between eyes about one and two-thirds times the length of last antennal segment. Ratio of lengths of antennal segments one to eleven, 14:6:7:10:11:11:10:9:9:9:16. Abdomen with hind margin of fifth sternite truncate; sixth sternite flattened, hind margin broadly rounded; fifth tergite with hind margin weakly arcuate; sixth tergite with hind margin broadly rounded. Length: 7.3 mm.

Type Material: Holotype male and allotype female (California Academy of Sciences) from Glendale, Los Angeles County, California, July 27, 1951 and August 5, 1949 (E. I. Schlinger collector). Paratypes designated as follows: fourteen males and four females from type locality July 13, 1948, July 16, 1951, July 27, 1951 and 1952, July 28, 1951, July 30, 1951, July 31, 1949, August 3, 1948, August 6, 1954, August 7, 1949, August 9, 1952, August 13, 1951, August 18, 1952, and August 25, 1954 (E. I. and W. Schlinger collectors); five males and one female from Tanbark Flat, Los Angeles County, California, June 25, 1950 (M. J. Stebbins collector), July 4, 1950 (W. C. Bentinck collector), July 12, 1950 (D. C. Blodgett collector), July 13, 1950 (P. D. Hurd collector), July 21 and 22, 1952 (A. T. McClay collector); one male from Bouquet Canyon, Los Angeles County, California, July 23, 1937 (N. Westerland collector); three males and one female from Big Rock Creek Public Camp, Los Angeles County, California, July 23, 1965 (E. L. Sleeper collector); one male from Walker Pass, California, July 13, 1961 (E. I. Schlinger collector); one male from Santa Ana Canyon, Orange County, California, June 1931; one male from Santiago Canyon, Orange County, California, August 19, 1962 (N. W. Fleming collector); one male from Lake Arrowhead, July 27, 1943 (G. P. Mackenzie collector); one male from Fallsvale, San Bernardino County, California, August 17, 1948 (S. G. Watkins collector); one male from Mill Creek Canyon, San Bernardino Mountains, California, July 21, 1950 (P. H. Timberlake collector); one female from Dodge Valley, San Diego County, California, June 26, 1958 (E. I. Schlinger collector); one female from Warners, July 19, 1925; one male from Dorst Camp, Tulare County, California, July 23, 1949 (L. L. Jensen collector); one female from Springville, California, May 30, 1934 (F. T. Scott collector); one female from Kaweah, California, July 9, 1933 (F. T. Scott collector); one female from Sequoia National Park, California, June 1930 (F. T. Scott collector); one male and one female from Tulare County, California, July 1932 (F. T. Scott collector). Paratypes in the collections of the California Academy of Sciences, the University of California at Berkeley, Davis and Riverside, the Los Angeles County Museum, F. T. Scott, E. L. Sleeper and W. F. Barr.

Distribution: Mountainous and foothill areas of southcentral and southwestern California.

Discussion: Considerable color variation is evident in this species, yet it can be readily recognized by the shortened and rugose prothorax and by the densely pubescent body. The elytral markings may also be used as a diagnostic feature in spite of the fact that they account for the variable appearance

of *C. vulgivaga*. In some specimens the elytra may be uniformly piceous while in others a broad, subbasal light brown marking may be present which along with the dark brown apical half gives an appearance of *C. latefascia* Schaeffer. Occasionally, the apices are indistinctly pale. Most specimens examined, however, have the elytra brown to dark brown with the apices and suture faintly reddish brown.

The relationship of *C. vulgivaga* with other species of *Cymatodera* is obscure. For the present it should be placed next to *C. latefascia*.

Cymatodera scitula Barr, new species

F e m a l e: Moderate sized, slender, dark castaneous; elytra with a rather broad, pale testaceous fascia, which is expanded along lateral margin and broadly interrupted at suture, apical half of elytra piceous except for the brownish lateral margin. H e a d finely, densely punctured, densely but inconspicuously clothed with short, erect and suberect pale hairs which are sparsely intermixed with long hairs; front bi-impressed; eyes moderate in size, distance between them across front about one and two-thirds the length of last antennal segment; antenna rather slender, extending slightly beyond front margin of elytra, segments subcylindrical, weakly serrate from fifth segment, ratio of lengths of segments one to eleven, 17:8:15:15:14:13:13:13:13:13:20, last segment very feebly aciculate; maxillary palpus with last segment robust, broadest at apex, apical margin rounded, P r o t h o r a x finely, sparsely punctured, transversely wrinkled, densely clothed with short and long, erect and suberect hairs; pronotum as broad along front margin as hind margin (56:56), broadest at middle, nearly one and one-half times longer than median width (86:59); sides weakly constricted in front of middle, moderately constricted behind middle; disk subflattened with a faintly indicated transverse impression in front of middle; antescutellar impression and subbasal tumescences feebly indicated. S c u t e l l u m transverse; disk flattened, sparsely punctured; lateral margins broadly rounded; hind margin distinctly notched at middle. E l y t r a densely but inconspicuously clothed with short and long, erect and suberect pale hairs; length along suture more than two and three-fourths times the width behind humeri (278:97); post-scutellar impression wanting; humeri distinct; sides subparallel, gradually expanding to apical third; apices obliquely subtruncate and rather narrowly rounded at sutural angles; disk feebly convex, striae wanting except for several indistinct rows of very fine punctures on basal half, surface densely punctulate on basal two-thirds. M e s o s t e r n u m moderately coarsely punctured. M e t a s t e r n u m convex, longitudinally impressed in front of

hind margin at middle, and faintly, longitudinally impressed near front margin, very finely punctured along sides; midline entire, carinae or tubercles absent. Legs finely, densely punctured, rugose, densely but inconspicuously clothed with short subrecumbent hairs, sparsely intermixed with long suberect hairs. Abdomen indistinctly punctulate; sternites one to four with hind margins truncate and narrowly membranous; fifth sternite with hind margin broadly, rather deeply, arcuately emarginate; sixth sternite with lateral margins feebly arcuate, strongly oblique, hind margin more or less broadly rounded; sixth tergite broader (except at extreme base) than sixth sternite, lateral margins feebly arcuate, strongly oblique, hind margin nearly semicircularly rounded. Length: 10.5 mm.

Type Material: Holotype female (California Academy of Sciences) from Glenwood Springs, Colorado, July; one female paratype from Oak Creek Canyon, Coconino County, Arizona, July 3, 1953 (W. J. and J. W. Gertsch collectors) in the collection of The American Museum of Natural History and one female paratype from Flagstaff, Arizona, August 10, 1964 (R. S. Beal collector) in the W. F. Barr collection.

Distribution: Known only from widely separated localities in westcentral Colorado and central Arizona.

Discussion: *C. scitula* is closely related to *C. pseudotsugae* Barr which is widely distributed in the Pacific Coast states. It can be distinguished from that species by the stria punctures of the elytra being reduced or absent, by the more tricolored appearance of the elytra and by the hind margin of the fifth abdominal sternite more deeply emarginate. The male of *C. scitula* is unknown.

Cymatodera linsleyi Barr, new species (Figure 10)

Male: Large, elongate, dark reddish-brown; elytra with humeral umbones faintly pale and with a faintly indicated, triangular postmedian fascia that is broadest at lateral margins and is interrupted before suture; ventral surface testaceous, abdominal sternites irregularly darkened near sides, first sternite paler along base. Head rather finely and densely punctured, densely clothed with short and long, erect and suberect pale hairs; front subflattened; eyes moderate in size, distance between them across front approximately two and one-half times the length of last antennal segment; antenna moderately slender, extending to near basal fourth of elytra, segments subcylindrical, feebly serrate from fourth segment, apical segments more strongly conspicuously serrate, ratio of lengths of segments one to

eleven, 18:8:16:15:15:14:14:14:13:12:17, last segment rather robust, feebly aciculate; maxillary palpus elongate, broadest at apex, apical margin strongly arcuate, but faintly angulate. *P r o t h o r a x* finely, sparsely punctured and transversely wrinkled, densely clothed with short and long, erect and suberect pale hairs; pronotum slightly broader along front margin than hind margin (60:58), broadest at middle and about one and two-thirds times longer than median width (100:62); sides moderately constricted in front of and behind middle; disk subflattened with a faint trace of a broad, transverse impression in front of middle; antescutellar impression slight; subbasal tumescences indistinct. *S c u t e l l u m* rounded, broader than long; disk flattened, finely, densely punctured; hind margin truncate. *E l y t r a* densely clothed with short, suberect pale hairs, sparsely intermixed with long erect hairs; length along suture approximately three times the width behind humeri (292:96); postscutellar impression feebly indicated; humeri distinct; sides subparallel, slightly expanded behind middle; apices feebly sinuate and more or less narrowly rounded at sutural angles; disk somewhat flattened except for three interstitial spaces that are feebly elevated from basal fourth to apical fourth, punctures not distinctly arranged in rows except basally, striae punctures and punctures of nearly all interstitial spaces subequal, circular, rather small and densely placed. *M e s o s t e r n u m* rather coarsely and sparsely punctured. *M e t a s t e r n u m* convex, longitudinally impressed in front of hind margin at middle, finely, densely punctured on disk, more sparsely punctured near sides; midline entire; carinae or tubercles absent. *L e g s* finely, sparsely punctured, rather finely rugose, densely clothed with short and long, suberect pale hairs. *A b d o m e n* finely, densely punctulate, each sternite slightly roughed near sides except for an irregular smooth area; sternites one to four with hind margin truncate, broadly membranous at middle; fifth sternite with hind margin broadly and deeply, arcuately emarginate, hind angles truncate; sixth sternite slightly broader than long, flattened, with a faintly indicated submarginal ridge extending from near base to hind angle, sides straight, gradually narrowing, hind margin deeply, more or less triangularly emarginate, hind angles prolonged, narrowly rounded; fifth tergite with hind margin feebly notched at sides, broadly, shallowly emarginate medially; sixth tergite shorter and narrower than sixth sternite, lateral margins arcuate, hind margin broadly, shallowly, more or less triangularly emarginate, ventral surface with a transverse subapical carina. Length: 12 mm.

F e m a l e : Distance between eyes two and one-third times the length of last antennal segment. Ratio of lengths of antennal segments one to

eleven, 22:10:15:16:15:15:15:15:14:19. Abdomen with disk of sternites three and four very densely punctured; hind margin of fifth sternite broadly and shallowly, triangularly emarginate; sixth sternite short, convex, lateral margins obliquely arcuate, hind margin subtruncate; fifth tergite with hind margin subtruncate; sixth tergite broadly depressed, broader (except at extreme base) but subequal in length to sixth sternite, lateral margin strongly arcuate, hind margin subtruncate, broadly impressed at middle. Length: 15.3 mm.

Type Material: Holotype male and allotype female (California Academy of Sciences) and one male and one female paratype from San Antonio Valley Ranger Station, Santa Clara County, California, August 11, 1948 (R. van den Bosch collector) and one female paratype from same locality, September 4, 1948. Additional paratypes as follows: three females from San Antonio Valley, Santa Clara County, California, June 8, 1952 (Alice and J. G. Edwards collectors) and July 30, 1949 (J. E. Gillaspay collector); four females from Bayo Valley, Santa Clara County, California, September 9, 1965 (J. Cope collector); fifteen males and two females from Mt. Hamilton, Santa Clara County, California, July 17 and August 7, 1965 (W. H. Tyson collector); seventy-seven males and twenty eight females from Arroyo Mocho, Mt. Hamilton, Santa Clara County, California, July 2, 1969, July 6, 1968, July 13, 1969, July 16, 1967 and 1969, July 17, 19 and 20, 1967, July 19, 20 and 21, 1966, July 26 and 30, 1967, August 1, 2, 4 and 5, 1967, August 6, 1969, August 9, 11 and 14, 1967 (W. H. Tyson collector); one male from Mocho Creek, Alameda County, California, August 2, 1969 (B. A. Tilden collector). Paratypes deposited in the collections of the California Academy of Sciences, the U. S. National Museum, University of California, J. Cope, J. G. Edwards, B. A. Tilden, W. H. Tyson and W. F. Barr.

Distribution: Known only from the Mount Hamilton Range of west-central California.

Discussion: *C. linsleyi* superficially resembles *C. californica* Horn which also occurs in the Mount Hamilton range, but which has an extensive distribution in California. The two species can be distinguished by their general form and sculpturing. The elytra are indistinctly striate and bear two or three pairs of faintly indicated, elevated longitudinal lines in *C. linsleyi* and are striate and without elevated lines in *C. californica*. Furthermore, the structure of the terminal abdominal segments of the two species are much different. Most apparent in the males is the broadly emarginate hind margin of the fifth sternite of *C. linsleyi* and the distinctly triangularly emarginate

hind margin of *C. californica*. Most apparent in the females is the sixth tergite which has the hind angles evenly rounded and the disk depressed in *C. linsleyi* and the hind angles conspicuously elevated and spatulate and the disk longitudinally carinate in *C. californica*.

In color this species varies from brown to dark brown, with or without a faintly indicated median band on the elytra. In length it varies from 9.5 to 17.5 mm.

This species is dedicated to Dr. E. G. Linsley of the University of California in recognition of his many contributions to entomology and his success as a counselor of graduate students.

Cymatodera sodalis Barr, new species (Figure 9)

Male: Medium sized, slender, brown, head and pronotum reddish brown; elytra at middle with a broad, faintly indicated, pale testaceous fascia which is linearly expanded in front and behind near sides; mouthparts and ventral surface pale testaceous. Head finely, moderately punctured, densely but indistinctly clothed with very short to short, suberect pale hairs which are intermixed with long suberect hairs; front faintly bi-impressed; eyes rather prominent, distance between them across front about one and one-half times the length of last antennal segment; antenna rather slender, extending to about basal third of elytra, segments subcylindrical, weakly serrate from fifth segment, ratio of lengths of segments one to eleven, 15:6:13:15:14:13:13:13:12:12:18, last segment not showing an aciculate tendency, rather broadly rounded at apex; maxillary palpus with last segment slender, broadest at middle, apical broadly rounded. **Pronotum:** more coarsely and sparsely punctured than head, punctures deep, moderately clothed with very short and long, erect pale hairs; pronotum broadest along front margin which is slightly broader than hind margin (45:42), about one and three-fourths longer than median width (76:44); sides moderately constricted in front of middle, more strongly constricted behind middle; disk feebly convex except for a broad, flattened area in front of middle; antescutellar impression feebly indicated, subbasal tumescences rather prominent. **Scutellum:** rounded, longer than broad; disk flattened, obliquely directed anteriorly, finely, densely punctured; hind margin feebly notched at middle. **Elytra:** moderately clothed with short and long, suberect pale hairs; length along suture slightly more than three times the width behind humeri (229:71); postscutellar impression feebly indicated; humeri distinct; sides subparallel; apices feebly sinuate with sutural angles acute; disk flattened, striae extending to near apices, punctures circular, deep, rather small,

interstitial spaces nearly smooth, at middle near suture twice the width of striae punctures, near sides subequal to or narrower than width of punctures. *Mesosternum* densely, rather coarsely punctured. *Metasternum* convex, strongly, longitudinally impressed at middle in front of hind margin, finely, sparsely punctured, more coarsely punctured along sides; midline entire; carinae or tubercles absent. *Legs* slender, finely, densely, punctured, distinctly rugose, densely but inconspicuously clothed with short and long, subrecumbent and erect pale hairs. *Abdomen* indistinctly punctured except disk of sternites one to three, with hind margin truncate, broadly, inconspicuously membranous at middle; fourth sternite with truncate hind margin broadly, conspicuously membranous; fifth sternite with hind margin broadly, arcuately emarginate; sixth sternite slightly broader than long, disk convex, lateral margins feebly arcuate, oblique, hind angles broadly rounded, hind margin triangularly emarginate at middle; fifth tergite with hind margin truncate, notched at sides; sixth tergite narrower and shorter than sixth sternite, convex, lateral margins arcuate, hind margin truncate. Length: 9.2 mm.

Female: Distance between eyes one and three-fourths times the length of last antennal segment. Ratio of lengths of antennal segments one to eleven, 15:6:13:13:13:12:11:11:11:10:17. Abdomen with hind margin of fifth sternite subtruncate, broadly notched at middle; sixth sternite with lateral and hind margins more or less semicircularly rounded, faintly notched at middle; sixth tergite broader (except at extreme base) and longer than sixth sternite, disk with a deep, longitudinal, median groove, flattened along apex, lateral margins and hind angles broadly rounded, hind margin subtruncate. Length: 9.5 mm.

Type Material: Holotype male from Riverton, El Dorado County, California, July 18, 1931 and allotype female from Pollock Pines, El Dorado County, California, August 8, 1939 (A. T. McClay collector). Holotype and allotype in the California Academy of Sciences. Paratypes designated as follows: one male from Riverton, El Dorado County, California, July 17, 1931 (A. T. McClay collector); one male from Pollock Pines, El Dorado County, California, July 18, 1939 (A. T. McClay collector); one female from Anderson Springs, Lake County, California, July 28, 1951 (E. I. Schlinger collector); one male from Santa Lucia Range, California, 1800 ft., July 5, 1954, ital. on *Quercus agrifolia*, (Owen Bryant collector); one female from Butt's Canyon, Napa County, California, June 1, 1967, feeding on *Callidiellum cupressi* Van Dyke; one female from Auburn, California, July 1935 (F. T. Scott collector); one female from 7 miles northwest of

Idyllwild, San Jacinto Mts., California, July 11, 1957, on *Quercus kelloggii* (G. H. Nelson collector); one male from Lake Arrowhead, San Bernardino County, August 1, 1964, at black light E. I. Schlinger collector); one female from Mill Creek, San Bernardino Mountains, 6000 ft., at light, July 31, 1951 (Timberlake collector); one female from Fallsvale, San Bernardino County, California, July 1949 (S. G. Watkins collector); one male from Cuyamaca River State Park, San Diego County, California, July 10, 1959 (G. H. Nelson collector); one female from 8 miles west of Winters, Solano County, California, July 17, 1964 (J. S. Buckett collector); two females from 3 miles west of Big Bar, Trinity County, California, August 13, 1963 (J. S. Buckett collector); one female from Lemon Cove, California, July 24, 1929 (R. H. Beamer collector); four males and four females from Ash Mountain, Sequoia National Park, California, June 23 and July 21, 1951 and July 14 and 19, 1952 (A. T. McClay collector); two males from Sequoia National Park, California (F. T. Scott collector); one male from Potwisha, Sequoia National Park, California, July 1, 1941; two males and two females from Kaweah, California, May 20, 1933, June 18, 1937, July 3, 1935 and August 24, 1932 (F. T. Scott collector); one male and two females from Kaweah Power House Reservoir, California, June 28, 1931 and July 15, 1930; one female from Tuolumne, California, July 26, 1936 (A. T. McClay collector); one female from Wheeler's Hot Springs, Ventura County, California, July 5, 1965 (P. M. Jump collector); one male and two females from Pacific, California, 3400 ft., August 1931 (H. E. Hinton collector); eleven males and seven females from San Dimas Experimental Forest, California, June 15, 1960, July 11 and 25 and August 22, 1959 and October 5, 1958 (M. Knox and E. Sleeper collectors). Paratypes in the collections of the California Academy of Sciences, the Field Museum of Natural History, the British Museum (Natural History), the University of California at Davis and Riverside, J. Cope, G. H. Nelson, F. T. Scott, E. L. Sleeper, W. H. Tyson and W. F. Barr.

Distribution: In the Coast Range of California and in the Sierra Nevada Range in central California to mountainous and foothill areas of southwestern California.

Discussion: This species is closely related to *C. punctata* LeConte which is known from desert areas of the southwestern United States and northwestern Mexico. It is distinctive because of the small punctures of the metasternum and the second antennal segment being approximately half as long as the third segment.

C. sodalis varies from brown to dark brown in color and the median

elytral marking may be reduced or absent in some specimens. In overall length, the paratypic series ranges from 7.2 to 12.5 mm.

Cymatodera ochlera Barr, new species (Figure 11)

Male : Large sized, moderately slender; head and pronotum reddish-brown; antennae, mouthparts and thoracic and abdominal sternites pale testaceous; elytra dark brown with broad, irregular, pale testaceous median and subapical fasciae and a pair of large, indistinct, irregular, subbasal pale spots; legs pale testaceous. **Head** densely, more or less longitudinally rugose-punctate, densely but inconspicuously clothed with very short, semi-recumbent, fine pale hairs, moderately intermixed with short, erect and suberect hairs; front slightly convex; eyes small in size, distance between them about twice the length of last antennal segment; antenna slender, extending to near basal third of elytra, segments feebly flattened, weakly serrate from eighth segment, ratio of lengths of segments one to eleven, 18:11:13:16:19:19:8:18:17:16:19, last segment faintly aciculate, sides abruptly narrowing to narrowly rounded apex; maxillary palpus with last segment elongate, broadest at basal fourth, apical margin rounded. **Prothorax** with moderate sized, densely placed punctures, densely but inconspicuously clothed with very short, semirecumbent, fine pale hairs which are moderately intermixed with rather long suberect hairs; pronotum broader along front margin than hind margin (63:58), broadest at middle, slightly less than one and two-thirds times longer than median width (106:66); sides weakly constricted in front of middle, moderately constricted behind middle; disk flattened with a broad, transverse, V-shaped impression in front of middle, abruptly descending to hind margin; antescutellar impression distinct, subbasal tumescences moderately distinct. **Scutellum** rounded, oblique; disk convex, densely punctured; hind margin notched at middle. **Elytra** moderately clothed with short and rather long, erect and suberect, fine pale hairs; length along suture nearly three times the width behind humeri (262:86); postscutellar impression feebly indicated; humeri distinct; sides feebly and gradually expanded to apical fourth; apices broadly rounded at sutural angles; disk more or less flattened, striae extending to near apices, strial punctures circular, deep, rather coarse, becoming smaller apically, interstrial spaces smooth, at middle near suture twice the width of strial punctures, near sides subequal to width of strial punctures. **Mesosternum** rather finely, densely and deeply punctured. **Metasternum** convex, disk flattened posteriorly, with a longitudinal impression in front of hind margin at middle and a small, elongate median

depression near front margin; surface finely, sparsely punctured laterally, densely punctured at middle; midline entire; a small tubercle situated midway between midline and lateral margin near hind margin. *Legs* finely, sparsely punctured, moderately clothed with short, semirecumbent and longer, erect pale hairs; tibiae more densely punctured, rugose. *Abdomen* very finely, sparsely punctured, more densely punctured at middle of sternites three, four and five, sternites one to four with hind margin truncate and rather deeply membranous at middle; fifth sternite with hind margin broadly, deeply, arcuately emarginate; sixth sternite about as broad as long, narrower at base than at apex, disk subflattened with a short sublateral elevation extending posteriorly from the angulate basal reflection, sides strongly sinuate, hind angles broadly prolonged, strongly curved inward, acute but hooked dorsally at extreme apex, hind margin broadly and deeply, semicircularly emarginate, triangularly notched at middle; fifth tergite with hind margin broadly, triangularly emarginate, notched at sides; sixth tergite narrower and longer than sixth sternite, disk with a narrow, longitudinally impressed line except broadly depressed at middle, lateral margins strongly arcuate, hind margin rounded, triangularly notched at middle, ventral surface with a distinct elevated plate with toothed hind angles and an emarginate hind margin that is hidden beneath sixth sternite. Length: 10.5 mm.

Female: Distance between eyes about two and one-third times the length of last antennal segment. Ratio of lengths of antennal segments one to eleven, 17:11:13:16:17:16:16:15:14:19. Metasternum not tuberculate. Abdomen with hind margin of fifth sternite truncate; sixth sternite flattened, broader than long, lateral margins arcuate, hind margin subtruncate; fifth tergite with hind margin very shallowly emarginate; sixth tergite longer and apparently broader than sixth sternite, lateral margins obliquely arcuate, hind margin broadly rounded, depressed a middle. Length: 10.5 mm.

Type Material: Holotype male (Cornell University) and allotype female (Field Museum of Natural History) and one male paratype from Lucedale, Mississippi (H. Dietrich collector). The holotype was collected on May 28, 1930 and the allotype and paratype on April 18, 1930. Additional paratypes designated as follows: one female from "SW Ark"; one female from Shreveport, Louisiana, March 27, 1907 (R. A. Cushman collector); one male from "La" (Casey collection); one female from "Miss."; one male from central Missouri; one male from "Mo."; one female from Big Springs State Park, Missouri, June 18, 1954 (J. W. Green collector); one female from Brownwood, Texas, August 22, 1921 (F. M. Hull collector); one female from Harrison County, Texas, May 18, 1948 (D. J. and J. N. Knull collec-

tors); one female from Mound, Texas, April 29, 1941 (D. J. and J. N. Knull collectors). Paratypes located in the collections of the California Academy of Sciences, Cornell University, Field Museum of Natural History, J. N. Knull, U. S. National Museum and W. F. Barr.

Distribution: Southcentral United States from southern Mississippi to eastern Texas and north to central Missouri.

Discussion: This species has been referred to in the literature under other names. Wickham and Wolcott (1912) included specimens under *C. balteata* LeConte and Wolcott (1921) designated several specimens as paratypes of *C. confusa* which was later renamed *C. wolcotti* by Barr (1950).

C. ochlera is related to and allopatric with *C. wolcotti* and *C. balteata* and appears to be closest to the former. Males of these species can be separated without difficulty. The sixth abdominal sternite of *C. ochlera* has a more strongly sinuate lateral margin and the hind angles are distinctly curved inward rather than acutely prolonged. Females of these species are separated with difficulty because of great similarity in structure and appearance. However, with *C. ochlera* the distance between the eyes is approximately twice the length of the last antennal segment, whereas with *C. wolcotti* this distance is at least two and one-half times the length of the last antennal segment.

***Cymatodera floridana* Barr, new species (Figure 12)**

Male: Medium sized, slender; head and pronotum reddish-brown; antennae brown; elytra with basal third brown, with a broad, faintly indicated slightly oblique, irregularly margined pale fascia in front of middle and with apical half black; palpi, legs and ventral surface pale testaceous. **Head** with rather coarse, densely placed elongate punctures, densely but inconspicuously clothed with very short, semirecumbent pale hairs that are sparsely intermixed with rather long, erect stiff hairs; front convex; eyes moderate in size, distance, between them about two and one-third times the length of last antennal segment; antenna slender, extending to near basal fourth of elytra, segments slightly flattened, weakly serrate from fifth segment, ratio of lengths of segments one to eleven, 15:9:11:11:13:14:14:14:14:12:15, last segment somewhat robust, narrowly rounded at apex; maxillary palpus with last segment elongate, but distinctly broadened at middle, apical margin broadly rounded. **P r o t h o r a x** rather coarsely and densely punctured, moderately clothed with short, subrecumbent and long, suberect pale hairs; pronotum broader along front margin than hind margin (50:44), one and one-half times longer than median width (78:52); sides

rather weakly constricted in front of and behind middle; disk feebly convex with a faint indication of a transverse depression in front of middle; antescutellar impression present, subbasal tumescences distinct. *Scutellum* rounded, longer than broad, somewhat obscured by subrecumbent pale hairs; disk flattened, slightly roughened; hind margin feebly notched at middle. *Elytra* moderately clothed with rather long, erect, fine pale hairs; length along suture slightly more than three times the width behind humeri (214:70); postscutellar depression not evident; humeri distinct; sides subparallel; apices broadly rounded, sutural margins slightly separated before apices; disk flattened, striae extending to near apices, striae punctures circular, deep, rather large at base, becoming small at middle and faintly indicated behind middle, interstriae spaces smooth, at middle near suture about three times the width of striae punctures, near sides about twice the width of striae punctures. *Mesosternum* rather coarsely and densely punctured. *Metasternum* convex with a slight longitudinal impression in front of hind margin at middle; surface shining, finely, sparsely punctured laterally, more densely punctured on disk; a small tubercle located in front of hind coxa on either side of middle. *Legs* moderately clothed with short and long, subrecumbent and suberect pale hairs; femora finely, sparsely punctured and faintly wrinkled; tibiae more densely punctured, rugose. *Abdomen* shining, irregularly contoured; sternites one to four sparsely punctulate, hind margin truncate, membranous at middle; fifth sternite finely, densely punctured apically, indistinctly punctured basally, hind margin very broadly and deeply, somewhat arcuately emarginate; sixth sternite elongate, membranous basally, apical half irregularly contoured, finely, densely punctured and densely clothed with very short, erect stiff hairs, lateral margin strongly sinuate with a short, acute tooth-like process at apex, hind margin very deeply, circularly emarginate; fifth tergite notched at hind angles, hind margin broadly, deeply triangularly emarginate; sixth tergite convex except for a narrow, impressed, median longitudinal line on apical half, narrower but slightly longer than sixth sternite, surface microreticulate and sparsely, shallowly punctured, lateral margins slightly arcuate, hind margin broadly rounded, feebly notched laterally, deeply notched at middle. Length: 8.7 mm.

Type Material: Holotype male (California Academy of Sciences) from Archbold Biological Station, Highlands County, Florida, October 12, 1964 (P. H. Arnaud, Jr. collector).

Distribution: Known only from the type locality in central Florida.

Discussion: This species is most closely related to *C. wolcottii* Barr. It

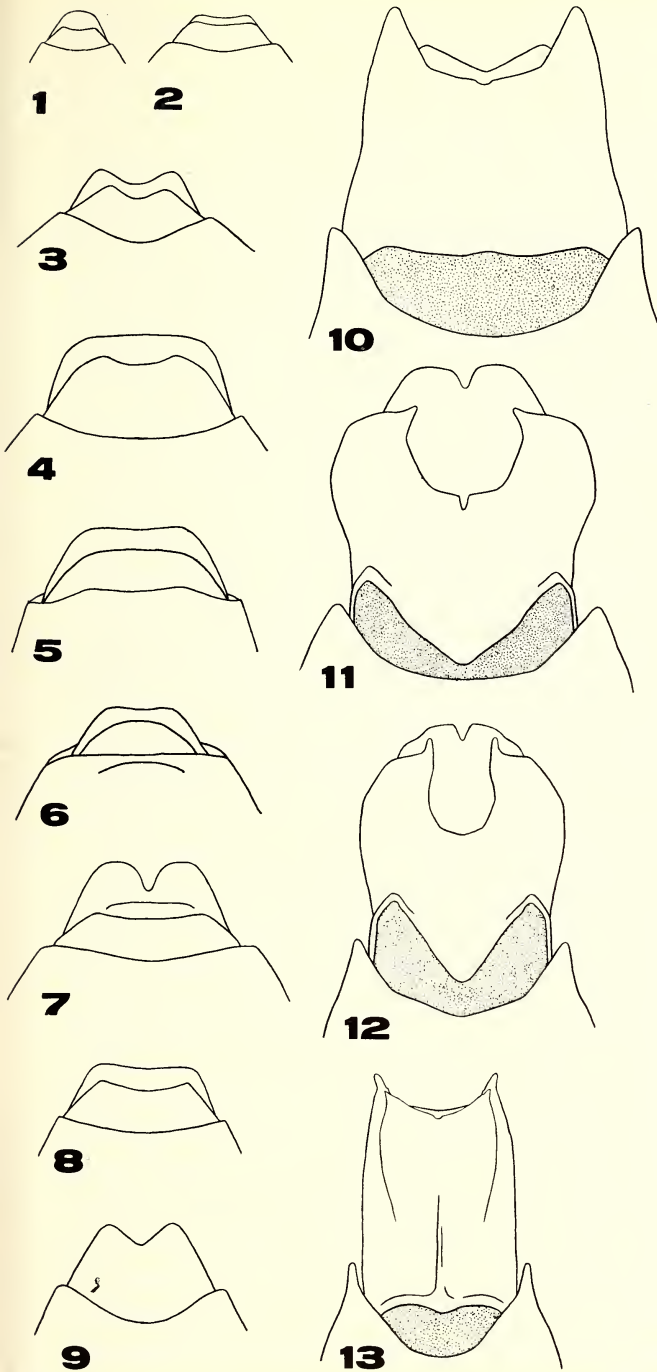


Fig. 1. *C. burdi* ♂
 Fig. 2. *C. chisosensis* ♂
 Fig. 3. *C. lauta* ♂
 Fig. 4. *C. parkeri* ♂
 Fig. 5. *C. tutooides* ♂
 Fig. 6. *C. tutooides* ♀
 Fig. 7. *C. cazierorum* ♂
 Fig. 8. *C. vulgivaga* ♂
 Fig. 9. *C. sodalis* ♂

 Fig. 10. *C. linsleyi* ♂
 Fig. 11. *C. ochlera* ♂
 Fig. 12. *C. floridana* ♂
 Fig. 13. *C. serena* ♂

Figure 1-13. *Cymatodera* spp., terminal abdominal segments, ventral view.

can be recognized most readily by the distinctive color pattern and by the degree of punctuation of the elytra.

Cymatodera serena Barr, new species (Figure 13)

Male: Moderate sized, slender, dark brown, elytra with a rather broad, undulating testaceous median fascia; antennae, mouthparts, legs and ventral surface brown. **Head** finely, densely punctured, densely but indistinctly clothed with short, subrecumbent, fine pale hairs, intermixed with longer, suberect hairs; front convex; eyes rather prominent, distance between them across front about two and three-fourths times the length of last antennal segment; antenna slender, extending to near basal fourth of elytra, weakly serrate from fifth segment, segments feebly flattened, ratio of lengths of segments one to eleven, 18:10:11:10:11:11:10:10:9:9:15, last segment rather robust, narrowly rounded at apex; maxillary palpus with last segment slender, broadest at middle, apical margin broadly rounded. **Prothorax** finely, densely punctured, densely but inconspicuously clothed with short, subrecumbent and suberect, fine pale hairs, intermixed with longer suberect hairs; pronotum broader along front margin than hind margin (60:52), broadest at middle, slightly more than one and one-third times longer than median width (88:63); sides moderately constricted in front of and behind middle; disk narrowly subflattened with a faintly indicated transverse depression in front of middle; antescutellar impression distinct; subbasal tumescences weakly developed. **Scutellum** rounded, broader than long; disk flattened, irregularly punctured; hind margin broadly emarginate. **Elytra** densely but inconspicuously clothed with short, suberect pale hairs, more sparsely intermixed with longer hairs; length along suture about two and three-fourths times the width behind humeri (237:85); postscutellar depression absent; humeri distinct; sides more or less parallel; apices very feebly sinuate, but conjointly rounded, sutural angles narrowly rounded and nearly square; disk feebly convex, striae extending nearly to apices, punctures circular, deep, moderate in size, becoming smaller apically, at middle near suture approximately twice as wide as the diameter of striae punctures, near sides subequal to width of striae punctures. **Meso-sternum** with moderate sized, densely placed deep punctures at middle. **Meta-sternum** convex with a distinct longitudinal depression in front of hind margin at middle and a small elongate median depression near front margin; surface finely, densely punctured; midline entire; a short longitudinal carina situated approximately midway between midline and lateral margin in front of hind margin. **Legs** finely, densely punctured, slightly rugose,

densely but inconspicuously clothed with short, subrecumbent and suberect pale hairs which are more sparsely intermixed with long erect hairs. Abdomen finely, indistinctly punctured, somewhat irregularly roughened; sternites one to four with hind margin truncate and broadly and deeply membranous; fifth sternite broad, hind margin broadly and deeply arcuately emarginate; sixth sternite elongate, conspicuous, finely, irregularly punctured, with a distinct, median longitudinal carina extending from about base to in front of hind margin and with a distinct sublateral slightly arcuate carina extending from about basal third to near hind angle, hind margin broadly, subtriangularly emarginate, hind angles prolonged, narrowly rounded, feebly curved downward; sixth tergite narrower and shorter than sixth sternite, lateral margins arcuate, hind angles feebly prolonged, narrowly rounded, hind margin broadly, subtriangularly emarginate, disk subdepressed, finely, more or less transversely punctured. Length: 9.9 mm.

Female: Distance between eyes approximately three times the length of last antennal segment. Ratio of lengths of antennal segments one to eleven, 17:10:11:11:12:11:11:10:10:9:15. Metasternum not carinate. Abdomen with hind margin of sternites one to four indistinctly membranous; fifth sternite broadly transverse, sides strongly oblique, hind margin broadly, shallowly arcuately emarginate; sixth sternite small, uniformly feebly convex, sides and hind angles broadly rounded, hind margin subtruncate; sixth tergite slightly longer and broader than sixth sternite, hind margin subtruncate. Length: 9.5 mm.

Type Material: Holotype male and allotype female (California Academy of Sciences) and three male and three female paratypes from Alamo Canyon, Ajo Mountains, Pima County, Arizona, July 24 (H. B. Leech and J. W. Green collectors). One male and five female paratypes from Organ Pipe Cactus National Monument, Pima County, Arizona, July 10, 1966, at ultra violet light (W. H. Tyson collector) and July 18, 1965 (J. Cope collector); two male and one female paratypes from Quitoboquito, Organ Pipe National Monument, Arizona, July 14, 1962, at 20 watt black light (E. L. Sleeper collector); two male and two female paratypes from Kino Bay, Sonora, Mexico, August 9, 1960 (P. H. Arnaud, Jr., E. S. Ross and D. C. Rentz collectors); three male and four female paratypes from 36 miles north of Hermosillo, Sonora, Mexico, July 13, 1962 (E. Sleeper, R. Anderson, A. Hardy and R. Somerby collectors). Paratypes in the collections of the California Academy of Sciences, J. Cope, E. L. Sleeper, W. H. Tyson and W. F. Barr.

Distribution: The Organ Pipe Cactus National Monument area of southcentral Arizona to southwestern Sonora.

Discussion *C. serena* closely resembles *C. neomexicana* Knull which is known from parts of New Mexico, Texas and northcentral Mexico. Only the males of these species can be separated with certainty. Their most obvious external differentiation feature is in the form of the hind margin of the sixth abdominal sternite. In *C. serena* it is triangularly emarginate and in *C. neomexicana* it is triangularly lobed.

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