AMERICAN MUSEUM
Novitates

PUBLISHED BY THE AMERICAN MUSEUM OF NATURAL HISTORY
CENTRAL PARK WEST AT 79TH STREET, NEW YORK, NY 10024
Number 3521, 41 pp., 12 figures, 2 tables July 31, 2006

New Genera, New Species, and New Combinations in Western Nearctic Phylini (Heteroptera: Miridae: Phylinae)

CHRISTIANE WEIRAUCH[1]

ABSTRACT

Six new genera and six new species of Phylinae are described from the western United States and Baja California, Mexico, and two new combinations are created. Most of the species are known to breed on oaks, *Quercus* spp. (Fagaceae). *Galbinocoris caepa*, new genus and species, is described from Arizona and Texas. *Hamatophylus*, new genus, is described to accommodate *Plagiognathus guttulosus* (Reuter), which breeds on several species of oaks, among them *Quercus virginiana* Mill. *Insulaphylus*, new genus, is restricted to the Channel Islands off the coast of southern California, and is described to accommodate *Insulaphylus cruz*, new species, from Santa Cruz Island and *Insulaphylus meridianus*, new species, from Santa Catalina and San Clemente Islands. Both species breed on *Quercus* spp. *Maculamiris*, new genus, is described with two species, *Maculamiris baja*, new species, from Baja California and southern California, and *Maculamiris insulanus*, new species, from the Channel Islands. Both species are associated with rosaceous plants. *Quernocoris caliginosus*, new genus and species, is described from mainland southern California and the Channel Islands where it breeds on a range of oak species. *Vesperocoris*, new genus, is described to accommodate the often oak-breeding *Plagiognathus paddocki* Knight from California.

INTRODUCTION

In the revision of Nearctic *Plagiognathus* Fieber Schuh (2001) treated *Plagiognathus guttulosus* (Reuter) and *Plagiognathus paddocki* Knight as species incertae sedis, and indicated that both should be excluded from this genus based on aspects of habitus and male genitalia. In the present paper, two new genera, *Hamatophylus*, new genus, and *Vesperocoris*, new genus, respectively, are created to accommodate these two species.

[1] Division of Invertebrate Zoology, American Museum of Natural History (weirauch@amnh.org).

 ISSN 0003-0082

Whereas *Hamatophylus guttulosus*, new combination, ranges from Florida and Pennsylvania to Texas, *Vesperocoris paddocki*, new combination, shows a distribution that is restricted to California. Both species are known to breed mainly on oaks (*Quercus* spp., Fagaceae). Together with these two species, six undescribed species of Phylinae, mostly also recorded from oaks in the western United States, are described in four new genera. The monotypic *Galbinocoris*, new genus, is known from *Quercus* sp. and *Vitis* sp. from only a few localities in Arizona and Texas. *Insulaphylus*, new genus, is the first genus of Phylinae that may prove to be endemic to the Channel Islands because it is not known from the mainland. One of the species is known only from Santa Cruz Island, and the other species occurs on Santa Catalina and San Clemente islands. *Quernocoris caliginosus*, new genus and species, is recorded from the Channels Islands, where it feeds on the same oak species as *Insulaphylus cruz*, new species, but also occurs on the mainland. *Maculamiris*, new genus, is described to accommodate another species possibly restricted to the Channel Islands and one species from Baja California Norte. Both species seem to breed on a variety of mainly rosaceous hosts.

Habitus photographs and illustrations of the male genitalia are provided for all taxa. Drawings of head and female genitalia, including a dorsal view of the bursa copulatrix and associated structures, as well as a frontal view of the vestibulum, are provided for the type species of each genus. Scanning electron micrographs (SEMs) are given for the type species of each genus, which document head and prothorax in lateral view, evaporatory areas associated with the metathoracic gland, pretarsi, and vestiture on the corium.

Unless otherwise stated, the right paramere is drawn in dorsolateral view, the left paramere in anterolateral view, the lateral right side of the phallotheca is shown, and the vesica is seen in lateral view from the left side. Black and white arrows in the figures refer to diagnostic characters on the generic level and species level, respectively.

Unless otherwise stated, measurements are in millimeters; see table 1 for measurements of all species.

The term *collecting event* is used to express that specimens were collected at a specific locality, date, and by a specific set of collectors.

About 2000 specimens were examined for this project. The specimens were given barcode labels, which uniquely identify each specimen (''unique specimen identifiers'' or ''USIs''). The USI numbers, e.g., AMNH_PBI 00094810, which comprise an institution and project code (AMNH_PBI) and a unique number (00094810), are provided here only for the holotype and paratypes and for the specimens used for measurements and illustrations (appendix 1). Please refer to the website of the Planetary Biodiversity Project on Plant Bugs [http://research.amnh.org/pbi/index.html] for USI information on additional specimens examined and other detailed data.

The distribution maps of host plants in figures 10–12 are derived from the USGS's ''Digital Representations of Tree Species Range Maps from *Atlas of United States Trees* by Elbert L. Little, Jr. (and other publications)'' (http://climchange.cr.usgs.gov/data/atlas/little/), and serve as base maps onto which insect distributions were plotted. The printed version of this atlas is listed in the References (Little, 1971, 1976).

Galbinocoris, new genus
Figures 1, 2, 3, 6–10

TYPE SPECIES: *Galbinocoris caepa*, new species.

DIAGNOSIS: Recognized by the small size and ovoid body, overall pale yellowish green coloration (fig. 1), slightly bulging clypeus (fig. 2A, 3), and the male genitalia with J-shaped, twisted, rather flat and wide vesica (fig. 3). Superficially similar to *Plagiognathus cibbetsi*, *P. guttatipes*, and *P. tenellus* (Schuh 2001), but distinguished by smaller size, hind tibia without dark spots around the bases of spinelike setae, and male vesica with only one apical blade. Also somewhat similar to *Nevadocoris* Knight, but distinguished by smaller size and the male genitalia.

DESCRIPTION: *Male*: Small, ovoid, slightly elongate, slender in lateral view. COLORATION (fig. 1): General coloration pale yellowish green. **Head**: Uniformly pale yellow-

TABLE 1
Measurements of Phylini Species

		Length						Width				
		Body	CunClyp	Head	Pron	Scut	Cun	Head	Pron	Scut	InterOc	AntSeg2
G. caepa												
M (N=5)	**Mean**	**2.54**	**1.73**	**0.15**	**0.37**	**0.33**	**0.35**	**0.58**	**0.90**	**0.48**	**0.29**	**0.80**
	SD	0.10	0.07	0.05	0.02	0.02	0.01	0.01	0.02	0.04	0.01	0.05
	Range	0.25	0.18	0.11	0.06	0.06	0.04	0.03	0.05	0.09	0.02	0.13
	Min	2.45	1.62	0.11	0.33	0.30	0.33	0.57	0.87	0.42	0.29	0.75
	Max	2.70	1.80	0.22	0.39	0.36	0.36	0.60	0.92	0.51	0.30	0.88
F (N=5)	**Mean**	**2.66**	**1.83**	**0.14**	**0.36**	**0.37**	**0.38**	**0.59**	**1.02**	**0.50**	**0.32**	**0.66**
	SD	0.15	0.15	0.02	0.02	0.02	0.03	0.01	0.08	0.03	0.01	0.03
	Range	0.39	0.37	0.05	0.04	0.04	0.06	0.03	0.22	0.09	0.03	0.06
	Min	2.52	1.72	0.10	0.34	0.35	0.35	0.58	0.94	0.47	0.31	0.63
	Max	2.91	2.09	0.16	0.38	0.39	0.41	0.61	1.16	0.55	0.34	0.69
H. guttulosus												
M (N=5)	**Mean**	**3.57**	**2.57**	**0.22**	**0.56**	**0.47**	**0.46**	**0.79**	**1.26**	**0.61**	**0.29**	**1.11**
	SD	0.17	0.13	0.05	0.04	0.03	0.04	0.03	0.07	0.04	0.04	0.05
	Range	0.41	0.30	0.12	0.10	0.07	0.11	0.08	0.17	0.10	0.10	0.13
	Min	3.36	2.42	0.17	0.53	0.42	0.42	0.75	1.20	0.56	0.25	1.05
	Max	3.77	2.72	0.29	0.63	0.49	0.53	0.83	1.37	0.66	0.35	1.18
F (N=5)	**Mean**	**3.67**	**2.61**	**0.20**	**0.49**	**0.53**	**0.53**	**0.73**	**1.30**	**0.66**	**0.34**	**1.07**
	SD	0.10	0.06	0.06	0.02	0.02	0.06	0.04	0.03	0.03	0.02	0.04
	Range	0.21	0.15	0.14	0.05	0.05	0.15	0.09	0.08	0.08	0.04	0.11
	Min	3.56	2.53	0.14	0.46	0.51	0.44	0.70	1.28	0.62	0.32	1.01
	Max	3.77	2.68	0.28	0.51	0.56	0.59	0.79	1.36	0.70	0.37	1.13
I. cruz												
M (N=5)	**Mean**	**4.11**	**2.86**	**0.27**	**0.59**	**0.51**	**0.58**	**0.75**	**1.27**	**0.64**	**0.34**	**1.14**
	SD	0.19	0.15	0.03	0.05	0.03	0.06	0.04	0.05	0.02	0.02	0.06
	Range	0.51	0.40	0.06	0.12	0.08	0.14	0.08	0.11	0.05	0.05	0.14
	Min	3.82	2.64	0.24	0.52	0.48	0.53	0.71	1.22	0.62	0.32	1.08
	Max	4.33	3.05	0.30	0.63	0.56	0.66	0.79	1.33	0.67	0.37	1.22
F (N=5)	**Mean**	**3.98**	**2.85**	**0.24**	**0.59**	**0.53**	**0.55**	**0.76**	**1.30**	**0.67**	**0.37**	**1.04**
	SD	0.14	0.11	0.03	0.03	0.03	0.03	0.02	0.06	0.03	0.04	0.11
	Range	0.34	0.23	0.08	0.06	0.08	0.08	0.05	0.15	0.07	0.10	0.28
	Min	3.81	2.73	0.20	0.55	0.50	0.51	0.74	1.25	0.65	0.33	0.93
	Max	4.15	2.95	0.28	0.62	0.58	0.58	0.78	1.39	0.72	0.42	1.21
I. meridianus												
M (N=5)	**Mean**	**3.47**	**2.40**	**0.21**	**0.51**	**0.44**	**0.50**	**0.69**	**1.14**	**0.57**	**0.34**	**0.97**
	SD	0.13	0.11	0.03	0.03	0.03	0.05	0.02	0.06	0.03	0.01	0.05
	Range	0.34	0.27	0.06	0.07	0.08	0.11	0.06	0.15	0.07	0.03	0.12
	Min	3.32	2.30	0.18	0.47	0.40	0.45	0.67	1.10	0.55	0.32	0.92
	Max	3.66	2.57	0.24	0.54	0.48	0.56	0.72	1.25	0.61	0.35	1.05
F (N=2)	**Mean**	**3.43**	**2.42**	**0.19**	**0.54**	**0.44**	**0.50**	**0.68**	**1.18**	**0.63**	**0.36**	**0.89**
	SD	0.17	0.17	0.02	0.04	0.02	0.03	0.04	0.09	0.05	0.03	0.04
	Range	0.38	0.35	0.04	0.08	0.07	0.07	0.09	0.22	0.13	0.06	0.10
	Min	3.25	2.27	0.18	0.50	0.40	0.46	0.65	1.08	0.57	0.33	0.84
	Max	3.63	2.62	0.22	0.58	0.47	0.53	0.73	1.30	0.70	0.40	0.93
M. baja												
M (N=5)	**Mean**	**3.25**	**2.28**	**0.24**	**0.41**	**0.40**	**0.43**	**0.70**	**0.96**	**0.50**	**0.35**	**0.96**
	SD	0.13	0.09	0.03	0.02	0.03	0.03	0.02	0.04	0.05	0.01	0.04
	Range	0.32	0.22	0.08	0.05	0.06	0.08	0.05	0.10	0.10	0.03	0.09
	Min	3.11	2.19	0.20	0.38	0.37	0.40	0.67	0.92	0.46	0.34	0.90
	Max	3.43	2.41	0.27	0.43	0.43	0.48	0.72	1.02	0.56	0.37	1.00

TABLE 1
(Continued)

		Length						Width				
		Body	CunClyp	Head	Pron	Scut	Cun	Head	Pron	Scut	InterOc	AntSeg2
F (N=5)	**Mean**	**3.31**	**2.34**	**0.30**	**0.42**	**0.41**	**0.44**	**0.69**	**1.01**	**0.51**	**0.36**	**0.89**
	SD	0.20	0.13	0.01	0.02	0.04	0.04	0.02	0.07	0.04	0.01	0.06
	Range	0.46	0.28	0.03	0.05	0.09	0.11	0.06	0.18	0.09	0.03	0.15
	Min	3.12	2.20	0.29	0.41	0.36	0.41	0.66	0.91	0.46	0.35	0.84
	Max	3.58	2.48	0.32	0.46	0.45	0.51	0.72	1.09	0.55	0.38	0.99
M. insulanus												
M (N=5)	**Mean**	**3.37**	**2.36**	**0.24**	**0.42**	**0.42**	**0.49**	**0.73**	**1.04**	**0.49**	**0.35**	**0.92**
	SD	0.15	0.06	0.04	0.04	0.04	0.03	0.01	0.06	0.02	0.01	0.08
	Range	0.33	0.16	0.08	0.10	0.09	0.07	0.02	0.14	0.04	0.03	0.19
	Min	3.18	2.24	0.20	0.37	0.36	0.45	0.72	0.99	0.47	0.34	0.85
	Max	3.51	2.41	0.29	0.47	0.45	0.52	0.74	1.12	0.51	0.37	1.04
F (N=1)	**Mean**	**3.32**	**2.30**	**0.25**	**0.46**	**0.43**	**0.44**	**0.67**	**1.09**	**0.56**	**0.34**	**0.89**
Q. caliginosus												
M (N=5)	**Mean**	**3.43**	**2.43**	**0.22**	**0.51**	**0.45**	**0.46**	**0.70**	**1.15**	**0.58**	**0.33**	**0.97**
	SD	0.31	0.19	0.02	0.03	0.03	0.08	0.02	0.07	0.05	0.02	0.07
	Range	0.67	0.48	0.06	0.09	0.06	0.20	0.06	0.18	0.12	0.05	0.16
	Min	3.21	2.25	0.19	0.46	0.43	0.39	0.67	1.06	0.52	0.30	0.89
	Max	3.88	2.73	0.25	0.55	0.49	0.59	0.73	1.24	0.64	0.35	1.05
F (N=5)	**Mean**	**3.40**	**2.41**	**0.22**	**0.51**	**0.47**	**0.44**	**0.70**	**1.18**	**0.58**	**0.35**	**0.90**
	SD	0.12	0.12	0.03	0.05	0.03	0.02	0.03	0.02	0.05	0.02	0.05
	Range	0.28	0.29	0.06	0.13	0.08	0.06	0.07	0.05	0.12	0.04	0.12
	Min	3.31	2.26	0.19	0.44	0.43	0.41	0.68	1.15	0.52	0.33	0.84
	Max	3.59	2.55	0.25	0.57	0.51	0.46	0.74	1.19	0.65	0.38	0.96
V. paddocki												
M (N=4)	**Mean**	**3.62**	**2.46**	**0.22**	**0.51**	**0.43**	**0.56**	**0.67**	**1.13**	**0.55**	**0.31**	**1.10**
	SD	0.19	0.10	0.02	0.03	0.02	0.05	0.02	0.06	0.02	0.02	0.05
	Range	0.49	0.22	0.04	0.09	0.06	0.12	0.06	0.15	0.05	0.05	0.11
	Min	3.42	2.39	0.19	0.46	0.41	0.49	0.65	1.04	0.53	0.28	1.03
	Max	3.91	2.62	0.24	0.55	0.47	0.61	0.71	1.19	0.58	0.33	1.14
F (N=5)	**Mean**	**3.52**	**2.50**	**0.24**	**0.52**	**0.47**	**0.50**	**0.67**	**1.21**	**0.59**	**0.34**	**0.92**
	SD	0.10	0.05	0.05	0.03	0.04	0.03	0.03	0.03	0.03	0.02	0.04
	Range	0.29	0.11	0.11	0.09	0.10	0.07	0.06	0.08	0.07	0.05	0.09
	Min	3.38	2.45	0.21	0.46	0.40	0.47	0.63	1.16	0.55	0.31	0.87
	Max	3.67	2.55	0.32	0.55	0.50	0.54	0.69	1.24	0.62	0.36	0.96

ish green; antennal segments pale yellowish green, segments 3 and 4 suffused with brown; labium yellowish, segment 4 suffused with brown. **Thorax**: Pronotum, mesoscutum, and scutellum uniformly pale yellowish green, pleura uniformly yellowish green. *Legs*: Uniformly pale whitish green, distal tarsomere very slightly suffused with brown, tibial spines without dark bases. *Hemelytra*: Corium including clavus and cuneus pale yellowish green, anterior margin of cuneus transparent. **Abdomen**: Venter, pygophore, and parameres uniformly pale yellowish green, with phallotheca brown. SURFACE AND VESTITURE (fig. 9A): Dorsum weakly shining, covered rather densely with simple, slender, subadpressed setae of moderate length, some of them more slender (white asterisks) than others (black asterisk). STRUCTURE: **Head** (figs. 2A, 3): Short, broader than long, vertex wide, slightly convex, posterior margin straight, vertex and frons sloping, clypeus somewhat bulging, mandibular and maxillary plates short, the latter slightly sunken, buccula very short, buccal cavity oval, gula very short; eyes of moderate size, about 3/4 of height of head, posterolateral margins contiguous with anterolateral margins of pronotum; antennal segment 1 short and stout, segment 2 long, slender at base and

diameter increasing toward apex, segments 3 and 4 combined shorter than segment 2; labium short, apex reaching base of mesocoxa. **Thorax** (figs. 7A, 8A): Pronotum relatively short trapeziform, anterior margin sinuate, lateral margins slightly convex, posterior margin slightly concave, anterior and posterior pronotal lobes not demarcated, callus obsolete, metapleural evaporatorium with mushroomlike cuticle area broad but short, consisting of few mushroomlike components, mushroomlike cuticle anterior to mesothoracic spiracle weakly developed (fig. 7A). *Legs*: Slender; claw slender, gently curved, pulvillus about half as long as claw (fig. 8A). *Hemelytra*: Slightly convex, cuneus triangular. **Abdomen**: Reaching apex of cuneus (fig. 1). GENITALIA (figs. 2A, 3): **Pygophore**: Large and stout (fig. 2A), occupying more than 1/3 of abdomen. **Parameres** (fig. 3): Right paramere typically phyline lanceolate; left paramere with anterior process short, posterior process elongate, slender and straight. **Phallotheca** (fig. 3): Moderately slender and elongate, bent in an obtuse angle, without evident ornamentation, ventral opening slitlike. **Vesica** (fig. 3): J-shaped with twisted shaft and rather wide apical half, apex formed by weakly sclerotized blade with very small ventral teeth, secondary gonopore elongate, facing caudad, no gonopore sclerite, spinelike process near secondary gonopore.

Female (fig. 1): More ovoid and larger than male, antennal segments 1 and 2 more slender, segment 2 with diameter slightly increasing toward the apex. GENITALIA (fig. 6): See description of type species, *G. caepa*, new species.

ETYMOLOGY: Named for its pale greenish coloration, after Latin adjective *galbinus* meaning "greenish-yellow" and Greek *korios*, meaning "bug". The gender is masculine.

DISCUSSION: *Galbinocoris* can be distinguished from other Phylini occurring in Arizona and Texas by its pale coloration, small size, and characters of the male genitalia.

Galbinocoris caepa, new species
Figures 1, 2, 3, 6–10

HOLOTYPE: Male: **USA: Arizona: *Cochise Co.:*** Chiricahua Mountains, Onion Saddle W to 3.5 mi E Nat. For. bndry, 31.92972°N 109.38167°W, 1661 m, 3 Jun 1983, R. T. Schuh and G. M. Stonedahl, *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00095236) (AMNH).

DIAGNOSIS: As in generic diagnosis.

DESCRIPTION: *Male*: As in generic description, total length 2.45–2.70, length apex of clypeus to cuneal fracture 1.62–1.80, width across pronotum 0.87–0.92. COLORATION (fig. 1): General coloration, head, thorax, and abdomen as in generic description. SURFACE AND VESTITURE (fig. 9A): As in generic description. STRUCTURE (figs. 2, 3, 7A, 8A): Head, thorax, and abdomen as in generic description.

FEMALE: Female as in generic description. Total length 2.52–2.91, length from apex of clypeus to cuneal fracture 1.72–2.09, width across pronotum 0.94–1.16. GENITALIA: Vestibulum small, almost straight, bursa copulatrix rather wide and short, sclerotized rings small, slender and widely separated from each other (fig. 6).

ETYMOLOGY: Named for the type locality, Onion Saddle in Cochise County, Arizona, after the Latin noun *caepa*, meaning "onion".

HOST: Recorded from one unidentified species of *Quercus* (Fagaceae) and *Vitis* sp. (Vitaceae).

DISTRIBUTION (fig. 10): Known only from Cochise County, Arizona, and Bosque and Erath counties in Texas.

PARATYPES: **USA: Arizona: *Cochise Co.:*** Chiricahua Mountains, Onion Saddle W to 3.5 mi E Nat. For. bndry, 31.92972°N 109.38167°W, 1661 m, 3 Jun 1983, R. T. Schuh and G. M. Stonedahl, *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00058652), 1♀ (AMNH_PBI 00058660) (AM). *Vitis* sp. (Vitaceae), 2♂ (AMNH_PBI 00058644, AMNH_PBI 00095097), 7♀ (AMNH_PBI 00058676–AMNH_PBI 00058682) *Quercus* sp. (Fagaceae), 13♂ (AMNH_PBI 00058645–AMNH_PBI 00058647, AMNH_PBI 00058649, AMNH_PBI 00058653–AMNH_PBI 00058655, AMNH_PBI 00058995–AMNH_PBI 00058996, AMNH_PBI 00095232–AMNH_PBI 00095235), 24♀ (AMNH_PBI 00058656–AMNH_PBI 00058658, AMNH_PBI 00058662–AMNH_PBI 00058663, AMNH_PBI 00058665–AMNH_PBI 00058675, AMNH_PBI 00058683–AMNH_PBI 00058684, AMNH_PBI 00058997, AMNH_PBI 00095237–AMNH_PBI 00095241) (AMNH). *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00058651), 1♀

(AMNH_PBI 00058664) (CNC). *Vitis* sp. (Vitaceae), 1♂ (AMNH_PBI 00058650) *Quercus* sp. (Fagaceae), 1♀ (AMNH_PBI 00058661) (USNM). *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00058648), 1♀ (AMNH_PBI 00058659) (ZISP). **Texas:** ***Bosque Co.:*** Laguna Park, 31.85917°N 97.37944°W, 2 May 1975, J. C. Schaffner, 3♂ (AMNH_PBI 00092471–AMNH_PBI 00092473) (TAMU). ***Erath Co.:*** 10 miles S of Stephenville, 32.07543°N 98.20194°W, 7 Apr 1972, J. C. Schaffner, 12♂ (AMNH_PBI 00057734–AMNH_PBI 00057745), 6♀ (AMNH_PBI 00057746–AMNH_PBI 00057751) (TAMU).

Hamatophylus, new genus
Figures 1, 2, 3, 6–10

TYPE SPECIES: *Plagiognathus guttulosus* (Reuter, 1876), p. 89.

DIAGNOSIS: Recognized by the rather large size and elongate ovoid body form, relatively large eyes (figs. 1, 2B, 3), broad head, pale coloration with small brown or reddish brown spots at the base of the setae, red cuneus (fig. 1), and male genitalia with twisted vesica with a long hook-shaped apical blade and one short straight blade, secondary gonopore ovoid, gonopore sclerite distinct, slender and elongate (fig. 3). Distinguished from other at least partly spotted Phylini described in this paper by the pale coloration and by the spotted scutellum and hemelytra (i.e., spots not restricted to the pronotum and scutellum as in *Insulaphylus cruz*, new species, or only the pronotum as in *Quernocoris caliginosus*, new species). Also distinguished from these taxa, but also from *Psallus* Fieber and *Plagiognathus*, by the characters of the male vesica mentioned above.

DESCRIPTION: *Male*: Rather large size, ovoid and slightly elongate, stout in lateral view. COLORATION (fig. 1): Pale brownish, sometimes tinged with red, with small brown or reddish brown spots at bases of setae on entire dorsum, anterior crescent-shaped portion of cuneus whitish hyaline, remaining part bright red. **Head**: Pale with dark spots, brownish transverse fasciae on vertex indistinct, apex of mandibular plate often reddish, posterior portion of maxillary plate often suffused reddish and brownish, gena usually brown, buccula white and gula whitish; antennal segment 1 pale, with very few dark spots around setal bases, base of segment 1 suffused with light brown, segments 2 and 3 pale yellowish, segment 4 light brown; labium pale yellowish, with apical half of segment 4 suffused with brown. **Thorax**: Pronotum pale yellow to pale brown with dark spots around setal bases, transverse band across calli brown, pale or whitish median longitudinal stripe on anterior and posterior lobes in darker specimens, mesoscutum variable pale to brown, sometimes with lateral parts orange or paired submedian clusters of dark spots, scutellum pale with dark spots, often with an anterior semicircular area brownish, propleuron pale with scattered dark spots dorsally, mesepisternum brown with dorsal margin whitish, mesepimeron and metepimeron pale yellowish to pale brown, metapleuron pale, sometimes suffused with light brown and sometimes with evaporatory area suffused with light brown. *Legs*: Pale or yellowish with coxal bases suffused with brown, apical half of metafemur sometimes suffused with light brown, femora with small dark spots, denser toward apex of segment, apex of tibia and of tarsus slightly suffused with brown. *Hemelytra*: Pale with reddish brown spots around setal bases, distal portions slightly suffused with light brown, cuneus with crescent-shaped anterior area whitish, remaining portion red. **Abdomen**: Venter, pygophore, parameres, and phallotheca reddish brown with a broad median longitudinal stripe and ventral connexival margins a lighter brown. SURFACE AND VESTITURE (fig. 9B): Dorsum weakly shining, moderately densely covered with simple, rather short, recumbent, subadpressed setae, some of them stouter (black asterisk) than others (white asterisk), with bases of most setae surrounded by brownish spots. STRUCTURE: **Head** (figs. 2B, 3): Broader than long, short, vertex relatively wide, slightly convex, posterior margin straight, vertex and frons sloping, clypeus only slightly produced, maxillary plate slightly sunken, buccula short, buccal cavity oval, gula very short; eyes large, protruding laterally, almost as high as head, distinctly emarginate posterior to antennal fossa, posterolateral margin contiguous with anterolateral margin of pronotum; antennal segment 1 short and moderately slender, segment 2 longest, diameter smaller at base than segment 1, increasing

slightly toward apex, segments 3 and 4 combined somewhat shorter than segment 2; apex of labium reaching base of metacoxa. **Thorax** (figs. 7B, 8B): Pronotum trapeziform, anterior margin slightly sinuate, lateral margins slightly convex, posterior margin slightly concave, anterior and posterior pronotal lobes not demarcated, callus obsolete; metapleural evaporatorium with mushroomlike cuticle area rather narrow and elongate, mushroomlike cuticle anterior to mesothoracic spiracle well developed (fig. 7B). *Legs*: Slender; claws moderately slender, pulvilli of moderate size, covering about half of ventral claw surface, parempodia setiform, slender and moderately elongate, very short seta medially on the ventrodistal surface of pretarsus represents the dorsal arolium (fig. 8B, white arrow head). *Hemelytra*: Subparallel, cuneus elongate triangular. **Abdomen**: Reaching apex of cuneus. GENITALIA (fig. 3): **Pygophore**: Large and relatively long. **Parameres**: Right paramere typically phyline lanceolate; left paramere with anterior process of moderate length and pointed apex, posterior process elongate with apex bent ventrad. **Phallotheca**: Slender and elongate, L-shaped, with ridge running along left side and pointed apex, ventral opening slitlike. **Vesica**: S-shaped, with two apical blades circular in cross-section, left blade long and bent to the right, right blade short and straight, low flange proximal to secondary gonopore, secondary gonopore subapical, large and ovate, gonopore sclerite present, of moderate length, stout and bent proximally.

Female (fig. 1): Color pattern similar to that of male, but coloration generally paler, body shape slightly more ovoid and larger than in male (fig. 1), eyes distinctly less laterally protruding than in male but still about as high as head, vertex wider, antennal segments 1 and 2 more slender, segment 2 with diameter slightly increasing toward the apex. GENITALIA (fig. 6): See description of type species.

ETYMOLOGY: Named for the hook-shaped apex of the male vesica in caudal view, after Latin adjective *hamatus*, meaning ''curved like a hook'', combined with the generic name *Phylus* Hahn to emphasize its systematic position within Miridae. The gender of the name is masculine.

DISCUSSION: Comparison of *Hamatophylus guttulosus*, new combination, with species of the genus *Plagiognathus* (Schuh 2001) leaves no doubt that this species—placed here in the new, monotypic genus *Hamatophylus*—does not belong to *Plagiognathus*. Apart from the shared type of simple setation, which *H. guttulosus* and species of *Plagiognathus* have in common, *H. guttulosus* disagrees with species of *Plagiognathus* in several characteristics. In addition to having a stouter and more ovoid shape and a shorter head than species of *Plagiognathus*, the hook-shaped apical blade, ovoid secondary gonopore, and the presence of a well-developed gonopore sclerite in *H. guttulosus* separate *Hamatophylus* from *Plagiognathus*.

Hamatophylus guttulosus, new combination
Figures 1, 2, 3, 6–10

Psallus guttulosus Reuter, 1876: p. 89 (n.sp.).
Plagiognathus guttulosus Knight, 1941: 40 (n.comb.).
Plagiognathus guttulosus Carvalho, 1958: 102 (cat.).
Plagiognathus guttulosus Schuh, 2001: 255 (tax. disc., incertae sedis).

HOLOTYPE: Male: **USA: Texas:** [unknown locality, date, and collector] (AMNH_PBI 00099654) (MZH).

DIAGNOSIS: Recognized by the characters given in the generic diagnosis.

REDESCRIPTION: *Male*: As in generic description, total length 3.36–3.77, length from apex of clypeus to cuneal fracture 2.42–2.72, width across pronotum 1.20–1.37. COLORATION (fig. 1): General coloration, head, thorax, and abdomen as in generic description. SURFACE AND VESTITURE (fig. 9B): As in generic description. STRUCTURE (figs. 3, 7B, 8B): Head, thorax, and abdomen as in generic description.

FEMALE: As in generic description. Total length 3.56–3.77, length from apex of clypeus to cuneal fracture 2.53–2.68, width across pronotum 1.28–1.36. GENITALIA (fig. 6): Vestibulum slender, S-shaped, bursa copulatrix wider than long, posterior margin medially with distinct indentation, sclerotized rings large and slender.

HOST: Breeds on *Quercus virginiana* Mill. (Fagaceae), but also on other species of

Quercus. Wheeler (1991) recorded *H. guttulosus* on *Quercus illicifolia* Wangenh.

DISTRIBUTION (fig. 10): Specimens examined here range in the United States from Arizona in the west to Florida and South Carolina, in the east. The few Mexican records show that the distribution of *H. guttulosus* extends as far south as the San Luis Potosí state. In addition to records from specimens studied during this project, which are represented in the distribution map, Uhler (1894) recorded *H. guttulosus* from Baja California, Mexico, Knight (1941) from Illinois, and Froeschner (1949) from Missouri.

DISCUSSION: The holotype of *H. guttulosus* (Reuter, 1876) is in the Zoological Museum of the University, Helsinki, and was examined during this project.

Hamatophylus guttulosus is not restricted to *Quercus virginiana*. In Mexico, it is also known from *Q. polymorpha* and *Q. mircrolepis*, among others, and Wheeler (1991) found it on *Q. illicifolia* in Pennsylvania. Nevertheless, the rather close matching of the distribution of *Q. virginiana* with the distribution here displayed for *H. guttulosus* might be an indication that *Q. virginiana* is an important if not the primary host for this bug species.

MATERIAL EXAMINED: **MEXICO: Nuevo Leon:** 30 km W of Linares on Rt 58 toward San Roberto, 24.84331°N 99.84493°W, 23 Mar 1985, R. T. Schuh and B. M. Massie, *Quercus microlepis* (Fagaceae), 1♂, 1♀ *Quercus microlepis* (Fagaceae), det. K. Nixon 1985, 1♂, 1♀ (AM). *Quercus microlepis* (Fagaceae), 10♂, 7♀ *Quercus microlepis* (Fagaceae), det. K. Nixon 1985, 10♂, 7♀ *Quercus virginiana* (Fagaceae), 1♀ *Quercus rysophylla* Woatherby (Fagaceae), det. K. Nixon 1985, 2♂ (AMNH). *Quercus microlepis* (Fagaceae), 1♂, 1♀ *Quercus microlepis* (Fagaceae), det. K. Nixon 1985, 1♂, 1♀ (ZISP). 7.5 miles S of Monterrey, 25.55771°N 100.31666°W, 12 Mar 1976, Vincent and Schaffner, 10♂, 8♀ (TAMU); 17 Mar 1975, Clark and Schaffner, 3♂, 8♀ *Quercus* sp. (Fagaceae), 2♀ (TAMU); 21 Mar 1974, J. C. Schaffner, *Quercus polymorpha* (Fagaceae), 8♂, 4♀ (TAMU); 26 Mar 1979, J. C. Schaffner, *Quercus* sp. (Fagaceae), 4♂, 1♀ *Quercus polymorpha* (Fagaceae), 3♀ (TAMU). Valle Alto just S of Monterrey, 25.57361°N 100.25694°W, 17 Apr 1978, Henry, Schaffner, and Schuh, *Quercus* sp. (Fagaceae), 1♀ (AMNH). **San Luis Potosí:** 2 miles E of Ciudad del Maiz, 22.39999°N 99.56856°W, 12 Apr 1979, T. P. Friedlander and J. C. Schaffner, *Quercus sideroxyla* Humb. & Bonpl. (Fagaceae), det. K. Nixon 1988, 3♂, 5♀ (TAMU). **USA: Arizona:** ***Gila Co.:*** 8 mi SW jct Rts 87 and 188 (off Rt 87), Tonto National Forest, 33.55989°N 111.21341°W, 1219 m, 27 May 1983, R. T. Schuh and G. M. Stonedahl, Light Trap, 2♂ (AMNH). ***Mohave Co.:*** Hualapai Mountains, SE of Kingman, T20N R15W, 35.18944°N 114.05222°W, 1585 m, 9 Jun 1983, R. T. Schuh, M. D. Schwartz, G. M. Stonedahl, *Quercus* sp. (Fagaceae), 2♀ (AMNH). ***Yavapai Co.:*** US Rt 17, 2 mi S of Rt 179, 34.53604°N 111.93105°W, 1219 m, 18 Apr 1982, M. D. Schwartz, *Juniperus monosperma* (Cupressaceae), 1♀ (AMNH). **Florida:** ***Alachua Co.:*** Gainesville, 29.65139°N 82.325°W, 22 Apr 1952, J. R. Vockeroth, 1♂ (CNC); 1 Apr 1960, H. F. Howden, 1♀ (CNC); 23 Apr 1952, J. R. Vockeroth, 1♀ (CNC). Gainesville, 29.65139°N 82.325°W, 12 Mar 1975, H. Greenbaum, Light Trap, 1♀ (TAMU). ***Clay Co.:*** Bellair, 30.17417°N 81.74083°W, [date and collector unknown], 1♀ (CAS). 2♀ (TAMU). ***Duval Co.:*** Jacksonville, 30.33194°N 81.65583°W, [date and collector unknown], 1♂ (TAMU). ***Gulf Co.:*** Saint Joseph Penninsula State Park, 28.37556°N 82.28694°W, 23 Apr 1998, P. Kovarik, *Quercus* sp. (Fagaceae), 1♂, 1♀ (TAMU). ***Highlands Co.:*** Archbold Biological Station, 27.18833°N 81.33778°W, 23 Apr 1967, D. E. Bright, 1♂ (CNC). ***Hillsborough Co.:*** Tampa, 27.94722°N 82.45861°W, 24 Mar 1986–26 Mar 1986, J. E. Eger, 17♂, 7♀ (TAMU); 20 Apr 1986, J. E. Eger, 1♀ (TAMU); 3 Apr 1986, J. E. Eger, 1♂ (TAMU). ***Lake Co.:*** Hawthorne, 28.76111°N 81.87111°W, 2 Jun 1961, L. A. Kelton, 11♂, 7♀ (CNC). ***Levy Co.:*** 3.8 mi S of Bronson P.O., 29.39232°N 82.6425°W, 29 Apr 1984, J. T. Polhemus, 1♂, 2♀ (JTP). 4.5 mi NE of Cedar Key on rt. 24, 29.18452°N 82.98238°W, 29 Apr 1984, J. T. Polhemus, 2♀ (JTP). ***Liberty Co.:*** TNC Apalachicola Bluffs & Ravines Pres., Travelers Tract, 29.72556°N 84.98333°W, 14 May 1999, P. W. Kovarik, *Quercus* sp. (Fagaceae), 1♂ (TAMU). Torreya State Park, 30.56889°N 84.94778°W, 19 Apr 1984, C. B. Barr, Light Trap, 1♂ (UCB). ***Manatee Co.:*** Oneco, 27.44722°N 82.54639°W, 22 Mar 1955, J. C. Martin, 1♂ (CNC). ***Miami-Dade Co.:*** Florida City, 25.4475°N 80.47944°W, 28 Mar 1939, G. B. Merrill, Light Trap, 2♀ (USNM). Kendall, 25.67889°N 80.3175°W, 28 Apr 1961, L. A. Kelton, 1♀ (CNC). ***Orange Co.:*** Winter Park, 28.59972°N 81.33944°W, 26 Mar 1111, E. M. Davis, 1♀, Light Trap, 1♂ (USNM); 11 Apr 1111, E. M. Davis, 1♂, 1♀ (USNM); 28 Mar 1111, E. M. Davis, 1♂ (USNM); 25 Mar 1111, E. M. Davis, 1♀ (USNM); 15 Mar 1944, H. T. Fernand, Light Trap, 1♀ (USNM). ***Volusia Co.:*** Port Orange, 29.13806°N 80.99583°W, 23 Mar 1963–8 Apr 1963, J. F. Brimley, 3♂, 1♀

(TAMU). South Daytona, 29.16556°N 81.00472°W, 3 Apr 1961, J. F. B., 1♀ (TAMU). **Georgia:** ***Glynn Co.:*** Saint Simons Island, 31.15308°N 81.37464°W, 22 Apr 1911–12 May 1911, J. C. Bradley, 1♀ (CAS). ***Liberty Co.:*** Saint Catherines Island, 31.65667°N 81.15167°W, 24 Apr 1982–29 Apr 1982, Rozen and Favreau, 1♂, 2♀ (AMNH). **Mississippi:** ***George Co.:*** Lucedale, 30.925°N 88.59°W, 24 Apr 1931, H. G. Johnston, 1♀ (TAMU). ***Harrison Co.:*** Biloxi, 30.39583°N 88.88528°W, 16 Apr 1931, H. G. Johnston, 3♂, 6♀ *Quercus nigra* (Fagaceae), 1♀ (TAMU). Landon, 30.43778°N 89.10278°W, 15 Apr 1931, H. G. Johnston, 2♂ (TAMU). Long Beach, 30.35028°N 89.15278°W, 18 Apr 1931, H. G. Johnston, 1♀ (TAMU). Mississippi City, 30.38167°N 89.04389°W, 11 Apr 1931, H. G. Johnston, 2♀ (TAMU). ***Lauderdale Co.:*** Meridian, 32.36417°N 88.70361°W, 28 Apr 1931, H. G. Johnston, 1♀ (TAMU). ***Leake Co.:*** Wiggins, 32.70194°N 89.63667°W, 5 May 1931, H. G. Johnston, 2♂ (TAMU). ***Oktibbeha Co.:*** Mississippi State University (A. & M. C.), 33.45472°N 88.78861°W, 29 May 1931, [collector unknown], 1♀ (TAMU). **Pennsylvania:** ***Schuykill Co.:*** 5 mi S of Frackville on Rt 81, 40.72248°N 76.33146°W, 8 Jul 1987, A. G. Wheeler, Jr., *Quercus ilicifolia* (Fagaceae), 1♂, 2♀ (USNM); 23 Jun 1986, A. G. Wheeler, Jr., *Quercus ilicifolia* (Fagaceae), 1♀ (USNM). **South Carolina:** ***Beaufort Co.:*** Hilton Head Island, 32.19361°N 80.73833°W, 13 Apr 1974, G. C. Gaumer, 1♀ (TAMU). ***Greenville Co.:*** Greenville, 34.8525°N 82.39417°W, 20 May 1983, R. S. Peigler, Light Trap, 1♂, 1♀ (TAMU); 27 Apr 1985, R. S. Peigler, Light Trap, 1♂ (TAMU); 6 May 1986, R. S. Peigler, Light Trap, 1♂ (TAMU); 11 May 1985, R. S. Peigler, Light Trap, 1♀ (TAMU). ***Oconee Co.:*** Seneca, 34.68556°N 82.95333°W, 6 May 1976–25 May 1976, R. S. Peigler, Light Trap, 1♀ (TAMU). **Tennessee:** ***Hamilton Co.:*** unknown, 1 Oct 1943, Turner, 3♂ (USNM). **Texas:** ***Anderson Co.:*** 5 mi E Salmon, 31.57275°N 95.41288°W, 13 Apr 1990, H. R. Burke, E. Riley & C. S. Wolfe, 1♂ (TAMU). ***Angelina Co.:*** Upland Island Wilderness Area, Graham Creek bottomland, 31.1431°N 94.40779°W, 9 Apr 1999, W. Godwin, 6♂, 17♀ (TAMU); 10 Apr 1999, M. Yoder, Light Trap, 1♂, 1♀ (TAMU). ***Aransas Co.:***Goose Island State Park, 28.13528°N 96.98722°W, 12 Apr 1992, W. F. Chamberlain, 1♀, Light Trap, 8♂, 3♀ (TAMU); 22 Apr 1962, W. F. Chamberlain, 1♂ (TAMU). Goose Island State Recreation Area, 28.12806°N 96.99167°W, 12 Apr 1992, W. F. Chamberlain, 2♂, Light Trap, 3♂ (TAMU). ***Bandera Co.:*** 12.5 miles W of Medina, 29.79622°N 99.45523°W, 2 May 1983, J. C. Schaffner, 1♀ (TAMU). 3 mi E Bandera, 29.72638°N 99.02317°W, 19 Apr 1984, J. C. Schaffner, 9♀ (TAMU). Lost Maples State Natural Area Trails, 29.81522°N 99.57505°W, 27 Apr 1986, K. Haack, P. Kovarik, 9♂, 4♀, Light Trap, 1♀ (TAMU); 28 Apr 1988–30 Apr 1988, R. Anderson, 2♀ (TAMU). ***Bastrop Co.:*** Bastrop State Park, 30.11222°N 97.26056°W, 6 Apr 1959–7 Apr 1959, Bottimer, Mason & McAlpine, Light Trap, 2♀ (CNC). ***Blanco Co.:*** 10 mi SE Johnson City, 30.17396°N 98.2928°W, 29 Apr 1983, J. C. Schaffner, 1♀ (TAMU). 5 mi E Cypress Mill, 30.3808°N 98.16614°W, 28 Apr 1971, V. V. Board, 1♀ (TAMU). ***Bosque Co.:*** 3 mi W of Laguna Park, 31.85917°N 97.4305°W, 21 Apr 1972, J. C. Schaffner, 1♀ (TAMU). Laguna Park, 31.85917°N 97.37944°W, 13 Apr 1984, J. B. Woolley, 1♂ (TAMU). ***Brazos Co.:*** 9 km SSE College Station, 15889 Woodlake Dr., 30.53333°N 96.28333°E, 8 Apr 2001, J. Oswald, Light Trap, 7♂, 4♀ (TAMU). Bryan, 30.67417°N 96.36972°W, 13 Apr 1965–12 Apr 1974, J. C. Schaffner, Light Trap, 2♂, 1♀ (JTP). Light Trap, 52♂, 20♀, 1♀ (TAMU); 1 May 1965–13 May 1970, J. C. Schaffner, Light Trap, 42♂, 16♀ (TAMU); 6 Apr 1966–8 May 1966, J. C. Schaffner, Light Trap, 6♂, 4♀ (TAMU); 27 Apr 1966, J. C. Schaffner, Light Trap, 1♂ (TAMU); 13 Apr 1999, Wm. Godwin, 1♀ (TAMU); 10 Apr 1972, J. C. Schaffner, Light Trap, 2♂ (TAMU); 21 Mar 1967, H. R. Burke, 1♂ (TAMU); 20 Mar 1967–28 Mar 1967, H. R. Burke, 2♂ (TAMU); 25 Apr 1970, R. G. Phelps, 2♂ (TAMU); 1 Apr 1967, J. C. Schaffner, Light Trap, 1♂ (USNM); 11 May 1966, J. C. Schaffner, Light Trap, 1♀ (USNM); 22 Apr 1965, J. C. Schaffner, Light Trap, 1♂ (USNM). Bryan, 30.67417°N 96.36972°W, 6 Apr 1967, J. C. Schaffner, 1♀ (TAMU). College Station, 30.62778°N 96.33417°W, 15 Apr 1978, Henry, Schaffner, and Schuh, *Quercus virginiana* (Fagaceae), 1♂, 1♀ (AMNH). *Quercus virginiana* (Fagaceae), 11♂, 14♀ (TAMU); 23 Apr 1996, T. Junek, live oak, 1♂, 6♀ (TAMU); 7 Apr 1999, E. G. Riley, 10♂, 1♀ (TAMU); 2 Apr 1982, J. C. Schaffner, 5♂, 5♀ (TAMU); 15 Apr 1970, J. C. Schaffner, *Quercus virginiana* (Fagaceae), 1♂ (JTP); 22 Apr 1973, J. C. Schaffner, 1♂ (JTP); 14 Apr 1996, T. Junek, live oak, 3♀ (TAMU); 25 Apr 1970, J. C. Schaffner, *Quercus virginiana* (Fagaceae), 2♂, 3♀ (TAMU); 1 May 1973, W. E. Clark, 1♂ (TAMU); 15 Apr 1965–25 Apr 1970, J. C. Schaffner, Light Trap, 1♂, 5♀ (TAMU); 20 Apr 1968, J. C. Schaffner, *Quercus virginiana* (Fagaceae), 8♂ (TAMU); 12 Apr 1964, S. G. Wellso, 1♂ (TAMU). College Station, Lick Creek Park, 30.57755°N 96.29052°W, 6 May 2002, J. C. Schaffner, Light Trap, 1♀ (TAMU). College Station, Riley Estate, 30.58833°N 96.25333°E, 10 Apr 2001, E. G. Riley, Light Trap, 5♂, 1♀ (TAMU); 12 Apr 2001, E. G. Riley, 1♂ (TAMU). ***Brooks Co.:*** 7.3 miles S Falfurrias Hwy 281 rest

stop, 27.12064°N 98.14389°W, 8 May 1989, E. G. Riley, 1♂, 1♀ (TAMU). ***Burnet Co.:*** Inks Lake State Park, 30.73083°N 98.38444°W, 13 Apr 1985, P. Kovarik, R. Jones, C. Agnew, 1♂, 2♀ (TAMU); 28 Apr 1968, J. C. Schaffner, Light Trap, 6♂, 3♀ (TAMU); 26 Apr 1969, J. C. Schaffner, Light Trap, 1♂ (TAMU); 21 Apr 1986, Kovarik and Haack, 1♀ (TAMU). ***Comal Co.:*** 5 mi W of Sattler on Canyon Lake, 29.84778°N 98.25861°W, 17 Apr 1983, J. C. Schaffner, 4♀ (TAMU). ***Concho Co.:*** 3 miles E Eden, 31.2161°N 99.79436°W, 20 Apr 1985, J. C. Schaffner, 3♂ (TAMU). ***Culberson Co.:*** just N of Guadalupe Mountains National Park, 31.9°N 104.86667°W, 28 Apr 1978, R. T. Schuh, *Quercus* sp. (Fagaceae), 1♀ (AMNH). ***Edwards Co.:*** 14 mi W Rocksprings, 30.01535°N 100.43972°W, 15 Apr 1985, J. C. Schaffner, 2♂ (TAMU). 17 miles NE Rocksprings, 30.18992°N 100.00345°W, 18 Apr 1984, J. C. Schaffner, 3♂, 1♀ (TAMU). 22 mi S of Rocksprings, 29.69751°N 100.205°W, 30 Apr 1982, J. C. Schaffner, 6♂ (TAMU). 27 miles SE Rocksprings, 29.74023°N 100.06244°W, 18 Apr 1984, J. C. Schaffner, 8♀ (TAMU). ***Erath Co.:*** Stephenville, 32.22056°N 98.20194°W, 21 Apr 1972, J. C. Schaffner, Light Trap, 1♂ (TAMU); 25 Apr 1967, J. C. Schaffner, Light Trap, 1♂ (TAMU). ***Fayette Co.:*** La Grange, 29.90528°N 96.87639°W, 7 Apr 1959, W. R. Mason, Light Trap, 1♂ (CNC); 7 Apr 1959, J. F. McAlpine, Light Trap, 2♂ (CNC). ***Grimes Co.:*** Navasota, 30.38778°N 96.0875°W, 19 Apr 1948, M. Polhemus, 1♀ (AMNH). ***Harris Co.:*** Houston, 29.76306°N 95.36306°W, 17 Apr 1959–19 Apr 1959, E. C. Becker, Light Trap, 21♂, 5♀ (CNC). ***Hays Co.:*** 1 mi SE Wimberley, 29.98695°N 98.08647°W, 25 Apr 1982, J. C. Schaffner, 1♀ (TAMU). 5 mi W of San Marcos, 29.88303°N 98.02483°W, 19 Apr 1984, J. C. Schaffner, 1♀ (TAMU). ***Kendall Co.:*** Boerne City Park, 29.79444°N 98.73167°W, 19 Apr 1984, J. C. Schaffner, 1♂, 5♀ (TAMU). ***Kenedy Co.:*** 20 mi N of Raymondville, 26.77161°N 97.78278°W, 20 Apr 1974, J. C. Schaffner, 1♀ (TAMU). 25 mi S Kingsville, 27.15248°N 97.85583°W, 20 Apr 1974, J. C. Schaffner, 1♂ (TAMU). Kenedy Ranch, Jaboncillos Pasture dune area, 26.94213°N 97.72257°W, 21 Apr 2001, A. Gillogly and J. Schaffner, 3♂, 49♀, Light Trap, 1♂, 9♀ (TAMU); 21 Apr 2001, Raber, Riley and Yoder, Light Trap, 5♂, 17♀, 8♂, 19♀ (TAMU); 20 Apr 2001, J. Oswald and M. Yoder, Light Trap, 5♂, 14♀ (TAMU); 21 Apr 2001, W. Godwin, Light Trap, 1♂, 1♀ (TAMU); 21 Apr 2001, Raber, Riley, Light Trap, 1♀ (TAMU). Kenedy Ranch, Jaboncillos Pasture, 0.8 km SW San Pedro Camp, 26.945°N 91.66111°E, 21 Apr 2001, J. Oswald, Light Trap, 1♂, 15♀ (TAMU). Kenedy Ranch, Jaboncillos Pasture, 2 km E Cayo Grande, 27.02027°N 97.71166°E, 20 Apr 2001, J. Oswald, Light Trap, 1♂, 5♀ (TAMU). Kenedy Ranch, Jaboncillos Pasture, San Pedro Camp, 26.95111°N 97.65611°E, 20 Apr 2001, J. Oswald and M. Yoder, Light Trap, 2♂, 2♀ (TAMU); 21 Apr 2001, J. A. Jackman, 1♀ (TAMU). ***Kerr Co.:*** 5 mi N of Kerrville, 30.1198°N 99.14°W, 18 May 1990, W. F. Chamberlain, Light Trap, 1♂ (TAMU). Hunt, 30.07056°N 99.3375°W, 1 May 1966, J. C. Schaffner, 1♂ (TAMU). Kerrville, 30.04722°N 99.14°W, 10 Apr 1996, W. F. Chamberlain, 1♀ (TAMU); 15 May 1990, W. F. Chamberlain, 3♀ (TAMU); 18 Apr 1959, W. R. Mason, 2♂ (CNC); 11 Apr 1955, L. J. Bottimer, 2♂, 1♀ (CNC); 11 May 1954, L. J. Bottimer, 1♀ (CNC); 5 May 1968, W. F. Chamberlain, 1♀ (TAMU); 8 May 1965, W. F. Chamberlain, 1♀ (TAMU). RNC, Kerrville, 30.04722°N 99.14°W, 6 Apr 1999, W. F. Chamberlain, 2♂ (TAMU). ***Kimble Co.:*** 1 mile E Junction, 30.48916°N 99.75482°W, 17 Apr 1984, J. C. Schaffner, 1♂, 2♀ (TAMU). Junction, 30.48917°N 99.77167°W, 29 Apr 1983, J. C. Schaffner, 1♀ (TAMU); 17 Apr1984–18 Apr 1984, J. C. Schaffner, 8♂, 6♀ (TAMU). ***Leon Co.:*** 5.5 mi N of Flynn, 31.23034°N 96.12417°W, 14 May 1997, A. R. Gillogly, 1♀, Light Trap, 4♂, 3♀ (TAMU). ***Llano Co.:*** 13 miles W of Llano, 30.75898°N 98.89432°W, 23 Apr 1979, H. Burke, D. Delorme, J. C. Schaffner, 5♀ (TAMU). ***Mason Co.:*** 3 mi NE Streeter, 30.7955°N 99.34027°W, 17 Apr 1984, J. C. Schaffner, 2♂ (TAMU). 8.5 mi S of Mason, Llano River crossing, 30.63672°N 99.223°W, 13 May 1997, Gilogly and Schaffner, 1♀ (TAMU). ***Matagorda Co.:*** Bay City, 28.9825°N 95.96917°W, 2 Apr 1976, G. V. Manley, 2♀ (TAMU). ***Real Co.:*** 4 mi n Varice, 29.83316°N 99.8384°W, 18 Apr 1984, J. C. Schaffner, 2♀ (TAMU). 5 mi E Leakey, 29.72858°N 99.67751°W, 1 May 1983, J. C. Schaffner, 1♂ (TAMU). 6 mi E Leakey, 29.72857°N 99.66079°W, 18 Apr 1984, J. C. Schaffner, 1♂, 3♀ (TAMU). ***San Patricio Co.:*** Aransas Pass, 27.90917°N 97.14972°W, 11 Apr 1939, G. Willett, 1♂, 1♀ (LACM). Lake Corpus Christi State Park, 28.06167°N 97.87639°W, 16 May 1965, M. H. Sweet, 1♂, 1♀ (TAMU). Mathis, 28.09417°N 97.82778°W, 4 Jun 1964, H. R. Burke, 1♀ (TAMU). Welder Wildlife Refuge, near Sinton, 28.03639°N 97.50889°W, 19 Apr 1983, T. J. Henry and A. G. Wheeler, Jr., *Celtis laevigata* (Ulmaceae), 1♀ *Prosopis glandulosa* (Fabaceae), 4♂, 1♀ (USNM); 18 Apr 1989–19 Apr 1989, R. Anderson, 5♂, 5♀ (TAMU). ***San Saba Co.:*** 5 miles SE of Bend, 31.0481°N 98.45145°W, 21 Apr 1997, W. F. Chamberlain, 1♂, 3♀ (TAMU). ***Shackelford Co.:*** Ford Griffin State Park, 32.92277°N 99.22472°E, 10 May 2002, E. G. Riley, 1♀ (TAMU). ***Smith Co.:*** Tyler State Park, 32.35111°N 95.30083°W, 9 May 1988, R. S. Anderson, Light Trap, 1♂ (TAMU). ***Somervell***

Co.: 10 mi W Glen Rose, 32.23432°N 97.92657°W, 4 May 1973, J. C. Schaffner, 1♀ (TAMU). ***Sutton Co.:*** 16 mi W of Sonora, 30.56667°N 100.91169°W, 11 May 1997, Gillogly, Schaffner, 1♂, 2♀ (TAMU). 17 miles E of Sonora, 30.56635°N 100.35645°W, 27 Apr 1985, W. F. Chamberlain, 3♂ (TAMU). Sonora, 30.56667°N 100.64306°W, 29 Apr 1932, S. E. Jones, 22♂, 8♀ (TAMU). ***Travis Co.:*** Zilker Park, 30.26722°N 97.76972°W, 3 Apr 1985, P. W. Kovarik, 1♂, 2♀ (TAMU). Vicinity of Long Hollow Creek, 30.44781°N 97.88212°W, 23 Apr 1994, M. Quinn, E. Riley, R. Wharton, *Quercus virginiana* (Fagaceae), 1♂, 4♀ (TAMU); 23 Apr 1993, Alexander, Quinn, Riley, Wharton et al., *Ulmus crassifolia* (Ulmaceae), 1♂ *Quercus buckleyi* (Fagaceae), 1♂, 1♀ *Quercus virginiana* (Fagaceae), 5♂, 7♀ (TAMU); 22 Apr 1993, [collector unknown], 1♀ (TAMU); 8 May 1993, Alexander, Quinn, Riley, Wharton et al., *Quercus virginiana* (Fagaceae), 2♀ (TAMU). ***Uvalde Co.:*** 1.3 miles NW Uvalde, 29.22278°N 99.80112°W, 15 Apr 1985, J. C. Schaffner, 2♂ (TAMU). 16.4 miles NW Uvalde (on Nueces River), 29.37192°N 99.98607°W, 15 Apr 1985, J. C. Schaffner, 1♂, 6♀ (TAMU). 29 miles NW Uvalde, 29.52295°N 100.03118°W, 15 Apr 1985, J. C. Schaffner, 5♂, 2♀ (TAMU). ***Val Verde Co.:*** 2.7 mi W of Comstock, 29.68417°N 101.21798°W, 16 Apr 1985, J. C. Schaffner, 1♂ (TAMU). Del Rio, 29.3625°N 100.89639°W, 29 Apr 1959, W. R. Mason, Light Trap, 1♂ (CNC). ***Williamson Co.:*** Taylor, 30.57056°N 97.40917°W, 26 Apr 1968, J. E. Hafernik, 2♂ (TAMU). ***Zavala Co.:*** Crystal City, 28.67722°N 99.82778°W, 24 Apr 1978, T. J. Henry and R. T. Schuh, *Quercus* sp. (Fagaceae), 1♀ (TAMU).

Insulaphylus, new genus
Figures 1, 2, 4, 6–9, 11

TYPE SPECIES: *Insulaphylus cruz*, new species.

DIAGNOSIS: Distinguished from other Phylini by the following combination of characters: Medium to rather large size, elongate ovoid body shape, pale reddish to reddish brown coloration, pronotum and scutellum pale with irregular small dark spots, hemelytra without spots (fig. 1), vesica S-shaped and slender, with one apical blade, secondary gonopore of medium size, gonopore sclerite very long and slender, Y-shaped (fig. 4). Habitus somewhat similar to *Quernocoris*, new genus, but distinguished by having spots on the mesoscutum and scutellum and by the structure of male genitalia.

DESCRIPTION: *Male*: Moderate to rather large size (3.32–4.33), elongate ovoid, and moderately stout in lateral view. COLORATION (fig. 1): General coloration pale, light brown and reddish, pronotum, mesoscutum and scutellum with numerous small dark spots, pronotal callus often yellowish and lined with brown, anterior crescent-shaped portion of cuneus hyaline, remaining portion pale. **Head**: Vertex pale to light reddish with five paired transverse fasciae brown and additional brown mark on the interior margin of the eye, clypeus pale or light reddish with paired longitudinal stripes, subapical area castaneous, and apex white, labrum brown, mandibular plate pale or light reddish, maxillary plate and gena, including area surrounding antennal fossa brown, buccula whitish, gula brown with large lateral yellowish mark; antennal segment 1 whitish or yellowish with a basal and a subapical ring brown, segment 2 yellowish, with white ring at base, followed by an area suffused with brown, and apex suffused with brown, segments 3 and 4 brownish; labial segments 1 to 3 yellowish white, segment 4 suffused with brown. **Thorax**: Pronotum, mesoscutum, and scutellum pale, sprinkled with small dark marks, sometimes suffused with grey, orange, brown, or red, and sometimes with a whitish longitudinal line, with callus yellowish lined with brown, pleura brown, often with margin of procoxal cavity and dorsal margin of propleuron, dorsal rim of mesepisternum and posterior rim of mesepimeron and evaporatory area lighter brown, whitish, or yellowish, with peritreme sometimes orange. *Legs*: Pale yellowish with extreme base of coxae and tibia distally suffused with brown, base of tibiae often and distal tarsomere usually brown, dark marks on femur and tibial spines with dark base. *Hemelytra*: Corium including clavus yellowish, suffused with red and brown toward the costal fracture, cuneus proximally transparent or whitish with the remaining parts reddish. **Abdomen**: Venter, pygophore, parameres, and phallotheca brown, ventral connexival laterotergites usually with yellow marks, pygophore yellowish and brown. SURFACE AND VESTITURE (fig. 9C): Dorsum weakly shining, with rather dense, subadpressed setae of moderate length and stoutness, some (black

asterisk) stouter than others (white asterisk), with stout and more erect black setae on head and pronotum, bases of setae usually associated with dark roundish marks on pronotum and scutellum. STRUCTURE: **Head** (figs. 2C, 4): Triangular in dorsal aspect, vertex wide, slightly convex and almost straight behind, clypeus moderately produced, maxillary plate slightly sunken, buccula short, buccal cavity large and ovoid, gula short; eyes a little more than 3/4 of height of head, of moderate size, emarginate posterior to antennal fossa, posterolateral margin contiguous with anterolateral margin of pronotum; antennal segment 1 short and relatively slender, segment 2 long, more slender than segment 1, diameter slightly increasing toward apex, segments 3 and 4 combined shorter than segment 2; apex of labium reaching base of metacoxa. **Thorax** (figs. 7C, 8C): Pronotum trapeziform, anterior margin straight, lateral margins convex, posterior margin slightly sinuate, anterior and posterior pronotal lobes weakly demarcated, callus slightly developed, metapleural evaporatorium with mushroomlike cuticle area well developed, mushroomlike cuticle anterior to mesothoracic spiracle well developed (fig. 7C). *Legs*: Slender; claws slender, pulvilli low but long, covering more than half of ventral claw surface, parempodia setiform, slender and moderately elongate, unpaired, very short seta medially on the ventrodistal surface of pretarsus represents the dorsal arolium (fig. 8C). *Hemelytra*: Subparallel, cuneus elongate triangular. **Abdomen**: Abdomen reaching to apex of cuneus. GENITALIA (fig. 4): **Pygophore**: Of moderate size and stoutness. **Parameres**: Right paramere typically phyline lanceolate; left paramere with anterior process short and stout, posterior process relatively long and slender with apex distinctly pointing ventrad. **Phallotheca**: Moderately elongate and slender, L-shaped, apex tapering and pointed, with ventral opening slitlike. **Vesica**: S-shaped and slender, with one apical blade, secondary gonopore in apical third, of medium size and ovate, either facing left or caudad, gonopore sclerite present, long slender, and Y-shaped.

Female (fig. 1): Color pattern similar to male but coloration paler, body shape slightly more ovoid and larger than male, with pronotum wider, eyes smaller, antennal segment 2 more slender, increase in diameter toward the apex more pronounced than in male. GENITALIA (fig. 6): See description of type species *Insulaphylus cruz*, new species.

ETYMOLOGY: Named for the distribution of the two included species, which are so far known only from the Channel Islands off the coast of southern California, combined with the generic name *Phylus* to emphasize its systematic position within Miridae. The gender of the name is masculine.

DISCUSSION: This new genus of oak-inhabiting Phylini is clearly distinguished from other Phylini collected on *Quercus* in the western United States by the habitus and male genitalic structures. Furthermore, this taxon is so far known only from the Channel Islands.

The two species in the genus *Insulaphylus* do not occur sympatrically on the Channel Islands. *Insulaphylus cruz* is known only from Santa Cruz Island, whereas the much smaller and dark-colored *I. meridianus*, new species, is so far known only from the two more southerly Islands, Santa Catalina and San Clemente (fig. 11). The apparent restriction of *I. meridianus* to the two southernmost Channel Islands represents an interesting biogeographic pattern. Even though the two islands are only 35 km apart, they share only 27% of their total species inventory of Lepidoptera (Powell 1994), with none of the lepidopterans endemic to either island shared by the other. The phyline species described here might be an example of an endemic shared between the two islands.

Additional host-documented specimen records from the Channel Islands and, ideally, records from San Miguel and Santa Rosa Islands as well, would be very valuable in assessing the distribution and host association of species of this apparently island endemic taxon.

In Lepidoptera, only 3.3% of the species occurring on the Channel Islands are endemic (Powell 1994). Assuming that the currently known distribution of *Insulaphylus* reflects reality, rather than a sampling bias, this genus

of Phylini represents one of the few known instances of Channel Island endemics.

Key to Species of *Insulaphylus*

1. Rather large, total length 3.82–4.33 mm, pale to reddish brown (fig. 1), male vesica large and stout, basal half not strongly twisted (fig. 4) ..... ***cruz***, n.sp.
– Medium size, total length 3.32–3.66 mm, reddish coloration often dark (fig. 1), male vesica rather small and slender, basal half strongly twisted (fig. 4)..... ***meridianus***, n.sp.

Insulaphylus cruz, new species
Figures 1, 2, 4, 6–9, 11

Holotype: Male: **USA: California: *Santa Barbara Co.:*** Santa Cruz Island, 34.01667°N 119.71667°W, 23 Apr 1976–26 Apr 1976, J. D. Pinto, *Quercus agrifolia* (Fagaceae) (AMNH_PBI 00082341) (UCR).

Diagnosis: Distinguished from *Insulaphylus meridianus*, new species, by the larger size (3.82–4.33 mm) and details of the male vesica (fig. 4), especially the larger size, stouter appearance, less strongly twisted basal half, and secondary gonopore facing left. Other than the sympatric *Quernocoris caliginosus*, new species, where only the pronotum is at least somewhat spotted, *I. cruz* has spots on the pronotum, but also on the mesoscutum and scutellum.

Description: *Male*: As in generic description, total length 3.82–4.33, length from apex of clypeus to cuneal fracture 2.30–2.57, width across pronotum 1.10–1.25. COLORATION (fig. 1): General coloration as in generic description. **Head**: As in generic description; antennal segments as in generic description; labium as in generic description. **Thorax**: As in generic description, with specimens usually light colored. *Legs*: As in generic description. *Hemelytra*: As in generic description. **Abdomen**: As in generic description. SURFACE AND VESTITURE (fig. 9C): Dorsum and hemelytra as in generic description. STRUCTURE: **Head** (fig. 2C, 4): Head including eyes, antennae, and labium as in generic description. **Thorax**: Thorax including hemelytra and legs as in generic description. **Abdomen**: As in generic description. GENITALIA (fig. 4): As in generic description, with vesica rather large, of moderate stoutness, shaft not strongly twisted, and secondary gonopore facing left.

Female (fig. 1): As in generic description. Total length 3.81–4.15, length from apex of clypeus to cuneal fracture 2.73–2.95, width across pronotum 1.25–1.39. GENITALIA (fig. 6): Vestibulum with broad distal and S-shaped slender proximal portion, bursa copulatrix large, with the posterior margin distinctly rounded, sclerotized rings large and slender.

Etymology: Named for Santa Cruz Island in California, Santa Barbara County. The gender of the name is masculine.

Hosts: Known from *Quercus agrifolia* Née, *Q. dumosa* Nutt. (Fagaceae), and *Prunus lyonii* (Eastw.) (Rosaceae).

Distribution: Known only from Santa Cruz Island in California (fig. 11).

Discussion: On Santa Cruz Island, *I. cruz* is sympatric with and shares the same host as the similar but darker *Quernocoris caliginosus*, new species, and the two species share the same host.

Paratypes: **USA: California: *Santa Barbara Co.:*** Santa Cruz Island, 34.01667°N 119.71667°W, 23 Apr 1976–26 Apr 1976, J. D. Pinto, *Quercus agrifolia* (Fagaceae), 1♂ (AMNH_PBI 00082343), 1♀ (AMNH_PBI 00082348) (AMNH). *Quercus agrifolia* (Fagaceae), 15♂ (AMNH_PBI 00082331–AMNH_PBI 00082340, AMNH_PBI 00082342, AMNH_PBI 00082344–AMNH_PBI 00082347), 9♀ (AMNH_PBI 00082349–AMNH_PBI 00082350, AMNH_PBI 00082443–AMNH_PBI 00082446, AMNH_PBI 00082451–AMNH_PBI 00082452, AMNH_PBI 00082720) (UCR); 24 Mar 1941, G. P. Kanakoff, *Quercus* sp. (Fagaceae), 2♂ (AMNH_PBI 00074192, AMNH_PBI 00074193), 2♀ (AMNH_PBI 00074194, AMNH_PBI 00074195) (LACM); 15 Apr 1983, M. L. May, 1♀ (AMNH_PBI 00082447) (UCR). Santa Cruz Island, Albert's Ridge, 34.01667°N 119.71667°W, 27 Apr 1966, J. Powell, 10♂ (AMNH_PBI 00079188–AMNH_PBI 00079189, AMNH_PBI 00079227–AMNH_PBI 00079232, AMNH_PBI 00079585, AMNH_PBI 00079598), 2♀ (AMNH_PBI 00079233, AMNH_PBI 00079234) (UCB); 27 Apr 1966, J. Slater, 5♂ (AMNH_PBI 00079203–AMNH_PBI 00079207), 1♀ (AMNH_PBI 00079225) (UCB). Santa Cruz Island, Can del Medio, 34.01667°N 119.71667°W, 29 Apr 1969, S. K.

Senser, 1♂ (AMNH_PBI 00074611) (UCD); 26 Apr 1969, S. K. Senser, 1♂ (AMNH_PBI 00074613), 1♀ (AMNH_PBI 00074614) (UCD). Santa Cruz Island, Canyon Del Medio, 34.01667°N 119.71667°W, 28 Apr 1969, D. S. Horning, 1♀ (AMNH_PBI 00074620) (UCR); 29 Apr 1969, D. R. Miller, 1♂ (AMNH_PBI 00074619) (UCD). Santa Cruz Island, Cascada, 34.01667°N 119.71667°W, 28 Apr 1969, S. K. Senser, 2♂ (AMNH_PBI 00074609, AMNH_PBI 00074610) (UCD); 1 May 2000, J. Powell, Light Trap, 1♀ (AMNH_PBI 00079271) (UCB). Santa Cruz Island, Central Valley, 34.01861°N 119.68083°W, 23 Apr 1976, J. D. Pinto, 1♂ (AMNH_PBI 00082450) *Quercus dumosa* (Fagaceae), 1♂ (AMNH_PBI 00082718) (UCR); 25 Apr 1966, P. Rude, 16♂ (AMNH_PBI 00079209–AMNH_PBI 00079213, AMNH_PBI 00079238–AMNH_PBI 00079247, AMNH_PBI 00079586), 1♀ (AMNH_PBI 00079248) (UCB); 25 Apr 1966, J. Slater, 1♂ (AMNH_PBI 00079358), 1♀ (AMNH_PBI 00079359) *Quercus* sp. (Fagaceae), 6♂ (AMNH_PBI 00079214–AMNH_PBI 00079219), 1♀ (AMNH_PBI 00079220) (UCB). Santa Cruz Island, Central Valley, 34.01667°N 119.71667°W, 29 Apr 1966, J. Powell, 5♂ (AMNH_PBI 00079181–AMNH_PBI 00079184, AMNH_PBI 00079599), 5♀ (AMNH_PBI 00079185–AMNH_PBI 00079187, AMNH_PBI 00079601–AMNH_PBI 00079602) (UCB); 27 Apr 1966, P. Rude, *Prunus lyonii* (Rosaceae), 15♂ (AMNH_PBI 00079190–AMNH_PBI 00079202, AMNH_PBI 00079252–AMNH_PBI 00079253), 1♀ (AMNH_PBI 00079208) (UCB); 28 Apr 1966, P. Rude, 1♂ (AMNH_PBI 00079254) (UCB); 23 Apr 1976–26 Apr 1976, J. D. Pinto, *Quercus dumosa* (Fagaceae), 1♂ (AMNH_PBI 00082353), 1♀ (AMNH_PBI 00082355) (AMNH). 2♂ (AMNH_PBI 00082351, AMNH_PBI 00082360), 2♀ (AMNH_PBI 00082361, AMNH_PBI 00082373) *Quercus dumosa* (Fagaceae), 1♂ (AMNH_PBI 00082352), 3♀ (AMNH_PBI 00082354, AMNH_PBI 00082356–AMNH_PBI 00082357) (UCR); 23 Apr 1976–26 Apr 1976, B. A. Bowers, 1♂ (AMNH_PBI 00082358), 1♀ (AMNH_PBI 00082359) (UCR). Santa Cruz Island, Field Station, 34.01667°N 119.71667°W, 23 Apr 1976–26 Apr 1976, J. D. Pinto, 1♀ (AMNH_PBI 00082362) (UCR); 16 Apr 1983, J. S. Bradberry, 2♀ (AMNH_PBI 00082448, AMNH_PBI 00082449) (UCR). Santa Cruz Island, Prisoner's Harbor Cr, 34.01667°N 119.71667°W, 1 May 1966, J. Slater, 1♀ (AMNH_PBI 00079223) (UCB); 1 May 1966, J. Powell, 1♂ (AMNH_PBI 00079250) (UCB). Santa Cruz Island, Ridge N of Laguna Cyn., 34.01667°N 119.71667°W, 28 Apr 1966, J. Wolf, 1♂ (AMNH_PBI 00079222), 1♀ (AMNH_PBI 00079226) (UCB); 28 Apr 1966, J. Powell, 1♂ (AMNH_PBI 00079600) (UCB). Santa Cruz Island, Upper Central Valley, 34.01861°N 119.68083°W, 305 m, 26 Apr 1966, J. Powell, 4♂ (AMNH_PBI 00079235–AMNH_PBI 00079237, AMNH_PBI 00079249) (UCB). Santa Cruz island, Valley Anchorage, 34.01667°N 119.71667°W, 27 Apr 1966, J. Powell, 2♂ (AMNH_PBI 00079221, AMNH_PBI 00079251) (UCB); 27 Apr 1966, J. Slater, 1♀ (AMNH_PBI 00079224) (UCB). Santa Cruz Island, W end of Central Valley, 34.01667°N 119.71667°W, 7 May 1973–8 May 1973, J. D. Pinto, 3♂ (AMNH_PBI 00082369–AMNH_PBI 00082371), 2♀ (AMNH_PBI 00082372, AMNH_PBI 00082719) (UCR).

Insulaphylus meridianus, new species
Figures 1, 4

HOLOTYPE: Male: **USA: California: *Los Angeles Co.:*** Santa Catalina Island, Middle Canyon, 33.38333°N 118.41667°W, 191 m, 1 May 1978, J. Doyen, *Quercus chrysolepis* (Fagaceae) (AMNH_PBI 00079603) (UCB).

DIAGNOSIS: Distinguished from *Insulaphylus cruz*, new species, by the smaller body size (3.32–3.66) and characteristics of the male vesica (fig. 4), which in *I. meridianus* is smaller, more slender, more strongly twisted, and with the secondary gonopore facing caudad.

DESCRIPTION: *Male*: As in generic description; total length 3.32–3.66, length from apex of clypeus to cuneal fracture 2.30–2.57, width across pronotum 1.10–1.25. COLORATION (fig. 1): General coloration as in generic description. **Head**: As in generic description; antennal segments as in generic description; labium as in generic description. **Thorax**: As in generic description, with specimens often dark colored. *Legs*: As in generic description. *Hemelytra*: As in generic description. **Abdomen**: As in generic description. SURFACE AND VESTITURE: Dorsum and hemelytra as in generic description. STRUCTURE: Head including eyes, antennae, and labium as in generic description. **Thorax**: Thorax including hemelytra and legs as in generic description. **Abdomen**: As in

generic description. GENITALIA (fig. 4): As in generic description, with vesica of moderate size, slender, shaft strongly twisted, and secondary gonopore facing caudad.

FEMALE: As in generic description. Total length 3.25–3.63, length from apex of clypeus to cuneal fracture 2.27–2.62, width across pronotum 1.08–1.30.

ETYMOLOGY: Named for its occurrence on Santa Catalina and San Clemente islands, California, the southern Channel Islands. After Latin adjective *meridianus*, meaning "southern". The gender of the name is masculine.

HOST: Recorded from Quercus chrysolepis Liebm., Quercus tomentella Engelm. (Fagaceae), Lyonothamnus floribundus A. Gray, and Prunus lyonii (Eastw.) (Rosaceae).

DISTRIBUTION: Known only from San Clemente and Santa Catalina islands, California.

DISCUSSION: See discussion of *Insulaphylus cruz*. *Insulaphylus meridianus* is sympatric with *Maculamiris insulanus* on San Clemente and Santa Catalina islands, and was collected on the latter during the same collecting event on *Lyonothamnus floribundus*.

PARATYPES: **USA: California: *Los Angeles Co.:*** San Clemente Island, Eagle Canyon, N or Gray, 32.9°N 118.5°W, 381 m, 13 Apr 1980, J. Powell and D. Faulkner, *Quercus tomentella* (Fagaceae), 3♂ (AMNH_PBI 00079270, AMNH_PBI 00079606–AMNH_PBI 00079607), 2♀ (AMNH_PBI 00079611, AMNH_PBI 00079612) (UCB). San Clemente Island, south end of island, 32.9°N 118.5°W, 13 Apr 1980, Faulkner and Powell, 1♂ (AMNH_PBI 00074403) (SDNH). Santa Catalina Island, 33.38333°N 118.41667°W, 11 Jul 1893, Baker, 1♂ (AMNH_PBI 00077615) (CAS). 1♀ (AMNH_PBI 00099750) (HELSINKI). Santa Catalina Island, Avalon Canyon, 33.38333°N 118.41667°W, 4 May 1978, M. E. Buegler, 2♂ (AMNH_PBI 00079267, AMNH_PBI 00079605) (UCB). Santa Catalina Island, Camp Cactus, 33.38333°N 118.41667°W, 229 m, 2 May 1978, J. Powell, *Lyonothamnus floribundus* (Rosaceae), 3♂ (AMNH_PBI 00079268–AMNH_PBI 00079269, AMNH_PBI 00079587) (UCB). Santa Catalina Island, Middle Canyon, 33.38333°N 118.41667°W, 191 m, 1 May 1978, J. Doyen, *Quercus chrysolepis* (Fagaceae), 1♂ (AMNH_PBI 00079261), 2♀ (AMNH_PBI 00079263, AMNH_PBI 00079266) (AMNH). 1♂ (AMNH_PBI 00079260) *Quercus chrysolepis* (Fagaceae), 2♂ (AMNH_PBI 00079256, AMNH_PBI 00079258), 5♀ (AMNH_PBI 00079262, AMNH_PBI 00079264–AMNH_PBI 00079265, AMNH_PBI 00079609–AMNH_PBI 00079610) *Prunus lyonii* (Rosaceae), 1♂ (AMNH_PBI 00079257) (UCB); 1 May 1978, J. Powell, 1♂ (AMNH_PBI 00079259) (AMNH). 1♂ (AMNH_PBI 00079604), 1♀ (AMNH_PBI 00079608) (UCB).

Maculamiris, new genus
Figures 1, 2, 4, 6–9, 11

TYPE SPECIES: ***Maculamiris baja***, new species.

DIAGNOSIS: Recognized by the medium size, elongate ovoid body form, red or light brown coloration (fig. 1), tessellated pattern of two types of subadpressed setae on the hemelytra (fig. 9D), consisting of patches of dark and simple (white asterisk) and silvery and somewhat flattened setae (black asterisk), giving the insect a checkered appearance, callus surrounded by dark S-shaped mark (fig. 1), and by the S-shaped vesica with two slender apical blades, left blade more strongly curved than right blade, secondary gonopore at base of left blade, gonopore sclerite roughly L-shaped, and shallow flange proximal to secondary gonopore (fig. 4). Similar in appearance to some species of *Oligotylus* Van Duzee, e.g., *O. merinoi* (Knight) (Schuh, 2000), but distinguished by the vestiture and by the male genitalia.

DESCRIPTION: *Male*: Moderate size (3.12–3.51), elongate and slightly ovoid, in lateral view slightly flattened and slender. COLORATION (fig. 1): General coloration red or light brown, with anterior crescent-shaped portion of cuneus hyaline. **Head**: Vertex whitish or light brown with five paired brown transverse fasciae and additional brown mark at interior margin of eye, clypeus whitish with apex dark brown, labrum brown or castaneous, mandibular plate whitish, light brown or orange, maxillary plate and gena red or castaneous, base of antennal insertion suffused with brown or red, buccula white, and gula whitish, sometimes suffused with red or brown; antennal segment 1 whitish with a narrow proximal and a wide subapical ring dark brown, segment 2 yellowish with base and apex suffused with brown, often in form

of distinct basal and apical rings, segments 3 and 4 brown; labial segments 1 to 3 yellowish white, segment 4 suffused with brown. **Thorax**: Anterior lobe of pronotum light brown or whitish, callus usually yellowish, surrounded by a transverse S-shaped brown mark, posterior lobe reddish or light brown, mesoscutum orange or brown, scutellum dark reddish brown or dark brown, mesoscutum and scutellum sometimes with a median longitudinal pale stripe, pleura reddish, sometimes suffused with brown, or dark brown with margin of procoxal cavity and dorsal margin of propleuron, sometimes dorsal rim of mesepisternum and posterior rim of mesepimeron and ventral portion of evaporatory area with exclusion of peritreme whitish. *Legs*: Coxae, trochanter, femora and tibiae whitish with bases of coxae, tarsi and sometimes distal half of femora suffused with brown, femora with small (fore, middle leg) or large (hind leg) dark brown marks especially in distal half, bases of tibiae with a light (fore, middle leg) or dark (hind leg) spot, proximal tibial spines with dark bases. *Hemelytra*: Corium with clavus red or light brown with irregular pale marks or whitish patches, sometimes anterior margin of corium proximally pale, cuneus proximally transparent, remaining part red or pale yellow. **Abdomen**: Venter reddish brown or brown, with a large median area whitish or pale between segments 2 and 7, pygophore reddish brown or yellowish with a subapical ventral dark brown mark, parameres either brown or yellowish, phallotheca dark brown. SURFACE AND VESTITURE (fig. 9D): Dorsum slightly shining, the rather dense setation subadpressed, with two types of setae, arranged in patches, first type consisting of slightly flattened silvery setae (lower inset, black asterisk), second type of setiform dark setae (upper inset, white asterisk). STRUCTURE: **Head** (fig. 2D, 4): Head triangular, moderately elongate in lateral view, vertex wide, slightly convex, posterior margin straight, vertex and frons sloping, clypeus moderately produced, maxillary plate slightly sunken, buccula short, buccal cavity oval and of moderate size, gula of moderate length; eyes about 4/5 of height of head, of moderate size, very slightly emarginate posterior of antennal fossa, posterolateral margin contiguous with anterolateral margin of pronotum; antennal segment 1 short and relatively slender, segment 2 long, diameter similar to segment 1, only slightly increasing toward apex, segments 3 and 4 combined shorter than segment 2; labium long, apex reaching abdominal sternite 2. **Thorax** (figs. 7D, 8D): Pronotum trapeziform, anterior margin straight, lateral margins slightly convex, posterior margin slightly sinuate, anterior and posterior pronotal lobes weakly demarcated, callus slightly developed, metapleural evaporatorium with mushroomlike cuticle area roughly triangular, mushroomlike cuticle anterior to mesothoracic spiracle well developed (fig. 7D). *Legs*: Slender; claws slender, pulvilli relatively large, and covering about half of ventral claw surface, parempodia setiform, slender and moderately elongate (fig. 8D). *Hemelytra*: Hemelytra subparallel, cuneus elongate triangular. **Abdomen**: Abdomen reaching apex of cuneus. GENITALIA (fig. 4): **Pygophore**: Of moderate size, rather slender. **Parameres**: Right paramere typically phyline lanceolate; left paramere with anterior arm of moderate length, tapering to apex, and relatively short posterior arm long with apex slightly pointing ventrad. **Phallotheca**: Moderately elongate and slender, left side with a shallow ridge, ventral surface slightly serrate, and with slitlike opening. **Vesica**: S-shaped with two slender apical blades with roughly circular diameter, left blade more strongly curved than right blade, secondary gonopore at base of left blade, facing left, opening in part covered by membrane, gonopore sclerite prominent and roughly L-shaped, shallow flange proximal to secondary gonopore.

Female (fig. 1): Color pattern similar to male but coloration generally paler, body shape slightly more ovoid and larger than male, with pronotum wider, eyes slightly smaller, antennal segment 1 more slender than in male, segment 2 distinctly more slender at base, increase in diameter toward the apex more pronounced than in male. GENITALIA (fig. 6): See description of type species, *Maculamiris baja*, new species.

ETYMOLOGY: Named for the patchy pattern of dark and silvery setae on the hemelytra as well as the S-shaped mark on the anterior pronotal, combined with the generic name

Miris Fabricius to emphasize its systematic position within Miridae. From Latin *macula*, a feminine noun, meaning "mark".

DISCUSSION: The two species here described in the new genus *Maculamiris* feed mainly on rosaceous plants. They are easily recognized by their coloration, pattern of vestiture, marks on the pronotum, and male genitalic characters (i. e., the unusual shape of the gonopore sclerite). Species of this taxon are distributed in Baja California Norte, Mexico and the southernmost counties in California, including the Channel Islands, United States (fig. 11).

KEY TO SPECIES OF *MACULAMIRIS*

1. Coloration red (fig. 1), vesica (fig. 4) with left apical blade almost reaching apex of right blade, right blade slightly C-shaped ..... ***baja***, n.sp.
– Coloration light brown (fig. 1), vesica (fig. 4) with left apical blade strongly bent and terminating far from apex of right blade, right blade slightly S-shaped ..... ***insulanus***, n.sp.

Maculamiris baja, new species
Figures 1, 2, 4, 6–9, 11

HOLOTYPE: Male: **MEXICO: Baja California Norte:** 44.5 km E of Rt 1 toward Parque San Pedro Martin, 29.66666°N 101.34022°W, 720 m, 24 Apr 1985, R. T. Schuh and B. M. Massie, *Salvia* sp. (Lamiaceae), 1♂ (AMNH_PBI 00095219) (UNAM).

DIAGNOSIS: Distinguished from *Maculamiris insulanus*, new species, by the red coloration (fig. 1), the slightly smaller vesica (fig. 4) and the left apical blade of the vesica less strongly bent and thus almost reaching the apex of the right blade, right blade slightly C-shaped.

DESCRIPTION: *Male*: As in generic description, total length 3.11–3.43, length from apex of clypeus to cuneal fracture 2.19–2.41, width across pronotum 0.92–1.02. COLORATION (fig. 1): General coloration red. **Head**: As in generic description with mandibular plate white, maxillary plate and gena red, labrum brown, base of antennal insertion suffused with red, and gula sometimes suffused with red; antenna as in generic description; labium as in generic description. **Thorax**: As in generic description with posterior pronotal lobe reddish, scutellum dark reddish brown, pleura reddish in part suffused with brown with whitish on margin of procoxal cavity and dorsal margin of propleuron, posterior rim of mesepimeron, dorsal margin of mesepimeron, and ventral portion of evaporatory area with exception of peritreme. *Legs*: As in generic description. *Hemelytra*: Corium with clavus red with irregular pale marks, anterior rim of corium proximally pale, cuneus with a proximal crescent-shaped transparent area, remaining part red. **Abdomen**: As in generic description, with venter and pygophore reddish brown and parameres brown. SURFACE AND VESTITURE (fig. 9D): Dorsum and hemelytra as in generic description. STRUCTURE: **Head** (fig. 2D, 4): Head including eyes, antennae, and labium as in generic description. **Thorax**: Thorax including hemelytra and legs as in generic description. **Abdomen**: As in generic description. GENITALIA (fig. 4): As in generic description, with left apical blade less strongly curved than in *M. insulanus* and thus almost reaching apex of right blade.

FEMALE (fig. 1): As in generic description. Total length 3.12–3.58, length from apex of clypeus to cuneal fracture 2.20–2.48, width across pronotum 0.91–1.09. GENITALIA (fig. 6): Vestibulum slender, S-shaped, bursal copulatrix short and broad, posterior margin with median evagination, sclerotized rings large and slender, medial margins rather close to each other.

ETYMOLOGY: Named for its distribution in Baja California, Mexico.

HOSTS: Recorded on *Adenostoma fasciculatum* A. & H., *Rosa minutifolia* Engelm. (Rosaceae), and *Salvia* sp. (Labiatae).

DISTRIBUTION: Recorded from Baja California Norte, Mexico, and Riverside and San Diego counties, California, United States (fig. 11).

DISCUSSION: *Maculamiris baja* is known from only few localities in Baja California Norte and mainland California. The closely related *M. insulanus*, new species, is known from four collecting events that account for

only eight specimens from two of the Channel Islands, Santa Catalina Island, and San Clemente Island, California. Additional collecting, especially on the Channel Islands and in Baja California Norte, will help to elucidate if *M. insulanus* is an endemic of the southernmost Channel Islands, and if the closely related *M. baja* is actually restricted to mainland California and Baja California.

PARATYPES: **MEXICO: Baja California Norte:** 28 km E of Rt 1 to Parque Nacional Sierra San Pedro Martir, 30.93612°N 115.43385°W, 25 m, 24 Apr 1985, R. T. Schuh and B. M. Massie, *Rosa minutifolia* (Rosaceae), 1♂ (AMNH_PBI 00058744), 1♀ (AMNH_PBI 00058774) *Rosa minutifolia* Engelm. in Parry (Rosaceae), 1♂ (AMNH_PBI 00058744), 1♀ (AMNH_PBI 00058774) (AM). *Rosa minutifolia* (Rosaceae), 14♂ (AMNH_PBI 00058733–AMNH_PBI 00058741, AMNH_PBI 00058743, AMNH_PBI 00058747, AMNH_PBI 00059057, AMNH_PBI 00095090, AMNH_PBI 00095216), 28♀ (AMNH_PBI 00058748–AMNH_PBI 00058772, AMNH_PBI 00059058, AMNH_PBI 00095224–AMNH_PBI 00095225) *Rosa minutifolia* Engelm. in Parry (Rosaceae), 14♂ (AMNH_PBI 00058733–AMNH_PBI 00058741, AMNH_PBI 00058743, AMNH_PBI 00058747, AMNH_PBI 00059057, AMNH_PBI 00095090, AMNH_PBI 00095216), 28♀ (AMNH_PBI 00058748–AMNH_PBI 00058772, AMNH_PBI 00059058, AMNH_PBI 00095224–AMNH_PBI 00095225) (AMNH). *Rosa minutifolia* (Rosaceae), 1♂ (AMNH_PBI 00058745), 1♀ (AMNH_PBI 00058775) *Rosa minutifolia* Engelm. in Parry (Rosaceae), 1♂ (AMNH_PBI 00058745), 1♀ (AMNH_PBI 00058775) (CNC). *Rosa minutifolia* (Rosaceae), 1♂ (AMNH_PBI 00058746), 1♀ (AMNH_PBI 00058776) *Rosa minutifolia* Engelm. in Parry (Rosaceae), 1♂ (AMNH_PBI 00058746), 1♀ (AMNH_PBI 00058776) (USNM). *Rosa minutifolia* (Rosaceae), 1♂ (AMNH_PBI 00058742), 1♀ (AMNH_PBI 00058773) *Rosa minutifolia* Engelm. in Parry (Rosaceae), 1♂ (AMNH_PBI 00058742), 1♀ (AMNH_PBI 00058773) (ZISP). 41 km W of Parque Sierra San Pedro Martir, 30.96°N 115.97°W, 560 m, 25 Apr 1985, R. T. Schuh and B. M. Massie, *Salvia* sp. Hooker and Arnott (Lamiaceae), 7♂ (AMNH_PBI 00058726–AMNH_PBI 00058732) *Adenostoma fasciculatum* (Rosaceae), 27♂ (AMNH_PBI 00058686–AMNH_PBI 00058706, AMNH_PBI 00058711–AMNH_PBI 00058713, AMNH_PBI 00095096, AMNH_PBI 00095217–AMNH_PBI 00095218), 7♀ (AMNH_PBI 00058707–AMNH_PBI 00058710, AMNH_PBI 00059059, AMNH_PBI 00095221–AMNH_PBI 00095222) *Adenostoma fasciculatum* Hooker and Arnott (Rosaceae), 27♂ (AMNH_PBI 00058686–AMNH_PBI 00058706, AMNH_PBI 00058711–AMNH_PBI 00058713, AMNH_PBI 00095096, AMNH_PBI 00095217–AMNH_PBI 00095218), 7♀ (AMNH_PBI 00058707–AMNH_PBI 00058710, AMNH_PBI 00059059, AMNH_PBI 00095221–AMNH_PBI 00095222) (AMNH). *Adenostoma fasciculatum* Hooker and Arnott (Rosaceae), 1♂ (AMNH_PBI 00058685), 1♀ (AMNH_PBI 00058714) (UNAM). 44.5 km E of Rt 1 toward Parque San Pedro Martin, 29.66666°N 101.34022°W, 720 m, 24 Apr 1985, R. T. Schuh and B. M. Massie, *Salvia* sp. (Lamiaceae), 10♂ (AMNH_PBI 00058716–AMNH_PBI 00058725), 2♀ (AMNH_PBI 00058715, AMNH_PBI 00095223) *Salvia* sp. Hooker and Arnott (Lamiaceae), 10♂ (AMNH_PBI 00058716–AMNH_PBI 00058725), 2♀ (AMNH_PBI 00058715, AMNH_PBI 00095223) *Rosa minutifolia* (Rosaceae), 1♂ (AMNH_PBI 00095220) (AMNH). **USA: California:** ***Riverside Co.:*** 1 mile S of Temecula, 33.4791°N 117.1475°W, 11 Apr 1965, J. Powell, 1♂ (AMNH_PBI 00079366) (UCB). ***San Diego Co.:*** Mission Valley, 32.76028°N 117.21194°W, 9 May 1929, Unknown, 1♂ (AMNH_PBI 00074404) (SDNH).

Maculamiris insulanus, new species
Figures 1, 4

HOLOTYPE: Male: **USA: California:** ***Los Angeles Co.:*** Santa Catalina Island, Camp Cactus, 33.38333°N 118.41667°W, 229 m, 2 May 1978, J. Powell, *Lyonothamnus floribundus* (Rosaceae) (AMNH_PBI 00079615) (UCB).

DIAGNOSIS: Distinguished from *Maculamiris baja*, new species, by the light brown coloration (fig. 1), the slightly larger vesica (fig. 4), and the left apical blade of the vesica much more strongly bent and, thus, appearing much shorter than the right blade, right blade slightly S-shaped.

DESCRIPTION: *Male*: As in generic description, total length 3.18–3.51, length from apex of clypeus to cuneal fracture 2.24–2.41, width across pronotum 0.99–1.12. COLORATION (fig. 1): General coloration light brown. **Head**: As in generic description with mandibular

plate light brown, maxillary plate and gena castaneous, labrum castaneous, base of antennal insertion suffused with brown, and gula sometimes suffused with brown; antenna as in generic description; labium as in generic description. **Thorax**: As in generic description with posterior lobe light brown, scutellum dark brown, pleura dark brown with whitish on margin of procoxal cavity and dorsal rim of propleuron, posterior rim of mesepimeron, dorsal margin of mesepimeron, and ventral portion of evaporatory area with exception of peritreme. *Legs*: As in generic description. *Hemelytra*: Corium including clavus light brown with irregular whitish patches, cuneus with a proximal transparent area, remaining part pale yellow. **Abdomen**: As in generic description, with venter brown, and pygophore and parameres yellowish. SURFACE AND VESTITURE: As in generic description. STRUCTURE: **Head**: Head including eyes, antennae, and labium as in generic description. **Thorax**: Thorax including hemelytra and legs as in generic description. **Abdomen**: As in generic description. GENITALIA (fig. 4): As in generic description, with left apical blade more strongly curved than in *M. baja*, vesica somewhat larger than in *M. baja*.

FEMALE: As in generic description. Total length 3.32, length from apex of clypeus to cuneal fracture 2.30, width across pronotum 1.09.

ETYMOLOGY: Named for its occurrence on the Channel Island off the Californian coast, after Latin noun *insulanus*, with masculine grammatical gender, meaning "islander".

HOST: Recorded from *Lyonothamnus floribundus* A. Gray (Rosaceae).

DISTRIBUTION: Known only from San Clemente and Santa Catalina islands, Los Angeles and Santa Barbara counties, California.

DISCUSSION: See discussion for *Maculamiris baja*.

PARATYPES: **USA: California: *Los Angeles Co.:*** San Clemente Island, 32.9°N 118.5°W, 11 Jun 1962, C. L. Hogue, 1♂ (AMNH_PBI 00074010) (LACM). San Clemente Island, canyon 3 mi S of Thirst, 32.9°N 118.5°W, 12 Apr 1980, Faulkner and Powell, 1♂ (AMNH_PBI 00074409) (SDNH). San Clemente Island, south end of island, 32.9°N 118.5°W, 13 Apr 1980, Faulkner and Powell, 1♂ (AMNH_PBI 00074408) (SDNH). Santa Catalina Island, Camp Cactus, 33.38333°N 118.41667°W, 229 m, 2 May 1978, J. Powell, *Lyonothamnus floribundus* (Rosaceae), 2♂ (AMNH_PBI 00079613, AMNH_PBI 00079614) (AMNH). *Lyonothamnus floribundus* (Rosaceae), 1♂ (AMNH_PBI 00079367), 1♀ (AMNH_PBI 00079616) (UCB).

Quernocoris, new genus
Figures 1, 2, 5–9, 12

TYPE SPECIES: *Quernocoris caliginosus*, new species.

DIAGNOSIS: Recognized by the moderate size, reddish to chocolate-brown coloration in the male (fig. 1), the pronotum mottled with dark spots, and the male genitalia with vesica J-shaped (fig. 5), with one apical blade, secondary gonopore of medium size, elongate ovoid and facing caudad, gonopore sclerite poorly defined. Distinguished from the similarly sized and colored *Insulaphylus cruz* (fig. 1) by the restriction of dark spots to the pronotum, which do not extend to the scutellum, and by the male genitalia.

DESCRIPTION: *Male*: Moderate size, ovoid and slightly elongate, rather stout in lateral view. COLORATION (fig. 1): General coloration reddish brown to dark brown, with anterior crescent-shaped portion of cuneus hyaline, remaining portion red. **Head**: Pale, with vertex with 4–5 dark transverse fasciae and one additional mark on interior margin of eye, distal part of clypeus and lateral longitudinal stripes brown, labrum light brown, mandibular plate orange, maxillary plate brown to dark brown suffused with red, gena and gula light brown to dark reddish brown, buccula white; antennal segment 1 yellowish with proximal and apical dark brown ring, segment 2 yellowish, suffused with brown at base and toward apex, segments 3 and 4 brownish; labial segments 1 to 3 yellow, segment 4 suffused with brown. **Thorax**: Pronotum, mesoscutum, and scutellum usually dark reddish brown, sometimes rather light orange brown, anterior pronotal lobe and to a lesser degree posterior lobe with irregular dark marks, mesoscutum with lateral margins orange, pleura in light specimens, propleura, dorsal half of mesepisternum, entire mesepi-

meron and metapleura yellowish suffused with red, with margins of procoxal cavity, dorsal margin of the mesepisternum, and posterior and dorsal portion of mesepimeron whitish, ventral half of mesepimeron brown, in dark specimens, pleura brown, with whitish on margin of procoxal cavity, dorsal margin of mesepisternum, posterior margin of mesepimeron, and area of evaporatory area, *Legs*: Legs yellowish or light brown, with brown spots on femora, distal portion of metafemur suffused with brown, base of tibiae with dark spot, bases of tibial spines with dark spots, distal tarsomeres suffused with brown, light specimens with bases of coxae suffused with brown, dark specimens with entire coxae brown. *Hemelytra*: Corium including clavus light reddish brown to dark chocolate brown, anterior rim of corium usually lighter than the remaining parts, cuneus with anterior crescent-shaped hyaline area, remaining portion bright red. **Abdomen**: Venter brownish suffused with red, pygophore yellow or light brown with dark marks. SURFACE AND VESTITURE (fig. 9E): Dorsum weakly shining, with rather dense, stout, subadpressed setae of moderate length, appearing either golden or black depending on angle of observation, vertex and pronotum also with sparse suberect, stout, black setae. STRUCTURE: **Head** (figs. 2E, 5): Head triangular in dorsal aspect, vertex wide, slightly convex and almost straight behind, clypeus weakly produced, mandibular plate slightly produced, maxillary plate sunken, buccula short, buccal cavity large and ovoid, gula short; eyes about 3/4 as high as head; large, weakly emarginate posterior of antennal fossa, posterolateral margins contiguous with anterolateral margins of pronotum; antennal segment 1 short and relatively slender, segment 2 long, slender at base and with increasing diameter toward apex, segments 3 and 4 together about 3/4 of length of segment 2; apex of labium reaching base of metacoxa. **Thorax** (figs. 7E, 8E): Pronotum trapeziform, anterior margin straight, lateral margins slightly convex, posterior margin slightly sinuate, anterior and posterior pronotal lobes not demarcated, callus not developed, metapleural evaporatorium with area of mushroomlike cuticle roughly triangular, mushroomlike cuticle anterior to mesothoracic spiracle consisting of few, rather large elevations (fig. 7E). *Legs*: Slender; claws slender, pulvilli of moderate size, covering about half of ventral claw surface, parempodia setiform, slender and moderately elongate (fig. 8E). *Hemelytra*: Hemelytra subparallel, cuneus elongate triangular. **Abdomen**: Abdomen reaching apex of cuneus. GENITALIA (fig. 5): **Pygophore**: Pygophore rather stout and large. **Parameres**: Right paramere broad and lanceolate; left paramere with anterior arm rather short with pointed apex, posterior arm moderately long, tapering and slightly bent ventrad. **Phallotheca**: Moderately slender and elongate, almost straight, without apparent ornamentation, ventral opening slitlike. **Vesica:** Vesica J-shaped, with one apical blade, secondary gonopore situated in apical quarter, of medium size, elongate ovoid and facing caudad, gonopore sclerite poorly defined.

Female (fig. 1): General coloration reddish, much lighter than male. GENITALIA (fig. 6): See description of type species *Quernocoris caliginosus*, new species.

ETYMOLOGY: Named for its occurrence on oaks, after the Latin adjective *quernus*, meaning "of oak". The gender of the name is masculine.

DISCUSSION: The monotypic genus *Quernocoris* is rather widespread in mainland California, but also occurs on the Channel Islands. According to Powell (1994) this pattern of distribution is found in most insects recorded from the California Channel Islands. A similar distribution is also seen in two species of the Mirinae genus *Irbisia* Reuter (Schwartz 1984).

Quernocoris caliginosus, new species
Figures 1, 2, 5–9, 12

HOLOTYPE: Male: **USA: California: *Orange Co.:*** Cleveland National Forest, El Cariso Campground, 33.3°N 116.8°W, 750 m, 12 May 1978, J. D. Pinto and R. T. Schuh, *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00095227) (AMNH).

DIAGNOSIS: As in generic diagnosis.

DESCRIPTION: *Male*: As in generic description, total length 3.21–3.88, length from apex of clypeus to cuneal fracture 2.25–2.73, width across pronotum 1.06–1.24. COLORATION (fig. 1): General coloration as in generic

description. **Head**: Head including antennae and labium as in generic description. **Thorax**: Thorax including legs and hemelytra as in generic description. **Abdomen**: Venter as in generic diagnosis. SURFACE AND VESTITURE (fig. 9E): Dorsum and hemelytra as in generic description. STRUCTURE: **Head** (figs. 2E, 5): Head including eyes, antennae, and labium as in generic description. **Thorax** (figs. 7E, 8E): Thorax including hemelytra and legs as in generic description. **Abdomen**: Abdomen including genitalia as in generic description. GENITALIA (fig. 5): As in generic description.

FEMALE (fig. 1): Female as in generic description. Total length 3.31–3.59, length of apex clypeus-cuneal fracture 2.26–2.55, width across pronotum 1.15–1.19. GENITALIA (fig. 6): Vestibulum stout, twisted S-shaped, bursa copuatrix rather large, with posterior margin having distinct paramedian lobes, sclerotized rings medium size.

ETYMOLOGY: Named for the dark brown coloration of the male, after Latin adjective *caliginosus*, meaning "dark".

HOSTS: Recorded from various species of *Quercus*, among them *Quercus agrifolia* Née, *Q. dumosa* Nutt., *Q. engelmanni* Greene, and *Q. kellogii* Newb.

DISTRIBUTION: Distributed in the Coast Ranges south of San Francisco, the mountainous regions in southern California, extending south to San Diego County, with records from Santa Cruz and Santa Catalina islands, but also two records from the foothills of the Sierra Nevada.

DISCUSSION: This species is sympatric with *Insulaphylus cruz*, on Santa Cruz Island, with both species recorded from the same host. In San Francisco, it is sympatric with *Vesperocoris paddocki*, new combination, where both species occur on *Quercus agrifolia*.

PARATYPES: **USA: California: *Los Angeles Co.:*** Turnbull Canyon, 33.98472°N 118.03139°W, 7 Apr 1936, E. L. Paddock, *Quercus* sp. (Fagaceae), 4♂ (AMNH_PBI 00068810–AMNH_PBI 00068813), 4♀ (AMNH_PBI 00068814–AMNH_PBI 00068817) (USNM). ***Orange Co.:*** Cleveland National Forest, El Cariso Campground, 33.3°N 116.8°W, 750 m, 12 May 1978, J. D. Pinto and R. T. Schuh, *Quercus* sp. (Fagaceae), 5♂ (AMNH_PBI 00058807–AMNH_PBI 00058811), 1♀ (AMNH_PBI 00058813) (AMNH). *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00058806), 1♀ (AMNH_PBI 00058812) (CNC). ***San Bernardino Co.:*** 4 mi E of Mentone, 34.07°N 117.0638°W, 750 m, 11 May 1978, J. D. Pinto, *Quercus* sp. (Fagaceae), 8♂ (AMNH_PBI 00082363–AMNH_PBI 00082368, AMNH_PBI 00082374–AMNH_PBI 00082375), 10♀ (AMNH_PBI 00082376–AMNH_PBI 00082385) (UCR). ***San Diego Co.:*** just above Lake Henshaw on S7 (also known as Henshaw Dam), 33.24167°N 116.76222°W, 900 m, 30 Apr 1985, R. T. Schuh and B. M. Massie, *Quercus dumosa* (Fagaceae), det. K. Nixon 1985, 1♂ (AMNH_PBI 00058788), 1♀ (AMNH_PBI 00058790) (AM). *Quercus dumosa* (Fagaceae), det. K. Nixon 1985, 9♂ (AMNH_PBI 00058778–AMNH_PBI 00058786), 8♀ (AMNH_PBI 00058792–AMNH_PBI 00058799) *Quercus dumosa* (Fagaceae), det. K. Nixon 1985, 9♂ (AMNH_PBI 00058778–AMNH_PBI 00058786), 8♀ (AMNH_PBI 00058792–AMNH_PBI 00058799) (AMNH). *Quercus dumosa* (Fagaceae), det. K. Nixon 1985, 1♂ (AMNH_PBI 00058787), 1♀ (AMNH_PBI 00058791) (ZISP). ***Santa Barbara Co.:*** Santa Cruz Island, Central Valley, 34.01861°N 119.68083°W, 23 Apr 1976, J. D. Pinto, *Quercus dumosa* (Fagaceae), 6♂ (AMNH_PBI 00082430–AMNH_PBI 00082435), 2♀ (AMNH_PBI 00082436, AMNH_PBI 00082437) (UCR). ***Ventura Co.:*** Ojai, 34.44806°N 119.24194°W, 16 Apr 1969, R. Shaver and L. Paddock, *Quercus kellogii* (Fagaceae), 4♂ (AMNH_PBI 00073794–AMNH_PBI 00073797), 4♀ (AMNH_PBI 00073798–AMNH_PBI 00073801) (CAFA).

OTHER SPECIMENS EXAMINED: **USA: California: *Alameda Co.:*** Berkeley, 37.87167°N 122.27167°W, 22 Apr 1915, E. P. Van Duzee, 1♂ (AMNH_PBI 00079344) (UCB). ***Inyo Co.:*** Independence, 36.80278°N 118.19917°W, 14 Jun 1929, R. L. Usinger, 1♂ (AMNH_PBI 00077569) (CAS). ***Kern Co.:*** Lebec, 34.84167°N 118.86389°W, 1219 m, 15 May 1928, J. O. Martin, 1♂ (AMNH_PBI 00077568) (CAS). S of Tehachapi on Water Canyon Rd, 35.09563°N 118.4909°W, 1445 m, 21 May 2004, Schuh, Cassis, Schwartz, Weirauch, Wyniger, Forero, *Quercus john-tuckeri* Nixon and Muller (Fagaceae), det. K. Nixon 2004, 2♂ (AMNH_PBI 00095077, AMNH_PBI 00095078), 6♀ (AMNH_PBI 00095079–AMNH_PBI 00095084) (AMNH). ***Los Angeles Co.:*** Glendora, 34.13611°N 117.86444°W, 2 May 1937, B. E. Norland, 1♂ (AMNH_PBI 00074198) (LACM).

Text continues on page 33

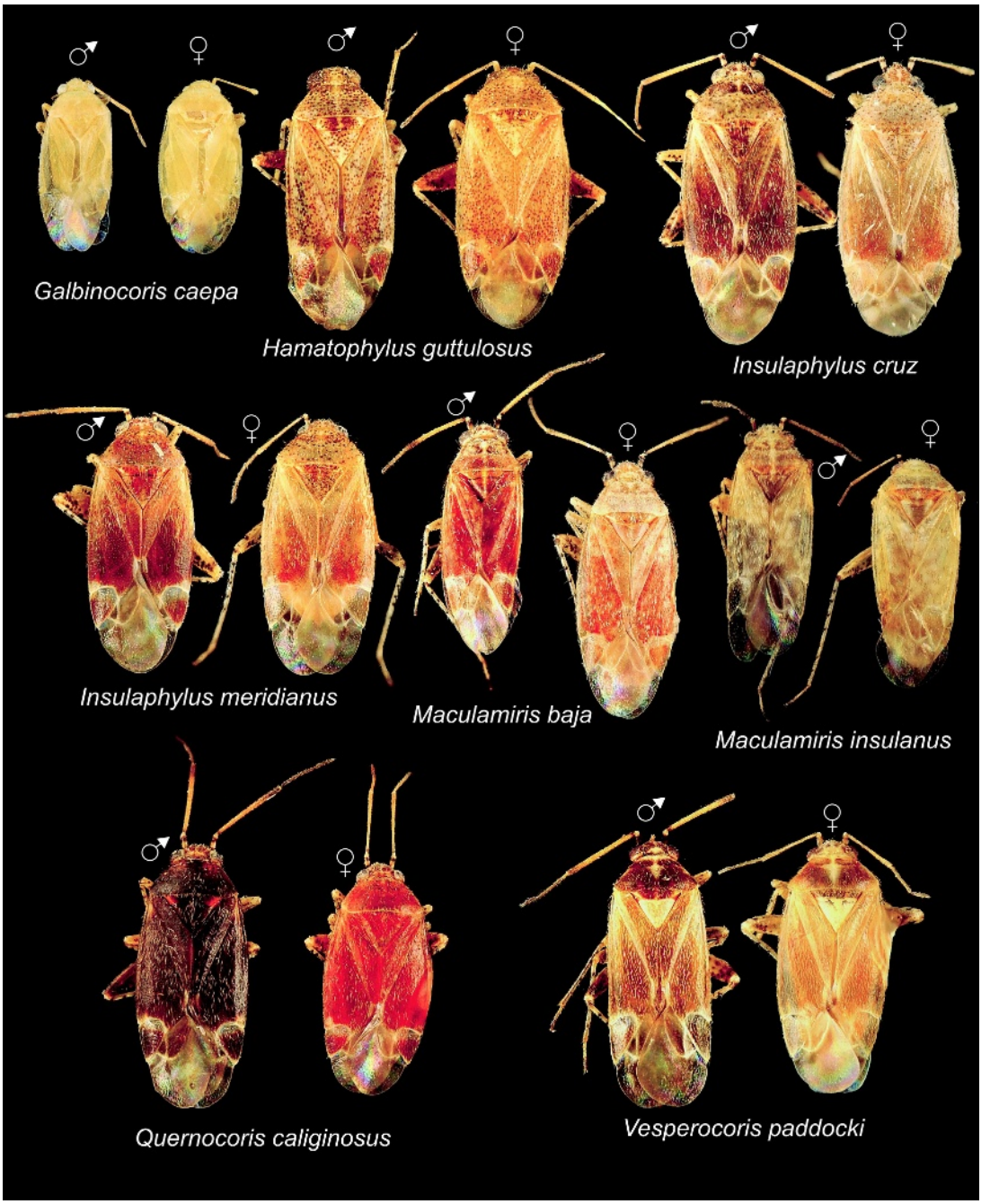

Fig. 1. Habitus photographs of *Galbinocoris caepa*, *Hamatophylus guttulosus*, *Insulaphylus* spp., *Maculamiris* spp., *Quernocoris caliginosus*, and *Vesperocoris paddocki*.

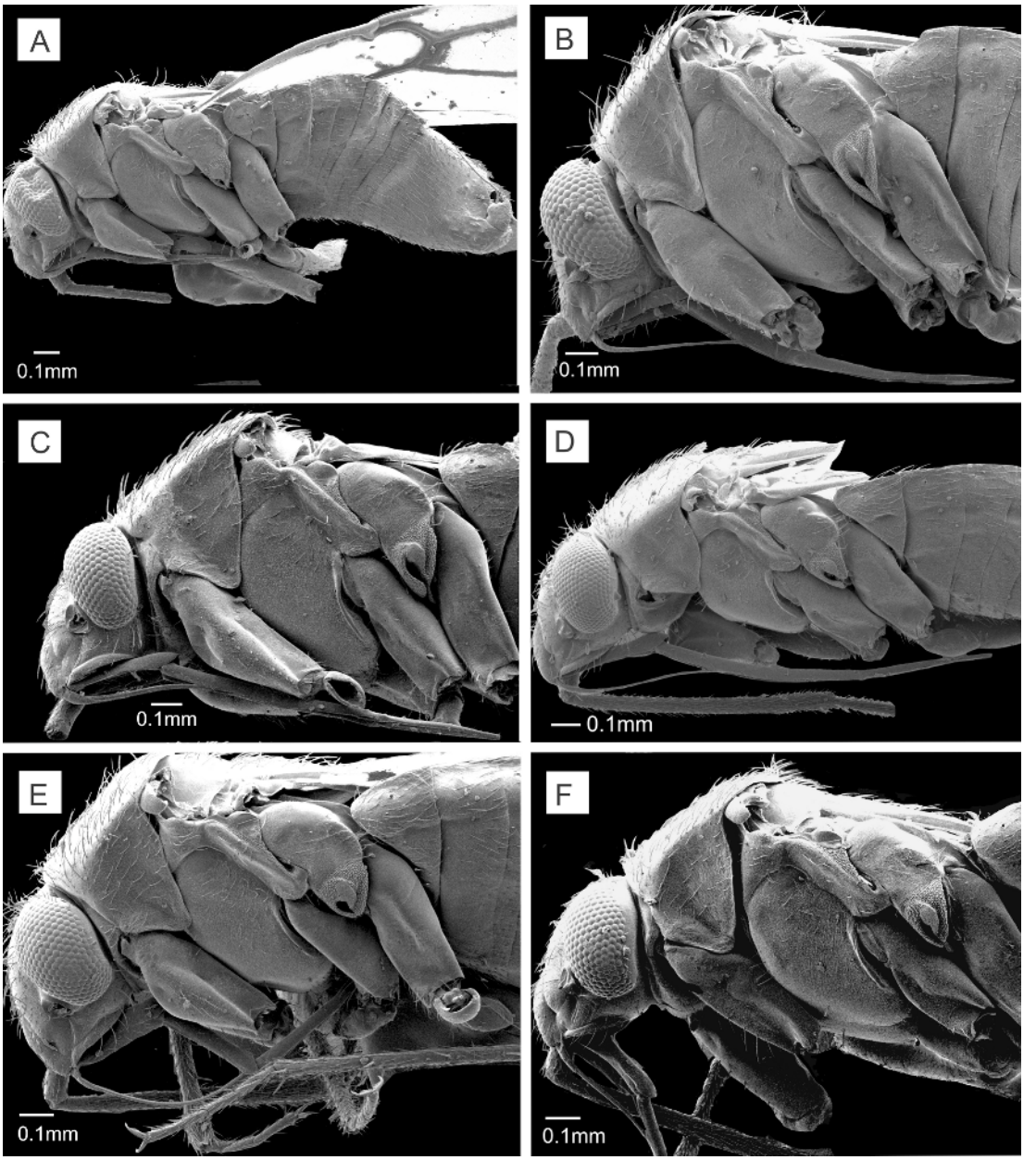

Fig. 2. Lateral aspect of head and pronotum, scanning micrographs, scale measurements in μm. **A**. *Galbinocoris caepa*. **B**. *Hamatophylus guttulosus*. **C**. *Insulaphylus cruz*. **D**. *Maculamiris baja*. **E**. *Quernocoris caliginosus*. **F**. *Vesperocoris paddocki*.

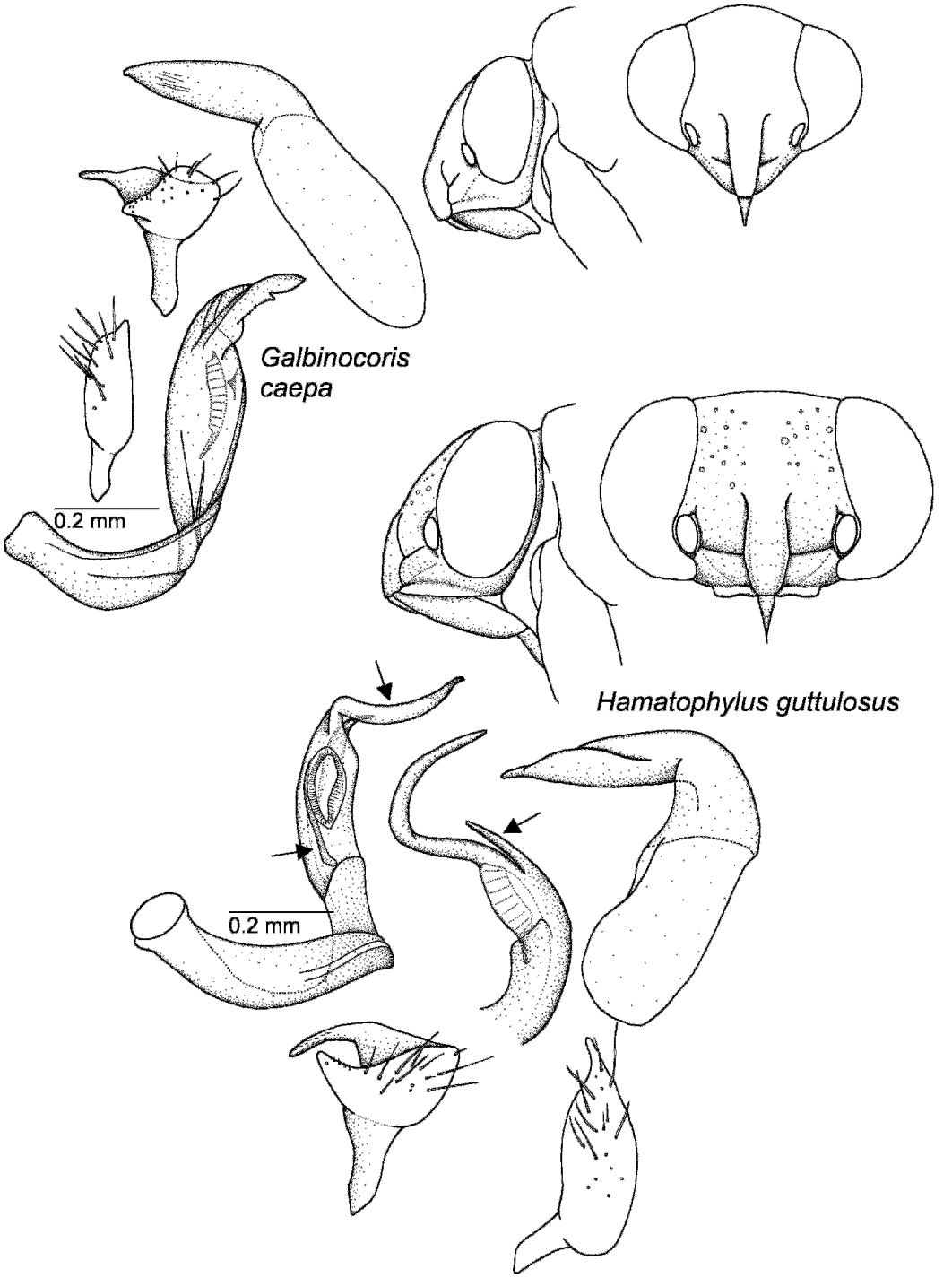

Fig. 3. Head and male genitalic structures of *Galbinocoris caepa* and *Hamatophylus guttulosus*. *Galbinocoris caepa*, head in frontal and lateral view, right and left paramere, phallotheca, and vesica. *Hamatophylus guttulosus*, head in frontal and lateral view, right and left paramere, phallotheca, vesica, and apex of vesica in caudal view.

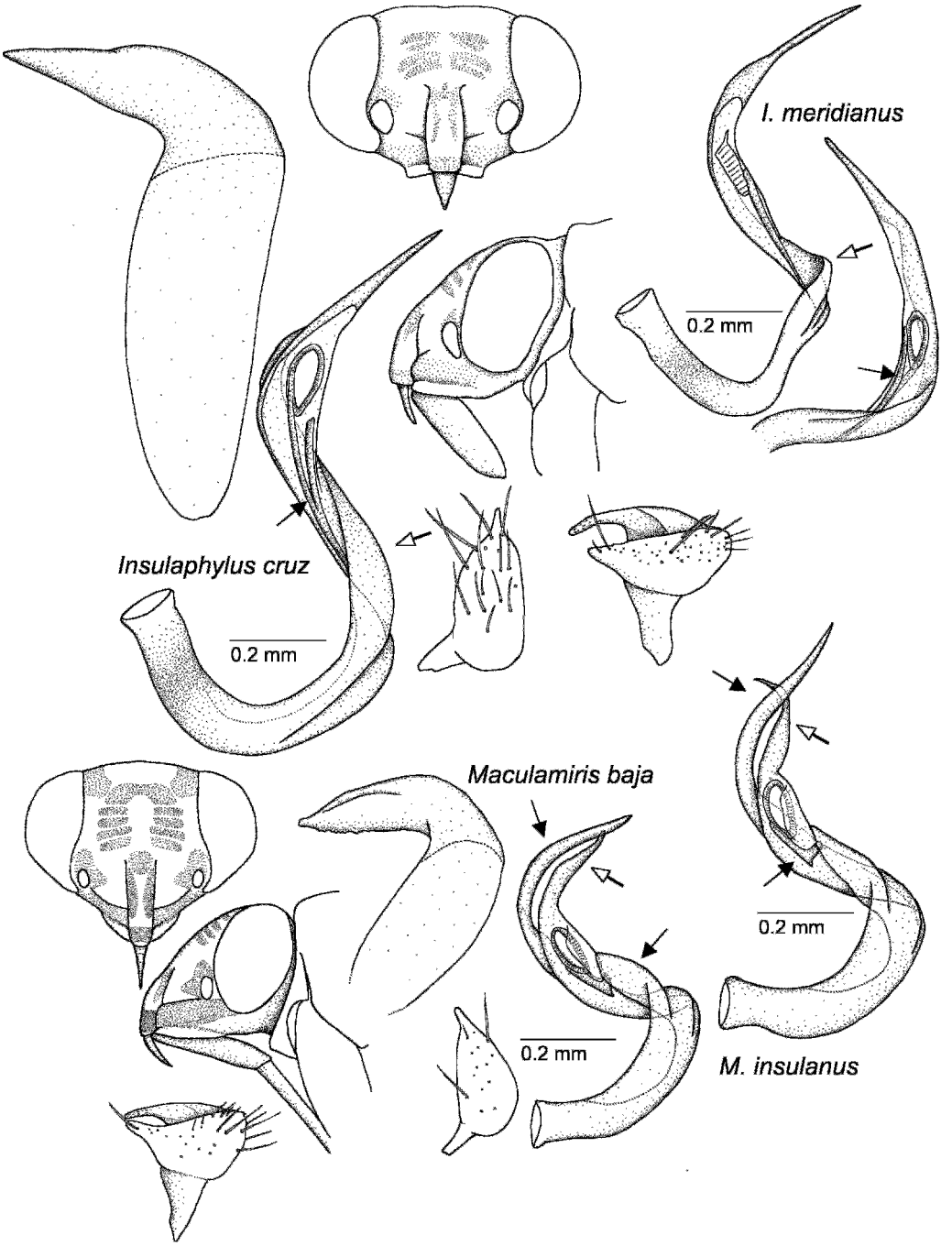

Fig. 4. Head and male genitalic structures of *Insulaphylus* spp. and *Maculamiris* spp. *Insulaphylus cruz*, head in frontal and lateral view, right and left paramere, phallotheca, and vesica; *I. meridianus*, vesica and apex of vesica in caudal view; *Maculamiris baja*, head in frontal and lateral view, right and left paramere, phallotheca, and vesica; *M. insulanus*, vesica.

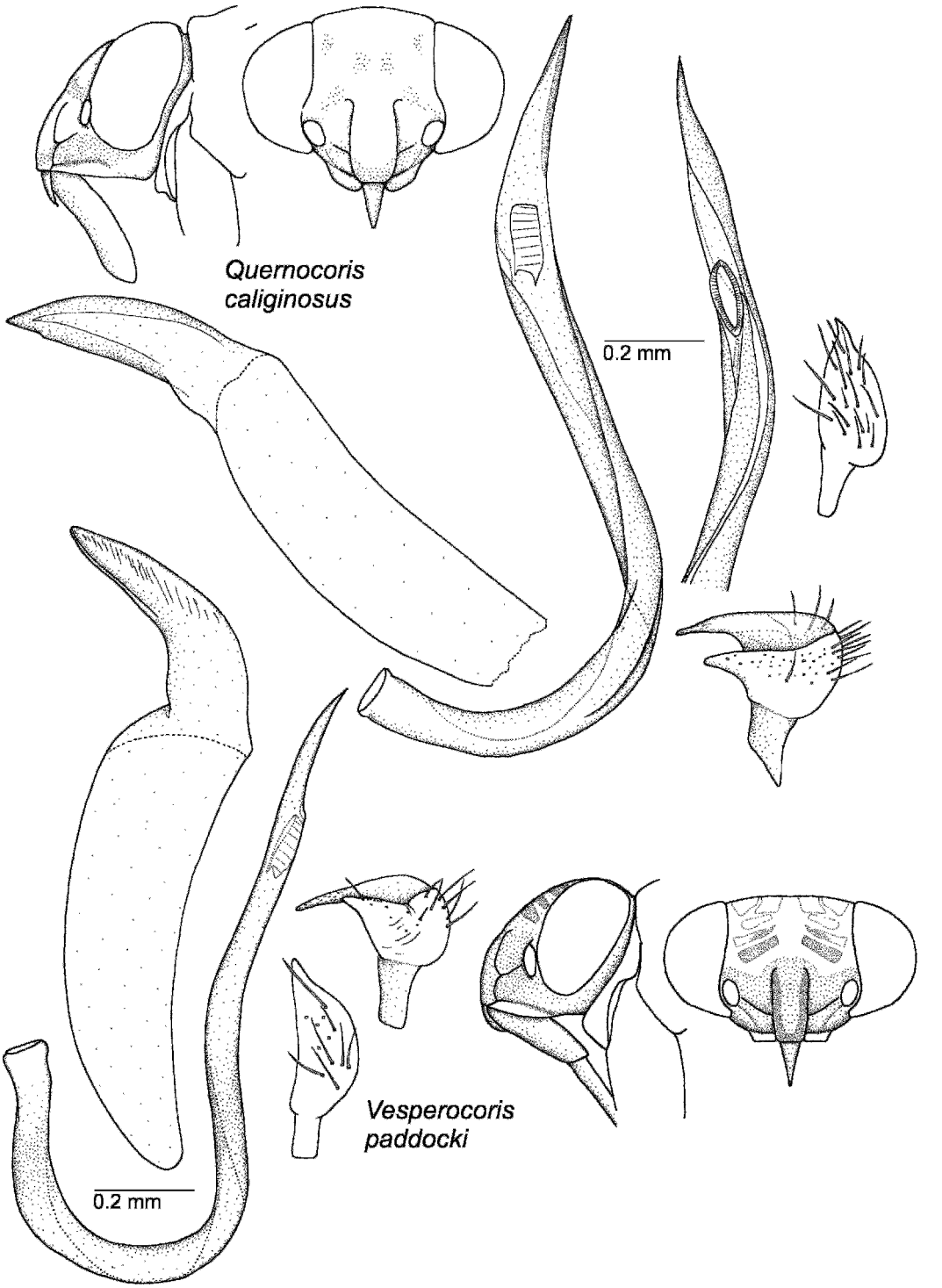

Fig. 5. Head and male genitalic structures of *Quernocoris caliginosus* and *Vesperocoris paddocki*. *Quernocoris caliginosus*, head in frontal and lateral view, right and left paramere, phallotheca, vesica, and apex of vesica in caudal view; *Vesperocoris paddocki*, head in frontal and lateral view, right and left paramere, phallotheca, and vesica.

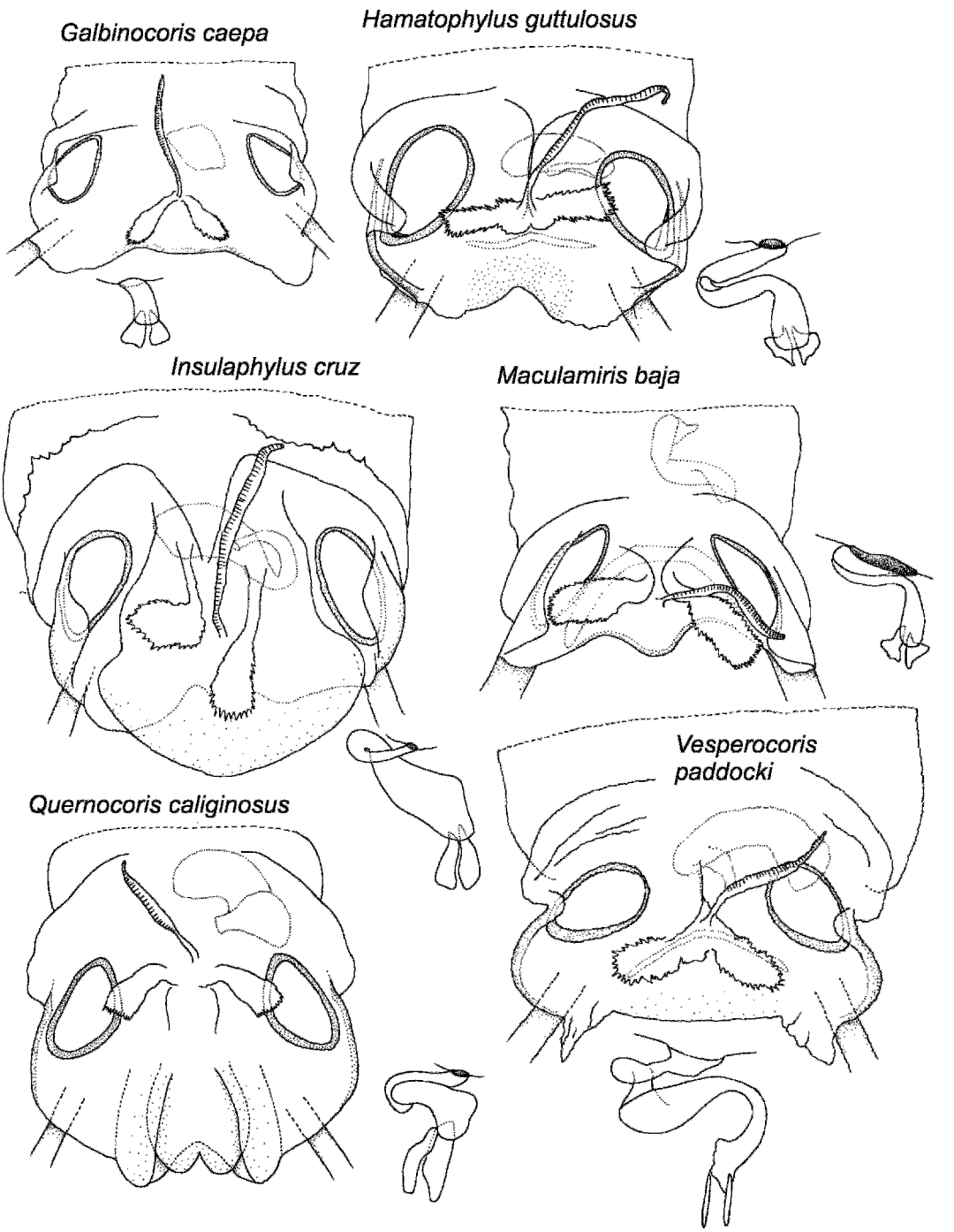

Fig. 6. Female genitalic structures, with bursa copulatrix in dorsal view and vestibulum in frontal view. *Galbinocoris caepa*, *Hamatophylus guttulosus*, *Insulaphylus cruz*, *Maculamiris baja*, *Quernocoris caliginosus*, *Vesperocoris paddocki*.

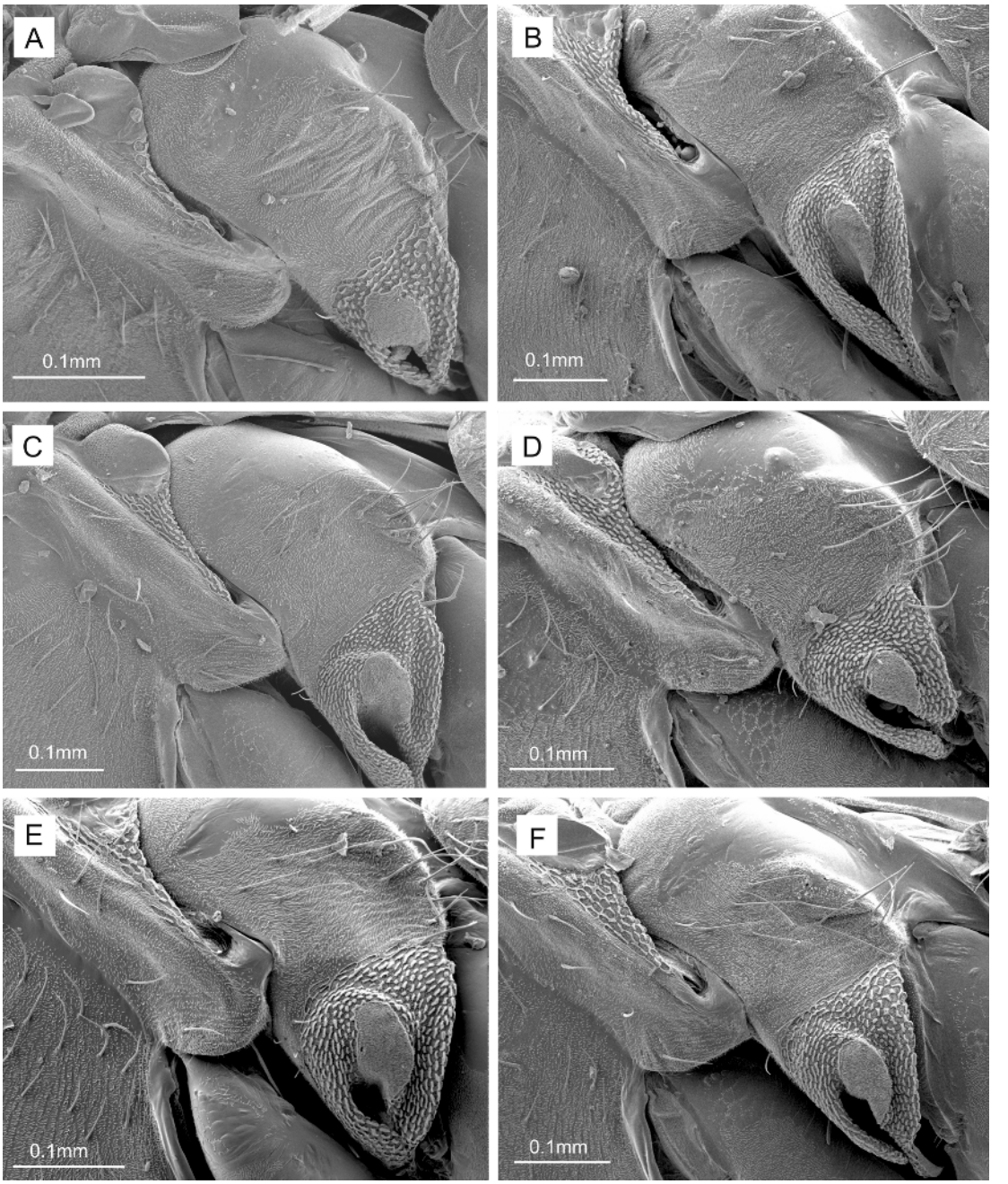

Fig. 7. Mesothoracic spiracle and metathoracic scent gland evaporatory area. **A**. *Galbinocoris caepa*. **B**. *Hamatophylus guttulosus*. **C**. *Insulaphylus cruz*. **D**. *Maculamiris baja*. **E**. *Quernocoris caliginosus*. **F**. *Vesperocoris paddocki*.

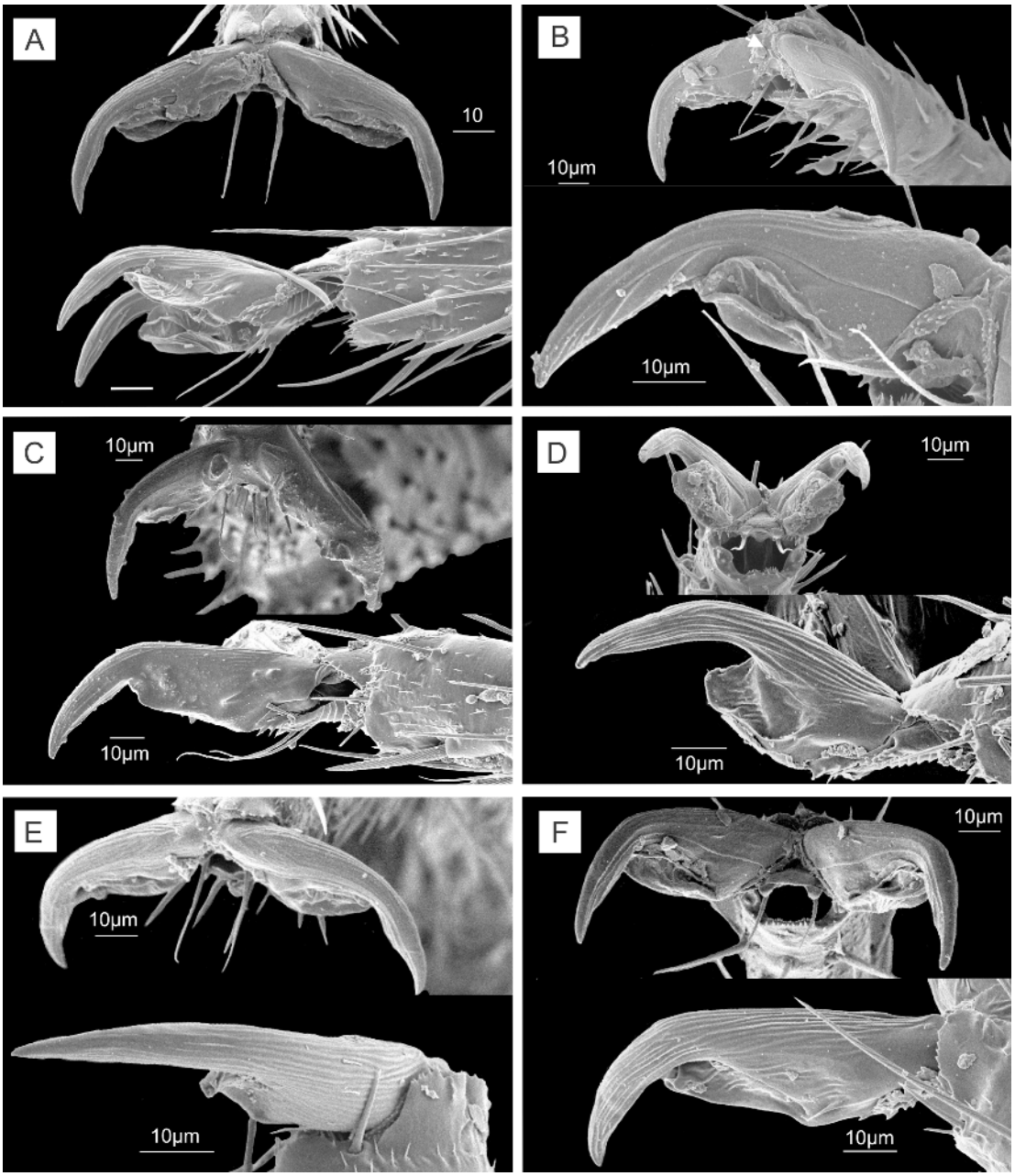

Fig. 8. Pretarsus, in frontal (above) and lateral (below) aspect. **A**. *Galbinocoris caepa*. **B**. *Hamatophylus guttulosus*. **C**. *Insulaphylus cruz*. **D**. *Maculamiris baja*. **E**. *Quernocoris caliginosus*. **F**. *Vesperocoris paddocki*.

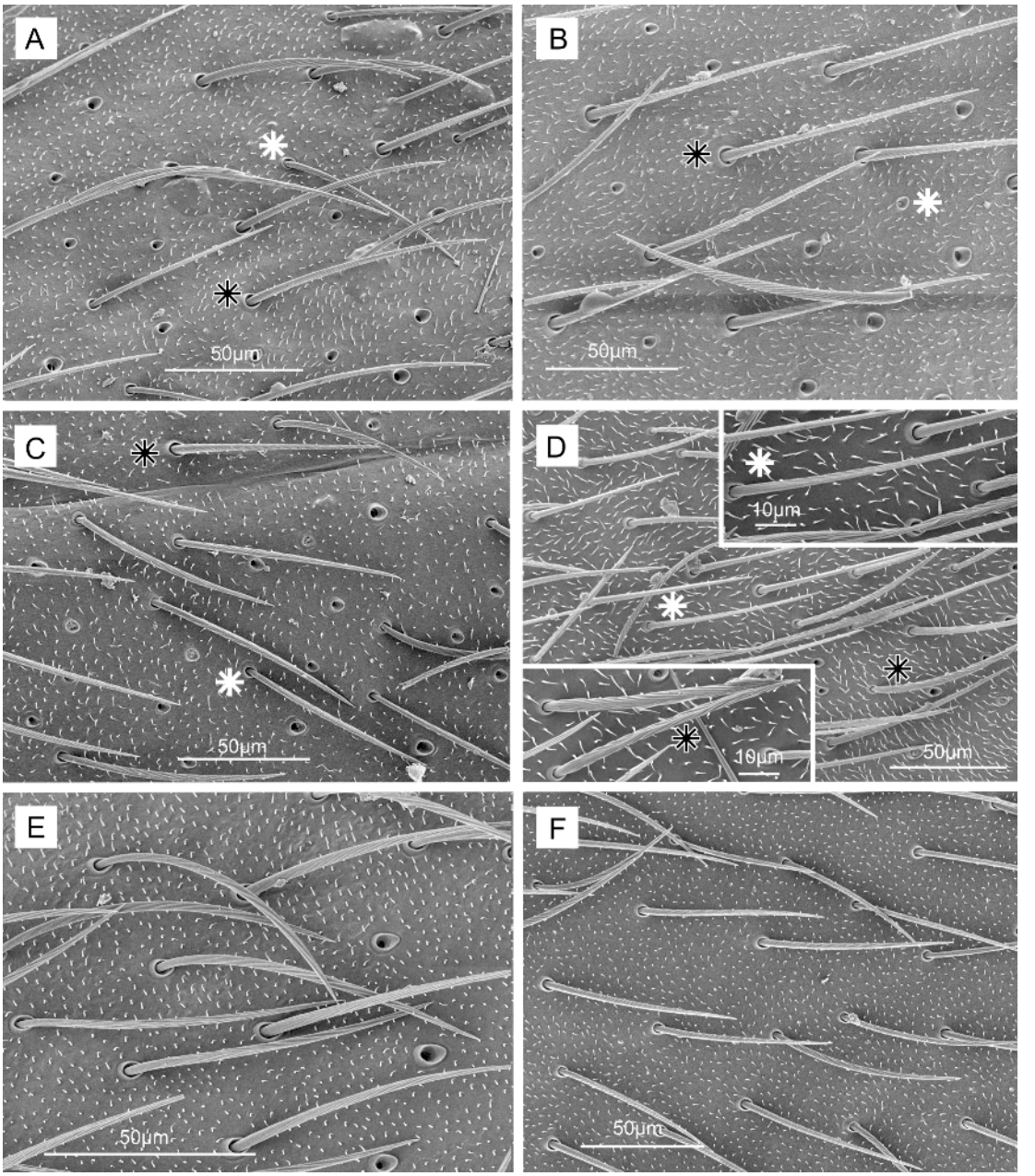

Fig. 9. Detail of setae comprising hemelytral vestiture, where two types of setae are present, the black asterisk indicates the stouter seta, the white asterisk the more slender seta. **A**. *Galbinocoris caepa*. **B**. *Hamatophylus guttulosus*. **C**. *Insulaphylus cruz*. **D**. *Maculamiris baja*. **E**. *Quernocoris caliginosus*. **F**. *Vesperocoris paddocki*.

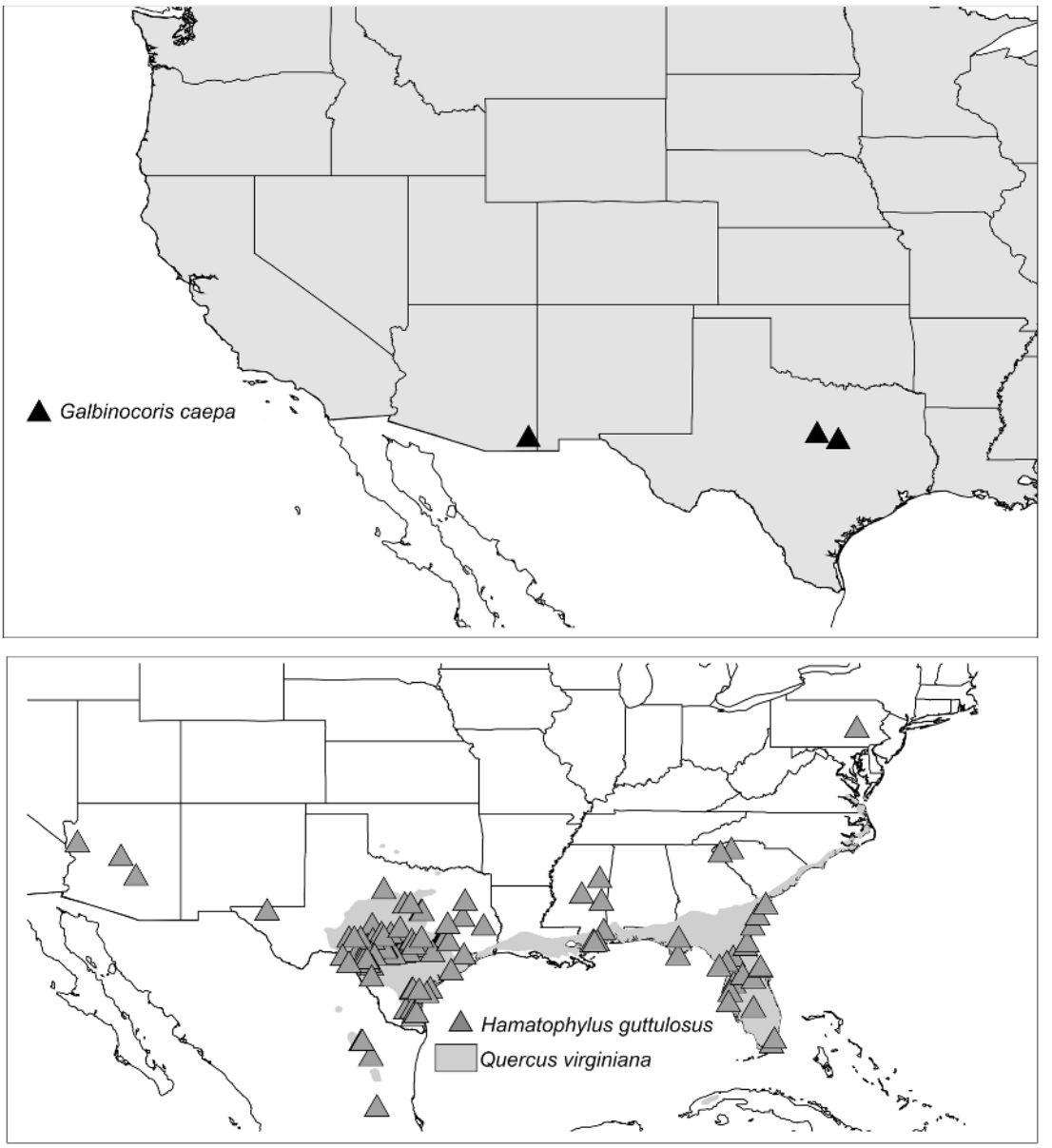

Fig. 10. Distribution of species of *Galbinocoris caepa* and *Hamatophylus guttulosus*. The localities of *H. guttulosus* are mapped onto the distribution of one of its primary hosts, *Quercus virginiana*.

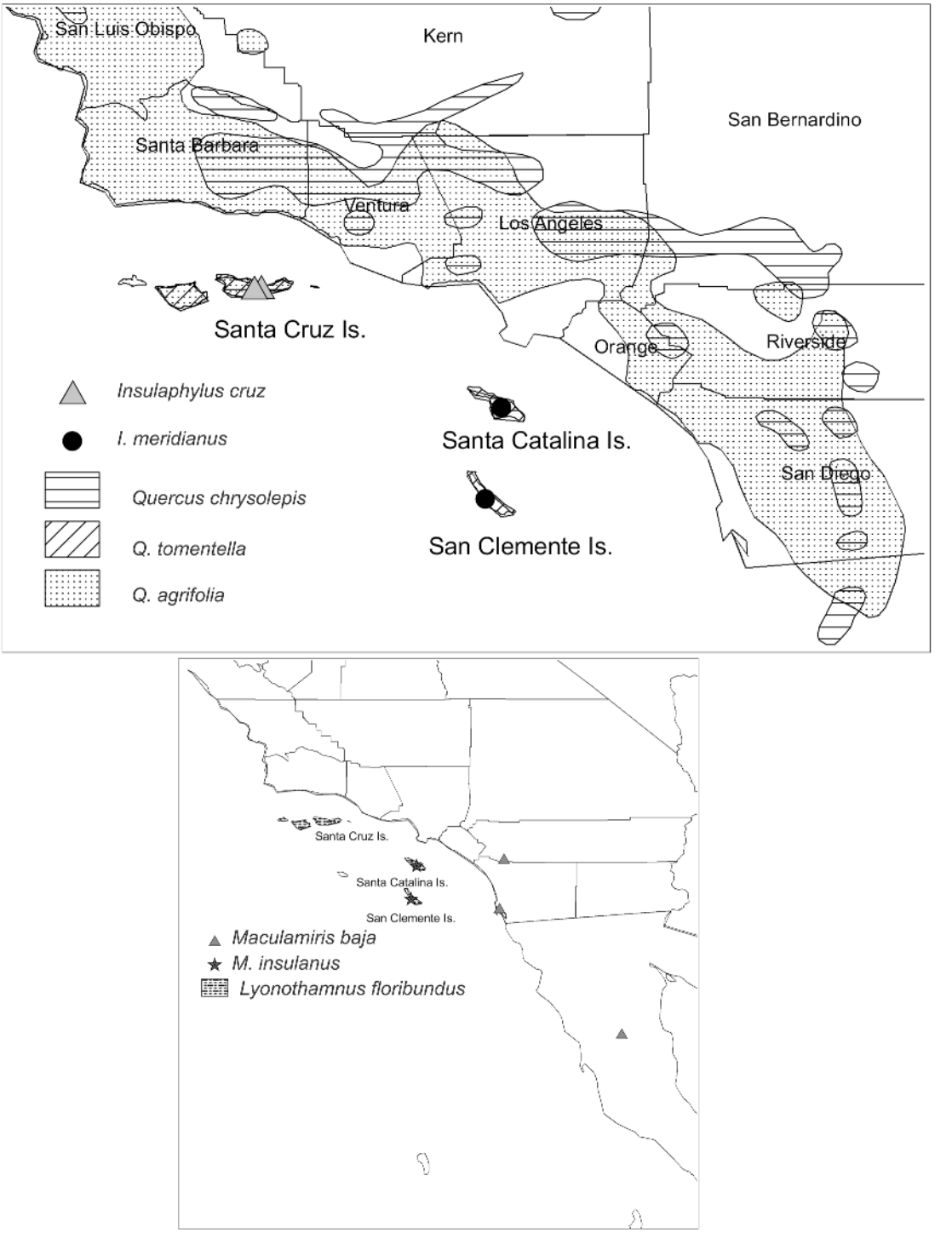

Fig. 11. Distribution of species of the genera *Insulaphylus* and *Maculamiris*. The species distributions are mapped onto distribution maps of some of their hosts.

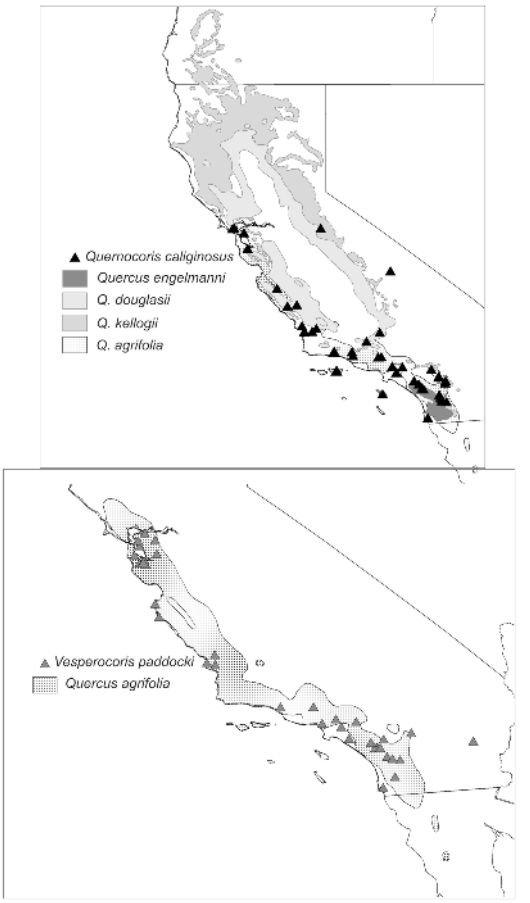

Fig. 12. Distribution of Quernocoris caliginosus and *Vesperocoris paddocki*. The species distributions are mapped onto distribution maps of some of their hosts.

Oaks, Mint Canyon, 34.41528°N 118.45278°W, 20 Apr 1932, E. P. Van Duzee, 2♂ (AMNH_PBI 00077573, AMNH_PBI 00077574), 2♀ (AMNH_PBI 00077575, AMNH_PBI 00077576) (CAS). Pasadena, 34.14778°N 118.14361°W, 9 Apr 1909, Grinnell, 2♂ (AMNH_PBI 00077264, AMNH_PBI 00077265), 1♀ (AMNH_PBI 00077564) (CAS); 1 May 1909, Grinnell, 6♂ (AMNH_PBI 00077266–AMNH_PBI 00077268, AMNH_PBI 00077557–AMNH_PBI 00077559), 3♀ (AMNH_PBI 00077560–AMNH_PBI 00077562) (CAS); 5 Jun 1909, Grinnell, 3♂ (AMNH_PBI 00077269–AMNH_PBI 00077270, AMNH_PBI 00077563) (CAS); 25 May 1909, Grinnell, 1♂ (AMNH_PBI 00077271) (CAS). Santa Catalina Island, Avalon Canyon, 33.38333°N 118.41667°W, 31 Mar 1968, J. Powell, 2♂ (AMNH_PBI 00079287, AMNH_PBI 00079288), 2♀ (AMNH_PBI 00079290, AMNH_PBI 00079291) (UCB). Santa Catalina Island, Little Harbour, 33.38333°N 118.41667°W, 1 Apr 1968, P. A. Opler, 2♂ (AMNH_PBI 00079292, AMNH_PBI 00079293) (UCB). Santa Catalina Island, Pebbly Beach Canyon, 33.38333°N 118.41667°W, 31 Mar 1968, P. A. Opler, catalina cherry, 1♂ (AMNH_PBI 00079289) (UCB). Saugus 5 mi E Mint Cn., 34.41139°N 118.53917°W, 20 Apr 1932, E. P. Van Duzee, 1♂ (AMNH_PBI 00077572), 2♀ (AMNH_PBI 00077577, AMNH_PBI 00077578) (CAS). Tanbark Flat, 33.69111°N 116.67056°W, 17 Jun 1958, A. S. Menke, 1♂ (AMNH_PBI 00077571) (CAS). Whittier, 33.97917°N 118.03194°W, 18 Apr 1935, E. L. Paddock, *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00068818), 1♀ (AMNH_PBI 00068819) (USNM). ***Marin Co.:*** Fairfax, 37.98722°N 122.58778°W, 7 May 1911, E. C. Van Dyke, 1♀ (AMNH_PBI 00077565) (CAS). Terra Linda E of Rt 101 at Freitas Prwy, 38.00417°N 122.54861°W, 25 Apr 1980, Russell and Schwartz, 3♀ (AMNH_PBI 00058814–AMNH_PBI 00058816) (AMNH). ***Monterey Co.:*** 2 miles NE Bryson, 35.82717°N 121.06414°W, 17 Apr 1966, C. W. O'Brien, 2♂ (AMNH_PBI 00079351, AMNH_PBI 00079352) (UCB). Bradley, 35.86333°N 120.79972°W, 23 Apr 1962, E. P. Van Duzee, 2♂ (AMNH_PBI 00077566, AMNH_PBI 00077567) (CAS). Wiley Ranch 6 mi W Greenfield, 36.32078°N 121.35078°W, 366 m, 3 May 1975, J. Powell, 1♀ (AMNH_PBI 00079282) *Quercus douglasii* (Fagaceae), 8♂ (AMNH_PBI 00079272–AMNH_PBI 00079278, AMNH_PBI 00079618) (UCB); 2 May 1975, S. Szerlip, *Quercus douglasii* (Fagaceae), 1♂ (AMNH_PBI 00079279), 2♀ (AMNH_PBI 00079280, AMNH_PBI 00079281) (UCB); 3 May 1975, W.W. Middlekauff, 1♂ (AMNH_PBI 00079353), 1♀ (AMNH_PBI 00079354) (UCB); 3 May 1975, [collector unknown], 2♂ (AMNH_PBI 00079356, AMNH_PBI 00079357) (UCB). ***Orange Co.:*** Cleveland National Forest, El Cariso Campground, 33.3°N 116.8°W, 750 m, 12 May 1978, J. D. Pinto and R. T. Schuh, *Quercus* sp. (Fagaceae), 1♀ (AMNH_PBI 00095230) *Quercus dumosa* (Fagaceae), det. K. Nixon 1985, 1♂ (AMNH_PBI 00095228) *Quercus engelmanni* (Fagaceae), det. K. Nixon 1985, 1♀ (AMNH_PBI 00095231) (AMNH). Santa Ana Mountains, 33.75°N 117.54167°W, 29 Apr 1962, B. Ewing, 1♂ (AMNH_PBI 00082643) (UCR). ***Riverside Co.:*** 2 mi N Poppet Flat on Hwy 243,

33.87901°N 116.85167°W, 22 May 1976, J. D. Pinto, *Quercus agrifolia* (Fagaceae), 1♀ (AMNH_PBI 00082639) (UCR). 2 mi N of Poppet Flat on Rt 243, 33.87891°N 116.85167°W, 22 May 1976, J. D. Pinto, *Quercus dumosa* (Fagaceae), 4♂ (AMNH_PBI 00082386–AMNH_PBI 00082389), 1♀ (AMNH_PBI 00082390) (UCR). 6 mi W of Murrieta, Santa Rosa Plateau Area, 33.55°N 117.32074°W, 625 m, 1 May 1985, R. T. Schuh and B. M. Massie, *Quercus dumosa* (Fagaceae), det. K. Nixon 1985, 1♀ (AMNH_PBI 00059000) *Quercus engelmanni* (Fagaceae), det. K. Nixon 1985, 2♂ (AMNH_PBI 00058998, AMNH_PBI 00058999), 24♀ (AMNH_PBI 00058822–AMNH_PBI 00058845) *Quercus engelmanni* Greene (Fagaceae), det. K. Nixon 1985, 2♂ (AMNH_PBI 00058998, AMNH_PBI 00058999), 24♀ (AMNH_PBI 00058822–AMNH_PBI 00058845) *Quercus englemanni* Greene (Fagaceae), det. K. Nixon 1985, 1♂ (AMNH_PBI 00060493) (AMNH). Cleveland National Forest, El Cariso Campground on Hwy 74, 33.65889°N 117.40972°W, 762 m, 12 May 1978, J. D. Pinto, *Quercus* sp. (Fagaceae), 2♂ (AMNH_PBI 00082391, AMNH_PBI 00082392), 6♀ (AMNH_PBI 00082393–AMNH_PBI 00082398) (UCR). Poppet Flat, 33.85°N 116.85167°W, 22 May 1976, G. Clark, 1♂ (AMNH_PBI 00082429) (UCR); 22 May 1976, B. A. Bowers, 1♂ (AMNH_PBI 00082672), 20♀ (AMNH_PBI 00082652–AMNH_PBI 00082671) (UCR). San Jacinto Mountains, junction Poppet Flat Road and Route 243, 33.75028°N 116.66667°W, 20 May 2000, M. D. Schwartz, *Quercus palmeri* (Fagaceae), det. L. Raz 2002, 6♂ (AMNH_PBI 00059002–AMNH_PBI 00059006, AMNH_PBI 00059008), 7♀ (AMNH_PBI 00059009–AMNH_PBI 00059015) *Rhamnus tomentella* (Rhamnaceae), det. L. Raz 2002, 1♂ (AMNH_PBI 00059007) (AMNH). Santa Rosa Plateau Reserve, 33.52417°N 117.27528°W, 29 Apr 1985, J. D. Pinto, *Quercus engelmanni* (Fagaceae), 2♂ (AMNH_PBI 00082677, AMNH_PBI 00082678), 1♀ (AMNH_PBI 00082679) (UCR). Sendie Creek, 1 May 1979, H. L. Murray, 1♂ (AMNH_PBI 00082642) (UCR). ***San Bernardino Co.:*** 4 mi E of Mentone, 34.07°N 117.0638°W, 750 m, 11 May 1978, J. D. Pinto, *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00082686), 1♀ (AMNH_PBI 00082723) (UCR). ***San Diego Co.:*** 3.5 mi S of Lake Henshaw on S7 (also known as Henshaw Dam), 33.19107°N 116.76222°W, 1220 m, 30 Apr 1985, R. T. Schuh and B. M. Massie, *Quercus engelmanni* (Fagaceae), det. K. Nixon 1985, 3♂ (AMNH_PBI 00058800–AMNH_PBI 00058801, AMNH_PBI 00095092), 3♀ (AMNH_PBI 00058802–AMNH_PBI 00058803, AMNH_PBI 00095229) *Quercus engelmanni* Greene (Fagaceae), det. K. Nixon 1985, 3♂ (AMNH_PBI 00058800–AMNH_PBI 00058801, AMNH_PBI 00095092), 3♀ (AMNH_PBI 00058802–AMNH_PBI 00058803, AMNH_PBI 00095229) (AMNH).7 mi S of Warner Springs, Carrizo Creek intersection w/ Rt 79, 33.16587°N 116.63707°W, 16 May 1982, M. D. Schwartz, *Quercus engelmanni* Greene (Fagaceae), 3♂ (AMNH_PBI 00058846–AMNH_PBI 00058848), 3♀ (AMNH_PBI 00058849–AMNH_PBI 00058851) (AMNH). Palomar Mountain, 33.36333°N 116.83528°W, 28 Jun 1963, J. Powell, 3♂ (AMNH_PBI 00079341–AMNH_PBI 00079343) (UCB). San Diego County, 32.71528°N 117.15639°W, 6 May 1913, E. P. Van Duzee, 1♂ (AMNH_PBI 00077356) (CAS). Just above Lake Henshaw on S7 (also known as Henshaw Dam), 33.24167°N 116.76222°W, 900 m, 30 Apr 1985, R. T. Schuh and B. M. Massie, *Quercus dumosa* (Fagaceae), det. K. Nixon 1985, 3♂ (AMNH_PBI 00058789, AMNH_PBI 00059001, AMNH_PBI 00095226) (AMNH). 1♂ (AMNH_PBI 00072153) (CNC). ***San Luis Obispo Co.:*** 12.3 mi E of Arroyo Grande, Huasna Valley, 35.11841°N 120.37158°W, 310 m, 9 May 1985, R. T. Schuh and B. M. Massie, 1♀ (AMNH_PBI 00058805) (AMNH). Arroyo Grande Creek SW of San Luis Obispo, 35.11644°N 120.58609°W, 160 m, 8 May 1985, R. T. Schuh and B. M. Massie, *Quercus lobata* (Fagaceae), 1♂ (AMNH_PBI 00059055) (AMNH). Avenales Guard Station Jct, Huasna Valley E of Arroyo Grande, 35.11861°N 120.58972°W, 840 m, 9 May 1985, R. T. Schuh and B. M. Massie, 2♂ (AMNH_PBI 00059052, AMNH_PBI 00059053) *Quercus douglasii* H. and A. (Fagaceae), 2♂ (AMNH_PBI 00058817, AMNH_PBI 00058818) (AMNH). E of Arroyo Grande, Husana Valley, Stony Creek Campground, 35.20933°N 120.25846°W, 9 May 1985, R. T. Schuh and B. M. Massie, *Quercus agrifolia oxyadenia* (Fagaceae), det. K. Nixon 1985, 1♂ (AMNH_PBI 00059054), 1♀ (AMNH_PBI 00059056) (AMNH). Poly. Campus, Poly Cyn, 38.00222°N 120.13611°W, 125 m, 8 May 1985, R. T. Schuh and B. M. Massie, 1♂ (AMNH_PBI 00058819) (AMNH). San Luis Obispo, 35.28278°N 120.65861°W, 24 Apr 1919, E. P. Van Duzee, 1♂ (AMNH_PBI

00077570) (CAS). ***Santa Barbara Co.:*** Los Prietos Ranger Station, 34.54222°N 119.78472°W, 14 Mar 1967, J. Powell, *Quercus douglasii* (Fagaceae), 1♂ (AMNH_PBI 00079286) (UCB). Santa Cruz Island, 34.01667°N 119.71667°W, 23 Apr 1976–26 Apr 1976, J. D. Pinto, *Quercus agrifolia* (Fagaceae), 1♂ (AMNH_PBI 00082637), 1♀ (AMNH_PBI 00082638) (UCR); 24 Mar 1941, G. P. Kanakoff, *Quercus* sp. (Fagaceae), 2♀ (AMNH_PBI 00074199, AMNH_PBI 00074200) (LACM); 15 Apr 1973, M. L. May, 1♂ (AMNH_PBI 00082428) (UCR). Santa Cruz Island, Canada Cervada, 34.01667°N 119.71667°W, 26 Apr 1966, P. Rude, 1♂ (AMNH_PBI 00079581) (UCB). Santa Cruz Island, Cascada, 34.01667°N 119.71667°W, 1 May 2000, J. Powell, Light Trap, 1♂ (AMNH_PBI 00079340) (UCB). Santa Cruz Island, Central Valley, 34.01861°N 119.68083°W, 23 Apr 1976, J. D. Pinto, 1♂ (AMNH_PBI 00082438), 3♀ (AMNH_PBI 00082439–AMNH_PBI 00082441) (UCR); 25 Apr 1966, J. Slater, *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00079580) (UCB). Santa Cruz Island, Central Valley, 34.01667°N 119.71667°W, 29 Apr 1966, J. Powell, 3♂ (AMNH_PBI 00079346, AMNH_PBI 00079577, AMNH_PBI 00079617), 1♀ (AMNH_PBI 00079347) (UCB); 23 Apr 1976–26 Apr 1976, B. A. Bowers, 2♂ (AMNH_PBI 00082634, AMNH_PBI 00082635), 1♀ (AMNH_PBI 00082636) (UCR); 23 Apr 1976–26 Apr 1976, P. McNalley, 1♂ (AMNH_PBI 00082632), 1♀ (AMNH_PBI 00082633) (UCR); 25 Apr 1966, R. L. Langston, 1♀ (AMNH_PBI 00079619) (UCB). Santa Cruz Island, Field Station, 34.01667°N 119.71667°W, 23 Apr 1976–26 Apr 1976, G. Clark, 1♀ (AMNH_PBI 00082640) (UCR). Santa Cruz Island, Prisoner's Harbor Cr, 34.01667°N 119.71667°W, 16 Mar 1969, J. Powell, 2♂ (AMNH_PBI 00079283, AMNH_PBI 00079284), 1♀ (AMNH_PBI 00079285) (UCB). Santa Cruz Island, Ridge N of Laguna Cyn., 34.01667°N 119.71667°W, 28 Apr 1966, J. Wolf, 1♂ (AMNH_PBI 00079579) (UCB); 28 Apr 1966, J. A. Slater, 1♀ (AMNH_PBI 00079348) (UCB); 28 Apr 1966, P. Rude, 1♂ (AMNH_PBI 00079578) (UCB); 28 Apr 1966, J. Powell, 1♀ (AMNH_PBI 00079583) (UCB). Santa Cruz Island, Upper Central Valley, 34.01861°N 119.68083°W, 305 m, 26 Apr 1966, J. Powell, 3♂ (AMNH_PBI 00079330–AMNH_PBI 00079332), 7♀ (AMNH_PBI 00079333–AMNH_PBI 00079339) (UCB); 26 Apr 1966, P. A. Rude, 2♂ (AMNH_PBI 00079349, AMNH_PBI 00079350), 1♀ (AMNH_PBI 00079584) (UCB). Upper Oso Campground off Rt 154, 34.55583°N 119.75389°W, 305 m, 7 May 1985, R. T. Schuh and B. M. Massie, *Quercus agrifolia oxyadenia* Torr. (Fagaceae), det. K. Nixon 1985, 1♀ (AMNH_PBI 00058804) (AMNH). ***Santa Clara Co.:*** Stanford University Campus, 37.42722°N 122.16917°W, 29 Apr 1928, R. L. Usinger, 1♂ (AMNH_PBI 00079582) (UCB). ***Ventura Co.:*** Tule Creek, 34.55917°N 119.26849°W, 27 Jun 1965, P. M. Jump, 1♂ (AMNH_PBI 00074196) (LACM).

Vesperocoris, new genus
Figures 1, 2, 5–9, 12

TYPE SPECIES: *Plagiognathus paddocki* Knight, 1964.

DIAGNOSIS: Recognized by the medium size, slender and slightly ovoid body shape, brownish and white coloration with the scutellum white, and the very simple and slender J-shaped vesica with the secondary gonopore facing caudad. Habitus similar to *Plagiognathus*, but clearly distinguished from that genus by the structure of the male genitalia.

DESCRIPTION: *Male*: Moderate size, elongate and slightly ovoid, moderately stout in lateral view. COLORATION (fig. 1): Overall coloration light and dark brown, and white. **Head**: Vertex whitish with five paired reddish brown transverse fasciae and additional mark at interior margin of eye, clypeus light brown or whitish with base and apex dark brown, and lateral longitudinal stripe reddish brown, mandibular and maxillary plates light brown or whitish, sometimes suffused with red, maxillary plate sometimes darker than mandibular plate, gena brown, antennal fossa whitish, buccula white, gula whitish; antennal segment 1 dark brown, with base and apex whitish, segment 2 light brown or yellowish with base whitish, usually with subbasal ring dark brown, and apex suffused with brown, segments 3 and 4 brown; labial segments 1 to 3 yellowish white, segment 4 suffused with brown. **Thorax**: Pronotum, including narrow collar, brown with transverse band anteriorly on anterior pronotal lobe, longitudinal medial stripe on anterior lobe white, enlarged to mark on posterior lobe, callus dark or reddish brown, mesoscutum brown usually with median longitudinal stripe and lateral markings whitish or white, scutellum white, pleura

brown and whitish, brown parts sometimes suffused with red, propleura brown with margin of procoxal cavity and dorsal rim of propleuron whitish, mesepisternum brown with dorsal rim whitish, mesepimeron whitish to brown, in light specimens evaporatory area sometimes distinctly darker than the surrounding metepisternum. *Legs*: Whitish, with bases of coxae and tibiae, distal tarsomeres, and distal third of metafemur suffused with light brown to brown, some dark marks on meso- and metafemur, bases of proximal tibial spines dark. *Hemelytra*: Corium, including clavus, light brown, slightly suffused with red, with proximal anterior area and distal portion of corium whitish, cuneus with proximal crescent-shaped area whitish. **Abdomen**: Venter whitish yellow, anteriorly and laterally suffused with red and brown, pygophore yellowish with large mark ventrally on the left side and anterior area dorsally brown. SURFACE AND VESTITURE (fig. 9F): Dorsum slightly shining, rather densely covered with fine, relatively short, yellowish subadpressed setae, lateral margin in addition with sparse stout and long setae. STRUCTURE: **Head** (figs. 2F, 5): Head subtriangular in dorsal aspect, vertex moderately wide, slightly convex and with posterior margin straight, clypeus moderately produced, mandibular plate not produced, maxillary plate slightly sunken, buccal cavity large and ovoid, gula broad; eyes about 4/5 as high as head, of moderate size, very weakly emarginate posterior to antennal fossa, posterolateral magins contiguous with anterolateral margins of pronotum; antennal segment 1 short and stout, segment 2 long and relatively stout, very slightly increasing toward apex, segments 3 and 4 with diameter smaller than segments 1 and 2, relatively short; apex of labium reaching base of metacoxa. **Thorax** (figs. 7F, 8F): Pronotum trapeziform, anterior margin slightly sinuate, lateral margins almost straight, posterior margin almost straight, anterior and posterior pronotal lobe not demarcated, callus weakly developed, metapleural evaporatorium with area of mushroomlike cuticle roughly triangular, mushroomlike cuticle anterior to mesothoracic spiracle well developed (fig. 7F). *Legs*: Slender; claws moderately slender, pulvilli relatively large, and covering about half of ventral claw surface, parempodia setiform, slender and moderately elongate (fig. 8F). *Hemelytra*: Hemelytra subparallel, cuneus elongate triangular. **Abdomen**: Tip of abdomen reaching apex of cuneus. GENITALIA (fig. 5): **Pygophore**: Of moderate size. **Parameres**: Right paramere typically phyline lanceolate; left paramere with anterior arm rather short and pointed, posterior arm long with apex pointing ventrad. **Phallotheca**: Slender and elongate, rather prominently protruding out of the pygophore, right face smooth, left face with striation, with slitlike ventral opening. **Vesica:** J-shaped, slender, one apical acute sclerite, secondary gonopore in subapical position, opening facing caudad, no conspicuous gonopore sclerite.

Female (fig. 1): Color pattern similar to male but coloration more reddish and paler than in male, body shape slightly more ovoid than male, antennal segment 1 more slender than in male, segment 2 more slender at base, increase in diameter toward the apex more pronounced than in male. GENITALIA (fig. 6): See description of type species.

ETYMOLOGY: Named for its distribution in the western United States, from Latin *vesper*, meaning "the west". The gender of the name is masculine.

DISCUSSION: *V. paddocki* was originally placed in *Plagiognathus* by Knight (1964). Schuh (2001) treated it as incertae sedis. The simple male vesica clearly excludes this species from *Plagiognathus*, and a new genus was therefore erected in this paper to accommodate this species.

Vesperocoris paddocki, new combination
Figures 1, 2, 5–9, 12

Plagiognathus paddocki Knight, 1964: 146 (n.sp.).
Plagiognathus paddocki Schuh, 2001: 254 (tax., disc.).

HOLOTYPE: **USA: California:** [county unknown]: Santiago Canyon, 14 Apr 1935, E. L. Paddock, *Quercus agrifolia* (Fagaceae) (AMNH_PBI 00069280) (USNM).

DIAGNOSIS: As in generic diagnosis.

REDESCRIPTION: *Male*: As in generic description, total length 3.42–3.92, length from apex of clypeus to cuneal fracture 2.39–2.62, width across pronotum 1.04–1.19.

COLORATION (fig. 1): General coloration, head, thorax, and abdomen as in generic description. SURFACE AND VESTITURE (fig. 9F): Dorsum and hemelytra as in generic description. STRUCTURE (figs. 2F, 5, 7F, 8F): Head, thorax, and abdomen including genitalia as in generic description.

Female (fig. 1): Female as in generic description. Total length 3.38–3.67, length from apex of clypeus to cuneal fracture 2.45–2.55, width across pronotum 1.16–1.24. GENITALIA (fig. 6): Vestibulum slender and twisetd S-shaped, bursa copulatrix rather large, posterior margin straight with membranous lateral lobes, sclerotized rings moderately large.

HOST: Most records are from *Quercus agrifolia* Née, *Q. agrifolia* var. *oxyadenia* (Torr) J. T. Howell, and *Q. engelmanni* Greene, but some specimens were also collected on members of the Rosaceae and Acanthaceae.

DISTRIBUTION: Restricted to California, where it occurs in the Coast Range south of San Francisco and the mountainous regions of southern California (fig. 12).

DISCUSSION: *V. paddocki* is sympatric (same collecting event) with *Quernocoris caliginosus* at several localities, with both species breeding on *Quercus agrifolia*.

The distribution of *V. paddocki* as seen in figure 12 appears to be correlated with the distribution of *Quercus agrifolia*, one of its primary hosts.

PARATYPES: **USA: California: *Los Angeles Co.:*** Turnbull Canyon, 33.98472°N 118.03139°W, 7 Apr 1936, E. L. Paddock, 2♂ (AMNH_PBI 00058092, AMNH_PBI 00058093), 2♀ (AMNH_PBI 00058094, AMNH_PBI 00058095) (TAMU). *Quercus agrifolia* (Fagaceae), 2♂ (AMNH_PBI 00068822, AMNH_PBI 00068823) (USNM). **[County unknown]:** Santiago Canyon, 14 Apr 1935, E. L. Paddock, *Quercus agrifolia* (Fagaceae), 1♂ (AMNH_PBI 00068821) *Rhus diversiloba* (Anacardiaceae), 1♂ (AMNH_PBI 00068820) (USNM).

OTHER SPECIMENS EXAMINED: **USA: California: *Alameda Co.:*** Strawberry Canyon, 37.6°N 121.88333°W, 22 Apr 1957, W. A. Nisbet, 1♂ (AMNH_PBI 00079328) (UCB). Alameda, University of California (UC) Campus, 37.76528°N 122.24056°W, 19 Apr 1978, W. Middlekauff, *Photinia* sp. (Rosaceae), 1♀ (AMNH_PBI 00079411) (UCB). Berkeley, 37.87167°N 122.27167°W, 13 Apr 1915, E. P. Van Duzee, 2♂ (AMNH_PBI 00079321, AMNH_PBI 00079323), 1♀ (AMNH_PBI 00079322) (UCB); 14 Apr 1915, E. P. Van Duzee, 1♂ (AMNH_PBI 00079324) (UCB); 25 May 1962, W. Tuner, 1♂ (AMNH_PBI 00079325) (UCB); 28 Mar 1961, W. F. Foster, 1♂ (AMNH_PBI 00079326) (UCB); 12 Mar 1963, P. J. Hart, 1♂ (AMNH_PBI 00079329) (UCB); 13 Apr 1947, W. F. Chamberlain, Light Trap, 1♂ (AMNH_PBI 00058091) (TAMU). ***Contra Costa Co.:*** Martinez, 38.01944°N 122.13306°W, 19 Apr 1949, R. P. Allen, 3♂ (AMNH_PBI 00077330–AMNH_PBI 00077332), 3♀ (AMNH_PBI 00077333–AMNH_PBI 00077335) (CAS). Mount Diabolo, 37.88159°N 121.91384°W, 29 Apr 1917, E. P. Van Duzee, 2♂ (AMNH_PBI 00077346, AMNH_PBI 00077434) (CAS). ***Los Angeles Co.:*** Claremont, 34.09667°N 117.71889°W, 11 Jan 1111, Baker, *Quercus* sp. (Fagaceae), 7♂ (AMNH_PBI 00077321–AMNH_PBI 00077327), 2♀ (AMNH_PBI 00077328, AMNH_PBI 00077329) (CAS). Pasadena, 34.14778°N 118.14361°W, 22 Apr 1904, Grinnell, 1♂ (AMNH_PBI 00077352) (CAS). Rivera, 27 Apr 1845, R. C. Dickson, orange, 1♂ (AMNH_PBI 00074615) (UCD). Westwood Hills, 34.05611°N 118.42972°W, 24 Apr 1956, Anderson, 1♂ (AMNH_PBI 00074201) (LACM). ***Monterey Co.:*** Andrew Molera State Park, 0.1 mile N of entrance, 36.28333°N 121.83333°W, 20 Apr 1980, Russell and Schwartz, *Beloperone californica* (Acanthaceae), 15♂ (AMNH_PBI 00058871–AMNH_PBI 00058884, AMNH_PBI 00095088), 14♀ (AMNH_PBI 00058885–AMNH_PBI 00058898) *Beloperone californica* Benth. (Acanthaceae), 15♂ (AMNH_PBI 00058871–AMNH_PBI 00058884, AMNH_PBI 00095088), 14♀ (AMNH_PBI 00058885–AMNH_PBI 00058898) *Beloperone californica* (Aceraceae), 1♂ (AMNH_PBI 00095209) (AMNH). Carmel, 36.55363°N 121.9138°W, 27 Apr 1930, L. S. Slevin, 1♀ (AMNH_PBI 00077304) (CAS). ***Orange Co.:*** Cleveland National Forest, El Cariso Campground, 33.3°N 116.8°W, 750 m, 12 May 1978, J. D. Pinto and R. T. Schuh, *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00058901), 1♀ (AMNH_PBI 00058915) (AM). *Quercus* sp. (Fagaceae), 16♂ (AMNH_PBI 00058899, AMNH_PBI 00058903–AMNH_PBI 00058913, AMNH_PBI 00059965–AMNH_PBI 00059966, AMNH_PBI 00095095, AMNH_PBI 00095210), 8♀ (AMNH_PBI

00058917–AMNH_PBI 00058921, AMNH_PBI 00059967–AMNH_PBI 00059968, AMNH_PBI 00095215) (AMNH). *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00058900), 1♀ (AMNH_PBI 00058914) (CNC). *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00058902), 1♀ (AMNH_PBI 00058916) (ZISP). Green River Camp, Lower Santa Ana Canyon, 33.74556°N 117.86694°W, 9 May 1933, E. P. Van Duzee, 1♂ (AMNH_PBI 00077348) (CAS); 11 May 1933, E. P. Van Duzee, 1♂ (AMNH_PBI 00077351) (CAS). ***Riverside Co.:*** 3 mi W of Murrieta, Tenaja Road, 33.55°N 117.2687°W, 351 m, 12 May 1978, J. D. Pinto and R. T. Schuh, *Quercus agrifolia* (Fagaceae), 5♂ (AMNH_PBI 00058922, AMNH_PBI 00058930–AMNH_PBI 00058933), 16♀ (AMNH_PBI 00058923–AMNH_PBI 00058927, AMNH_PBI 00058934–AMNH_PBI 00058944) (AMNH). 4 mi W of Murrieta, 33.55°N 117.28605°W, 549 m, 29 Apr 1966, E. I. Schlinger, 2♂ (AMNH_PBI 00082412, AMNH_PBI 00082413), 2♀ (AMNH_PBI 00082414, AMNH_PBI 00082415) (UCR). 6 mi W of Murrieta, Santa Rosa Plateau Area, 33.55°N 117.32074°W, 625 m, 1 May 1985, R. T. Schuh and B. M. Massie, *Quercus englemanni* (Fagaceae), det. K. Nixon 1985, 1♂ (AMNH_PBI 00095208) (AMNH). Chino Canyon W of Palm Springs, 33.86444°N 116.57028°W, 11 Apr 1965, Doyen, 1♂ (AMNH_PBI 00079410) (UCB). Cleveland National Forest, El Cariso Campground on Hwy 74, 33.65889°N 117.40972°W, 762 m, 12 May 1978, J. D. Pinto, *Quercus* sp. (Fagaceae), 9♂ (AMNH_PBI 00082400–AMNH_PBI 00082406, AMNH_PBI 00082416, AMNH_PBI 00082721), 7♀ (AMNH_PBI 00082407–AMNH_PBI 00082411, AMNH_PBI 00082508–AMNH_PBI 00082509) (UCR); 12 May 1978, J. Pinto, *Quercus* sp. (Fagaceae), 1♀ (AMNH_PBI 00082722) (UCR). Menifee Valley, hills on W end, 33.72833°N 117.14556°W, 549 m, 10 Apr 1980–21 Apr 1983, J. D. Pinto, *Quercus* sp. (Fagaceae), 7♂ (AMNH_PBI 00082417, AMNH_PBI 00082420–AMNH_PBI 00082425), 2♀ (AMNH_PBI 00082426, AMNH_PBI 00082427) (UCR); 28 Apr 1979, J. D. Lattin, R. T. Schuh, *Quercus agrifolia* (Fagaceae), 2♂ (AMNH_PBI 00082418, AMNH_PBI 00082419) (UCR). Tenaja Road W of Murrieta, 33.55°N 117.21667°W, 410 m, 12 May 1978, J. D. Pinto and R. T. Schuh, *Quercus agrifolia* (Fagaceae), 1♀ (AMNH_PBI 00095214) (AMNH). W of Murrieta,Tenaja Road, 33.55°N 117.21667°W, 410 m, 12 May 1978, R. T. Schuh and J. D. Pinto, *Mimulus aurantiacus* (Scrophulariaceae), 2♀ (AMNH_PBI 00058928, AMNH_PBI 00058929) (AMNH). ***San Diego Co.:*** Kimball Creek Road at Kimball Valley, 32.94639°N 116.90389°W, 1190 m, 29 Apr 1985, R. T. Schuh and B. M. Massie, *Quercus agrifolia oxyadenia* (Fagaceae), det. K. Nixon 1985, 7♂ (AMNH_PBI 00058945–AMNH_PBI 00058950, AMNH_PBI 00095086), 5♀ (AMNH_PBI 00058951–AMNH_PBI 00058954, AMNH_PBI 00095213), 1;u (AMNH_PBI 00058955) (AMNH). Oak Grove Campground, Cleveland National Forest, 33.3°N 116.8°W, 22 Apr 1980, M. D. Schwartz, *Quercus* sp. (Fagaceae), 8♂ (AMNH_PBI 00058852–AMNH_PBI 00058859), 11♀ (AMNH_PBI 00058860–AMNH_PBI 00058870) (AMNH); 22 Apr 1980, Russell and Schwartz, *Quercus* sp. (Fagaceae), 2♂ (AMNH_PBI 00095087, AMNH_PBI 00095211), 1♀ (AMNH_PBI 00095212) (AMNH). PAUMA, 33.31889°N 116.95972°W, 20 Apr 1982, Kevin Grangetto, 2♂ (AMNH_PBI 00082506, AMNH_PBI 00082507) (UCR). Pala, 33.36528°N 117.07583°W, 13 Apr 1965, C. A Toschi, 22♂ (AMNH_PBI 00079294–AMNH_PBI 00079315), 5♀ (AMNH_PBI 00079316–AMNH_PBI 00079320) (UCB). San Diego County, 32.71528°N 117.15639°W, 12 Apr 1914, E. P. Van Duzee, 1♂ (AMNH_PBI 00077433) (CAS). ***San Francisco Co.:*** San Francisco, 34.40694°N 118.61111°W, 19 May 1927, H. H. Keifer, *Quercus agrifolia* (Fagaceae), 10♂ (AMNH_PBI 00077272–AMNH_PBI 00077281) (CAS); 7 May 1930, H. H. Keifer, *Quercus agrifolia* (Fagaceae), 2♂ (AMNH_PBI 00073785, AMNH_PBI 00073790), 3♀ (AMNH_PBI 00073791–AMNH_PBI 00073793) (CAFA). ***San Luis Obispo Co.:*** Atascadero, 35.48944°N 120.66972°W,22 Apr 1932, E. P. Van Duzee, 10♂ (AMNH_PBI 00077282–AMNH_PBI 00077286, AMNH_PBI 00077337–AMNH_PBI 00077341), 5♀ (AMNH_PBI 00077287, AMNH_PBI 00077342–AMNH_PBI 00077345) (CAS). Baywood Park, 35.32639°N 120.83417°W, 17 May 1980, J. Pinto, willow, 1♂ (AMNH_PBI 00082399) (UCR). E of Twitchell Res. 7 miles W mp22 route 166, 33.69083°N 115.27194°W, 22 Apr 1980, Russell and Schwartz, *Quercus* sp. (Fagaceae), 7♂ (AMNH_PBI 00058956–AMNH_PBI 00058962), 1♀ (AMNH_PBI 00058963) (AMNH); 20 Apr 1980, Russell and Schwartz, *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00095089) (AMNH). San Luis Obispo, 35.28278°N 120.65861°W, 24 Apr 1919,

E. P. Van Duzee, 8♂ (AMNH_PBI 00077288–AMNH_PBI 00077294, AMNH_PBI 00077347), 2♀ (AMNH_PBI 00077295, AMNH_PBI 00077296) (CAS). ***San Mateo Co.:*** Portola Valley, 37.40333°N 122.24667°W, 17 May 1919, W. L. Putnam, 6♂ (AMNH_PBI 00077305–AMNH_PBI 00077306, AMNH_PBI 00077312–AMNH_PBI 00077314, AMNH_PBI 00077349), 10♀ (AMNH_PBI 00077307–AMNH_PBI 00077311, AMNH_PBI 00077315–AMNH_PBI 00077319) (CAS); 10 May 1919, W. M. Giffard, *Quercus* sp. (Fagaceae), 1♂ (AMNH_PBI 00077320) (CAS); 17 May 1919, W. M. Giffard, 1♂ (AMNH_PBI 00077435) (CAS). San Mateo, 37.56444°N 122.35056°W, 1 May 1944, S. V. Weimer, elm, 1♂ (AMNH_PBI 00073789) (CAFA). ***Santa Clara Co.:*** Los Altos, 37.38515°N 122.11271°W, 19 May 1922, E. O. Essig, 1♂ (AMNH_PBI 00077297) (CAS). Palo Alto, 37.44194°N 122.14194°W, 18 May 1922, E. O. Essig, 6♂ (AMNH_PBI 00077298–AMNH_PBI 00077303) (CAS). Stanford University, 37.42722°N 122.16917°W, 11 Jan 1190, Hungate, 1♂ (AMNH_PBI 00079327) (UCB). Stanford University Campus, 37.42417°N 122.165°W, 25 Apr 1954, P. H. Arnaud Jr., 2♂ (AMNH_PBI 00077336, AMNH_PBI 00077350) (CAS). ***Ventura Co.:*** Oak View, 34.4°N 119.29917°W, 10 Apr 1949, E. L. Paddock, *Quercus* sp. (Fagaceae), 3♂ (AMNH_PBI 00073786–AMNH_PBI 00073788) (CAFA).

ACKNOWLEDGMENTS

Thanks to their tremendous collecting efforts during the past decades, combined with the documentation of host plants, John D. Pinto, Jerry A. Powell, Joe C. Schaffner, Randall T. Schuh, Michael D. Schwartz, and Gary M. Stonedahl made this project possible. To all these individuals I offer my sincere thanks. NSF grants DEB-8113481 and 8516635 to Randall Schuh and DEB-9726587 to Ward Wheeler and Randall Schuh supported an important portion of this fieldwork.

I thank R. T. Schuh for continued discussions on Western oak bugs and comments on the manuscript. I also thank Michael D. Schwartz and Thomas J. Henry for commenting on a later stage of the manuscript.

Thank you also to Sheridan Hewson-Smith for georeferencing numerous localities in California and elsewhere.

This paper is a contribution to the NSF Planetary Biodiversity Inventory grant (PBI) DEB-0316495 to Randall Schuh and Gerasimos Cassis, and was carried out while I was supported as a postdoctoral research fellow on this project.

I also would like to acknowledge the institutions and respective curators listed below for providing the specimens studied during this project. The following list combines names of institutions and responsible individuals with the institutional abbreviations that are used throughout this paper.

AMNH	American Museum of Natural History, New York; Randall T. Schuh
CAFA	California Department of Food and Agriculture, Sacramento; Alan Hardy
CAS	California Academy of Sciences, San Francisco; Norman Penny
CNC	Canadian National Collection of Insects, Agriculture and Agri-Food Canada, Ottawa; Michael D. Schwartz
JTP	John T. Polhemus Collection, Englewood, Colorado
LACM	Los Angeles County Museum; Julian P. Donahue
MZH	University Zoological Museum, Helsinki; Larry Huldén
SDNH	San Diego Museum of Natural History; David K. Faulkner
TAMU	Texas A & M University, College Station; Joseph C. Schaffner and Edward C. Riley
UCB	University of California, Berkeley; John Chemsak and Cheryl B. Barr
UCD	University of California, Davis; the late Robert Schuster
UCR	University of California, Riverside; John D. Pinto and Doug Yanega
UNAM	Universidad Autónoma de Mexico, Instituto de Biologia; Harry Brailovsky
USNM	[United States] National Museum of Natural History, Smithsonian Institution, Washington, DC; Thomas J. Henry, Systematic Entomology Laboratory, Agricultural Research Service, United States Department of Agriculture, Washington, DC
USU	Utah State University, Logan; Wilford Hanson

REFERENCES

Froeschner, R.C. 1949. Contributions to a synopsis of the Hemiptera of Missouri, pt. IV. Hebridae, Mesoveliidae, Cimicidae, Anthocoridae, Cryptostemmatidae, Isometopidae, Miridae. American Midland Naturalist 42: 123–188.

Henry, T.J., and C.L. Smith. 1979. An annotated list of the Miridae of Georgia (Hemiptera–Heteroptera). Journal of the Georgia Entomological Society 14: 212–220.

Knight, H.H. 1941. The plant bugs, or Miridae of Illinois. Illinois Natural History Survey Bulletin 22: 1–234.

Knight, H.H. 1964. *Phymatopsallus* new genus, and new species of Phylinae from North America (Hemiptera, Miridae). Iowa State University Journal of Science 39: 127–152.

Little, E.L., Jr. 1971. Atlas of United States trees, volume 1, conifers and important hardwoods: U.S. Department of Agriculture Miscellaneous Publication 1146: 1–9, 200 maps.

Little, E.L., Jr. 1976. Atlas of United States trees, volume 3, minor Western hardwoods: U.S. Department of Agriculture Miscellaneous Publication 1314: 1–13, 290 maps.

Powell, J.A. 1994. Biogeography of Lepidoptera on the California Channel Islands. *In* W.L. Halvorson and G.J. Maender (editors), The Fourth California Islands Symposium: Update on the Status of Resources: 449–464. Santa Barbara, CA: Santa Barbara Museum of Natural History.

Reuter, O.M. 1876. Capsinae ex America Boreali in Museo Holmiensi asservatae, descriptae. Öfversigt af Kongl. Vetenskaps-Akademiens Forhandlingar 32(9): 59–92. (1875), (Sep. 1876).

Schuh, R.T. 2000. Revision of *Oligotylus* Van Duzee with description of ten new species from western North America and comments on *Lepidargyrus* in the Nearctic (Heteroptera: Miridae: Phylinae: Phylini). American Museum Novitates 3300: 1–44.

Schuh, R.T. 2001. Revision of New World *Plagiognathus* Fieber, with comments on the Palearctic fauna and the description of a new genus (Heteroptera: Miridae: Phylinae). Bulletin of the American Museum of Natural History 266: 1–267.

Schwartz, M.D. 1984. A revision of the black grass bug genus *Irbisia* Reuter (Heteroptera: Miridae). Journal of the New York Entomological Society 92: 193–306.

Uhler, P.R. 1894. Observations upon the heteropterous Hemiptera of Lower California, with descriptions of new species. Proceeedings of the California Academy of Sciences (2)4: 223–295.

Wheeler, A.G., Jr. 1991. Plant bugs of *Quercus ilicifolia*: myriads of mirids (Heteroptera) in pitch pine-scrub oak barrens. Journal of the New York Entomological Society 99: 405–440.

APPENDIX 1

Unique Specimen Identifier Numbers for Specimens Used for Illustrations and Measurements

All numbers have AMNH_PBI prefix.

	Measurements					
	Habitus male	Habitus female	male	female	Illustrated genitalia	USI
G. caepa	95232	95240	95232	95237	male	58653
			95233	95238	female	58684
			95234	95239		
			95235	95240		
			95236	95241		
H. guttulosus	92504	92509	92504	92509	male	58052
			92505	92510	female	57978
			92506	92511		
			92507	92512		
			92508	92513		
I. cruz	79598	82719	79598	82719	male	79247
			79599	82720	female	79187
			79600	79601		
			82718	79602		
			74619	74620		
I. meridianus	79603	79608	79603	79608	male	79587
			79604	79609		
			79605	79610		
			79606	79611		
			79607	79612		
M. baja	95216	95222	95216	95221	male	58716
			95217	95222	female	58748
			95218	95223		
			95219	95224		
			95220	95225		
M. insulanus	79613	79616	79613	79616	male	74408
			79614			
			79615			
			74409			
			74010			
Q. caliginosus	79617	79619	79617	79619	male	58848
			79617	95229	female	58803
			95226	95230		
			95226	95231		
			95228	82723		
V. paddocki	82721	95215	95208	95212	male	58906
			95209	95213	female	58898
			95210	95214		
			95211	95215		
			82721	82722		

Complete lists of all issues of the *Novitates* and the *Bulletin* are available at World Wide Web site http://library.amnh.org/pubs. Inquire about ordering printed copies via e-mail from scipubs@amnh.org or via standard mail from: American Museum of Natural History, Library—Scientific Publications, Central Park West at 79th St., New York, NY 10024. TEL: (212) 769-5545. FAX: (212) 769-5009.

This paper meets the requirements of ANSI/NISO Z39.48-1992 (Permanence of Paper).