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New Genera, New Species, New Synonyms, and New Combinations in North America and Caribbean Phylinae (Heteroptera: Miridae)

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ABSTRACT

Adenostomocoris, new genus, is described to accommodate *Maurodactylus semiustus* Van Duzee and *Adenostomocoris pintoi*, new species, both occurring only on *Adenostoma* spp. (Rosaceae) in southern California and adjacent Mexico. *Arctostaphylocoris*, new genus, is described to accommodate *Chlamydatus manzanitae* Knight and *Arctostaphylocoris arizonensis*, new species, both of which breed on *Arctostaphylos* spp. (Ericaceae) in the far western United States. *Aurantiocoris*, new genus, is described to accommodate *Sthenarus cuneotinctus* Van Duzee and *Aurantiocoris purshiae*, new species, recorded from *Arctostaphylos* spp. (Ericaceae) and *Purshia* sp. (Rosaceae), respectively, from far western North America. *Gonoporomiris hispaniolae*, new species, is described from the Dominican Republic. *Guentherocoris*, new genus, is described to accommodate *Psallus atribibialis* Knight, which breeds on *Acacia* spp. (Fabaceae) in the southwestern United States and adjacent Mexico. *Megalopsallus ellae*, new species, is described as occurring on *Ephedra* sp. (Ephedrales: Ephedraceae) in the Imperial Valley of southern California. *Oligotylus ribes* Schuh, 2000, is treated as a junior synonym of *Oligotylus pluto* (Van Duzee, 1917), new combination. *Pruneocoris stonedahli*, new genus and new species, is described as occurring on *Prunus* spp. (Rosaceae) in California and Nevada. *Vanduzeephylus*, new genus, is described to accommodate *Reuteroscopus falcatus* Van Duzee, known to breed on a variety of deciduous trees in western North America.

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INTRODUCTION

The present paper provides new information on a variety of phyline Miridae from North America and the Caribbean. The revised generic assignments of previously misplaced species and the description of new genera and species bring additional taxonomic order to this diverse assemblage of plant bugs. All scanning electron micrographs document male specimens. All measurements are in millimeters. A summary of measurements for all species is given in table 1.

Adenostomocoris, new genus
Figures 1, 3, 6

TYPE SPECIES: *Maurodactylus semiustus* Van Duzee.

DIAGNOSIS: Recognized by the relatively small size, the yellowish to heavily infuscate coloration (fig. 1), the heavy, dark setae on the dorsum, antennal segment 2 relatively long and of uniform diameter (fig. 1), the field of spicules on the ventral and posterior surfaces of the genitalia capsule (figs. 5H, 6E), and the form of the male genitalia, especially the vesica being slender, elongate, formed of a single strap, sinuously curving, attenuted apically, and the secondary gonopore located subapically and with a rudimentary gonopore sclerite (fig. 3). *Adenostomocoris* spp. have the general appearance of some largely pale *Atractotomus* spp., such as *A. prosopidis* (Knight) and *A. griseolus* (Reuter). They differ from most *Atractotomus* spp. in completely lacking lepidote setae, in lacking the row of spinules on the dorsodistal surface of the hind femur (fig. 5E), in having a covering of heavy black setae on the dorsum, and in possessing a field of short, peglike setae on the ventral and posterior surfaces of genital capsule. The structure of the vesica is reminiscent of that found in *Atractotomus*, but the gonopore sclerite is at most weakly developed and lacking spines.

DESCRIPTION: *Male:* Small, moderately to distinctly elongate, somewhat flattened; total length 2.60–3.77, length apex clypeus–cuneal fracture 1.86–2.43, width across pronotum 0.86–1.02. COLORATION (fig. 1): Greenish yellow to heavily infuscate. SURFACE AND VESTITURE (figs. 1, 5G, 6F): Dorsum smooth, dull to weakly shining; dorsum covered with relatively heavy, weakly flattened, dark, recumbent setae intermixed with simple setae (figs. 5G, 6F); distal portion of dorsal surface of hind femur lacking row of spinules as found in *Atractotomus* (fig. 5E); ventral and posterior surface of genital capsule with a field of short, thicklyset, peglike setae (figs. 5H, 6E). STRUCTURE: Head transverse, only weakly conforming to anterior margin of pronotum (figs. 1, 5B, 6B); posterior margin of vertex smoothly rounded; frons barely projecting beyond anterior margin of eyes in dorsal view; genal area small, large compound eyes extending nearly to level of bucculae (figs. 5A, 6A); antenna inserted slightly above level of ventral margin of eye (figs. 5A, 6A); labium reaching to middle trochanters. Antennal segment 2 distinctly longer than width of head, of diameter nearly equal to that of segment 1, tapering slightly toward base. Claws nearly straight, bent near apex, with pair of catclaw-shaped spines ventrally (fig. 5F), pulvilli large and adnate to nearly entire ventral surface of claw, parempodia relatively short and stout (figs. 5D, 6D). Mesepisternal spiracle and metathoracic scent-gland evaporatory area as in figures 5C and 6C. Abdomen broad basally, tapering toward relatively small genital capsule, occupying about one-third length of abdomen. MALE GENITALIA (fig. 3): Vesica slender, delicate, formed of a sinuously curving single strap attenuated into a single apical spine, secondary gonopore weakly sclerotized, removed from apex of vesica by about length of gonopore, gonopore sclerite weakly developed, lacking spines (fig. 3); phallotheca L-shaped (figs. 3, 6E); left paramere boat-shaped (fig. 3); right paramere lanceolate.

Female: Small; total length 2.73–2.99, length apex clypeus–cuneal fracture 1.92–2.11, width pronotum 0.95–1.03. COLORATION: As in male. SURFACE AND VESTITURE: As in male. STRUCTURE: Body form more strongly ovoid than in male; eyes smaller, frons more strongly bulging in dorsal view, head not appearing so strongly transverse (fig. 1).

ETYMOLOGY: Named for the occurrence of

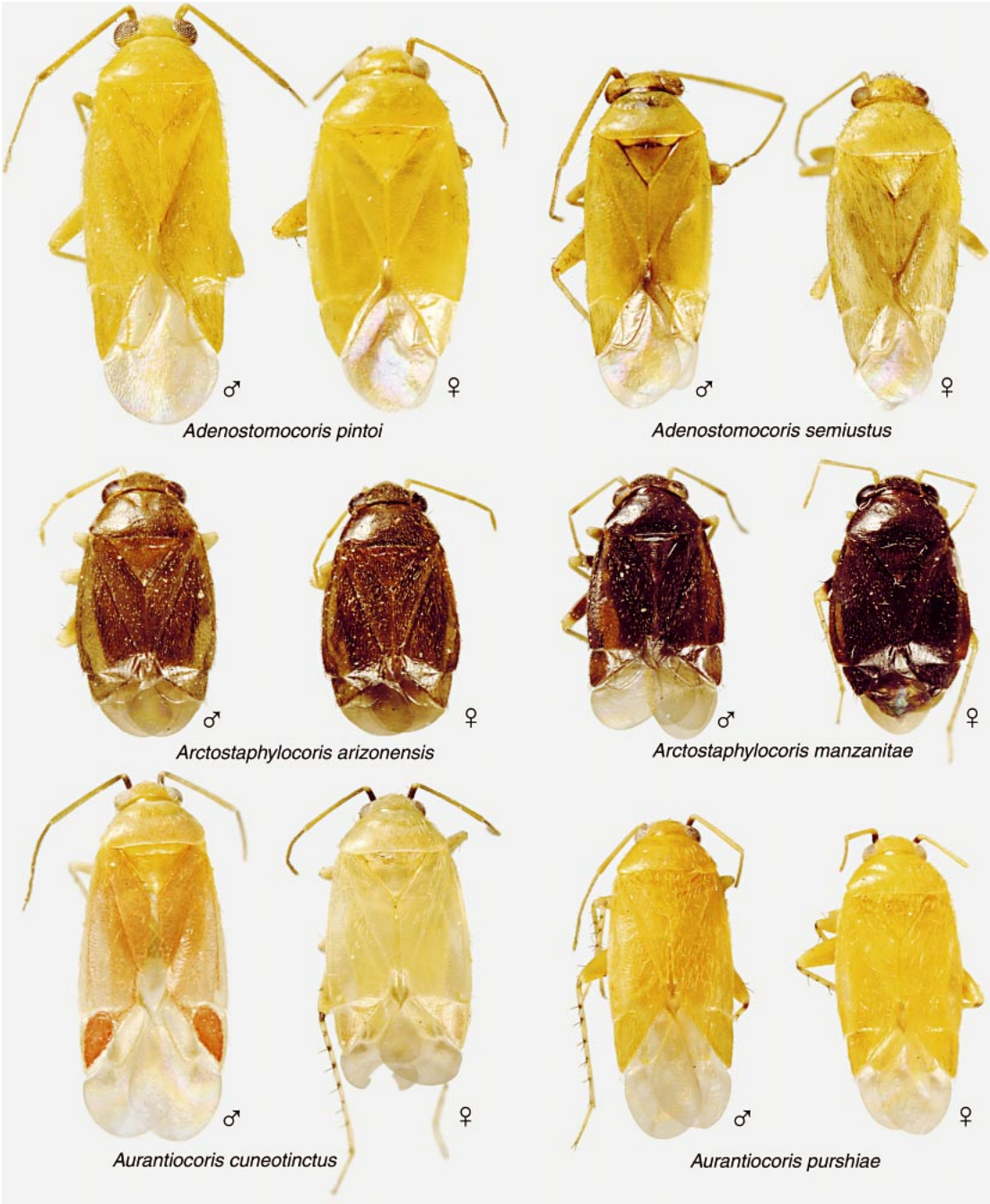

Fig. 1. Habitus figures of male and female specimens, *Adenostomocoris* through *Aurantiocoris*.

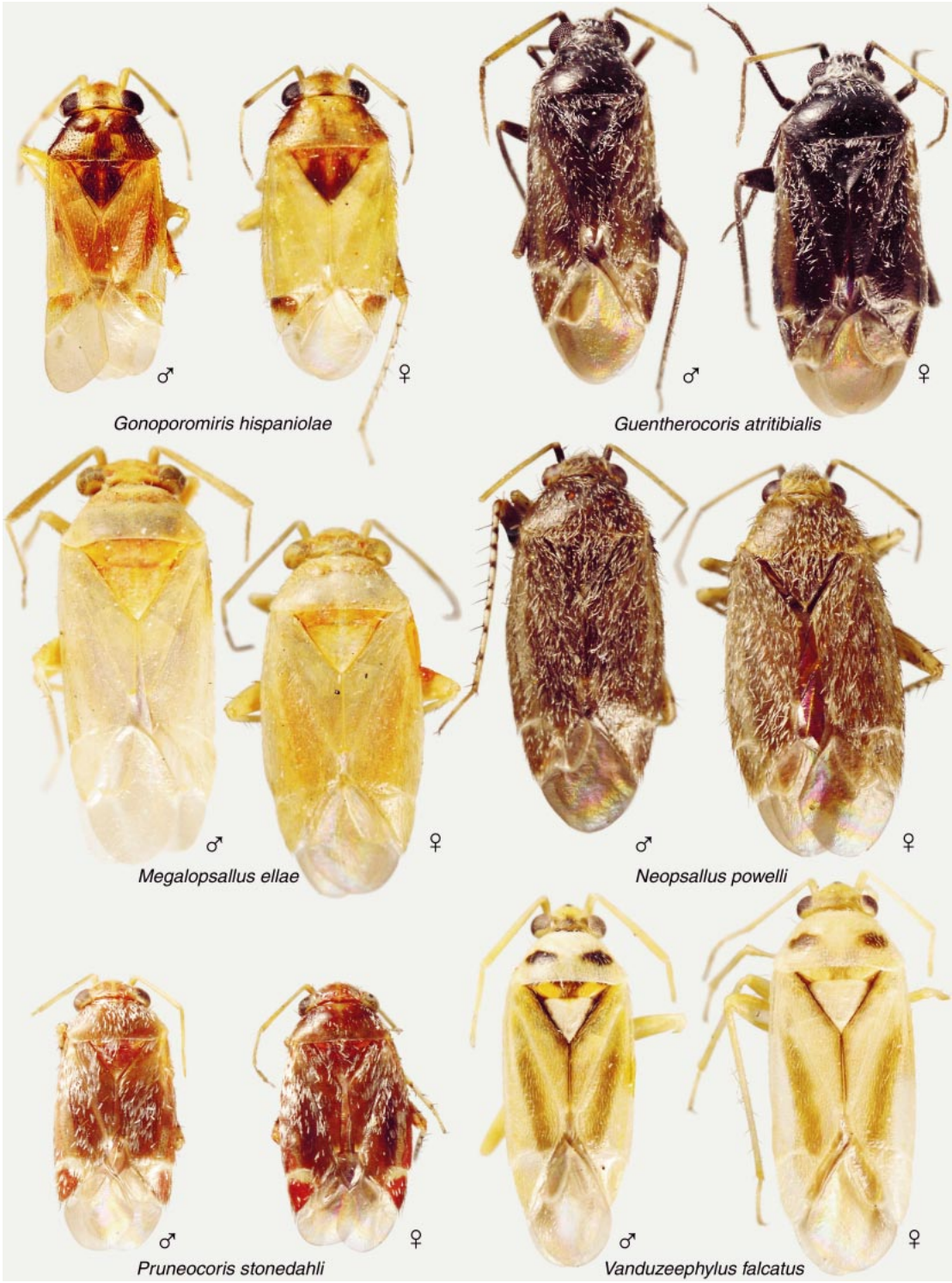

Fig. 2. Habitus figures of male and female specimens, *Gonoporomiris* through *Vanduzeephylus*.

TABLE 1
Measurement of New Genera and Species of Phylinae

Species		Length				Width			
		Total Body	Cun-Clyp	Head	Pronotum	Head	Pronotum	InterOcDi	AntSeg2
Adenostomocoris pintoi									
M (N = 5)	**Mean**	**3.57**	**2.31**	**0.18**	**0.4**	**0.72**	**0.95**	**0.28**	**1.07**
	SD	0.2	0.12	0.02	0.03	0.02	0.06	0.01	0.05
	Range	0.42	0.31	0.05	0.1	0.06	0.14	0.02	0.14
	Min	3.35	2.12	0.14	0.35	0.69	0.87	0.28	1.01
	Max	3.77	2.43	0.2	0.44	0.74	1.02	0.3	1.15
F (N = 5)	**Mean**	**2.86**	**2.04**	**0.21**	**0.45**	**0.69**	**0.99**	**0.36**	**0.78**
	SD	0.1	0.06	0.03	0.02	0.02	0.03	0.01	0.02
	Range	0.27	0.15	0.07	0.05	0.06	0.08	0.02	0.06
	Min	2.73	1.96	0.17	0.42	0.66	0.95	0.36	0.75
	Max	2.99	2.11	0.24	0.47	0.72	1.03	0.38	0.81
Adenostomocoris semiustus									
M (N = 5)	**Mean**	**2.73**	**1.89**	**0.18**	**0.42**	**0.66**	**0.88**	**0.29**	**0.96**
	SD	0.1	0.03	0.02	0.01	0.01	0.02	0.02	0.07
	Range	0.26	0.08	0.05	0.01	0.03	0.05	0.03	0.17
	Min	2.6	1.86	0.15	0.41	0.65	0.86	0.28	0.85
	Max	2.86	1.94	0.2	0.43	0.68	0.91	0.31	1.02
F (N = 5)	**Mean**	**2.82**	**2.04**	**0.21**	**0.45**	**0.69**	**0.99**	**0.36**	**0.74**
	SD	0.06	0.07	0.04	0.03	0.03	0.02	0.02	0.05
	Range	0.15	0.19	0.1	0.06	0.09	0.04	0.05	0.13
	Min	2.73	1.92	0.16	0.42	0.65	0.97	0.34	0.66
	Max	2.89	2.1	0.26	0.48	0.73	1.01	0.39	0.79
Arctostaphylocoris arizonensis									
M (N = 5)	**Mean**	**2.19**	**1.58**	**0.14**	**0.38**	**0.69**	**0.87**	**0.35**	**0.53**
	SD	0.06	0.06	0.02	0.02	0.01	0.03	0	0.03
	Range	0.16	0.13	0.05	0.05	0.03	0.08	0.01	0.08
	Min	2.13	1.51	0.12	0.36	0.67	0.83	0.35	0.47
	Max	2.29	1.65	0.17	0.41	0.7	0.91	0.36	0.56
F (N = 5)	**Mean**	**2.33**	**1.62**	**0.16**	**0.4**	**0.69**	**0.88**	**0.35**	**0.54**
	SD	0.07	0.02	0.01	0.03	0.02	0.05	0.01	0.02
	Range	0.18	0.07	0.04	0.08	0.05	0.13	0.02	0.05
	Min	2.24	1.6	0.15	0.36	0.66	0.8	0.34	0.52
	Max	2.42	1.66	0.18	0.43	0.71	0.94	0.36	0.57
Arctostaphylocoris manzanitae									
M (N = 5)	**Mean**	**2.19**	**1.51**	**0.14**	**0.39**	**0.67**	**0.84**	**0.34**	**0.48**
	SD	0.1	0.07	0.02	0.04	0.03	0.06	0.01	0.04
	Range	0.26	0.17	0.04	0.1	0.08	0.14	0.03	0.11
	Min	2.03	1.43	0.11	0.35	0.63	0.79	0.32	0.42
	Max	2.29	1.6	0.16	0.45	0.71	0.94	0.36	0.53
F (N = 5)	**Mean**	**2.29**	**1.57**	**0.14**	**0.41**	**0.71**	**0.89**	**0.36**	**0.48**
	SD	0.09	0.03	0.01	0.03	0.01	0.04	0.02	0.02
	Range	0.21	0.07	0.02	0.06	0.03	0.08	0.04	0.05
	Min	2.18	1.54	0.13	0.37	0.69	0.86	0.35	0.45
	Max	2.39	1.6	0.15	0.43	0.73	0.94	0.39	0.51
Aurantiocoris cuneotinctus									
M (N = 5)	**Mean**	**2.89**	**1.85**	**0.16**	**0.37**	**0.56**	**0.84**	**0.3**	**0.7**
	SD	0.09	0.06	0.02	0.03	0.02	0.04	0.01	0.05
	Range	0.24	0.17	0.05	0.06	0.05	0.1	0.02	0.13
	Min	2.75	1.76	0.13	0.33	0.53	0.8	0.29	0.64
	Max	2.99	1.93	0.18	0.39	0.58	0.89	0.31	0.77

TABLE 1
(Continued)

Species		Length				Width			
		Total Body	Cun-Clyp	Head	Pronotum	Head	Pronotum	InterOcDi	AntSeg2
Aurantiocoris cuneotinctus (continued)									
F (N = 5)	**Mean**	**2.57**	**1.74**	**0.19**	**0.36**	**0.54**	**0.81**	**0.33**	**0.58**
	SD	0.08	0.04	0.02	0.02	0.01	0.05	0.01	0.04
	Range	0.21	0.11	0.04	0.05	0.02	0.13	0.02	0.10
	Min	2.48	1.68	0.17	0.34	0.53	0.76	0.32	0.53
	Max	2.69	1.79	0.21	0.38	0.55	0.89	0.34	0.63
Aurantiocoris purshiae									
M (N = 5)	**Mean**	**2.50**	**1.64**	**0.14**	**0.33**	**0.53**	**0.79**	**0.30**	**0.53**
	SD	0.27	0.16	0.02	0.04	0.02	0.08	0.01	0.07
	Range	0.73	0.44	0.06	0.10	0.06	0.22	0.02	0.21
	Min	2.13	1.48	0.11	0.30	0.50	0.69	0.29	0.42
	Max	2.86	1.91	0.17	0.40	0.56	0.90	0.31	0.63
F (N = 5)	**Mean**	**2.31**	**1.62**	**0.16**	**0.34**	**0.53**	**0.81**	**0.32**	**0.50**
	SD	0.14	0.11	0.03	0.04	0.02	0.05	0.02	0.04
	Range	0.33	0.30	0.08	0.11	0.05	0.14	0.05	0.12
	Min	2.12	1.45	0.12	0.29	0.50	0.72	0.30	0.44
	Max	2.45	1.76	0.20	0.39	0.55	0.86	0.34	0.56
Gonoporomiris hispaniolae									
M (N = 4)	**Mean**	**2.67**	**1.92**	**0.22**	**0.46**	**0.74**	**0.99**	**0.34**	**0.66**
	SD	0.16	0.07	0.03	0.02	0.02	0.04	0.00	0.05
	Range	0.37	0.17	0.07	0.04	0.03	0.09	0.01	0.12
	Min	2.50	1.86	0.18	0.44	0.72	0.94	0.34	0.61
	Max	2.87	2.03	0.25	0.48	0.76	1.04	0.35	0.73
F (N = 5)	**Mean**	**2.74**	**1.99**	**0.24**	**0.44**	**0.77**	**1.04**	**0.37**	**0.61**
	SD	0.09	0.04	0.04	0.01	0.02	0.02	0.02	0.02
	Range	0.24	0.10	0.10	0.03	0.04	0.04	0.04	0.05
	Min	2.61	1.92	0.20	0.43	0.75	1.02	0.35	0.57
	Max	2.86	2.02	0.30	0.46	0.79	1.06	0.39	0.62
Guentherocoris atritibialis									
M (N = 5)	**Mean**	**3.49**	**2.37**	**0.20**	**0.57**	**0.71**	**1.06**	**0.25**	**0.92**
	SD	0.18	0.08	0.03	0.04	0.01	0.06	0.01	0.06
	Range	0.48	0.23	0.08	0.11	0.03	0.15	0.03	0.16
	Min	3.21	2.26	0.16	0.50	0.70	0.98	0.23	0.81
	Max	3.69	2.48	0.24	0.61	0.73	1.13	0.26	0.97
F (N = 5)	**Mean**	**3.27**	**2.31**	**0.19**	**0.57**	**0.66**	**1.15**	**0.32**	**0.82**
	SD	0.09	0.05	0.03	0.03	0.02	0.02	0.01	0.03
	Range	0.23	0.1	0.06	0.09	0.05	0.06	0.03	0.08
	Min	3.2	2.26	0.15	0.53	0.63	1.13	0.3	0.79
	Max	3.43	2.36	0.21	0.62	0.68	1.19	0.33	0.87
Megalopsallus ellae									
M (N = 5)	**Mean**	**3.34**	**2.4**	**0.22**	**0.49**	**0.92**	**1.21**	**0.43**	**1**
	SD	0.14	0.05	0.03	0.05	0.03	0.05	0.02	0.04
	Range	0.32	0.11	0.08	0.11	0.08	0.12	0.04	0.09
	Min	3.19	2.35	0.18	0.43	0.89	1.14	0.41	0.94
	Max	3.51	2.46	0.26	0.55	0.96	1.26	0.45	1.03
F (N = 5)	**Mean**	**3.11**	**2.29**	**0.22**	**0.48**	**0.93**	**1.19**	**0.46**	**0.76**
	SD	0.06	0.09	0.02	0.02	0.02	0.02	0.01	0.3
	Range	0.14	0.2	0.04	0.06	0.06	0.05	0.03	0.73
	Min	3.01	2.21	0.2	0.47	0.9	1.17	0.44	0.23
	Max	3.15	2.41	0.24	0.53	0.95	1.22	0.48	0.97

TABLE 1
(Continued)

Species		Length				Width			
		Total Body	Cun-Clyp	Head	Pronotum	Head	Pronotum	InterOcDi	AntSeg2
Neopsallus powelli									
M (N = 5)	**Mean**	**3.29**	**2.3**	**0.22**	**0.5**	**0.73**	**1.09**	**0.39**	**0.93**
	SD	0.12	0.06	0.01	0.03	0.01	0.03	0.02	0.04
	Range	0.29	0.16	0.02	0.07	0.03	0.06	0.05	0.10
	Min	3.15	2.21	0.21	0.47	0.72	1.05	0.36	0.89
	Max	3.44	2.37	0.23	0.54	0.75	1.11	0.41	0.99
F (N = 3)	**Mean**	**3.27**	**2.35**	**0.25**	**0.54**	**0.73**	**1.06**	**0.4**	**0.89**
	SD	0.02	0.1	0.03	0.06	0.01	0.07	0.01	0.05
	Range	0.04	0.19	0.06	0.12	0.03	0.14	0.02	0.10
	Min	3.25	2.26	0.22	0.49	0.71	1.00	0.39	0.84
	Max	3.29	2.45	0.28	0.61	0.74	1.14	0.41	0.93
Pruneocoris stonedahli									
M (N = 5)	**Mean**	**2.57**	**1.75**	**0.16**	**0.4**	**0.7**	**0.93**	**0.38**	**0.62**
	SD	0.17	0.10	0.02	0.03	0.02	0.06	0.01	0.03
	Range	0.46	0.24	0.05	0.08	0.04	0.15	0.04	0.07
	Min	2.39	1.62	0.13	0.36	0.68	0.86	0.37	0.58
	Max	2.84	1.86	0.18	0.43	0.72	1.01	0.41	0.66
F (N = 5)	**Mean**	**2.36**	**1.7**	**0.17**	**0.38**	**0.72**	**0.89**	**0.4**	**0.63**
	SD	0.05	0.04	0.02	0.03	0.02	0.04	0.02	0.02
	Range	0.12	0.1	0.05	0.07	0.04	0.08	0.04	0.06
	Min	2.30	1.65	0.16	0.34	0.69	0.85	0.39	0.60
	Max	2.42	1.75	0.20	0.40	0.74	0.93	0.42	0.66
Vanduzeephylus falcatus									
M (N = 5)	**Mean**	**3.38**	**2.31**	**0.21**	**0.47**	**0.68**	**1.02**	**0.31**	**0.96**
	SD	0.25	0.16	0.03	0.05	0.03	0.05	0.02	0.10
	Range	0.56	0.42	0.08	0.12	0.07	0.13	0.05	0.21
	Min	3.04	2.08	0.17	0.43	0.64	0.95	0.28	0.85
	Max	3.60	2.49	0.25	0.55	0.71	1.08	0.33	1.06
F (N = 5)	**Mean**	**3.62**	**2.55**	**0.24**	**0.5**	**0.72**	**1.15**	**0.38**	**0.87**
	SD	0.19	0.11	0.02	0.04	0.01	0.02	0.02	0.09
	Range	0.50	0.26	0.06	0.09	0.04	0.05	0.04	0.18
	Min	3.40	2.43	0.21	0.47	0.71	1.13	0.36	0.77
	Max	3.90	2.69	0.27	0.56	0.74	1.18	0.40	0.95

the two known species only on *Adenostoma* (Rosaceae).

HOSTS: *Adenostoma fasciculatum* Hooker and Arnott (Rosaceae).

DISTRIBUTION: Southern California, northern Baja California.

DISCUSSION: The field of peglike spines on the ventral and posterior surfaces of the genital capsule is uncommon, if not unique, among known Phylinae. Although we do not consider the setal type homologous, a situation similar to that found in *Adenostomocoris* is also seen in *Tuxedo* Schuh (see Schuh, 2004).

The two known species of *Adenostomocoris* both occur on *Adenostoma fasciculatum* and are frequently collected on the same plants at the same time. Pinto (1986) described the phenology of *Adenostomocoris*, presumably treating both *A. semiustus* and *A. pintoi* under the name *Microphylidea* sp.

Adenostomocoris pintoi, new species
Figures 1, 3, 6

HOLOTYPE: Male: ''[USA] CA[alifornia]: Riverside Co., Palm Cyn, ca 5 mi S Palm Springs, VI-8–78, blk lite, John D. Pinto''. Deposited in the American Museum of Natural History.

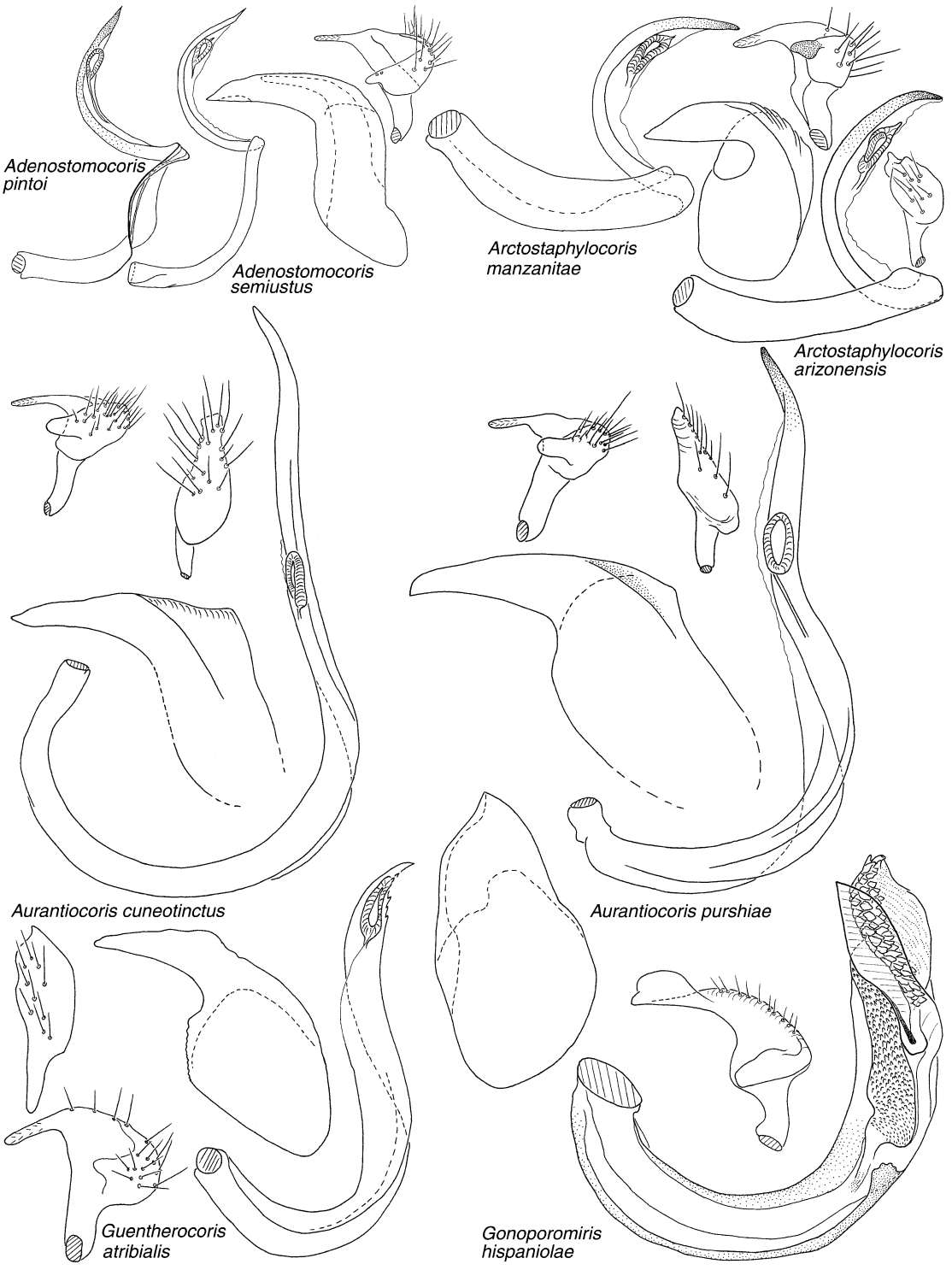

Fig. 3. Male genitalia, *Adenostomocoris* through *Gonoporomiris*.

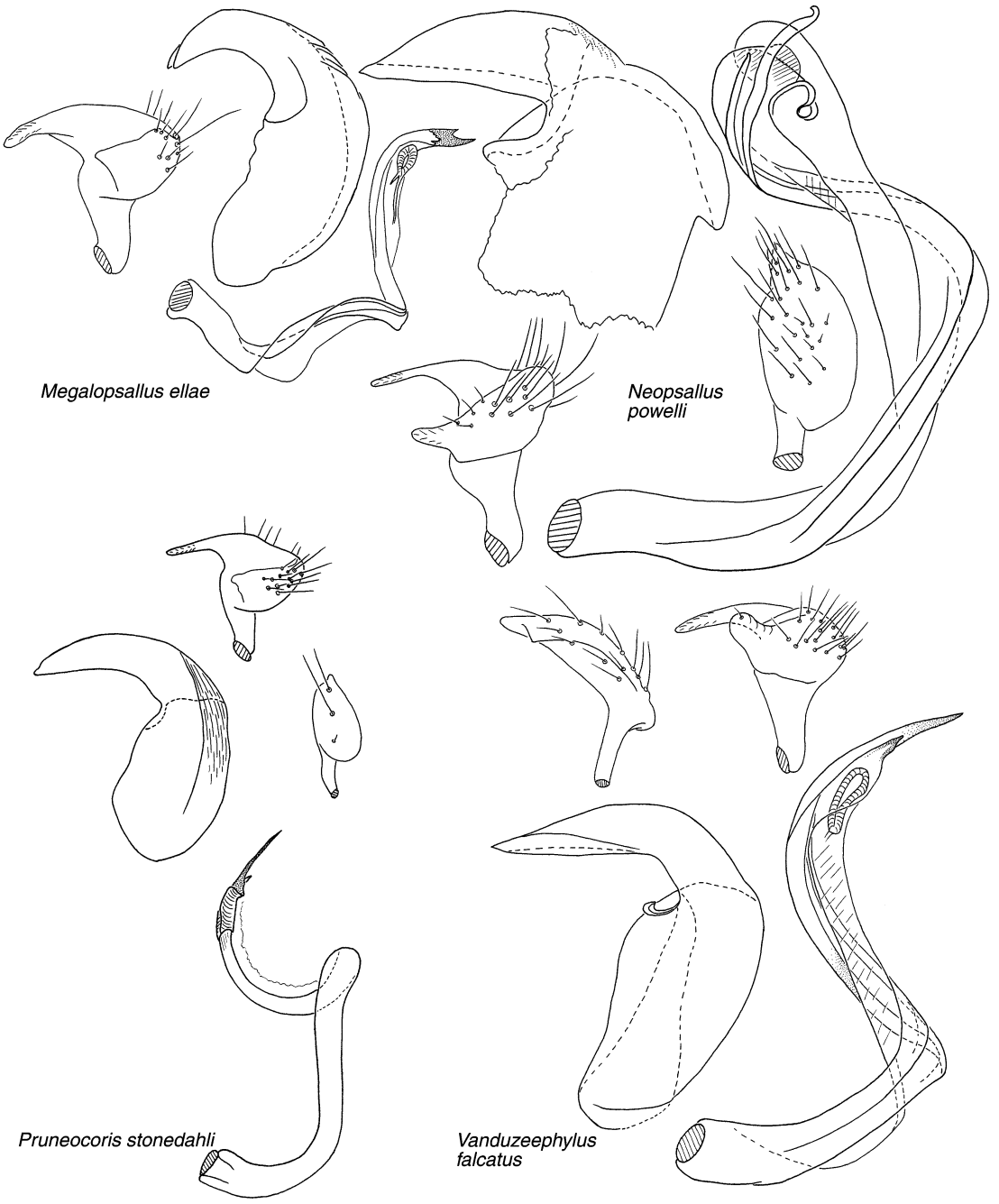

Fig. 4. Male genitalia, *Megalopsallus* through *Vanduzeephylus*.

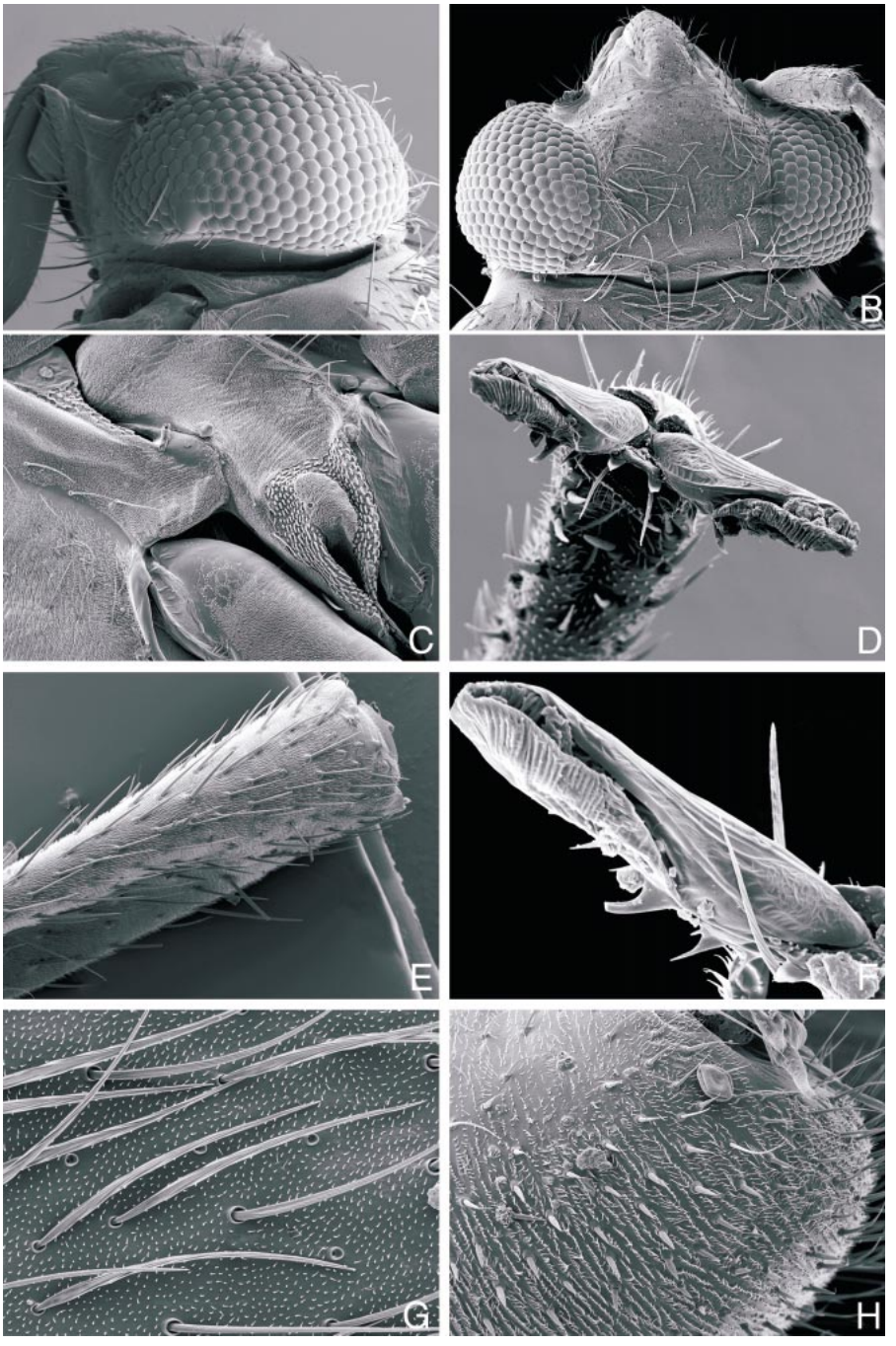

Fig. 5. Scanning electron micrographs of *Adenostomocoris pintoi* from Upper Oso Campground, California. **A.** Head, lateral view. **B.** Head, dorsal view. **C.** Mesothoracic spiracle and metaepisternal scent efferent system, lateral view. **D.** Pretarsus, ventrofrontal view. **E.** Hind femur, distal end, dorsal view. **F.** Pretarsus, frontal view. **G.** Setae on hemelytra. **H.** Genital segment, spinulae on posterolateral surface.

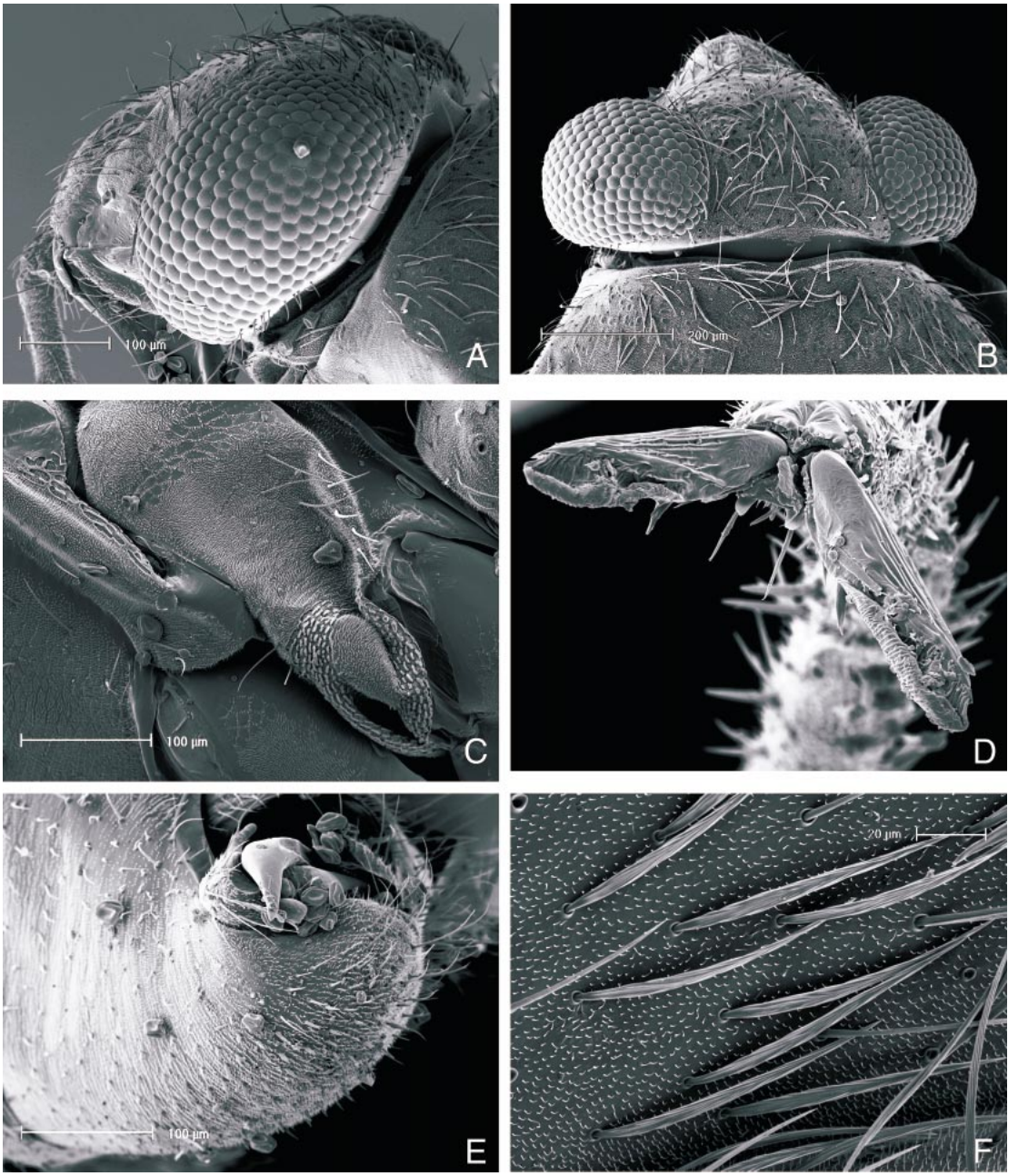

Fig. 6. Scanning electron micrographs of *Adenostomocoris semiustus* from San Jacinto Mountains, California. **A.** Head, lateral view. **B.** Head, dorsal view. **C.** Mesothoracic spiracle and metepisternal scent efferent system, lateral view. **D.** Pretarsus, frontal view. **E.** Genital segment posterolateral view of left paramere and phallotheca. **F.** Setae on hemelytra. Scales as indicated.

DIAGNOSIS: Recognized by the characters listed in the generic diagnosis, the strong sexual dimorphism, and the male being much longer and more nearly parallel-sided than the female (fig. 1). *Adenostomocoris pintoi* showing much less variation in pigmentation than *A. semiustus*, generally being a uniform greenish yellow. Female without, or with only a few, black setae on abdominal venter. The field of peglike setae on the posterior and ventral surfaces (figs. 5H) of the genital capsule pale, rather than black as in *A. semiustus*.

DESCRIPTION: *Male:* Moderately small, elongate; total length 3.35–3.77, length apex clypeus–cuneal fracture 2.12–2.40, width across pronotum 0.87–1.02. COLORATION (fig. 1): Greenish yellow. SURFACE AND VESTITURE (figs. 1, 5G): Peglike setae on ventral and posterior surface of genital capsule (fig. 5H) pale. STRUCTURE: Antennal segment 2 1.48 times as long as width of head. MALE GENITALIA (fig. 3): Vesica as in figure 3, differing from that of *A. semiustus* by the longer gonopore sclerite; phallotheca as in figure 3; left paramere as in figure 3.

Female: Moderately small; total length 2.73–2.99, length apex clypeus–cuneal fracture 1.96–2.11, width pronotum 0.95–1.03. COLORATION: As in male. SURFACE AND VESTITURE: As in male. STRUCTURE: Body form more strongly ovoid than in male; eyes smaller, frons more strongly bulging in dorsal view, head not appearing so strongly transverse (fig. 1).

ETYMOLOGY: Named for John D. Pinto, whose efforts in the field have done so much to broaden our knowledge of diversity, hosts, and distribution of Miridae in southern California and Arizona.

HOSTS: *Adenostoma fasciculatum* Hooker and Arnott (Rosaceae).

DISTRIBUTION: Southern California, northern Baja California.

PARATYPES: MEXICO: **Baja California Norte:** 22 km W of Parque Sierra San Pedro Martir, 1150 m, April 25, 1985, R. T. Schuh and B. M. Massie, *Adenostoma fasciculatum* (Rosaceae), 1♂, 30♀ (AMNH). 41 km W of Parque Sierra San Pedro Martir, 560 m, April 25, 1985, R. T. Schuh and B. M. Massie, *Adenostoma fasciculatum* (Rosaceae), 12♂, 4♀ (AMNH). USA: **California:** *Contra Costa Co.:* Mt. Diablo State Park, 885 m, July 9, 1977, P. H. Arnaud, Jr., 2♂, 2♀ (CAS). *Los Angeles Co.:* Mint Canyon, May 26, 1937, E. P. Van Duzee, 5♂, 1♀ (CAS). *Marin Co.:* Mill Valley, Blithedale Bridge, 110 m, June 20, 1965, P. H. Arnaud, Jr., 1♂ (CAS). *Napa Co.:* 2 mi NNE of Angwin, on N side of Howell Mountain, 1300 ft, June 1, 1978, H. B. Leach, 1♂ (CAS). *Riverside Co.:* 5 mi S of Palm Springs, Palm Canyon, June 8, 1978–July 5, 1978, J. D. Pinto, 18♂, 27♀ (UCR). E of Hemet on Rt 74, 3900 ft, June 24, 1983, R. K. Velten, *Adenostoma fasciculatum* (Rosaceae), 1♂, 1♀ (UCR, USNM). Menifee Valley (hills on W end), 560 m, May 11, 1978, R. T. Schuh and J. D. Pinto, 1♀ (AMNH). Menifee Valley (hills on W end), May 17, 1978, J. D. Pinto, *Adenostoma fasciculatum* (Rosaceae), 2♂, 5♀ (UCR, USNM). San Jacinto Mountains, 2 mi S of Banning on Rt 243, 800 m, May 20, 2000, M. D. Schwartz, *Adenostoma fasciculatum* (Rosaceae), 3♂, 4♀ (CNC). San Jacinto Mountains, San Jacinto River, 3000 ft, May 30, 1940, R. L. Usinger, *Adenostoma* sp. (Rosaceae), 4♂, 8♀ (UCB). *San Bernardino Co.:* Camp Baldy, June 14, 1926, L. L. Muchmore, 14♂, 15♀ (LACM). *San Diego Co.:* no specific locality, July 28, 1929, P. W. Oman, 3♂ (KU). *San Luis Obispo Co.:* 5 mi NE of Santa Margarita, June 5, 1962, G. I. Stage, 1♂ (UCB). *Santa Barbara Co.:* 6 mi SW of New Cuyama, Aliso Canyon, July 9, 1965, M. R. Gardner, 1♂ (UCD). Upper Oso Campground off Rt 154, 310 m, May 7, 1985, R. T. Schuh and B. M. Massie, *Adenostoma fasciculatum* (Rosaceae), 20♂, 5♀ (AMNH). *Santa Cruz Co.:* 9 mi NE of Soquel, July 4, 1956, S. M. Fidel, 1♂ (UCD).

Adenostomocoris semiustus (Van Duzee), new combination

Figures 1, 3, 6

Maurodactylus semiustus Van Duzee, 1914: 31 (n.sp.).

DIAGNOSIS: Recognized by the characters listed in the generic diagnosis, and by the relative lack of sexual dimorphism, the male only slightly longer and more nearly parallel-sided than the female (fig. 1). *Adenostomocoris semiustus* (Van Duzee) showing sub-

stantially more variation in pigmentation than *A. pintoi*, new species, running from yellow green to almost totally gray brown. Female with moderately dense black setae on abdominal venter.

REDESCRIPTION: *Male:* Small, weakly elongate; total length 2.60–2.86, length apex clypeus–cuneal fracture 1.86–1.94, width across pronotum 0.86–0.91. COLORATION (fig. 1): Greenish yellow to heavily infuscate. SURFACE AND VESTITURE: Peglike setae on ventral and posterior surfaces of genital capsule (fig. 6E) black. STRUCTURE: Antennal segment 2 1.5 times as long as width of head. MALE GENITALIA: Vesica as in figure 3, differing from that of *A. pintoi* by the shorter gonopore sclerite; phallotheca as in figure 3; left paramere as in figure 3.

Female: Small; total length 2.73–2.89, length apex clypeus–cuneal fracture 1.92–2.10, width pronotum 0.97–1.01. COLORATION: As in male. SURFACE AND VESTITURE: As in male. STRUCTURE: Body form more strongly ovoid than in male; eyes smaller, frons more strongly bulging in dorsal view, head not appearing so strongly transverse (fig. 1).

HOSTS: *Adenostoma fasciculatum* Hooker and Arnott (Rosaceae).

DISTRIBUTION: Southern California and northern Baja California.

SPECIMENS EXAMINED: MEXICO: **Baja California Norte:** 22 km W of Parque Sierra San Pedro Martir, 1150 m, April 25, 1985, R. T. Schuh and B. M. Massie, *Adenostoma fasciculatum* (Rosaceae), 25♂, 10♀ (AMNH). 41 km W of Parque Sierra San Pedro Martir, 560 m, April 25, 1985, R. T. Schuh and B. M. Massie, *Adenostoma fasciculatum* (Rosaceae), 7♂, 1♀ (AMNH). USA: **California:** *Glenn Co.:* 10 mi W of Elk Creek, June 7, 1984, J. D. Pinto, 1♀ (UCR). *Los Angeles Co.:* Pasadena, May 25, 1909–June 17, 1909, Grinnell, 3♂, 2♀ (CAS). *Orange Co.:* Cleveland Natl. Forest, 1.5 mi E of San Juan Campground, 500 m, May 12, 1978, R. T. Schuh and J. D. Pinto, 1♂ (AMNH). *Riverside Co.:* Hwy 74 E of Hemet, 3900 ft, June 24, 1983, R. K. Velten, *Adenostoma fasciculatum* (Rosaceae), 2♂ (UCR, USNM). Menifee valley (hills on W end), 560 m, May 11, 1978–June 24, 1983, J. D. Pinto and R. T. Schuh, *Adenostoma fasciculatum* (Rosaceae), 4♂, 1♀ (AMNH, UCR). San Jacinto Mountains, 2 mi S of Banning on Rt 243, 800 m, May 20, 2000, M. D. Schwartz, *Adenostoma fasciculatum* (Rosaceae), 11♂, 37♀ (CNC). *San Bernardino Co.:* 4 mi E of Mentone, 750 m, May 11, 1978, R. T. Schuh and J. D. Pinto, *Adenostoma fasciculatum* (Rosaceae), 3♂, 2♀ (AMNH). *San Diego Co.:* No specific locality, April 11, 1914, E. P. Van Duzee, 2♂, 2♀ (CAS, USNM); paratypes: 4♂, 2♀ (CAS). *San Luis Obispo Co.:* Arroyo Grd. Crk. SW of San Luis Obispo, 160 m, May 8, 1985, R. T. Schuh and B. M. Massie, 1♀ (AMNH). *Sonoma Co.:* Santa Rosa, Pepperwood Ranch Natural Preserve, May 27, 1982, D. Kavanaugh, 1♂ (CAS). *Stanislaus Co.:* Del Puerto Canyon, May 29, 1971, J. March, 1♂ (UCD).

Arctostaphylocoris, new genus
Figures 1, 3, 7

TYPE SPECIES: *Chlamydatus manzanitae* Knight.

DIAGNOSIS: Recognized by the small size, deep brown to castaneous coloration, the hemelytra strongly deflexed at the cuneal incissure (fig. 1), dorsum broadly covered with recumbent, shining, simple setae, the clavus and corium adjacent to claval suture with flattened lanceolate setae (fig. 7C, D), and the sigmoid form of the male genitalia (fig. 3). Similar to some *Chlamydatus* spp. and to *Pruneocoris*, new genus, in small size and dark coloration. Distinguished from the former by the sharply carinate posterior margin of the vertex (fig. 7A); distinguished from both by the lanceolate form of the flattened setae on the hemelytra and the strong deflexion of the hemelytra at the cuneal incissure.

DESCRIPTION: *Male:* Small, broad-bodied, somewhat flattened, total length 2.13–2.39, length apex clypeus–cuneal fracture 1.51–1.65, width across pronotum 0.83–0.94. COLORATION (fig. 1): Largely deep brown to castaneous. SURFACE AND VESTITURE (figs. 1, 7C): Dorsum smooth, polished, shining, broadly covered with recumbent, shining, simple setae; clavus and corium adjacent to claval suture with flattened lanceolate setae (fig. 7C, D); distal portion of dorsal surface of hind femur lacking row of spinules as found in *Atractotomus* (fig. 7G, H). STRUCTURE: Head transverse, conforming to ante-

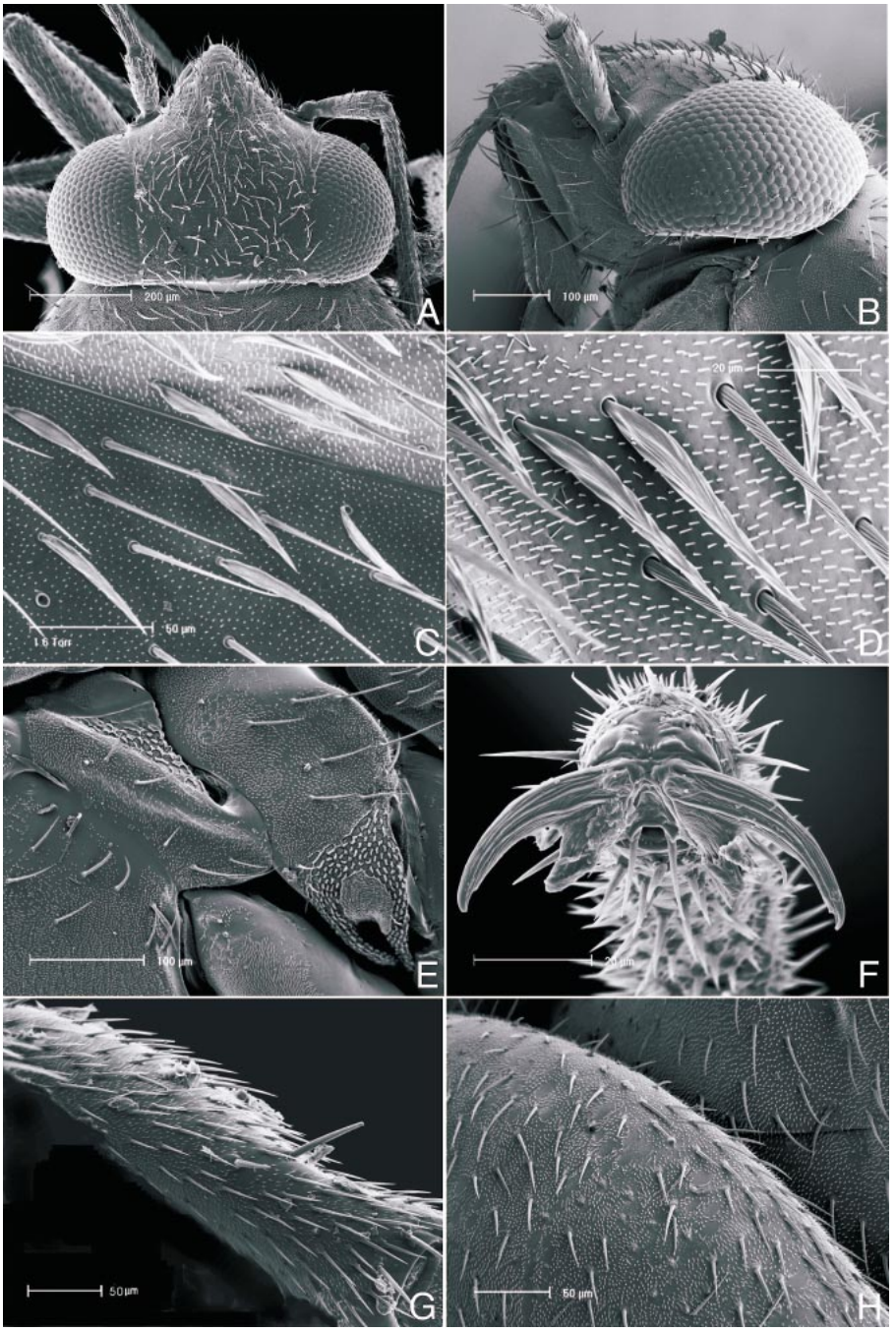

Fig. 7. Scanning electron micrographs of *Arctostaphylocoris manzanitae* from Big Creek Road, California. **A.** Head, dorsal view. **B.** Head, lateral view. **C.** Setae on hemelytra. **D.** Setae on hemelytra, detail of microstructure. **E.** Mesothoracic spiracle and metepisternal scent efferent system, lateral view. **F.** Pretarsus, frontal view. **G.** Hind femur, distal end, posterior view. **H.** Hind femur, dorsolateral view. Scales as indicated.

rior margin of pronotum (figs. 1, 7A); posterior margin of vertex forming a weak carina (fig. 7A); ventral margin of antennal fossa at level of ventral margin of eye; head projecting below eyes by about one-third the height of an eye (fig. 7B); labium reaching well beyond trochanters, sometimes attaining anterior margin of genital capsule. Distal diameter of antennal segment 2 equal to diameter of segment 1, segment 2 distinctly tapering toward base (fig. 1). Costal margin of hemelytra distinctly rounded, convex, cuneal fracture conspicuously incised, hemelytra strongly deflexed at fracture (fig. 1). Claws of moderate length, claws smoothly curving, pulvilli moderately large and projecting from base of claw, parempodia setiform and attenuated (fig. 7F). Mesepisternal spicale and metathoracic scent-gland evaporatory area as in figure 7E. Abdomen broad, tapering toward relatively small genital capsule, the latter occupying about one-half of length of abdomen. MALE GENITALIA (fig. 3): Vesica formed of a sinuously curving single strap attenuated apically; secondary gonopore well sclerotized, removed from apex by about the length of gonopore, gonopore sclerite lacking (fig. 3); phallotheca (fig. 3); left paramere boat-shaped, apex of anterior process heavily sclerotized; right paramere lanceolate.

Female: Small; total length 2.18–2.42, length apex clypeus–cuneal fracture 1.54–1.66, width pronotum 0.80–0.94. COLORATION: As in male. SURFACE AND VESTITURE: As in male. STRUCTURE: As in male (fig. 1).

HOSTS: *Arctostaphylos* spp. (Ericaceae).

DISTRIBUTION: Oregon to Arizona.

DISCUSSION: Knight (1964) included his new species *manzanitae* in *Chlamydatus* Curtis. Although similar in size and general appearance to some *Chlamydatus* species, *manzanitae* differs in the following characters: posterior margin of vertex forming a sharp ridge, whereas *Chlamydatus* spp. have the posterior margin rounded; and secondary gonopore with a projection or attenuation distally, whereas *Chlamydatus* spp. have the gonopore broadly and smoothly curving distally, with no projections. This species is therefore transferred to *Arctostaphylocoris*, new genus, and an additional new species is described from Arizona.

A number of features of our new genus are superficially similar to those of the Palearctic genus *Salicarus* Kerzhner, 1962 (type species *Capsus roseri* Herrich-Schaeffer, 1843). Kerzhner's (1962) diagnosis of *Salicarus* mentioned that the body is broad, oval, and black with the hemelytra, head, and pronotum occasionally dark brown; the vestiture of the dorsum and sides of the thorax is a mixture of pale simple, and scalelike, setae; and the vesica is S-shaped with an undivided apex and a large almost terminally situated secondary gonopore. Although the host plants of *Salicarus* spp. belong to several plant families, most of the hosts are willows, (*Salix* spp.) (Salicaceae). The two species of *Arctostaphylocoris* are predominantly brown, clothed in mixed vestiture including flattened setae, have twisted vesicae with almost terminally located secondary gonopores, and inhabit *Arctostaphylos* spp. (Ericaceae).

Arctostaphylocoris arizonensis, new species
Figures 1, 3

HOLOTYPE: Male: ''[USA:] ARIZONA: Gila Co., Old CCC cmpgrd S of Globe on Pioneer Pass Rd., 4700 ft., May 30–31, 1983, RT Schuh, GM Stonedahl, BM Massie; *Arctostaphylos pringlei* Parry (Ericaceae)''. Deposited in the American Museum of Natural History.

DIAGNOSIS: Recognized by the characteristics given in the generic diagnosis, along with the deep brown coloration of the body (fig. 1) and the weakly brown femora of all legs. Distinguished from *A. manzanitae* (Knight) by the castaneous femora in that species.

DESCRIPTION: *Male:* As in generic description; total length 2.13–2.29, length apex clypeus–cuneal fracture 1.51–1.65, width across pronotum 0.83–0.91. COLORATION (fig. 1): Largely deep brown; femora of all legs weakly brown; antennae and tibiae pale. SURFACE AND VESTITURE (figs. 1, 7C, D): As in generic description. STRUCTURE: As in generic description. MALE GENITALIA (fig. 3): As in generic description.

Female: Small; total length 2.24–2.42, length apex clypeus–cuneal fracture 1.61–1.66, width pronotum 0.80–0.94. COLOR-

ATION (fig. 1): As in male. SURFACE AND VESTITURE: As in male. STRUCTURE: As in male.

ETYMOLOGY: Named for its occurrence in Arizona.

HOSTS: *Arctostaphylos pringlei* Parry, *A. pungens* Humboldt, Bonpland, and Kunth (Ericaceae).

DISTRIBUTION: Arizona.

PARATYPES: USA: **Arizona:** *Gila Co.:* 8 mi S of Rts 87 and 188 (off Rt 87), Tonto National Forest, 4000 ft, May 27, 1983–May 28, 1983, R.T. Schuh and G.M. Stonedahl, *Arctostaphylos pungens* (Ericaceae), 61♂, 40♀ (AMNH). Globe, Pinal Creek, 4000 ft, June 7, 1953, A. and H. Dietrich, 2♀ (CU). Old CCC Campground S of Globe on Pioneer Pass Rd, 4700 ft, May 30, 1983–May 31, 1983, R.T. Schuh, G.M. Stonedahl, and B.M. Massie, *Arctostaphylos pringlei* (Ericaceae), 13♂, 15♀ (AMNH).

Arctostaphylocoris manzanitae Knight, new combination
Figures 1, 3, 7

Chlamydatus manzanitae Knight, 1964: 140 (n.sp.).

DIAGNOSIS: Recognized by the characteristics given in the generic diagnosis, along with the intense castaneous coloration of the body and all femora (fig. 1). Distinguished from *A. arizonensis* (Knight) by the weakly brown femora in that species.

DESCRIPTION: *Male:* As in generic description; total length 2.03–2.29, length apex clypeus–cuneal fracture 1.43–1.60, width across pronotum 0.79–0.94. COLORATION (fig. 1): Largely castaneous; femora of all legs castaneous; antennae and tibiae pale. SURFACE AND VESTITURE (fig. 1): As in generic description. STRUCTURE: As in generic description. MALE GENITALIA (fig. 3): As in generic description.

Female: Small; total length 2.18–2.35, length apex clypeus–cuneal fracture 1.54–1.60, width pronotum 0.87–0.94. COLORATION (fig. 1): As in male. SURFACE AND VESTITURE: As in male. STRUCTURE: As in male.

HOSTS: *Arctostaphylos patula* Greene, *A. canescens* Eastw., and *A. viscida* Parry (Ericaceae). The record from *Ceanothus velutinus* (Rhamnaceae) may be the result of misassociation.

DISTRIBUTION: California and Oregon.

SPECIMENS EXAMINED: USA: **California:** *Calaveras Co.:* Mokelumne Hill, May 27, 1931, R. L. Usinger, 1♀ (UCB). *Fresno Co.:* Big Creek Rd, 2 km E of jct with Rt 168, 1500 m, July 25, 1999, M. D. Schwartz, *Arctostaphylos viscida* Parry (Ericaceae), 2♂ (CAS). Fresno, June 20, 1926, C. J. Drake, paratype, 1♀ (CNC). *Lassen Co.:* 3 mi W of Nubieber, 1405 m, July 6, 1979, R.T. and Joe Schuh, *Arctostaphylos patula* (Ericaceae), 1♀ (AMNH). Hallelujah Junction, July 2, 1964, C. Slobodchikoff, 1♀ (CAS). Westwood, June 17, 1959, Kelton and Madge, 1♀ (CNC). *Los Angeles Co:* Tanbark Flat, June 25, 1952, R. L. Anderson, 3♀ (UCD). *Madera Co.:* Bass Lake, 3000 ft, July 1, 1946, H.P. Chandler, 1♀ (CAS). *Mariposa Co.:* 3 mi SW of Miami Ranger Station, 4000 ft, June 19, 1946, H. P. Chandler, 1♀ (UCD). Yosemite National Park, Chilnualna Falls, July 17, 1946, R.L. Usinger, 1♀ (UCB). Yosemite, 3880–4000 ft, June 7, 1931, E. O. Essig, 1♀ (UCB). *Monterey Co.:* Hastings Reservation, Monterey, July 12, 1944, mixed chaparral, 1♂ (USNM). *Riverside Co.:* San Jacinto Mountains, July 21, 1929, R. H. Beamer, 1♂ (KU). *Shasta Co.:* 1.0 mi W of Logan Lake, Old Station, July 16, 1989, M. A. Valenti, 4♂, 2♀ (USNM). *Siskiyou Co.:* 16.5 mi N of Hiway 89 on Powder Hill Road, July 19, 1985, G. M. Stonedahl and J. D. McIver, *Arctostaphylos sp.* (Ericaceae), 10♂, 20♀ (AMNH). McCloud, 1090 m, July 7, 1979, R. T. and Joe Schuh, *Arctostaphylos patula* (Ericaceae), 1♂ (AMNH). *Tuolumne Co.:* Oakland Rec. Camp, July 20, 1928, R. L. Usinger, *manzanita* (Ericaceae), paratypes, 1♂, 1♀ (CNC, USNM), 6♀ (CAS, CNC). Pinecrest, July 2, 1951, R. L. Usinger, *Arctostaphylos* sp. (Ericaceae), 6♂, 5♀ (UCB). **Oregon:** *Deschutes Co.:* 6 mi SW of Sisters on Forest Service Road 1536, Brush Draw, T15S R9E Sec 29, July 29, 1980, M. D. Schwartz, 1♂ (AMNH). 6 mi W of Sisters, August 28, 1969, D.S. Horning, *Ceanothus velutinus* (Rhamnaceae), 2♂, 3♀ (OSU). *Josephine Co.:* 12 mi N of Cave Junction, 470 m, July 10, 1979, R.T. and Joe Schuh, *Arctostaphylos canescens* (Ericaceae), 2♀ (AMNH). *Lane Co.:* Blue River Reservoir,

July 31, 1979, G. M. Stonedahl, *Arctostaphylos* sp. (Ericaceae), 2♂, 2♀ (OSU).

Aurantiocoris, new genus
Figures 1, 3, 8, 9

TYPE SPECIES: *Sthenarus cuneotinctus* Van Duzee.

DIAGNOSIS: Recognized by the relatively small size, generally pale greenish to faded reddish coloration (fig. 1), the relatively small, almost globular, eyes (figs. 1, 8A, B, 9A, C, E), the dark antennal segment 1 (fig. 1), the black ôkneesö on all tibiae (fig. 1), the dark bases of the tibial spines, the polished body surface (fig. 1), the vestiture of recumbent, pale, shining setae (figs. 8C, 9G), and the form of the male genitalia, especially the long, J-shaped vesica with the attenuated apex extending well beyond the secondary gonopore (fig. 3). Overall form and coloration similar to *Plagiognathus luteus* Knight, but the smaller size and different genitalic structure distinguish the new genus. Male genitalia most similar in structure to *Lineatopsallus* Henry.

DESCRIPTION: *Male:* Small, elongate, corial margin straight to weakly rounded (fig. 1); total length 2.44–2.99, length apex clypeus–cuneal fracture 1.48–1.93, width across pronotum 0.69–0.89. COLORATION (fig. 1): Largely pale to faded reddish; antennal segment 1 dark; all tibiae with black knees, tibial spines with black bases. SURFACE AND VESTITURE (figs. 1, 8C, 9G): Dorsum smooth, polished, moderately to strongly shining (fig. 1), clothed with pale, weakly shining, recumbent simple setae (figs. 8C, 9G); distal portion of dorsal surface of hind femur lacking row of spinules (figs. 8E, 9H). STRUCTURE: Head more or less vertical, weakly bulging and slightly projecting beyond eyes in dorsal view; eyes relatively small in dorsal and lateral view; vertex relatively broad, posterior margin rounded, not strongly conforming to anterior margin of pronotum; gena broadly exposed below eye (figs. 8A, B, 9A, C, E); labium reaching to middle trochanters or beyond. Antennal segment 2 of uniform diameter over entire length, about same diameter as antennal segment 1. Claws elongate, slender, smoothly curving, pulvilli attached on ventral surface of basal one-half of claw (figs. 8D, F, 9D). Mesepisternal spiracle and metathoracic scent-gland evaporatory area as in figures 8G and 9B. Genital capsule relatively large, occupying at least one-half length of abdomen. MALE GENITALIA (figs. 3, 8H, 9F): Vesica long and relatively slender, more or less J-shaped, apparently formed of a single strap, apex strongly attenuated, extending beyond secondary gonopore by 3 or more times length of gonopore; secondary gonopore moderately sclerotized, gonopore sclerite weakly developed (fig. 3); phallotheca more or less erect, tapering toward apex and conical in appearance; left paramere rowboat-shaped; right paramere weakly to distinctly truncate apically.

Female: Small, elongate ovoid; total length 2.12–2.69, length apex clypeus–cuneal fracture 1.45–1.79, width across pronotum 0.72–0.89. COLORATION: Coloration more generally pale than in male. SURFACE AND VESTITURE: As in male. STRUCTURE: Hemelytra not so elongate as in male, body much more strongly ovoid (fig. 1); antennal segment 2 weakly tapering toward base, slightly more slender than in male.

ETYMOLOGY: Named for the coloration of the two known species; from Latin, *aurantium*, orange, and Greek, *coris*, bug.

HOSTS: Known to feed on members of the Rhamnaceae and Rosaceae.

DISCUSSION: Van Duzee (1915) originally placed *A. cuneotinctus* in *Sthenarus* Fieber. Placement of this and other North American taxa in that catchall genus is unsatisfactory on the basis of genitalic structure and other characters. The two species we are assigning to *Aurantiocoris* have male genitalic structures most similar to those found in *Lineatopsallus* Henry (1991), although other features, such as coloration, do not necessarily suggest a close relationship.

Aurantiocoris cuneotinctus (Van Duzee), new combination
Figures 1, 3, 8

Sthenarus cuneotinctus Van Duzee, 1915: 118 (n.sp.).

DIAGNOSIS: Recognized by the characters given in the generic diagnosis. Distinguished from *Aurantiocoris purshiae*, new species,

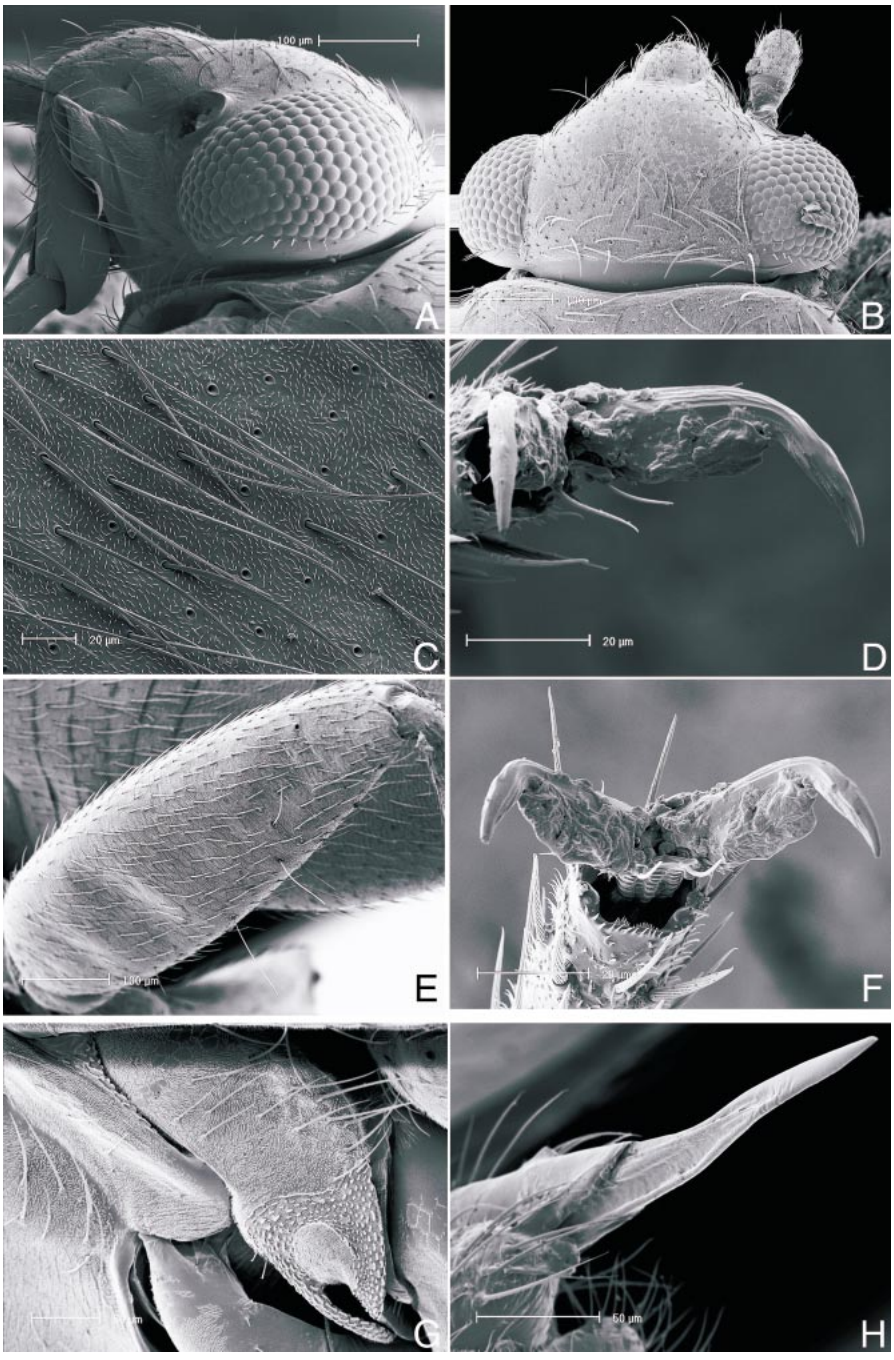

Fig. 8. Scanning electron micrographs of *Aurantiocoris cuneotinctus* from Vaseux Lake, British Columbia. **A.** Head, lateral view. **B.** Head, dorsal view. **C.** Setae on hemelytra. **D.** Pretarsus, laterofrontal view. **E.** Trichobothria on hind femur, lateral view. **F.** Pretarsus, ventrofrontal view. **G.** Mesothoracic spiracle and metaepisternal scent efferent system, lateral view. **H.** Apex of vesica. Scales as indicated.

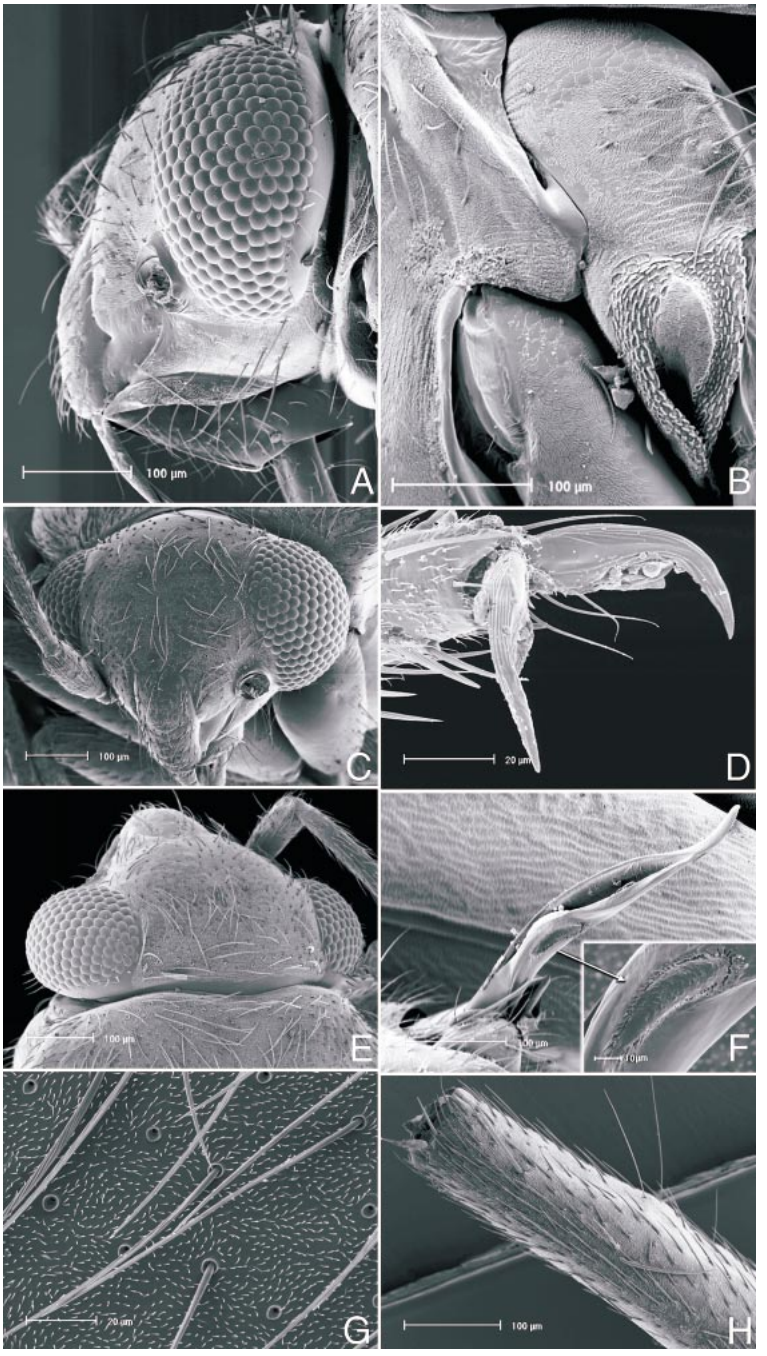

Fig. 9. Scanning electron micrographs of *Aurantiocoris purshiae* from Brush Basin Rim Road, Utah. **A.** Head, lateral view. **B.** Mesothoracic spiracle and metepisternal scent efferent system, lateral view. **C.** Head, anterior view. **D.** Pretarsus, laterofrontal view. **E.** Head, dorsal view. **F.** Apex of vesica and detail of secondary gonopore. **G.** Setae on hemelytra. **H.** Hind femur, distal end, dorsal view. Scales as indicated.

by the contrasting reddish color of the dorsum, with the cuneus most intensely so (fig. 1), whereas the dorsum in *A. purshiae* is unicolorous orange (fig. 1); hemelytra much longer in *A. cuneotinctus* than in *A. purshiae*.

REDESCRIPTION: *Male:* Small, elongate, corial margin straight; total length 2.75–2.99, length apex clypeus–cuneal fracture 1.76–1.93, width across pronotum 0.80–0.89. COLORATION (fig. 1): Dorsum pale to reddish, cuneus usually more strongly reddish and contrasting with remainder of dorsum; thoracic pleuron and venter and abdomen pale; antennal segment 1 dark, remaining segments pale; legs pale except as noted in generic description. SURFACE AND VESTITURE (figs. 1, 8C): As in generic description. STRUCTURE: Hemelytra elongate, ratio of total length to width of pronotum 3.44: 1. Labium reaching to middle trochanters. MALE GENITALIA (fig. 3): Apex of vesica long (figs. 3, 8H); phallotheca as in figure 3; parameres as in figure 3.

Female: Small, elongate ovoid; total length 2.48–2.69, length apex clypeus–cuneal fracture 1.68–1.79, width across pronotum 0.76–0.89. COLORATION (fig. 1): Coloration more generally pale than in male. SURFACE AND VESTITURE (fig. 1): As in male. STRUCTURE: Hemelytra not so elongate as in male, body much more strongly ovoid (fig. 1); antennal segment 2 weakly tapering toward base, slightly more slender than in male.

DISTRIBUTION: Northwestern North America, ranging from British Columbia and Idaho south to the San Jacinto Mountains of southern California.

HOSTS: *Ceanothus* spp. *C. cordulatus* Kell. and *C. velutinus* Dougl. ex Hook.) (Rhamnaceae), *Purshia tridentata* (Pursh.) DC (Rosaceae).

SPECIMENS EXAMINED: CANADA: **British Columbia:** 10 km S of Kelowna, N end of road into Okanagan Mt. Park, August 29, 1993, M. D. Schwartz, *Ceanothus velutinus* (Rhamnaceae), 3♂, 3♀ (CNC). Okanagan Falls, July 8, 1974–July 8, 1975, L. A. Kelton, *Purshia tridentata*, 15♂, 5♀ (CNC). Champion Lakes, August, 9, 1970, L. A. Kelton, 3♀ (CNC). Oliver, June 18, 1956, N. H. Anderson, *Purshia tridentata*, 2♂ (CNC). Osoyoos, July 16, 1975, L. A. Kelton, 1♂ (CNC). Osoyoos, East Bench, July 12, 1997–July 18, 1997, G. G. E. Scudder, *Purshia tridentata*, 4♀ (UBC). Richter Pass, Osoyoos, June 28, 1959, L. A. Kelton, *Purshia tridentata*, 9♂, 4♀ (CNC). Trail, June 21, 1959, L. A. Kelton, 1♀ (CNC). Vaseux Lake, Oliver, June 26, 1959, L. A. Kelton, *Purshia tridentata*, 9♂, 6♀ (CNC). Vaseux Lake, Wildlife Reserve, July 8, 1997, G. G. E. Scudder, *Purshia tridentata*, 4♂, 4♀ (UBC). USA: **California:** *Fresno Co.:* 5 km S of Big Creek on Huntington Lake Rd, 1600 m, July 25, 1999, M. D. Schwartz, *Ceanothus cordulatus* Kell. (Rhamnaceae), 34♂, 11♀ (CNC). *Lassen Co.:* 3 mi E of Westwood, July 12, 1934, E. P. Van Duzee, 1♂ (CAS). *Placer Co.:* September 1, 1900, 1♂ (USNM). *Riverside Co.:* San Jacinto Mountains, July 21, 1929, R. H. Beamer, 1♂ (KU). *Siskiyou Co.:* 1.5 mi E of I-5 towards McCloud, 3600 ft, July 25, 1986, R. T. Schuh, *Ceanothus cordulatus* (Rhamnaceae), 10♂, 11♀ (AMNH). just NW of McCloud, 3700 ft, July 27, 1986, R. T. Schuh, *Ceanothus* sp. (Rhamnaceae), 15♂, 6♀ (AMNH). No specific locality, 1♂ (CAS). Sisson, August 19, 1908, Bradley, paratypes: 3♂, 3♀ (CAS, USNM). **Idaho:** *Adams Co.:* 3 mi SW of Pine Ridge, Payette Natl. Forest, August 27, 1981, G. M. Stonedahl, *Ceanothus* sp. (Rhamnaceae), 1♀ (OSU). **Oregon:** *Deschutes Co.:* 8 mi E of Bend, July 10, 1970, K. J. Goeden, 1♂ (OSDA).

***Aurantiocoris purshiae*,** new species
Figures 1, 3, 9

HOLOTYPE: Male: ''[USA] NEVADA: Lyon Co., 3 mi. S. E. of Toiyabe National Forest Boundary on Rt 338, elev. 6300 feet, July 2, 1983, RT Schuh, MD Schwartz; *Purshia tridentata* (Pursh.) DC (Rosaceae)''. Deposited in the American Museum of Natural History.

DIAGNOSIS: Recognized by the characters given in the generic diagnosis. Distinguished from *A. cuneotinctus* by the dorsum being unicolorous orange rather than pale to reddish and the cuneus never heavily tinged with red (fig. 1); hemelytra shorter in *A. purshiae* than in *A. cuneotinctus*.

DESCRIPTION: *Male:* Small, moderately elongate, corial margin distinctly convex,

broadest about midway between base of corium and cuneal fracture; total length 2.13–2.86, length apex clypeus–cuneal fracture 1.48–1.91, width across pronotum 0.69–0.90. COLORATION (fig. 1): Dorsum and venter uniformly orange; antennal segment 1 dark, remaining segments pale; coxae and femora orange, tibiae pale except as noted in generic description. SURFACE AND VESTITURE (figs. 1, 9G): As in generic description. STRUCTURE: Hemelytra moderately elongate, ratio of total length to width of pronotum 3.12:1. Labium reaching to hind trochanters. MALE GENITALIA: Apex of vesica moderately long (figs. 3, 9F); phallotheca as in figure 3; parameres as in figure 3.

Female: Small, elongate ovoid; total length 2.12–2.45, length apex clypeus–cuneal fracture 1.45–1.76, width across pronotum 0.72–0.86. COLORATION (fig. 1): Coloration more generally pale than in male. SURFACE AND VESTITURE (fig. 1): As in male. STRUCTURE: Hemelytra not so elongate as in male, body much more strongly ovoid (fig. 1); antennal segment 2 weakly tapering toward base, slightly more slender than in male.

ETYMOLOGY: Named for its occurrence on *Purshia tridentata* (Rosaceae).

HOSTS: *Cercocarpus betuloides* Nutt., *Cowania mexicana* D. Don, *Purshia tridentata* (Pursh) DC. (Rosaceae). Label data suggest this species may rarely breed on *Arctostaphylos* (Ericaceae).

DISTRIBUTION: Western United States from Washington east to Wyoming and south to Colorado, Utah, and the southern foothills of the Sierra Nevada Mountains in California.

PARATYPES: USA: **California:** *Kern Co.:* 20 km W of Wofford Heights on Rt 155, 1500 m, July 26, 1999, M. D. Schwartz, *Cercocarpus betuloides* (Rosaceae), 3♀ (CNC). 7 mi W of Wofford Heights on Rt 155, 1520 m, June 26, 1999, M. D. Schwartz, *Arctostaphylos* sp. (Ericaceae), 1♂, 4♀ (CNC). Rt 155, 44.6 km E of jct with Rt 65, W of Glennville, 1000 m, July 26, 1999, M.D. Schwartz, *Cercocarpus betuloides* (Rosaceae), 1♂ (CNC). *Lassen Co.:* 3 mi W of Nubieber, 1405 m, July 6, 1979, R. T. and Joe Schuh, *Cercocarpus betuloides* (Rosaceae), 27♂, 20♀ (AMNH). *Modoc Co.:* 24.7 mi NW of Canby, 1375 m, July 1, 1979, R. T. Schuh and B. M. Massie, 3♂, 4♀ (AMNH). *Nevada Co.:* 7 mi N of Truckee, Sagehen Creek, July 29, 1962, J. T. Doyen, 1♂, (UCB). *Shasta Co.:* 1 mi W of Fall River Mills, 1030 m, July 7, 1979, R. T. and Joe Schuh, *Cercocarpus betuloides* (Rosaceae), 5♂, 5♀ (AMNH). Brown Butte, July 7, 1947, R. L. Usinger, 1♂, 5♀ (UCB). Mt. Shasta, June 29, 1935, R. H. Beamer, 1♂, (KU). *Siskiyou Co.:* 0.5 mi S of Lava Beds Natl. Monument toward Medicine Lake, 5300 ft., July 17, 1986, R. T. Schuh, *Purshia tridentata* (Rosaceae), 1♂, 1♀ (AMNH). 15 mi SE of Mt. Shasta, 3500 ft, July 10, 1972, P. W. Oman, 1♂, (OSU). Powder Hill Road, 12.3 mi N of St Hwy 89, July 19, 1985, G. M. Stonedahl and J. D. McIver, *Purshia tridentata* (Rosaceae), 5♂, 25♀ (AMNH). **Colorado:** *Montezuma Co.:* Mesa Verde Natl. Park, July 13, 1937, R. H. Beamer, 1♂, (KU). **Nevada:** *Carson City Co.:* Carson City, Summit Clear Creek Grade, July 10, 1934, E. P. Van Duzee, 2♂, 1♀ (CAS). *Elko Co.:* 18 mi SE of Halleck on Rt 11, Secret Canyon, T34N R60E Sec15, 6000–6500 ft, July 26, 1982, M. D. Schwartz, *Cowania mexicana* (Rosaceae), 23♂, 12♀ (AMNH). 30 mi SE of I-80 on Hwy 229, 6260 ft, July 19, 1980, G. M. Stonedahl, *Purshia tridentata* (Rosaceae), 17♂, 16♀ (OSU). *Lyon Co.:* 3 mi SE of Toiyabe Natl. Forest Boundary on Rt 338, 6300 ft, July 2, 1983, R. T. Schuh and M. D. Schwartz, *Purshia tridentata* (Rosaceae), 36♂, 25♀ (AMNH). *Washoe Co.:* 4.5 mi SW of Washoe, Little Valley Research Area, T16N R19E, 6200 ft, August 4, 1982, M. D. Schwartz, *Purshia tridentata* (Rosaceae), 4♂, 3♀ (AMNH). Verdi, July 9, 1967, W. Gagne, *Purshia tridentata* (Rosaceae), 1♀ (UCB). **Oregon:** *Deschutes Co.:* 8 mi E of Bend, July 10, 1970, K. J. Goeden, 5♂, 7♀ (OSDA). *Jackson Co.:* Just E of Pinehurst, 1140 m, June 27, 1979, R. T. and Joe Schuh, *Purshia tridentata* (Rosaceae), 7♂, 9♀ (AMNH). *Jefferson Co.:* 10 mi W of Sisters on Hwy 20, August 23, 1981, G. M. Stonedahl, *Purshia tridentata* (Rosaceae), 4♀ (OSU). *Klamath Co.:* 4 mi NW of Worden on road to Keno, July 17, 1985, G. M. Stonedahl and J. D. McIver, *Purshia tridentata* (Rosaceae), 27♂, 28♀ (AMNH). *Lake Co.:* 24 mi E of LaPine, July 31, 1957, G. F. Kraft, *Purshia tridentata* (Rosaceae), 1♂, 1♀

(OSU). **Utah:** *Cache Co.:* Logan, July 22, 1938, G. F. Knowlton and D. E. Hardy, (USU). *San Juan Co.:* Brush Basin Rim Rd., Co. rd. 227 0.5 E milepost 116, 5700 ft, June 12, 1982, M. D. Schwartz, *Purshia tridentata* (Rosaceae), 22♂, 21♀ (AMNH); HOLOTYPE: male (AMNH). **Washington:** *Douglas Co.:* 3 mi N of Ardenvoir, Mud Creek Entiat River drainage, July 17, 1968, G. Kraft, 1♂, 2♀ (OSU). *Okanagan Co.:* 0.5 mi S of Malott, July 6, 1966, W. Gagne and J. Haddock, 6♂, 9♀ (UCB). *Yakima Co.:* 36 mi S of Toppenish, June 26, 1969, P. W. Oman, 1♂, 2♀ (OSU). **Wyoming:** *Fremont Co.:* Wind River Mts., 2.5 mi SW Shoshone NF boundary on Rt 131, August 14, 1986, M. D. Schwartz and G. M. Stonedahl, *Cowania mexicana* (Rosaceae), 1♂, 1♀ (AMNH).

Gonoporomiris hispaniolae, new species
Figures 2, 3

HOLOTYPE: Male: ''Republica Dominicana: Santo Domingo, Aug. 5, 1967, J. C. Schaffner, at black light''. Deposited in the entomological collections of Texas A&M University, College Station.

DIAGNOSIS: Recognized, along with *Gonoporomiris mirifica* (Distant), by the small size, somewhat flattened body form (fig. 2), the slender and weakly clavate second antennal segment, pale coloration of the corium and clavus, with the head, pronotum, scutellum, and base of cuneus often partially or wholly weakly to strongly brownish, and the neatly arranged pale, weakly shining, recumbent setae (fig. 2). Readily distinguished from *G. mirifica* by the structure of the vesica in the male, the apex of the vesica in *G. mirifica* being attenuated in the form of a heavy, sclerotized spine extending well beyond the distalmost portion of the secondary gonopore (see Henry and Schuh, 2002), whereas the apex of the vesica does not surpass the secondary gonopore in *G. hispaniolae* (fig. 3).

DESCRIPTION: *Male:* Small, somewhat flattened; total length 2.50–2.87, length apex clypeus–cuneal fracture 1.86–2.03, width across pronotum 0.94–1.04. COLORATION (fig. 2): Hemelytra generally pale, sometime weakly pinkish; head, pronotum, scutellum, base of cuneus, thoracic pleuron, abdomen laterally, and distal one-half of hind femora often largely brown; appendages otherwise generally pale, except antennal segment 2 narrowly dark at apex; tibial spines dark with pales bases. SURFACE AND VESTITURE (fig. 2): Dorsum smooth, polished, moderately shining. Vestiture of dorsum composed of recumbent, pale, neatly arranged, weakly shining setae (fig. 2). STRUCTURE: Body weakly flattened; head transverse, frons weakly projecting beyond anterior margin of eyes; posterior margin of vertex rather broadly rounded; calli weakly but distinctly inflated (fig. 2); antennae showing only weak sexual dimorphism, segment 2 slender, weakly clavate in both sexes; abdomen broad at base, genital capsule large, occupying at least one-half length of abdomen. GENITALIA (fig. 3): Vesica relatively short, stout, C-shaped, secondary gonopore large, occupying about one-half of length of vesica (fig. 3); phallotheca erect (fig. 3); left paramere with posterior process strongly elevated and elongated (fig. 3); right paramere minute, lanceolate (fig. 3).

Female: Small, elongate ovoid; total length 1.61–2.86, length apex clypeus–cuneal fracture 1.92–2.02, width across pronotum 1.02–1.06. COLORATION (fig. 2): More generally pale than male. SURFACE AND VESTITURE (fig. 2): As in male. STRUCTURE: Body more strongly ovoid than in male (fig. 2).

ETYMOLOGY: Named for its occurrence on the island of Hispaniola.

HOSTS: All known specimens collected at black light. Henry and Schuh (2002) suggested that the only other member of the genus, *Gonoporomiris mirificus*, may be associated with the inflorescences of various species of palms.

DISTRIBUTION: Hispaniola.

DISCUSSION: Henry and Schuh (2002) described the genus *Gonoporomiris* to accommodate *Demarata mirifica* Distant, originally described from Mexico. Most of the specimens examined by Henry and Schuh (2002) were from Florida and Grand Bahama Island; they examined one male and one female from the Dominican Republic. Characterization of the male genitalia was based on specimens from Florida, which are the same as those of specimens from the Bahamas. Be-

cause all specimens currently known from Mexico are females, it has not been possible to determine if the male genitalia of specimens from the type locality are the same as those known from Florida and the Caribbean. After the Henry and Schuh (2002) paper was published, more specimens from the Dominican Republic came to light. Dissection of males revealed that *Gonoporomiris* is not represented by a single species in the Caribbean region, but rather that the specimens from Hispaniola differ from those found in Florida and Grand Bahama on the basis of the male genitalia. We predict that the Mexican material is also distinct, but this theory can best be tested through examination of the genitalia of males from Mexico.

PARATYPES: DOMINICAN REPUBLIC: Santo Domingo, August 5, 1967–August 21, 1967, J. C. Schaffner, 2♂, 9♀ (AMNH, TAMU).

Guentherocoris, new genus

TYPE SPECIES: *Psallus atribibialis* Knight.

DIAGNOSIS: Recognized by the almost black coloration, the silvery, woolly vestiture (figs. 2, 10E), the relatively prominent clypeus (fig. 10A, C), the long free pulvilli (fig. 10B, D), and the form of the male genitalia (figs. 3, 10H). Form of the pulvilli similar to species of *Macrotylus* Fieber and *Coquillettia* Uhler, but those groups never with silvery woolly setae, and never with dull black coloration.

DESCRIPTION: *Male:* Elongate, more or less parallel-sided; total length 3.21–3.69, length apex clypeus–cuneal fracture 2.26–2.48, width across pronotum 0.98–1.09. COLORATION (fig. 2): Nearly black, with some pale areas. SURFACE AND VESTITURE (figs. 2, 10E, F): Impunctate, smooth, dull; body densely covered with recumbent, weakly flattened silvery, somewhat woolly setae (figs. 10E, F); a group of four erect setae ventrolaterally on genital capsule and just anterior to opening (figs. 10G, 10H). STRUCTURE: Head declivent, clypeus projecting beyond anterior margin of eyes and visible from above (figs. 10A, C); antennal segment 2 longer than width of head across eyes, cylindrical and subequal in diameter to segment 1; labium relatively short, reaching to posterior margin of mesosternum; claws smoothly curving, pulvilli nearly as long as claw, attached only at base; parempodia setiform, relatively long and slender (figs. 10B, D). Mesothoracic spiracle and metathoracic scent-gland evaporatory area as in figure 10F. Abdomen more or less cylindrical; genital capsule moderately large, conical. MALE GENITALIA (fig. 3): Vesica weakly sigmoid, with one-half twist, with a short attenuation surpassing secondary gonopore (fig. 3); Left paramere boat-shaped (fig. 3); right paramere lanceolate (fig. 3); phallotheca rather sharply curving, attenuated apically, and without distinctive ornamentation (figs. 3, 10H).

Female: Moderate size, elongate, total length 3.20–3.43, length apex clypeus–cuneal fracture 2.26–2.36, width across pronotum 1.13–1.19. COLORATION (fig. 2): As in male. SURFACE AND VESTITURE (fig. 2): As in male. STRUCTURE: Body somewhat broader than in male (fig. 2).

ETYMOLOGY: Named for Allen F. Guenther, in recognition of his field assistance in collecting this and other species of Miridae in the vicinity of Gila Bend, Arizona.

HOSTS: *Acacia* spp. (Fabaceae).

DISTRIBUTION: Southern Arizona, New Mexico, west Texas, and northern Mexico.

DISCUSSION: *Guentherocoris atritibialis* Knight combines attributes found in *Macrotylus* Fieber and some species of *Plagiognathus* Fieber. Because it does not possess the defining characteristics of either group, we have chosen to describe this new genus to accept the single species *G. atritibialis* (Knight).

Guentherocoris atritibialis (Knight), new combination
Figures 2, 3, 10

Psallus atribibialis Knight, 1930: 129 (n.sp.).

DIAGNOSIS: Recognized as indicated in the generic diagnosis.

DESCRIPTION: *Male:* Elongate, more or less parallel-sided; total length 3.21–3.69, length apex clypeus–cuneal fracture 2.26–2.48, width across pronotum 0.98–1.09. COLORATION (fig. 2): Nearly black, with medial two-thirds of antennal segment 2 pale, cuneal fracture narrowly pale, extreme base of co-

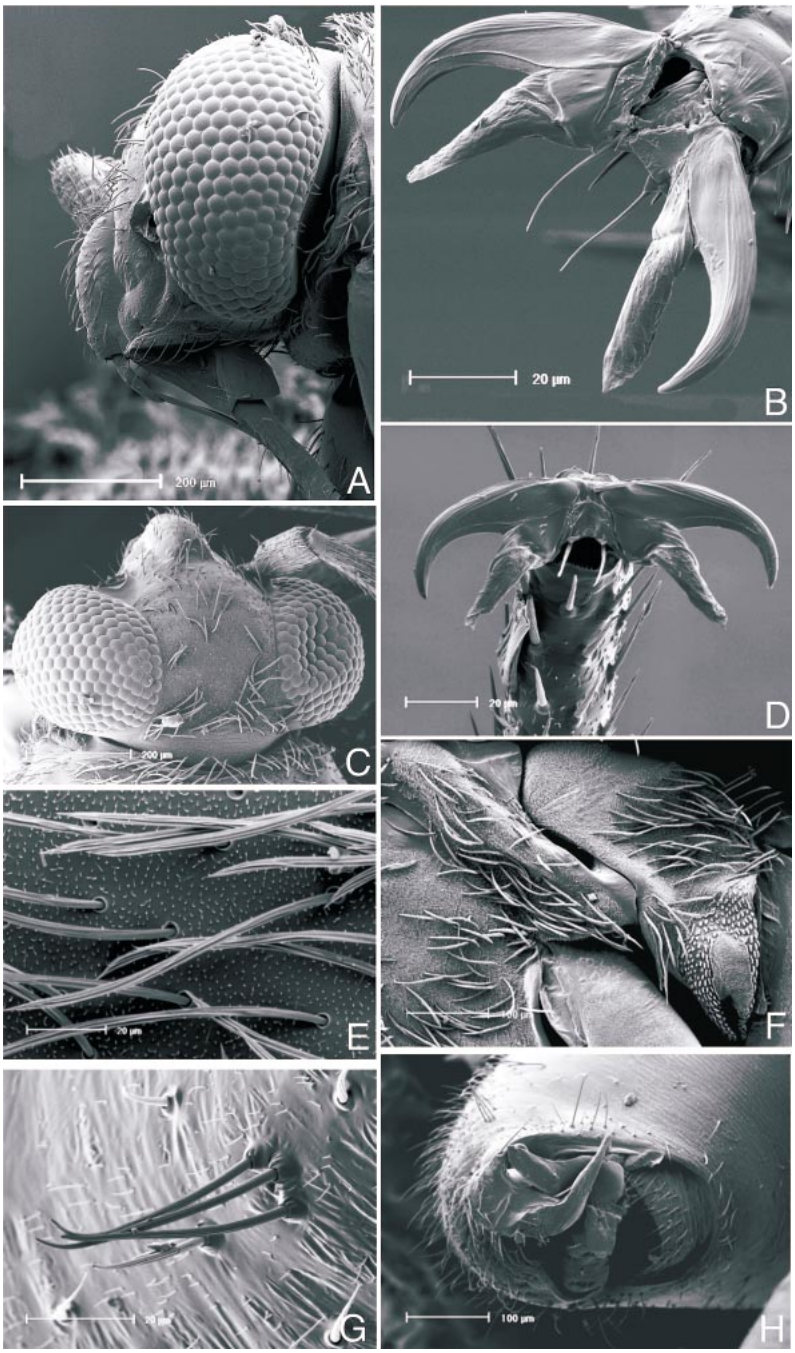

Fig. 10. Scanning electron micrographs of *Guetherocoris atritibialis* from Tornillo Flat, Texas. **A.** Head, lateral view. **B.** Pretarsus, dorsofrontal view. **C.** Head, dorsal view. **D.** Pretarsus, ventrofrontal view. **E.** Setae on hemelytra. **F.** Mesothoracic spiracle and metaepisternal scent efferent system, lateral view. **G.** Cluster of setae on left lateral surface of genital segment, posterior view. **H.** Genital segment, posterior view of left paramere and phallotheca. Scales as indicated.

rium pale, scent-gland evaporatory area pale, and veins on posterior margin of membrane cells pale (fig. 2). SURFACE AND VESTITURE: As in generic description. STRUCTURE: As in generic description. MALE GENITALIA: As in generic description.

Female: As in generic description.

HOSTS: *Acacia constricta Bentham, A. greggii* A. Gray, and *Acacia* sp. (Fabaceae). Single record from *Ceanothus* sp. probably accidental.

DISTRIBUTION: Southern Arizona, New Mexico, west Texas, and northern Mexico.

SPECIMENS EXAMINED: MEXICO: **Sonora:** 8 mi S of Santa Ana, August 16, 1964, E. Schlinger et al., 3♂ (UCR). El Oasis, July 17, 1954, W. Gertsch, 2♂, 2♀ (AMNH). USA: **Arizona:** *Cochise Co.:* 17 mi E of Douglas, August 12, 1975, J. D. Pinto and S. I. Frommer, 3♂ (UCR). 30 mi E of Douglas, Guadalupe Canyon, August 20, 1974, S. Frommer and J. D. Pinto, 1♂ (UCR). 31 mi E of Douglas, August 24, 1974, J. D. Pinto, 2♂ (UCR). 5 mi W of Portal, Southwestern Research Station, August 3, 1959, 1♂ (AMNH). Huachuca Mts., Miller Canyon, August 6, 1974, S. Szerlip, 1♂ (UCB). Huachuca Mts., Sunnyside Canyon, July 9, 1940, R. H. Beamer, 2♂ (KU). Portal, 1500 m, June 15, 1980, R. T. Schuh, K. and R. Schmidt, 20♂, 35♀ (AMNH). Portal, August 1, 1975, J. D. Pinto, 2♂, 1♀ (UCR). Portal, July 20, 1967, 2♂ (AMNH). Portal, July 29–31, 1967, L. A. Kelton, *Acacia* sp. (Fabaceae), 34♀, 1♀ (CNC). Sierra Vista, Huachuca Mts., October 1, 1963, R. F. Sternitzky, 5♂ (CNC). South Fork Cave Creek Canyon, August 7, 1974, T. D. Eichlin, 1♂ (CAFA). Texas Pass, July 20, 1917, H. H. Knight, paratype of *Psallus atritibialis*, 1♂ (CNC). Whetstone Mts., Nogales Springs, 4400–4600 ft, July 26, 1977, Olson and Hetz, 1♂ (UAZ). *Graham Co.:* Sonita Creek, 1500 ft, August 17, 1976, D. S. Chandler, 1♂, 1♀ (UAZ). Stockton Pass, Pinaleno Mts., 5200–5500 ft, June 1, 1983, R. T. Schuh and G. M. Stonedahl, 6♂ (AMNH). Whitlock Mts., Dripping Spring, August 5, 1976, D. S. Chandler, 1♀ (UAZ). *Maricopa Co.:* 24 mi E of Gila Bend, Freeman, 530 m, May 8, 1978, R. T. Schuh and A. F. Guenther, *Acacia* sp. (Fabaceae), 1♂, 28♀ (AMNH). Peoples Valley, August 18, 1967, L. A. Kelton, 1♀ (CNC). Salt River Canyon at Apache Lake, 2000 ft, April 26, 1981, D. A. and J. T. Polhemus, 1♀ (JTP). *Pima Co.:* Baboquivari Mts., Brown Canyon, August 4, 1961, Werner and Nutting, 1♂ (UAZ). Galiuro Mountains, Lower Ash Creek, 5000 ft, August 6, 1999, J. E. O'Hara, 6♂, 1♀ (CNC). Mt. Lemon, Santa Catalina Mts., August 3, 1967, L. A. Kelton, *Ceanothus* sp. (Rhamnaceae), 1♂ (CNC). NW of Tucson on Old Father Road, 2500 ft, April 22, 1982, M. D. Schwartz, *Acacia greggii* (Fabaceae), 13♂, 8♀ (AMNH). Organ Pipe Cactus Natl. Mon., August 15, 1966, G. D. Butler and F. G. Werner, 1♂ (UAZ). Organ Pipe Cactus Natl. Mon., mile 4 of Puerto Blanco Drive, April 3, 1966, C. W. O'Brien, 1♂ (UCB). Santa Catalina Mountains, Hk. Hwy mile 5, August 11, 1961, Werner and Nutting, 1♂ (UAZ). Santa Catalina Mountains, Molino Basin, August 2, 1970, J. Powell and P. Rude, 1♂ (UCB). Tucson, July 12, 1925, A. A. Nichol, paratype *Psallus atritibialis*, 1♂ (CNC). Tucson (within city limits), Ina Road, 2300 ft, April 13, 1981, M. D. Schwartz, *Acacia constricta* (Fabaceae), 14♂, 15♀ (AMNH). Tucson County Park near saguaros, April 15, 1989, T. J. Henry and A. G. Wheeler, Jr., *Acacia* sp. (Fabaceae), 5♂, 7♀ (USNM). Tucson, August 4, 1967, L. A. Kelton, 5♂ (CNC). Tucson, Greasewood Pk., April 13, 1989, T. J. Henry and A. G. Wheeler, Jr., *Acacia* sp. (Fabaceae), 2♂, 6♀ (USNM). Tucson, July 6, 1950–August 16, 1935, R. H. Beamer, 6♂, 1♀ (KU). Tucson, Saguaro National Monument, August 31, 1967, L. A. Kelton, 2♀ (CNC). Tucson, USDA Lab., April 10, 1989, T. J. Henry and A. G. Wheeler, Jr., (Fagaceae), 12♂, 7♀ (USNM). *Pinal Co.:* 5 mi S of San Manuel, T10S R17E, 3200 ft, June 12, 1983, R. T. Schuh and M. D. Schwartz, 1♂ (AMNH). Oracle, 12 mi up road, July 24, 1917, H. H. Knight, 2♀ (USNM). *Santa Cruz Co.:* Atascosa Mts., Calabasas Canyon, April 18, 1981, D. A. Polhemus, 1♀ (JTP). Santa Rita Mts., May 13, 1937, W. Benedict, 1♂ (KU). *Yavapai Co.:* Peeples Valley, August 18, 1967, L.A. Kelton, 1♂, 3♀ (CNC). **New Mexico:** *Hidalgo Co.:* 15 mi N of Portal Road jct on Hwy 80, August 8, 1975, S. Frommer, 4♂, 1♀ (UCR). **Texas:** *Brewster Co.:* Big Bend

National Park, Tornillo Flat, 3200 ft, May 20, 1959, Howden and Becker, 1♀ (CNC).

Megalopsallus ellae, new species
Figures 2, 4

HOLOTYPE: Male: ''[USA]: Cal[ifornia].: Riverside Co., Salton Sea, 3-24-49, R. A. Flock''. Deposited in the American Museum of Natural History.

DIAGNOSIS: Recognized by pale yellow to yellow-orange coloration on dorsum, with scutellum, calli, and vertex usually much more strongly orange (fig. 2); appendages and venter entirely pale. Size and form of sexual dimorphism similar to *Megalopsallus ephedrellus* Schuh and *Megalopsallus nuperus* (Van Duzee), but *M. ephedrellus* much more distinctly greenish on the hemelytra and *M. nuperus* usually with eyes red rather than gray. Bifid apex of vesica (fig. 4) in male similar to that of *Megalopsallus ephedrae* (Knight), *M. ephedrellus* Schuh, *Megalopsallus froeschneri* (Schuh), and *M. pallipes* (Knight), with overall elongate form of vesica most similar to that of *M. froeschneri*, but those species with nearly black head, pronotum and scutellum and usually strongly reddish hemelytra. Breeds on *Ephedra*, as do *M. ephedrae*, *M. ephedrellus*, *M. froeschneri*, and *M. pallipes*.

DESCRIPTION: *Male:* Size moderate, appearance robust; total length 3.22–3.51, length apex clypeus–cuneal fracture 2.35–2.46, width across pronotum 1.14–1.26. COLORATION (fig. 2): Dorsum pale yellow-orange, scutellum, calli, and vertex usually much more strongly orange and at least moderately contrasting; eyes gray; appendages and venter pale (fig. 2). SURFACE AND VESTITURE (fig. 2): Dorsum smooth, dull, clothed with pale, recumbent, simple setae. STRUCTURE: Relatively stout-bodied, corial margins nearly straight (fig. 2); head broad, eyes large and bulging; labium moderately long, reaching to middle trochanters; claws elongate, rather strongly bent at apical third, pulvilli minute. MALE GENITALIA (fig. 4): Vesica relatively long and slender, more or less S-shaped, apex bifid, with short projections, secondary gonopore moderately sclerotized; removed from apex of vesica by distance slightly greater than length of gonopore; gonopore sclerite present (fig. 4).

Female: Total length 3.01–3.15, length apex clypeus–cuneal fracture 2.21–2.35, width across pronotum 1.17–1.22. COLORATION (fig. 2): As in male. SURFACE AND VESTITURE (fig. 2): As in male. STRUCTURE: Body form more strongly ovoid than in male; eyes smaller, frons more strongly bulging in dorsal view, head not appearing so strongly transverse (fig. 2).

ETYMOLOGY: Named for Ella Massie-Schuh, daughter of the senior author.

HOSTS: *Ephedra* sp. (Ephedraceae).

DISTRIBUTION: Southern California: Imperial Valley.

DISCUSSION: The description above contains only salient features for recognition of this species. For a more detailed generic diagnosis and description, the reader is referred to the revision of Schuh (2000b). Although *Megalopsallus ellae* is similar in general appearance to *M. nuperus*, it would appear to be most closely related to *M. ephedrae*, *M. froeschneri*, and *M. pallipes* on the basis of the distinctive bifid vesical apex found in those three species. *Megalopsallus ellae* most easily runs to couplet six in the key provided by Schuh (2000b) for the species of *Megalopsallus*, but can be distinguished from *Megalopsallus pallidus* (Knight) and *Megalopsallus schwartzi* Schuh, the two species that key out in that couplet, by its more strongly yellowish coloration, and by the vesica in the male having a bifid apex.

PARATYPES: USA: **California:** *Imperial Co.:* El Centro, March 18, 1948, *Ephedra* sp. (Ephedraceae), 11♂, 2♀ (UCR, AMNH). Glamis, March 10, 1976, J. C. Hall, *Ephedra* sp. (Ephedraceae), 7♂, 6♀ (UCR, AMNH). *Riverside Co.:* Salton Sea, March 24, 1949, R. A. Flock, 1♂ (UCR).

Neopsallus, new genus
Figures 2, 4, 11

TYPE SPECIES: *Neopsallus powelli*, new species.

DIAGNOSIS: Recognized by the elongate-ovoid body shape, the dense vestiture of woolly silvery setae, the brown coloration in the only known species (fig. 2), the long labium reaching well onto the genital capsule

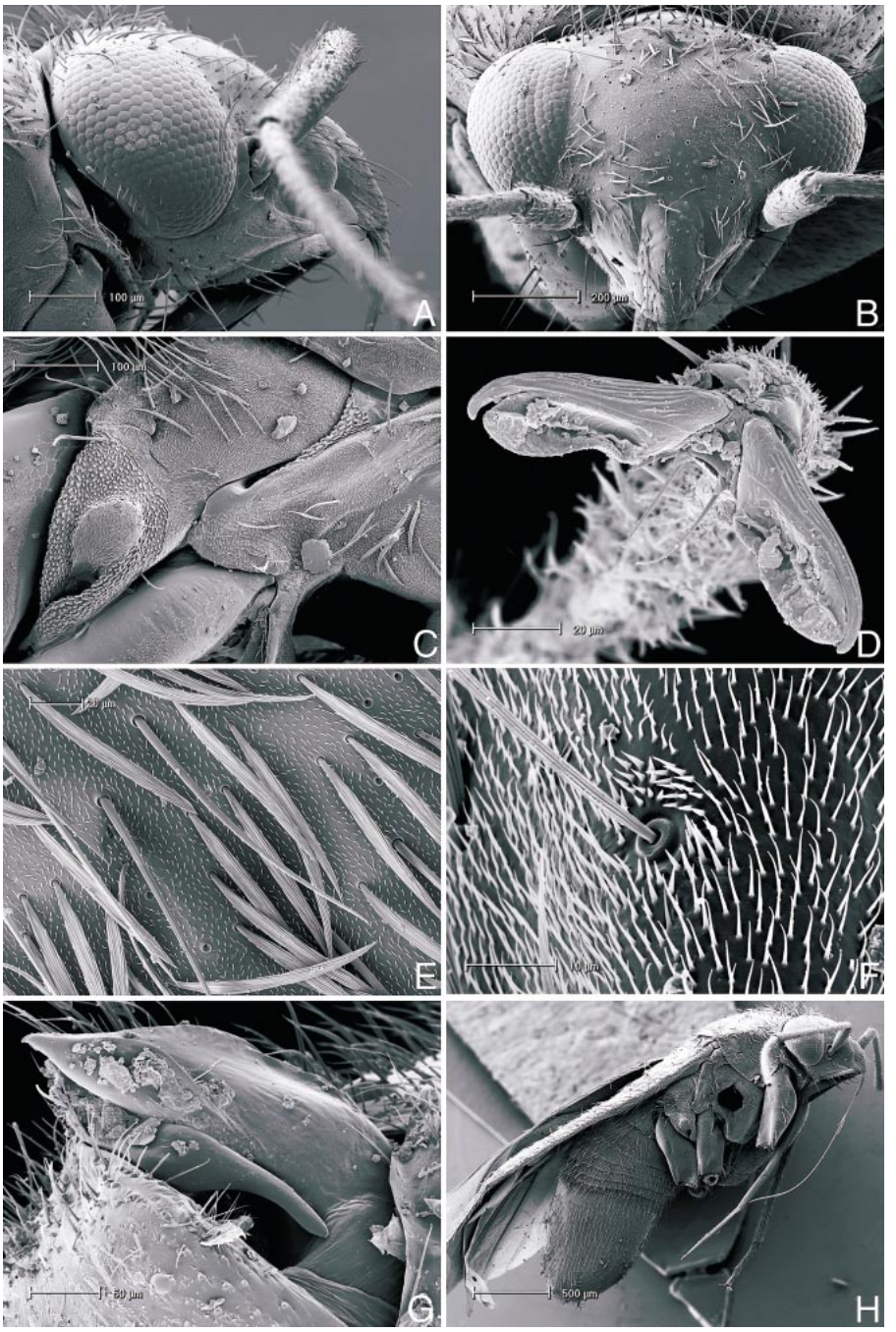

Fig. 11. Scanning electron micrographs of *Neopsallus powelli* from 4 mi E of Los Prietos, California. **A.** Head, lateral view. **B.** Head, anterior, view. **C.** Mesothoracic spiracle and metaepisternal scent efferent system, lateral view. **D.** Pretarsus, frontal view. **E.** Setae on hemelytra. **F.** Trichobothrium on hind femora, ventral view. **G.** Genital segment, dorsal view of left paramere and phallotheca. **H.** Body, lateral view. Scales as indicated.

in the male (fig. 11H), the large genital capsule (fig. 11H), and the heavily sclerotized vesica with two distinct straps (fig. 4) and additional details unique for the North American fauna. Most similar to species of *Oligotylus* Van Duzee and *Lepidargyrus ancorifer* (Fieber) in body form, type of vestiture, and large genital capsule. Distinguished from *Oligotylus* spp. by the posteroventral margin of the genital capsule in that taxon being ''squared off'' as opposed to smoothly curving in *Neopsallus*. Vesica of *Neopsallus* ''twisted'' and S-shaped as in *L. ancorifer* and species of *Psallus* Fieber; vesica in *Oligotylus* strongly recurved on basal one-third and also twisted. Apical ornamentation in *L. ancorifer* in the form of a single, broad, attenuated extension of one of the vesical straps; *Oligotylus* spp. always with two long, broad, blades. *Neopsallus powelli* with two slender spines (fig. 4).

DESCRIPTION: *Male:* Moderately large, robust, elongate ovoid; total length 3.15–3.44, length apex clypus–cuneal fracture 2.21–2.37, with across pronotum 1.05–1.11. COLORATION (fig. 2): Generally brown (fig. 2); antennal segment 2 pale; scent-gland evaporatory area pale; tibiae pale, tibial spines dark with dark bases. SURFACE AND VESTITURE (figs. 2, 11E): Body surface smooth, weakly shining. Dorsum densely covered with woolly silvery setae intermixed with simple setae (figs. 2, 11E); posterior margin of head and anterior margin of pronotum with several heavy, erect, black setae (fig. 11A, B); silvery setae scattered on thoracic pleuron (fig. 11C); abdomen with woolly, silvery setae laterally on ventral surface, otherwise with recumbent, dark, simple setae. STRUCTURE: Head short, declivent, clypeus not visible from above; posterior margin of vertex in the form of a broadly rounded carina (fig. 11A, B); eyes of moderate size, width of gena about 1.5 times diameter of antennal segment 1; gula short; labium long, reaching well onto genital capsule (fig. 11H). Antennae showing only weak sexual dimorphism, segment 2 of slightly smaller diameter than segment 1, weakly tapered proximally, segments 3 and 4 more slender than segment 2 (fig. 2). Pronotum weakly tumid. Tibiae with moderately heavy black spines; trichobothria as in figure 11F. Claws nearly straight over much of length, rather sharply bent near apex; parempodia setiform; pulvilli large, adnate to nearly entire ventral claw surface (fig. 11D). Mesothoracic spiracle and metathoracic scent-gland evaporatory area as in figure 11C. Genital capsule large, occupying at least one-half of length of abdomen; capsule in lateral view tapering toward apex (fig. 11H). GENITALIA (fig. 4): Vesica large and heavily sclerotized, twisted, formed of two conspicuous straps, the anterior terminating in two slender spines of unequal length; secondary gonopore relatively small, situated at apex of main portion of straps (fig. 4); phallotheca L-shaped, attenuated apically (figs. 4, 11G); left paramere boat shaped (fig. 4); right paramere lanceolate (fig. 4).

Female: Moderately large, elongate ovoid; total length 3.25–3.29, length apex clypeus–cuneal fracture 2.26–2.45, width across pronotum 1.00–1.14. COLORATION (fig. 2): As in male. SURFACE AND VESTITURE (fig. 2): As in male. STRUCTURE: Overall body form as in male; eyes smaller, frons more strongly bulging in dorsal view, head not appearing so strongly transverse (fig. 2).

ETYMOLOGY: Named for Jerry Powell, Professor Emeritus, University of California, Berkeley, in recognition of his collecting much of the material on which this taxon is described and his extensive collections of the California insect fauna.

HOSTS: *Penstemon* sp. (Scrophulariaceae).

DISCUSSION: As mentioned in the diagnosis, the coloration, body shape, and type of vestiture are similar to *Lepidargyrus ancorifer* and dark-colored *Oligotylus* spp. (see Schuh, 2000a). The vesica in the male is, however, unique and for this reason we have chosen to describe the new genus *Neopsallus* to accommodate this species. The only known host record suggests that *N. powelli* breeds on *Penstemon* spp. Further collecting on *Penstemon* in California may yield additional species.

Neopsallus powelli, new species
Figures 2, 4, 11

HOLOTYPE: Male: ''[USA:] CAL[ifornia]: 1 mi. SE Santa Ysabel, VI-14-75, John D. Pinto''. Deposited in the American Museum of Natural History.

DIAGNOSIS: As in generic diagnosis.

DESCRIPTION: *Male:* As in generic description.

Female: As in generic description.

HOSTS: *Penstemon* sp. (Scrophulariaceae).

DISTRIBUTION: Southern California.

PARATYPES: USA: **California:** *San Diego Co.:* 1 mi SE of Santa Ysabel, June 14, 1975, J. D. Pinto, 2♂ (UCR). No specific locality, May 13, 1914, E. P. Van Duzee, 2♂ (CAS). Santa Rosa Mts., May 31, 1940, R. L. Usinger, *Penstemon* sp. (Scrophulariaceae), 2♂ (UCB). *Santa Barbara Co.:* 4 mi E of Los Prietos, June 26, 1965, J. Powell, 6♂, 3♀ (UCB, AMNH, USNM).

Oligotylus pluto (Van Duzee), new combination

Plagiognathus diversus pluto Van Duzee, 1917: 284 (n.var.).

Oligotylus ribesi Schuh, 2000a: 16 (n. sp.) NEW SYNONYMY.

Holotype of *Oligotylus pluto* (Van Duzee): ''Santa Cruz Co., Cal., ♂3, 1200–1500 ft., W. M. Gifford, 8–11–17''. Deposited in the California Academy of Sciences.

DISCUSSION: Van Duzee (1917) described the new species *Plagiognathus diversus* with two included varieties, *P. d. cruralis* and *P. d. pluto*. Schuh (2001) treated *P. diversus* as a junior synonym of *Plagiognathus artemisiae* (Becker); he transferred *P. cruralis* to the new genus *Tuxedo* Schuh as a valid species. The fate of *P. pluto* has remained in doubt. Examination of the holotype of *P. pluto* indicates that it is the same taxon as *Oligotylus ribesi* Schuh, 2000. We are therefore treating *O. ribesi* as a junior synonym, **new synonymy.**

Pruneocoris, new genus
Figures 2, 4, 12

TYPE SPECIES: *Pruneocoris stonedahli*, new species.

DIAGNOSIS: Recognized by the small size, broad, flattened body (fig. 2), dense covering of lepidote setae (figs. 2, 12B, E, F), the lack of a row of spinules on the distal portion of the dorsal surface of the hind femur (fig. 12G), and the form of the male genitalia, especially the vesica being formed of a single strap, attenuated into a spine apically, and with the secondary gonopore located on the dorsal surface (fig. 4). Similar in coloration, lepidote vestiture, and overall appearance to some species of *Atractotomus* Fieber, *Phoenicocoris* Reuter, and *Pinomiris* Stonedahl and Schwartz. Differing from all of those genera by the lack of spinules dorsodistally on the hind femur and by the lack of spines on the gonopore sclerite. Lepidote setae broad and of what Stonedahl (1990) referred to as type 2, the vestiture therefore having an appearance more similar to many *Atractotomus* spp. than to most species of *Phoenicocoris* and *Pinomiris*. Also, short broad head more similar to that of *Atractotomus* than those of *Phoenicocoris* and *Pinomiris*, with the latter two having the frons and clypeus more strongly projecting anteriorly when viewed from above.

DESCRIPTION: *Male:* Small, broad-bodied, somewhat flattened; total length 2.39–2.84, length apex clypeus–cuneal fracture 1.62–1.86, width across pronotum 0.86–1.01. COLORATION (fig. 2): Largely reddish brown to castaneous. SURFACE AND VESTITURE (figs. 2, 12B, E, F): Dorsum smooth, dull; entire body densely covered with lepidote setae intermixed with simple setae (figs. 12B, E, F); distal portion of dorsal surface of hind femur lacking row of spinules as found in *Atractotomus* (fig. 12G). STRUCTURE: Head transverse, conforming to anterior margin of pronotum (figs. 2, 12B); posterior margin of vertex forming a weak carina (fig. 12B); antenna inserted on ventral margin of eye (fig. 12C); head projecting below eyes by about half the height of an eye (figs. 12A, C); labium reaching to hind trochanters. Antennal segment 2 of diameter nearly equal to that of segment 1, tapering slightly toward base. Claws nearly straight, bent near apex, pulvilli large and adnate to nearly entire ventral surface of claw, parempodia relatively short and stout (fig. 12D). Mesothoracic spiracle and metathoracic scent-gland evaporatory area as in figure 12E. Abdomen broad, tapering toward relatively small genital capsule, the latter occupying about one-third of length of abdomen. MALE GENITALIA: Vesica slender, delicate, formed of a singe sinuously curving strap with an apical spine, gonopore well sclerotized, situated near apex on dorsal sur-

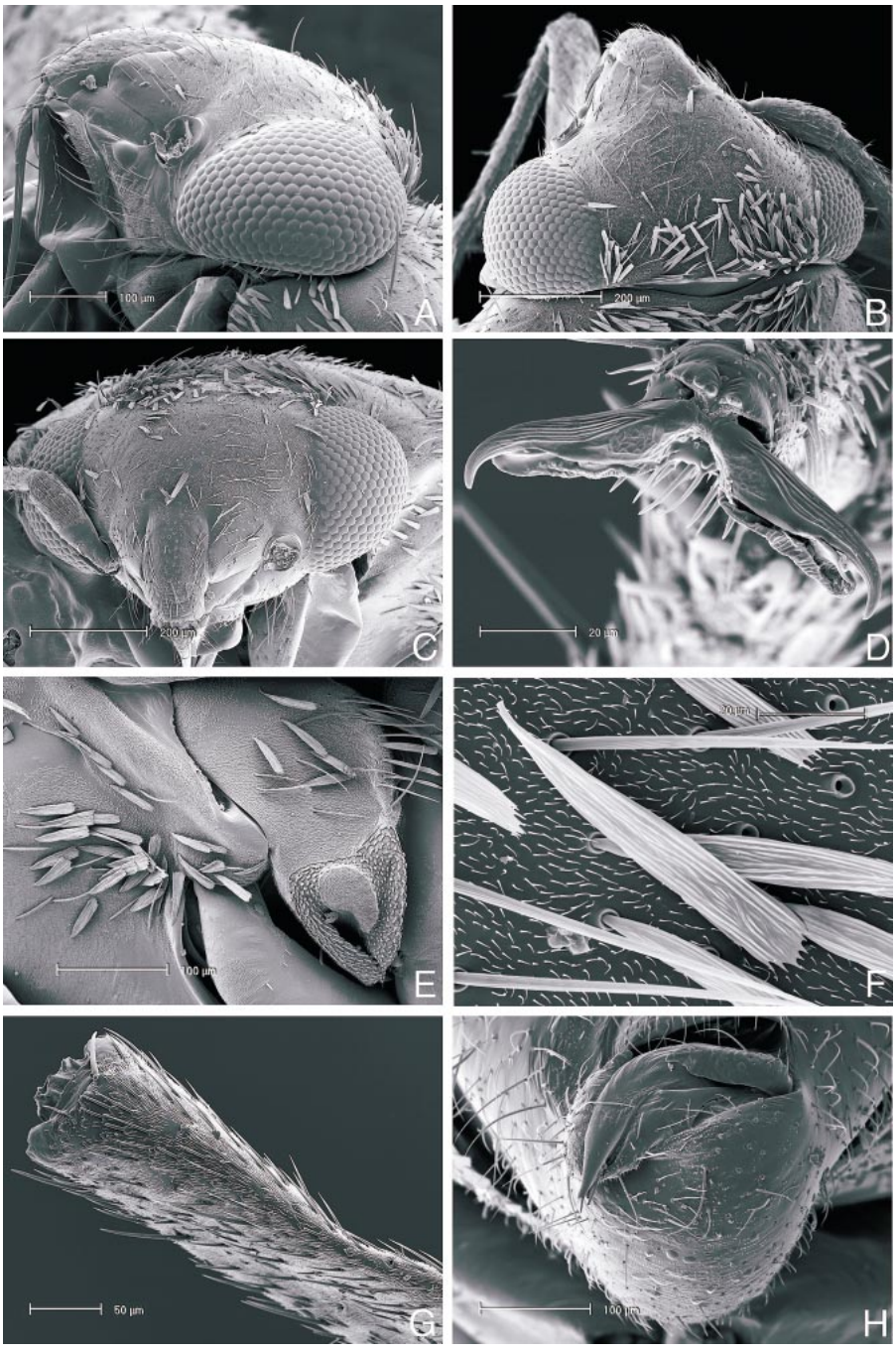

Fig. 12. Scanning electron micrographs of *Pruneocoris stonedahli* from Snow Canyon State Park, Utah. **A.** Head, lateral view. **B.** Head, dorsal view. **C.** Head, anterior view. **D.** Pretarsus, frontal view. **E.** Mesothoracic spiracle and metaepisternal scent efferent system, lateral view. **F.** Setae on hemelytra. **G.** Hind femora, distal end, dorsal view. **H.** Genital segment, posterior view of left paramere, phallotheca, and right paramere. Scales as indicated.

face, and gonopore sclerite lacking (fig. 4); phallotheca (figs. 4, 12H); left paramere (fig. 4); right paramere (fig. 4).

Female: Small, flattened, elongate ovoid; total length 2.30–2.42, length apex clypeus–cuneal fracture 1.65–1.75, with across pronotum 0.85–0.93. COLORATION (fig. 2): As in male. SURFACE AND VESTITURE (fig. 2): As in male. STRUCTURE: Body form more strongly ovoid than in male; eyes smaller, frons more strongly bulging in dorsal view, head not appearing so strongly transverse (fig. 2).

ETYMOLOGY: Named for the seemingly invariant occurrence of the only known species on *Prunus* spp. (Rosaceae).

HOSTS: *Prunus* spp. (Rosaceae).

DISTRIBUTION: Utah and Nevada south to the state of Durango on the Central Mexican Plataeau.

DISCUSSION: These small bugs have the general appearance of some species of *Atractotomus* Fieber and *Phoenicocoris* Reuter. They do not fit the diagnosis of either genus well, however, and we have therefore chosen to place them in a new genus. Nonetheless, on the basis of male genitalic structure and type of vestiture, their affinities would appear to be with the group of genera including *Atractotomus* and *Phoenicocoris*, and possibly also *Megalopsallus* Knight,

Pruneocoris stonedahli, new species
Figures 2, 4, 12

HOLOTYPE: Male: ''USA: UTAH: Washington Co.: Snow Canyon State Park, T41S R16W (campground), 4000 ft., May 22, 1981, MD Schwartz; *Prunus fasciculata* (Torr.) A. Gray (Rosaceae)''. Deposited in the American Museum of Natural History.

DIAGNOSIS: See generic diagnosis.

DESCRIPTION: *Male:* As in generic description, except as follows: COLORATION (fig. 2): Antennal segment 1 usually faded reddish, segment 2 pale, segments 3 and 4 heavily infuscate; hemelytra narrowly pale at cuneal fracture; membrane cells with veins pale along posterior margin; coxae and femora reddish or reddish brown; tibiae pale, tibial spines with dark bases.

Female: As in male.

ETYMOLOGY: Named for Gary M. Stonedahl, friend and colleague, in recognition of his many contributions to taxonomy of the Miridae, particularly from the western United States.

HOSTS: *Prunus andersonii* A. Gray, *Prunus fasciculata* A. Gray (Rosaceae).

DISTRIBUTION: Utah and Nevada south to the state of Durango on the Central Mexican Plataeau.

PARATYPES: MEXICO: **Baja California Norte:** NE of Vallecitos, Sierra San Pedro Martir, July 14, 1980, Brown and Faulkner, 2♂, 3♀ (SDNH). **Durango:** 5 mi W of Durango, June 11, 1964, H. F. Howden, 1♀ (CNC). USA: **Arizona:** *Mohave Co.:* Hualapi Mts., SE of Kingman, T20N R15W, 4000–6400 ft, June 9, 1983, R. T. Schuh, M. D. Schwartz, and G. M. Stonedahl, *Prunus andersonii* (Rosaceae), 1♂, 6♀ (AMNH). Purgatory Canyon, Virgin River Canyon, 0.35 mi SW mp 24 on Hwy 15, 2600 ft, May 24, 1981, M. D. Schwartz, *Eriogonum fasciculatum* (Polygonaceae), 1♂, 1♀ (AMNH). **California:** *Inyo Co.:* Big Pine, June 17, 1929, R. L. Usinger, 1♂, 2♀ (CAS). Mono Lake, Tioga Lodge, June 22, 1929, R. L. Usinger, 1♀ (CAS). *Mono Co.:* Coleville, at night, 5200 ft, June 10, 1966, W. Gagne, 10♂, 5♀ (UCB). Mono Craters at Rt 395, 2188 m, July 3, 1980, R. T. Schuh, *Prunus andersonii* (Rosaceae), 17♂, 25♀ (AMNH), holotype male (AMNH). *San Bernardino Co.:* 17.6 mi S of Barstow on Rt 247, 1060 m, May 2, 1985, R. T. Schuh and B. M. Massie, *Prunus fasciculata* (Rosaceae), 10♂, 14♀ (AMNH). **Nevada:** *Carson City Co.:* Carson City, June 26, 1929, E. P. Van Duzee, 1♂, 2♀ (CAS). *Lander Co.:* Kingston Creek Canyon, Toiyabe Mts., T16N R43E Sec 27 & 35, 6500–7500 ft, June 28, 1983, R. T. Schuh and M. D. Schwartz, *Prunus andersonii* (Rosaceae), 28♂, 12♀ (AMNH). *Lyon Co.:* 5.2 mi S of Sweetwater Summit on Rt 22, Toiyabe Natl. Forest, 2015 m, July 11, 1980, R. T. Schuh and G. M. Stonedahl, *Prunus andersonii* (Rosaceae), 3♂, 25♀ (AMNH, OSU). **Utah:** *Washington Co.:* Snow Canyon State Park, T41S R16W, 4000 ft, May 22, 1981, M. D. Schwartz, *Prunus fasciculata* (Rosaceae), 18♂, 25♀ (AMNH).

Vanduzeephylus, new genus
Figures 2, 4, 13

TYPE SPECIES: *Reuteroscopus falcatus* Van Duzee.

DIAGNOSIS: Body form similar to *Plagiognathus* Fieber, elongate, nearly parallel-sided, more or less cylindrical in cross section (fig. 2); antennae weakly sexually dimorphic (fig. 2), unlike *Plagiognathus*; vesica in male with a single apical spine of moderate length (fig. 4), rather than with two long spines as in *Plagiognathus*. Most similar in coloration to *Plagiognathus albatus* (Van Duzee), but that species never with contrasting dark patches on pronotum as in *V. falcatus*. Genital capsule in male with distinctive low tubercles on ventral surface (fig. 13H).

DESCRIPTION: *Male:* Elongate, more or less parallel-sided; total length 3.04–3.60, length apex clypeus–cuneal fracture 2.08–2.49, width pronotum 0.95–1.08. COLORATION (fig. 2): Generally pale, pronotum with dark patches just posterior to calli (fig. 2), endocorium infuscate; antennae totally pale (fig. 2); tibiae pale, tibial spines pale (fig. 2). SURFACE AND VESTITURE (figs. 2, 13G): Impunctate, smooth, dull to moderately shining (fig. 2); vestiture of simple pale setae (fig. 13G); distal portion of dorsal surface of hind femur lacking row of spinules as in figure 13I; genital capsule with distinctive low tubercles on ventral surface (fig. 13H). STRUCTURE: Head declivent, barely projecting beyond anterior margin of eyes, clypeus barely visible from above (figs. 2, 13A, B, C); labium reaching apex of middle coxae. Antennae sexually dimorphic, segment 2 in male cylindrical, of uniform diameter over entire length, relatively long, about 1.4 time as long as width of head across eyes. Trichobothria as in figure 13J. Claws relatively slender, bent at nearly right angle at about two-thirds distance from base (figs. 13E, F); pulvilli moderately large, adnate to basal two-thirds of claw (fig. 13E, F); parempodia cylindrical, with blunt apex (fig. 13E, F). Mesothoracic spiracle and metathoracic scent-gland evaporatory area as in figure 13D. MALE GENITALIA (fig. 4): Vesica sigmoid, with one-half twist, apically with a single blade of moderate length (fig. 4); left paramere boat-shaped (fig. 4); right paramere lanceolate (fig. 4); phallotheca rather sharply curving, attenuated apically, and without distinctive ornamentation (fig. 4).

Female: Moderately large, elongate ovoid; total length 3.40–3.90, length apex clypeus–cuneal fracture 2.43–2.69, width across pronotum 1.13–1.18. COLORATION (fig. 2): As in male. SURFACE AND VESTITURE (fig. 2): As in male. STRUCTURE: Overall body form as in male; eyes smaller; antennal more slender than in male, weakly tapering toward base (fig. 2).

ETYMOLOGY: Named for E. P. Van Duzee, in recognition of his pioneering efforts in describing the mirid fauna of California.

DISCUSSION: The species placed in *Vanduzeephylus* is widespread in western North America. It is similar in appearance to some *Plagiognathus* species, notably *P. albatus*. The genitalic structure of *Plagiognathus* spp. is quite consistent across a broad range of species, some of which differ substantially in size and coloration. The genitalic structure in *V. falcatus* deviates significantly from that type. This, combined with the distinct sexual dimorphism in the antennae of *V. falcatus*, has caused us to erect a new genus for its reception.

HOSTS: Recorded from *Platanus* sp. (Platanaceae), *Populus* sp., and *Salix* sp. (Salicaceae).

DISTRIBUTION: Western North America.

Vanduzeephylus falcatus (Van Duzee), new combination
Figures 2, 4, 13

Reuteroscopus falcatus Van Duzee, 1917: 278 (n.sp.)

Microphylellus adustus Knight, 1929: 40 (n.sp.; syn. by Schuh, 2001: 255).

Microphylellus adustus binotatus Knight, 1929: 40 (n.var.; syn. by Schuh, 2001: 255).

DIAGNOSIS: Recognized by the generally pale coloration of the dorsum and appendages with the contrasting large, brown, lunate to round spots placed laterally on the pronotum just posterior to the calli, and the infuscate vertex, base of scutellum and endocorium. Most similar in general appearance and coloration to pale forms of *Plagiognathus albatus*, but that species never with the

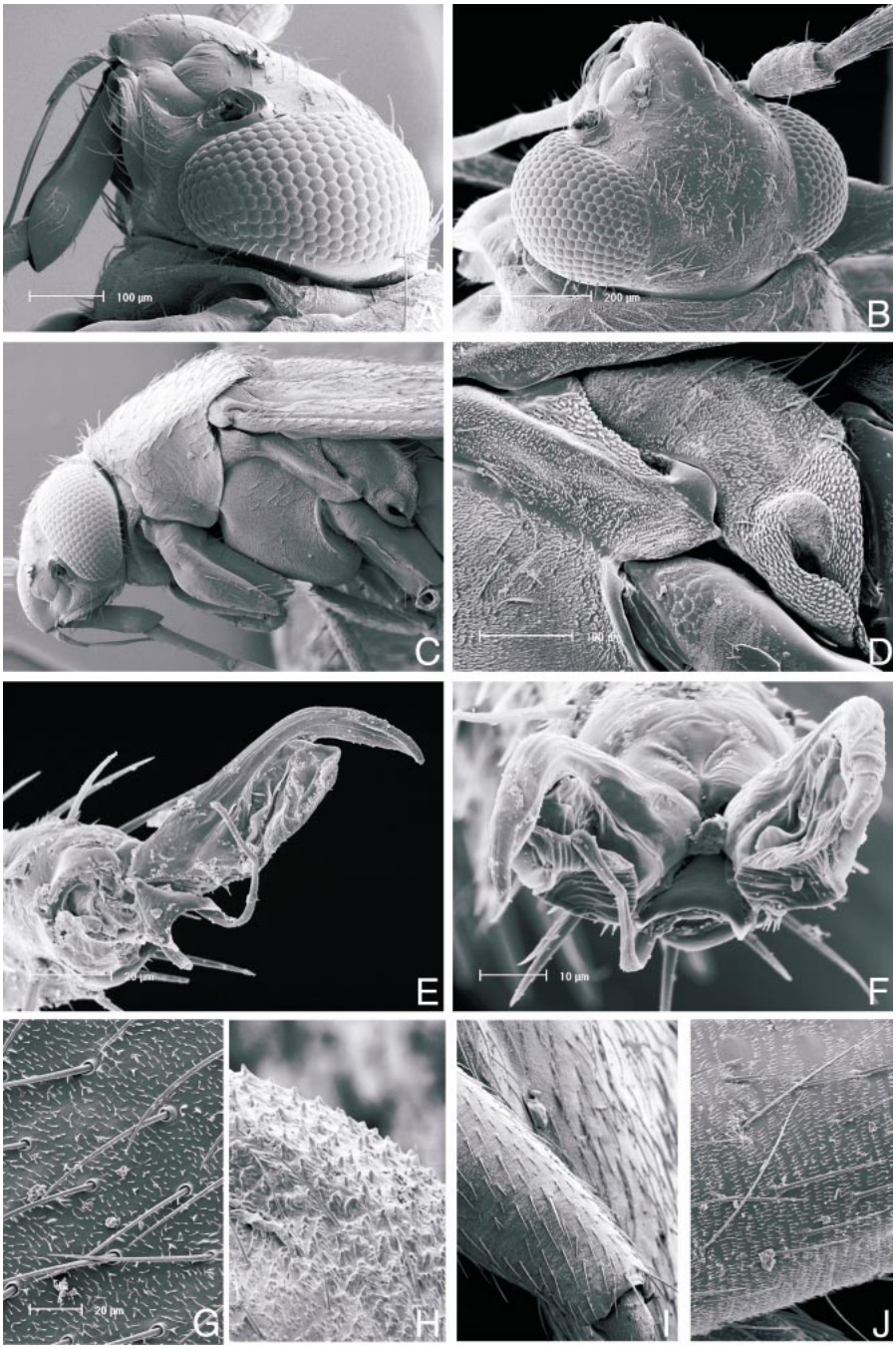

Fig. 13. Scanning electron micrographs of *Vanduzeephylus falcatus* from Yreka, California. **A.** Head, lateral view. **B.** Head, anterior view. **C.** Head, thorax, lateral view. **D.** Mesothoracic spiracle and metaepisternal scent efferent system, lateral view. **E.** Pretarsus, laterofrontal view. **F.** Pretarsus, frontal view. **G.** Setae on hemelytra. **H.** Genital segment, spinules on ventral surface, lateral view. **I.** Hind femur, distal end, lateral view. **J.** Trichobothria on hind femur, ventral view. Scales as indicated.

pronotum pale with darks spots as in *Vanduzeephylus*.

DESCRIPTION: *Male:* As in generic description.

Female: As in generic description.

HOSTS: Recorded from *Platanus racemosa Nutt. (Platanaceae), Populus deltoides* Marsh., *P. fremontii* S. Watson, *P. tremuloides* Michx., and *Salix* sp. (Salicaceae).

DISTRIBUTION: British Columbia south to the central Sierra Nevada Mountains and east to Colorado.

DISCUSSION: See generic Discussion.

SPECIMENS EXAMINED: CANADA: **British Columbia:** 18 mi N of Lytton, June 12, 1963, G. G. E. Scudder, 1♀ (UBC). Summerland, June 23, 1971, K. G. A. Hamilton, *Populus tremuloides* (Salicaceae), 2♂ (CNC). Summerland, July 12, 1975, L. A. Kelton, 1♀ (CNC). Vancouver Island, Malahat Drive, June 26, 1940, R. L. Usinger, 5♀ (UCB). USA: **California:** *Calaveras Co.:* Mokelumne Hill, May 27, 1931, R. L. Usinger, 2♀ (UCB). *El Dorado Co.:* Fallen Leaf Lake, July 23, 1929, R. L. Usinger, 1♂, 12♀ (UCB). Lake Tahoe, Fallen Leaf Lake, lower end, July 27, 1932, R. L. Usinger, 4♂, 14♀ (UCB). *Los Angeles Co.:* Whittier, April 18, 1935–May 27, 1929, *Platanus racemosa* (Platanaceae), 1♂ (USNM). *Madera Co.:* Big Sandy Flat, July 15, 1946, R. L. Usinger, 1♂ (UCB). Coarsegold, June 29, 1946, T. O. Thatcher, *Salix* sp. (Salicaceae), 2♀ (UCB). *Marin Co.:* 15 mi NW of Olema, June 10, 1962, C. A. Toschi, 2♀ (UCB). *Monterey Co.:* Bradley, May 23, 1920, E. P. Van Duzee, 2♂ (CAS). Pleyto, May 21, 1920, E. P. Van Duzee, 2♂, 3♀ (CAS). *Nevada Co.:* Truckee, July 6, 1927, E. P. Van Duzee, 1♀ (CAS). *Riverside Co.:* Menifee Valley (hills on W end), 1800 ft, May 4, 1985, J. D. Pinto, *Salix* sp. (Salicaceae), 2♂, 2♀ (UCR). Soboda Springs, May 30, 1917, E. P. Van Duzee, 1♀ (CAS). *San Mateo Co.:* Half Moon Bay State Beach, June 11, 1980, J. D. Pinto, *Salix* sp. (Salicaceae), 2♂, 4♀ (UCR). *Siskiyou Co.:* Yreka, June 15, 1959, Kelton and Madge, *Salix* sp., 2♂, 1♀ (CNC). *Tehama Co.:* Red Bluff, Dog Island State Park, April 29, 1984, D. S. Chandler, 1♂, 6♀ (UNHAMP). Red Bluff, Samson Slough, April 29, 1984, D. S. Chandler, 1♂, 1♀ (UNHAMP). *Tulare Co.:* Woodlake, April 24, 1932, E. P. Van Duzee, 1♀ (CAS). **Colorado:** *Costilla Co.:* Fort Garland, Ute Creek Ranch, August 11, 1925, H. H. Knight, 2♀ (USNM). **Nevada:** *Carson City Co.:* Carson City, June 25, 1929, E. P. Van Duzee, 1♂ (CAS). Carson City, Summit Clear Creek Grade, July 10, 1934, E. P. Van Duzee, 2♀ (CAS). *Washoe Co.:* 13 mi NW of Gerlach, June 11, 1970, 4♂, 3♀ (UCB). Pyramid, July 4, 1947, R. L. Usinger, 1♀ (UCB). Reno, June 27, 1927, E. P. Van Duzee, 2♂ (CAS). Sparks, June 28, 1927, E. P. Van Duzee, 1♀ (CAS). **Oregon:** *Benton Co.:* 7 mi N of Corvallis, Camp Adair, June 23, 1962, J. D. Lattin, *Populus deltoides* (Salicaceae), 3♂, 2♀ (OSU). Corvallis, July 14, 1959, J. D. Lattin, 1♀ (OSU). *Marion Co.:* Salem, Wallace Marine Park, July 15, 1978, R. Weinzierl, 1♀ (OSU). *Yamhill Co.:* Dayton, Dorsey's Gravel Bar, July 22, 1963, K. M. Fender, 1♀ (OSU). **Utah:** *Uintah Co.:* 5–10 mi SW of Bonanza, T10S R24E, 5000–5600 ft, July 5, 1982, M. D. Schwartz, *Populus fremontii* (Salicaceae), 1♂ (AMNH). **Washington:** *Pierce Co.:* Puyallup, July 5, 1935, R. H. Beamer, 1♂, 11♀ (KU). *Whatcom Co.:* Bellingham, 1031 W Bakerview Road, July 19, 1979, G. M. Stonedahl, *Salix* sp. (Salicaceae), 1♀ (OSU).

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The herbarium staff at the New York Botanical Garden identified the hosts for mate-

rial collected by us. These authoritative determinations add greatly to confidence in our knowledge concerning host relationships within the taxa treated in the paper. Our sincere thanks to Jackie Kallunki, Eileen Schofield, Rupert Barnaby, Arnold Tiehm, James Grimes, and others for their prompt and professional service.

Many individuals and institutions provided material for this study. Without their assistance the distributions and hosts for species treated in this paper would be much less well understood. Institutional abbreviations, institutional names, and names of curators or other responsible individuals are presented in the following list:

AMNH	American Museum of Natural History, New York
CAFA	California Department of Food and Agriculture, Sacramento, Alan Hardy
CAS	California Academy of Sciences, San Francisco, Paul Arnaud, Jr., Norman Penny
CNC	Canadian National Collection of Insects, Agriculture Canada, Ottawa
CU	Cornell University, Ithaca, New York, James K. Liebherr
JTP	John T. Polhemus Collection, Englewood, Colorado
KU	University of Kansas, Snow Entomological Museum, Lawrence, Alex Slater
LACM	Natural History Museum of Los Angeles County, Julian P. Donahue
OSU	Oregon State University, Corvallis, John D. Lattin
SDNH	San Diego Museum of Natural History, David K. Faulkner
TAMU	Texas A&M University, College Station, Joseph C. Schaffner
UAZ	University of Arizona, Tucson, the late Floyd Werner, Carl Olson
UBC	University of British Columbia, Vancouver, G. G. E. Scudder, Karen M. Needham
UCB	University of California, Berkeley, John Chemsak
UCD	University of California, Davis, the late Robert Schuster
UCR	University of California, Riverside, the late Saul Frommer, John D. Pinto
UNHAMP	University of New Hampshire, Durham, Donald Chandler
USNM	United States National Museum of Natural History, Washington, D.C., Thomas J. Henry, the late Richard C. Froeschner
USU	Utah State University, Logan, Wilford J. Hanson

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