REEVALUATION OF THE PLANT BUG GENUS ICODEMA, WITH DESCRIPTIONS OF TWO NEW GENERA TO ACCOMMODATE FIVE NEARCTIC SPECIES (HETEROPTERA: MIRIDAE: PHYLINAE)

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Abstract.—Study of Icodema nigrolineatum (Knight) has shown that it and four other related Nearctic species are not congeneric with Palearctic I. infuscatum (Fieber), the type of the genus. As a result, the new genus Americodema is established to accommodate A. nigrolineatum (Knight), new combination, and A. knighti (Kerzhner and Schuh), new combination, and the new genus Occidentodema is erected for the three new species O. clypealis, O. mcfarlandi, and O. polhemusi from the western United States and Mexico. Generic relationships are discussed, host plants and distributions are reviewed, and diagnostic information and a key to species are provided to facilitate recognition.

Key words: Heteroptera, Miridae, Phylinae, Icodema, Americodema, Occidentodema, new genera, new species, hosts, distribution.

Icodema was established to hold the European Plagiognathus infuscatum Fieber (Reuter 1875). The genus remained monotypic until Carvalho (1955) transferred the Nearctic Plagiognathus nigrolineatus Knight into it, thus giving Icodema Holarctic status. Little information is available on the relationship of Icodema to other phyline genera, although I (Henry 1989) noted that members of Icodema, Carinocoris Henry, and the Palearctic genus Phylus Hahn also possessed a distinct keel on the ventral surface of the male genital capsule and lacked spots at the bases of the tibial spines, suggesting that they might form a monophyletic group.

The present paper was prompted by the discovery of four other Nearctic species also possessing keels on the male genital capsule. Close examination of this material and specimens of the widespread I. nigrolineatum indicated that, although these species are quite similar, none is congeneric with the Old World I. infuscatum. Based on male genitalia, I. nigrolineatum and Plagiognathus knighti Kerzhner and Schuh form an eastern species pair, and three new species from the western United States and Mexico form another group, each of which is considered to represent a new genus described in this paper.

Herein, I redescribe Icodema and its only included species I. infuscatus and establish the new genus Americodema to accommodate I. nigrolineatum and Plagiognathus knighti, and the new genus Occidentodema for the three new species O. clypealis, O. mcfarlandi, and O. polhemusi from the western United States and Mexico. A habitus drawing of A. nigrolineatum, scanning electron micrographs of selected structures for the five Nearctic species, figures of male genitalia of all species,
and a key to the species of Americodema and Occidentodema are provided to aid their recognition. All taxa are presented alphabetically by genus and species.

The following abbreviations are used for institutions cited in this paper: AMNH (American Museum of Natural History, New York); JTPC (J. T. Polhemus Collection, Englewood); BNHM (The [British] Natural History Museum, London); CAS (California Academy of Sciences, San Francisco); TAM (Texas A & M University, College Station); UBC (University of California, Berkeley); and USNM ([United States] National Museum of Natural History, Smithsonian Institution, Washington, DC).

**Americodema**, new genus

**Type species.** Plagiognathus nigrolineatus Knight 1923.

**Diagnosis.** Species of this genus are recognized by a combination of the uniformly pale greenish-white to greenish coloration, with or without fuscous stripes and spots on the antennae and legs, the lack of spots at the bases of the tibial spines (except for indistinct spots on some metatibial spines), the keeled male genital capsule, the relatively stout, twisted, strongly S-shaped vesica, and by the slender phallotheca lacking a lateral notch as is found in Icodema.

**Description.** Length 3.28 to 4.40 mm. Elongate, oval. General coloration pale green to greenish white, with or without fuscous lines and spots on the legs and antennae. Head much broader than long; eyes prominent, granulate, more so in males; vertex about ½ the width of head in males, slightly greater than ½ in females. Rostrum extending to metacoxae; length of segments I, II, and IV subequal, segment III slightly shorter. Antennae slender, moderately long, ranging from 0.65–0.70 the length of body in ♂♂, 0.63–0.67 in ♀♀; segment I shortest, stoutest; segment II longest, segment III ranging from 0.54–0.64 the length of II in ♂♂, from 0.48–0.62 in ♀♀; segment IV slightly longer than I. Pronotum trapeziform, about two times wider at base than median length; scutellum equilateral. Hemelytra subparallel, opaque to translucent, particularly on corium; pubescence short, simple, recumbent; membrane translucent with two distinct areoles. Legs slender, often marked with spots or narrow fuscous lines; tibial spines lacking dark spots at bases, metatibiae sometimes with a few indistinct dark spots at bases of basal spines; claws with hairlike parempodia. Male genital capsule with a distinct median keel ventrally (Figs. 3–6, 10–13), extending from base of segment to truncated caudal area just below aperture; left (Figs. 14, 18) and right (Figs. 15, 19) parameres typically phyline; vesica stout, strongly twisted, S-shaped (Figs. 16, 20), with a large, distinct, subapical secondary gonopore; phallotheca (Figs. 17, 21) slender, narrowly tapered to apex, without lateral notch or tooth.

**Etymology.** The generic name Americodema is created by combining a prefix from the locality name “America,” often used instead of United States of America, and from the root of the generic name Icodema to reflect the historical association of the species in this genus to the Palearctic Icodema infuscatum. The gender is interpreted as neuter, following Steyskal (1973).

**Discussion.** Males of Americodema and Icodema, as well as those of the new genus Occidentodema, possess a distinct keel that appears to be formed by the bilaterally compressed ventral edge of the genital capsule. As pointed out by Henry (1989), at
least two other genera also are known to have well-developed genital keels. The Nearctic Cariniocoris and the predominately Palearctic [P. coryli (L.) introduced into northwestern North America] genus Phylus have keel-like carinae on the male genital capsule, but these structures are reduced to simpler, more narrow ridges and probably are not homologous.

All keel-bearing genera mentioned above lack distinct dark spots at the bases of the tibial spines that are typical of most other phylines, but the absence of spots is widespread in the subfamily and likely reflects convergence. I note that one of the two species of Americodema (A. nigrolineatum) and all three species of Occidentodema do have some indistinct dark spots, primarily on the basal three or four spines of the hind tibia, a condition not found in the other three genera.

Species of Americodema, Icodema, Occidentodema, and Phylus have a generally S-shaped vesica, whereas Cariniocoris has a more C-shaped vesica. The vesica is slender in Icodema and distinctly more stout in Occidentodema, Phylus, and Americodema; however, the secondary gonopore in Icodema and Phylus is positioned well back from the apex near the middle of the vesica, whereas in Americodema and Occidentodema it is apical or subapical.

The vesica of the species I am including in Americodema is strongly twisted and S-shaped, with long, decurving apical spiculi and a subapical secondary gonopore, differing from species of Occidentodema, which have a nontwisted, weakly S-shaped vesica, with relatively short apical spiculi and an apical secondary gonopore.

Americodema and Occidentodema also are very similar in overall external appearance. All species are pale greenish white or golden yellow and all but one (A. knighti) possess black lines on the pro- and metafemora and antennal segments I and II and a black spot at the base of each tibia. Convergence is common in the Miridae, including, for example, Plagiognathus ribesi Kelton (Kelton 1982) and species of Lineatopsallus Henry (Henry 1991), which are also pale and have similar black lines and spots on the appendages. These taxa, however, have entirely different male genitalia and lack any trace of keels on the male genital capsule, indicating that they are not closely related to Americodema or Occidentodema.

The following key uses only external characters to separate genera and species. See the respective generic diagnoses for information on internal characters.

**KEY TO THE SPECIES OF AMERICODEMA AND OCCIDENTODEMA**

1. Mesofemur lacking a dorsal black line; pro- and metafemora with or without black lines (Americodema, n. gen) .................................................. 2
   - All femora with distinct dorsal black lines (Occidentodema, n. gen.) .............. 3
2. Apex of tylus with a distinct black spot; antennal segments I and II and pro- and metafemora with narrow black lines; widespread in eastern North America, west to Minnesota, Texas, and northern Mexico ........................................ A. nigrolineatum (Knight)
   - Apex of tylus and all appendages uniformly pale greenish white, lacking black markings; District of Columbia (Washington, DC) and Virginia, west to Missouri and Texas .... 
     ................................................................. A. knighti Kerzhner and Schuh
3. Apex of tylus lacking a dark spot; overall body coloration golden yellow; Arizona, Texas, Utah, and northern Mexico ..................................... O. mcfarlandi, n. sp.
   - Apex of tylus with a distinct dark spot; overall coloration pale greenish white or golden yellow .................................................. 4

4. Coloration golden yellow; antennal segment II of male shorter than greatest width across hemelytra; Arizona ............................................................... *O. clypealis*, n. sp.
- Coloration pale greenish white; antennal segment II of male distinctly longer than greatest width across hemelytra; Arizona, Colorado, New Mexico, and Utah... *O. polhemusi*, n. sp.

*Americodema knighti* Kerzhner and Schuh, 1998, new combination
Figs. 1–6, 14–17

**Plagiognathus knighti** Kerzhner and Schuh 1998: 171. New name for the preoccupied *P. albellus* Knight.

**Diagnosis.** Recognized by the uniformly pale greenish-white to pale greenish-yellow coloration.

**Description.** Male (N = 10): Length 3.32–3.64 mm, width 1.24–1.36 mm. Overall coloration of body and appendages pallid to pale greenish white, fading to pale greenish yellow in some preserved specimens; appendages uniformly pale. Pubescence, short, simple, pale, and recumbent. **Head** (Fig. 1): Width 0.68–0.72 mm, vertex 0.32–0.36 mm; uniformly pallid to pale greenish white. **Rostrum**: Length 1.20–1.28 mm, extending to apices of mesocoxae. **Antenna**: Segment I, length 0.28–0.30 mm; II, 1.00–1.12 mm; III, 0.60–0.72 mm; IV, 0.30–0.40 mm. **Pronotum**: Length 0.52–0.66 mm, basal width 1.04–1.08 mm. **Ostioral area**: Fig. 2.

Male genital capsule and median keel (Figs. 3–6); left paramere (Fig. 14); right paramere (Fig. 15); vesica (Fig. 16); phallotheca (Figs. 17a, b).

Female (N = 10): Length 3.28–3.72 mm, width 1.24–1.28 mm. **Head**: Width 0.66–0.70 mm, vertex 0.36–0.38 mm. **Rostrum**: Length 1.18–1.34 mm, extending to apices of metacoxae. **Antenna**: Segment I, length 0.26–0.28 mm; II, 0.94–1.16 mm; III, 0.56–0.72 mm; IV, 0.32–0.34 mm. **Pronotum**: Length 0.48–0.52 mm, basal width 1.04–1.10.


**Distribution.** United States (Missouri, Texas, and Virginia) (Knight 1953, Wheeler 1995). Arkansas and the District of Columbia (Washington, DC) are new records.


**Americodema nigrolineatum** (Knight), 1923, new combination

Figs. 7–13, 18–21

**Macrotylus vestitus:** Wirtner 1904: 201. Record clarified by Wheeler and Henry 1977: 150

**Plagiognathus nigrolineatus** Knight 1923: 443; Blatchley 1926: 928; Knight 1941: 26; Froeschner 1949; Khalaf 1971: 340

**Icodema nigrolineata:** Carvalho 1955: 226, 1958: 53; Schuh 1995: 326
Fig. 7. Dorsal habitus of *Americodema nigrolineatum*. 

**Diagnosis.** Recognized by the presence of a fuscous spot at the apex of the tylus and the relatively large fuscous spot (subequal in size to a knee spot) on the anterior apical \( \frac{1}{2} \) of the metafemur. Americodema nigrolineatum is similar to Occidentodema polhemusi in size and pale greenish-white coloration, but can be separated by the presence of a large subapical metafemoral spot, the shorter second antennal segment that is shorter than the widest area across the hemelytra, and the lack of a black line on the dorsal edge of the mesofemur.

**Description.** Male (N = 10): Length 3.68–4.40 mm, width 1.36–1.52 mm. Overall coloration pallid to pale greenish white, turning more yellowish in preserved specimens. **Head** (Fig. 8): Width 0.74–0.82 mm, vertex 0.34–0.36 mm; uniformly pale greenish white, with a fuscous spot at the apex of the tylus. **Rostrum:** Length 1.42–1.50 mm, extending to bases of metacoxae. **Antenna:** Segment I, length 0.28–0.32 mm, with an indistinct subapical spot on inner surface and two fuscous stripes, the ventral one extending from base to near apex and the dorsal one occupying middle \( \frac{1}{2} \) of segment; II, 1.22–1.40 mm, yellow with a narrow fuscous stripe extending to middle from base; III, 0.68–0.76 mm; IV, 0.34–0.36 mm. **Pronotum:** Length 0.56–0.66 mm, basal width 1.12–1.36 mm. Hemelytra pale to pale greenish white, corium more translucent; membrane translucent white, small areole often infuscated. **Ostioral area:** Fig. 9. **Legs** pale; profemur with an indistinct fuscous, dorsal stripe on apical \( \frac{1}{2} \), mesofemur uniformly pale, occasionally with a short subapical stripe on posterior face, metafemur with two fuscous stripes, an indistinct, sometimes spotted one dorsally on apical \( \frac{1}{2} \) and a more distinct one ventrally on apical \( \frac{1}{2} \), anterior face with a single, relatively large fuscous spot at middle of apical \( \frac{1}{2} \); each tibia with a distinct fuscous knee spot, metatibia often with indistinct fuscous spots at bases of basal 3 or 4 spines.

Male genital capsule and median keel (Figs. 10–13); left paramere (Fig. 18); right paramere (Fig. 19); vesica (Fig. 20); phallotheca (Fig. 21a, b).

Female (N = 10): Length 4.00–4.32 mm, width 1.56–1.68 mm. **Head:** Width 0.38–0.40 mm, vertex 0.76–0.78 mm. **Rostrum:** Length 1.52–1.54 mm, extending to bases of metacoxae. **Antenna:** Segment I, length 0.30–0.32 mm; II, 1.32–1.38 mm; III, 0.64–0.72 mm; IV 0.30–0.32 mm. **Pronotum:** Length 0.62–0.64 mm, basal width 1.32–1.34 mm.

**Hosts.** This species has been previously recorded from bur oak, Quercus macrocarpa Michx. (Knight, 1923, 1941), and live oak, Q. virginiana Mill. (Blatchley, 1926). A. G. Wheeler and I have collected A. nigrolineatum in abundance on post oak, Q. stellata Wangenh., in Texas, and J. A. Slater reared it from Q. rubrum in Iowa. It also disperses as adults to other flowering plants, probably accounting for the Rhus glabra record listed in the “specimen examined” data. D. Polhemus’ (1994) record of this species on Gambel’s oak is referred to O. polhemusi Henry.

**Distribution.** A. nigrolineatum was previously known from Canada (Manitoba) and much of eastern United States (Connecticut, Florida, Georgia, Illinois, Minnesota, Mississippi, Missouri, Ohio, Pennsylvania, and Texas) (Henry and Smith, 1979; Henry and Wheeler, 1988). Polhemus (1994) Colorado record is here referred to A. polhemusi Henry. New U. S. state records for this species are Iowa, North Carolina,

Oklahoma, Tennessee, and Virginia. Ontario is a new province record for Canada. Neuvo Leon and San Luis Potosi represent the first records for Mexico.


**Occidentodema**, new genus

**Type species.** *Occidentodema mcfarlandi* Henry, new species.

**Diagnosis.** Species pale greenish white to golden brown, with a distinct black dorsal line on each femur; vesica of male weakly S-shaped (Figs. 44, 48, 52), but not twisted, apex with a slender, relatively short spiculum, sometimes with a very small second spiculum, and the secondary gonopore apical.

**Description.** Length 2.88 to 4.44 mm. Elongate, oval. General coloration pale greenish white to golden brown, with distinct fuscosous lines and spots on the legs and antennae. Head much broader than long; eyes prominent, granulate, more so in males; vertex less than half the width of head in males, subequal to half in females. Rostrum extending to metacoxae; length of segments I, II, and IV subequal, segment III slightly shorter. Antennae slender, length ranging from 0.68–0.90 the length of body in ♂♂, from 0.65–0.69 in ♀♀; segment I shortest, stoutest; segment II longest, segment III ranging from 0.53–0.67 the length of II in ♂♂, from 0.61–0.67 in ♀♀; segment IV slightly longer than I. Pronotum trapeziform, about two times wider at base than median length; scutellum equalateral. Hemelytra subparallel, opaque to translucent, particularly on corium; pubescence short, simple, recumbent; membrane translucent with two distinct areoles. Legs slender; each femur with a narrow dorsal fuscosous line, often marked with small spots on the anterior face of the metafemur; each tibia with black knee spot and a narrow black line on basal half, tibial spines lacking dark spots at bases, metatibia sometimes with a few indistinct dark spots at bases of basal spines; claws with hairlike parempodia. Male genital capsule with a distinct median keel ventrally (Figs. 24–27, 30–33, 37–41), extending from base of segment to truncated caudal area just below aperture; left (Figs. 42, 46, 50) and right (Figs. 43, 47, 51) parameres typically phylene; vesica (Figs. 44, 48, 52) stout, weakly S-shaped with a large, distinct, apical secondary gonopore; phallotheca (Figs. 45, 49, 53) slender, narrowly tapered to apex, without lateral notch or tooth.

**Etymology.** The generic name *Occidentodema* is created from the Latin "occidentalis," meaning of the west, and the suffix from the root of the generic name *Icodema* to reflect the historical association of this genus to *Americicodema* and the Palearctic *Icodema infuscatum*. Like *Americodema* and *Icodema*, the gender is interpreted as neuter, following Steyskal (1973).

**Discussion.** Generic relationships are discussed in the discussion under the generic description of *Americodema*.

**Occidentodema clypealis**, new species

Figs. 22–27, 42–45

**Diagnosis.** Recognized by the combination of its small size, the overall pale yellowish coloration, with a golden to orange tinge on the head and pronotum, the rosaceous
tinge along the side of the abdomen, the fuscous spot at the apex of the tylus, and by the distinct dorsal stripe on each femur. Occidentodema clypealis is similar to O. polhemusi and Americodema nigrolineatum in having a black spot on the apex of the tylus, but can be separated from O. polhemusi by the shorter second antennal segment that is less than the width across the hemelytra, and from A. nigrolineatum by the shorter body length, golden-yellow coloration and the distinct fuscous dorsal stripe on the mesofemur.

**Description.** Male (N = 10): Length 3.16–3.52 mm, width 1.20–1.22 mm. Overall coloration pale yellow, with the head and pronotum accented with gold or orange. Dorsal pubescence short, recumbent, pale golden yellow. **Head** (Fig. 22): Width 0.72–0.74 mm, vertex 0.26–0.30 mm; uniformly pale yellow, tinged with orange on frons and tylus; apex of tylus with a distinct black spot. **Rostrum:** Length 1.10–1.18 mm, extending to apices of metacoxae. **Antenna:** Segment I, length 0.24–28 mm; II, 1.08–1.18 mm; III, 0.60–0.62 mm; IV, 0.24–0.30 mm; overall coloration golden yellow; segment I with two distinct fuscous stripes extending entire length, one ventrolateral and the other more dorsal along inner margin; II, brownish yellow, with a short fuscous stripe at base, this stripe sometimes extending nearly to middle of segment as a very narrow reddish line; segments III and IV brownish. **Pronotum:** Length 0.44–048 mm, basal width 0.96–1.04 mm. Hemelytra pale golden yellow, tinged with pale brown, membrane pale translucent whitish, accented with pale golden brown, particularly inside small areole, area bordering veins, and apex. **Ostiolar area:** Fig. 23. Abdomen pale yellow, basal two segments ventrally and a broad stripe laterally rose colored or red. Legs slender, basal two segments ventrally and a broad stripe extending along entire length, one ventrolateral and the other more dorsal along inner margin; II, brownish yellow, with a short fuscous stripe at base, this stripe sometimes extending nearly to middle of segment as a very narrow reddish line; segments III and IV brownish. **Abdomen:** Pronotum: Length 0.44–048 mm, basal width 0.96–1.04 mm. Hemelytra pale golden yellow, tinged with pale brown, membrane pale translucent whitish, accented with pale golden brown, particularly inside small areole, area bordering veins, and apex. **Ostiolar area:** Fig. 23. Abdomen pale yellow, basal two segments ventrally and a broad stripe laterally rose colored or red. Legs slender, pale yellow; each femur with a fuscous stripe extending from apex to about middle along dorsal margin, metafemur also with a shorter fuscous stripe ventrally on apical ¼ and a few small, indistinct spots on anterior face; each tibia with a distinct fuscous knee spot and a narrow fuscous stripe on basal ½ to ¼, metatibia usually with indistinct fuscous spots at bases of spines.

Male genital capsule and median keel (24–27); left paramere (Fig. 42); right paramere (Fig. 43); vesica (Fig. 44); phallotheca (Fig. 45).

Female (N = 8): Length 2.88–3.20 mm, width 1.26–1.40 mm. **Head:** Width 0.66–0.68 mm, vertex. **Rostrum:** Length 1.12–1.20 mm, extending to bases of metacoxae. **Antenna:** Segment I, length 0.24–0.26 mm; II, 0.86–0.96 mm; III, 0.58–0.60 mm; IV, 0.26–0.28 mm. **Pronotum:** Length 0.46–0.48 mm, basal width 1.02–1.04 mm.

**Etymology.** Named "clypealis" to emphasize the fuscous spot at the apex of the clypeus or tylus.

**Host.** Taken on Quercus reticulata Humboldt & Bonpland and Shrub live oak, Quercus turbinella Greene. I note that the small series taken on Q. reticulata Humboldt & Bonpland in Arizona, was collected along with a much larger series of O. polhemusi (all females).

**Distribution.** United States (Arizona).

Occidentodema mcfarlandi, new species
Figs. 28–35, 46–49

Diagnosis. Recognized by the overall pale golden-yellow coloration, the lack of a fuscous spot on the tyulus, the numerous, small fuscous spots on the femora, particularly the metafemur, and by the strong fuscous lines along the dorsal margin of each femur. Occidentodema mcfarlandi is most similar to O. clypealis in size and general golden-yellow coloration, but is readily separated by the lack of a fuscous spot at the apex of the tyulus.

Description. Male (N = 10): Length 3.28–3.88 mm, width 1.30–1.38 mm. Overall coloration pale golden yellow. Dorsal pubescence short, simple, golden yellow, and recumbent. Head (Fig. 28): Width 0.76–0.80 mm, vertex 0.30–0.32 mm; uniformly pale golden yellow. Rostrum: Length 1.32–1.44 mm, extending to apices of meso-coxae or bases of metacoxae. Antenna: Segment I, length 0.30–0.32 mm; II, 1.42–1.46 mm; III, 0.90–0.92 mm; IV, 0.32–0.38 mm; overall coloration pale to golden yellow; segment I with two distinct, fuscous stripes, one on ventral surface extending from apex to base, more lateral one extending from apex to about ¼ distance to base; segment II with an elongate fuscous spot at base, usually no longer than diameter of segment, sometimes diffusing into a more elongate stripe. Pronotum: Length 0.56–0.58 mm, basal width 1.12–1.14 mm. Hemelytra and membrane uniformly translucent pale golden yellow, middle of basal edge and small areole infuscated. Ostiolar area: Figs. 29, 30. Legs slender, pale yellow; pro- and mesofemora with a distinct, fuscous line extending from apex to midway along dorsal margin; metafemur with both a dorsal and ventral line, the dorsal one extending over apical ½ and ventral ones along apical ½; each tibia with a distinct fuscous knee spot and a narrow fuscous line extending from base to about midway on each segment; a few basal spines on metatibia bearing indistinct dark spots; claw (Fig. 35).

Male genital capsule and median keel (Figs. 31–34); left paramere (Fig. 46); right paramere (Fig. 47); vesica (Fig. 48); phallosoma (Figs. 49a, b).

Female (N = 10): Length 3.24–3.84 mm, width 1.40–1.56 mm. Head: 0.70–0.76 mm, vertex 0.34–0.36 mm. Rostrum: Length 1.30–1.42 mm, extending to apices of meso-coxae. Antenna: Segment I, length 0.28–0.30 mm; II, 1.02–1.12 mm; III, 0.62–0.76 mm; IV, 0.30–0.32 mm. Pronotum: Length 0.54–0.60 mm, basal width 1.18–1.26 mm.

Etymology. This species is named in honor of Noel McFarland (Hereford, AZ) in appreciation of his numerous donations of Arizona Miridae to the USNM, including large series of A. mcfarlandi, and for his local hospitality while performing fieldwork in the Huachuca Mountains of southeastern Arizona.

Distribution. Mexico (Aguascalientes, Sonora) and the United States (Arizona, Texas, and Utah).


♀♂, Washington Co., Zion National Park, 7 mi NE St. Rt. 15 on Kolob Rsrv. Rd., 4,000–5,000 ft, May 25, 1981, M. D. Schwartz, on Quercus gambelii Nutt. (Fagaceae) (AMNH).

**Occidentodema polhemusi**, new species
Figs. 36–41, 50–53


**Diagnosis.** This species is recognized by the combination of its relatively large size, second antennal segment that is longer than the width across the hemelytra, the overall pale greenish-white coloration, the fuscous spot at the apex of the tylus and the distinct dorsal stripe on each femur. *Occidentodema polhemusi* is most similar
to *Americodema nigroleineatum* in the larger general size and overall pale greenish-white coloration, but can be separated by the much longer second antennal segment and the one to three small fuscous spots on the anterior face of the metatetemur.

**Description.** Male (N = 10): Length 3.83–4.44 mm, width 1.32–1.40 mm. Overall coloration pallid to pale greenish white. *Head* (Fig. 36): Width 0.76–0.80 mm, vertex 0.30–0.32 mm; pallid to pale greenish white, apex of tylus with a fuscous or black spot. *Rostrum:* Length 1.38–1.52 mm, extending to bases of metacoxae. *Antenna:* Segment I, length 0.32–0.36 mm; II, 1.52–1.64 mm; III, 1.00–1.10 mm; IV, 0.38–0.42 mm. *Pronotum:* Length 0.48–0.56 mm, basal width 1.00–1.08 mm. Hemelytra pallid to pale greenish white, corium more translucent; membrane translucent with a whitish cast, area inside small areole infuscated. *Ostriolar area:* Fig. 37. Legs pale; each femur with a fuscous dorsal stripe on apical ½ to ¾, meso- and metatetemora also with a shorter ventral stripe on apical ¼; anterior face of metatetemur with one or two small fuscous spots on apical ½; each tibia with a large fuscous knee spot and a fuscous stripe on basal ½ to ¼, metatibia with small fuscous spots at bases of spines.

Male genital capsule and median keel (Figs. 38–41); left paramere (Fig. 51); right paramere (Fig. 51); vesica (Fig. 52); phallotheca (Fig. 53).

Female (N = 10): Length 3.66–4.00 mm, width 1.40–1.44 mm. *Head:* Width 0.68–0.70 mm, vertex 0.32–0.34 mm. *Rostrum:* Length 1.36–1.38 mm. *Antenna:* Segment I, length 0.28–0.32 mm; II, 1.16–1.20 mm; III, 0.78–0.80 mm; IV, 0.32–0.38 mm. *Pronotum:* Length 0.52–0.54 mm, basal width 1.14–1.16 mm.

**Etymology.** This species is named in honor of my long-time friend and colleague, Dr. John T. Polhemus, on the occasion of his 70th birthday, who also collected many specimens used in the description of this new species, including the holotype.

**Host.** Found most commonly on Gambel’s oak, *Quercus gambelii* Nutt. A small series from Sevier Co., Utah, is labeled from *Artemisia* sp., indicating a possible error or a case of dispersing adults to the inflorescences of *Artemisia*.

**Distribution.** United States (Arizona, Colorado, New Mexico, and Utah).

**Discussion.** In April 1989, A. G. Wheeler, Jr. and I collected 23 specimens (only 5 of which were males) on Arizona sycamore, *Platanus wrightii* S. Watson, in Madera Canyon, Pima Co., Arizona. These specimens are very similar to *O. polhemusi* in general appearance, shape of the male genital capsule, and the male vesica, but all lack the distinct black spot at the apex of the tylus, a marking that is consistently present or absent in all other species. The teneral condition of several specimens might explain the absence of the characteristic black spot, and it is also possible the entire series was accidental on sycamore, although no specimens were taken on *Quercus* at this locality. Until additional material is collected to show otherwise, I consider this series to represent *O. polhemusi*.

Useingr (CAS); 1 ♂, Graham Co., Stockton Pass, Pinaleno Mts., elv. 5,200–5,500 ft, June 1–2, 1983, R. T. Schuh and G. M. Stonedahl colls., collecting at night on white sheet attracted by mercury vapor trap (AMNH); 14 ♂♂, 12 ♀♀, Mohave Co., Hualapi Mts., SE Kingman, T20W R15S, 4,000–6,400 ft, June 9–10, 1983, R. T. Schuh, M. D. Schwartz, and G. M. Stonedahl, taken on Quercus gambelii Nutt. (Fagaceae) (AMNH; 4 USNM). Colorado: 5 ♀♀, Douglas Co., Perry Park, VII-8-82, J. T. Polhemus, on Quercus gambelii (Gambel oak) (JTPC); 3 ♂♂, 4 ♂♀, Garfield Co., 10 mi E. Glenwood Springs, VI-22-82, J. T. Polhemus, on Quercus gambelii (Gambel oak) (JTPC); 2 ♀♀, Garfield Co., W Evacuation Creek, 11 mi SE CO St. Border, on UT Rt. 45, el. 6,800 ft, July 9, 1981, M. D. Schwartz, taken on Quercus gambelii Nutt. (Fagaceae) (AMNH); 3 ♂♂, Grand Co., nr. Taylor Flats, VII-4-80, J. T. and D. A. Polhemus (JTPC); 5 ♀♀, Jefferson Co., Deer Creek Cyn., VII-27-82, J. T. Polhemus, on Quercus gambelii (Gambel oak) (JTPC); 1 ♀, Montrose Co., 18 mi E. of Naturita on Colo. 90, VII-7-80, J. T. and D. A. Polhemus (JTPC). New Mexico: 8 ♂♂, same data as for holotype (JTPC, NMNH). Utah: 3 ♂♂, 15 ♀♀, Carbon Co., entr. Price Cyn Recr. Area, 8 mi NW Helper, rt. 50/6, T12E R9E, 8,000 ft, July 9, 1982, M. D. Schwartz, on Quercus gambelii Nutt (AMNH); 32 ♂♂, 10 ♀♀, Garfield Co., Mt. Hillers at Starr Springs Cmpgrnd, T34S, R11E, 6,300 ft, June 18, 1983, R. T. Schuh and M. D. Schwartz colls., at mercury vapor light (AMNH; 6 USNM); 1 ♀, Salt Lake Co., mouth of Little Cottonwood Can., on UT St. Rt. 210, elev. 5,800 ft, June 28, 1981, M. D. Schwartz, on Quercus gambelii Nutt. (AMNH); 1 ♀, Sanpete Co., Cottonwood Creek, 4.7 mi NE Fairview on 31, 0.5 mi. W Nat’l For. Rd, 7,000 ft, July 12, 1981, M. D. Schwartz, on Quercus gambelii Nutt. (AMNH); 2 ♀♀, Sevier Co., Clear Creek Narrows Summit on Rt. 4, 2,244 m, July 15, 1980, R. T. Schuh and G. M. Stonedahl, on Quercus sp. (AMNH); 4 ♀♀, Sevier Co., 1.3 mi E Hwy 25 on Mýtoge Mtn. Rt., VII-16-1980, 8,600 ft, M. D. Schwartz, labeled as on Artemisia sp. (AMNH); 3 ♂♂ (one nymph), Utah Co., Provo Canyon, rt. 92, 1 mi W Sundance Ski Resort, el. 8,000 ft, T4S R3E, July 4, 1982, M. D. Schwartz, on Quercus gambelii Nutt (Fagaceae); 1 ♀, Wasatch Co. Dock Flats, 1 mi NE of Ut St. rt. 40, T2S W12W, Sec. 9, elev. 8,000 ft, Aug. 14, 1982, M. D. Schwartz, on Quercus gambelii Nutt (AMNH); 7 ♀♀, Wasatch Co., 5 mi W Duchesne Co. line on Ut St. rt. 40, Deep Cyn. T3S R9W, 7,000 ft, July 5, 1981, M. D. Schwartz, on Quercus gambelii Nutt (AMNH); 5 ♀♀, Vivian Park, VII-7-22, E. P. Van Duzee (CAS).

Genus Icodema Reuter, 1875


Diagnosis. This genus is recognized in the Palearctic by the keeled male genital capsule, the lack of dark spots at the bases of the tibial spines, and the pallid to pale greenish white overall coloration, with only the first antennal segment infuscated and, according to Wagner (1975), with the membrane dark spotted. Autapomorphic for the genus are the very slender S-shaped vesica, with the secondary gonopore well back from the apex, and laterally notched phallotheca.

Description. Length 3.70 to 4.70 mm. Elongate, oval. Overall coloration pale yellow. Head broader than long, slightly wider at base than anterior margin of pronotum;
eyes prominent, granulate, larger in males; vertex relatively narrow, less than ½ the width of head in males, nearly half the width of head in females. Rostrum extending to apices of metacoxae; segment IV longest, length of segments I-III subequal. Antennae long, slender, ranging from 0.72–0.74 the length of body in ♂♂, from 0.71–0.75 in ♀♀; segment I shortest, thickest; segment IV next shortest, slightly more than two times length of I; segment II longest, about two times length of segment III. Pronotum trapeziform, basal width about two times median length; calli weakly defined; scutellum equilateral. Hemelytra subparallel, opaque to nearly translucent on corium; membrane translucent, with two distinct areoles; pubescence relatively short, simple, and recumbent. Legs slender, unmarked, tibial spines lacking dark spots at bases. Male genital capsule with a distinct, ventral, median keel extending from base of segment to ventral edge of aperture; left (Fig. 54) paramere; right (Fig. 55) paramere; vesica S-shaped (Fig. 56), very slender, secondary gonopore small, well back from apex to nearly middle of structure; phallotheca (Figs. 57a, b, c) with a distinct notch on right side, most visible from dorsal aspect.

_Icodema infuscatum_ (Fieber), 1861

Figs. 54–57

*Plagiognathus infuscatus* Fieber 1861: 303.


_Icodema infuscata notaticornis_ Rey 1894: 1.

Icodema infuscata annulata Stichel 1956: 276.

**Diagnosis.** Uniformly pallid to pale green, with antennal segment I often infuscated, legs unmarked, genital capsule distinctly keeled, phallotheca notched, forming a toothlike process laterally, and vesica very slender and S-shaped.

**Description.** Male (N = 5): Length 3.72–4.28 mm, width 1.24–1.44 mm. Overall coloration pallid to pale yellow. *Head:* Width 0.76–0.78 mm, vertex 0.30–0.32 mm; uniformly pale yellow, with apex of tylus usually infuscated. *Rostrum:* Length 1.40–1.60 mm, extending to metacoxae. *Antenna:* Segment I, length 0.26–0.28 mm; II, 1.36–1.50 mm; III, 0.72–0.82 mm; IV, 0.44–0.48 mm; uniformly pale yellow, with segment I often becoming brown; segment II becoming brown in variety *notaticorne* (Wagner 1975). *Pronotum:* Length 0.50–0.58 mm, basal width 1.00–1.12 mm; pale yellow. Hemelytra pale yellow; membrane uniformly translucent pale yellow but, according to Wagner (1975), dark spotted [however, none of the specimens examined have a spotted membrane]; pubescence short, simple, pale yellow, and recumbent. Legs uniformly pale yellow, lacking spots at bases of tibial spines.

Male genital capsule with a distinct ventral median keel; left paramere (Fig. 54); right paramere (Fig. 55); vesica (Fig. 56) very slender, S-shaped, with secondary gonopore well back from apex; phallotheca (Figs. 57a, b, c), with a deep notch and tooth subbasally.

Female (N = 4): Length 4.08–4.56 mm, width 1.56–1.68 mm. *Head:* Width 0.76–0.78 mm, vertex 0.34–0.36 mm. *Rostrum:* Length 1.70–1.74 mm, extending to metacoxae. *Antenna:* Segment I, length 0.28–0.32 mm; II, 1.50–1.58 mm; III, 0.84–0.90 mm; IV, 0.42–0.46 mm. *Pronotum:* Length 0.56–0.60 mm; basal width 1.12–1.22 mm.

Females are similar to males, but with broader bodies, narrower heads with smaller, less granulate eyes and a broader vertex.

**Hosts.** Adults reported on oak, *Quercus* sp., during May and June (Wagner 1975); adults May to July on *Q. pubescens* in France (Ehanno 1987a).

**Distribution.** Austria, Bulgaria, Finland, France, Germany, Greece, Italy, Spain, Switzerland, Turkey, Yugoslavia; Mediterranean Region, Asia Minor, Balkan Peninsula (Carvalho 1958, Wagner 1975, Ehanno 1987b, Schuh 1995).

**Material examined.** AUSTRIA: 1 ♂, 1 ♀, Bisamberg, Austr. Inf. (BNHM). GERMANY [*?*]: 2 ♂♂, 2 ♀♀, Görz, Carniolia (BNHM). SPAIN: 1 ♂, 1 ♀, Seva (Barcelona), 2 April 1956, Ribes, on *Quercus* sp. (USNM); 1 ♂, Benicassim (Castellón), 2 April 1956, Ribes (USNM).

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LITERATURE CITED


