

# Review of the Genus *Ommatius* Wiedemann (Diptera: Asilidae) in Eastern United States with Descriptions of Five New Species<sup>1</sup>

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**ABSTRACT** The number of described species of *Ommatius* Wiedemann for continental eastern North America is increased to a total of seven. *Ommatius tibialis* Say and *O. gemma* Brimley are redescribed, and a neotype is designated for the former. The new species described are *O. floridensis*, *O. wilcoxi*, *O. ouachitensis*, *O. oklahomensis*, and *O. texanus*. All five species superficially resemble *O. tibialis*, but can be separated on the basis of genitalic characters. A key is presented which separates the seven species.

THE 1965 *Catalog of Diptera of North America* lists eight species of *Ommatius* Wiedemann. Two of these, *O. tibialis* Say and *O. gemma* Brimley, are widespread in the eastern United States. The remaining six have been recorded only in Arizona (Stone et al. 1965).

In the present paper, we describe five new species from continental North America, east of the 100th meridian, and contrast and compare them with the two described eastern species. Differences separating these species are principally, although not exclusively, found in the structure of male and female genitalia. Drawings were made from dissected genitalia which had been cleared in KOH, washed in alcohol, and held in glycerine.

As a basis for future work on Nearctic *Ommatius*, we have provided a review of all literature dealing with *O. tibialis* and *O. gemma*. In the case of misidentified specimens, we have included literature citations where appropriate.

In addition to examining specimens representing the two eastern species to form the basis for separation of our new species, we also examined the genitalia of representatives of the six western species. From personal communication, we are aware also that many undescribed species are found in Mexico (Fisher) and several in the Caribbean (Scarborough).

Specimens of eastern *Ommatius* were examined from and are deposited in the following seven collections: Florida State collection of Arthropods (FSCA), personal collection of J. Wilcox (JW) (deceased; his collection was recently acquired by the California Academy of Sciences), personal collection of S. W. Bullington (SWB), Univ. of Mississippi (UMS), United States National Museum of Natural History (USNM), Univ. of Wyoming (UWY),

and Virginia Polytechnic Institute and State Univ. (VPI).

## *Ommatius tibialis* Say

(Fig. 1 and 8A)

*Ommatius tibialis* Say 1823: 49 (1869: 63); Wiedemann 1828: 6 (not seen); Macquart 1838: 132 (not seen); Walker 1855: 755 (not seen); Schiner 1866: 682; Williston 1884: pl. II, fig. 12; Williston (in part) 1885: 76; Snow (in part) 1896: 183; Curran 1928: 1; Bromley 1931: 12; Wilcox (in part) 1936: 172, 173; Brimley 1938: 340; Blanton (in part) 1939: 234; Fattig (in part?) 1945: 28; Bromley 1946: v, 5-7, 34; Muesebeck and Krombein 1951: 1017; Hull 1962: 435; Martin and Wilcox, in Stone et al. (in part), 1965: 398; Baker and Fischer 1975: 84; Shelly 1979: 98; Evans et al. 1980: 869.

*Ommatius marginellus* (Fabricius), Williston (in part) 1896: 304-305; Aldrich 1905: 273, 274; Kertész 1909: 310; Morse 1910: 752; McAtee and Banks (in part) 1920: 26; Britton 1920: 178; Brimley (in part) 1922: 298; Johnson 1925: 118; Leonard 1928: 769; Brimley 1928: 205.

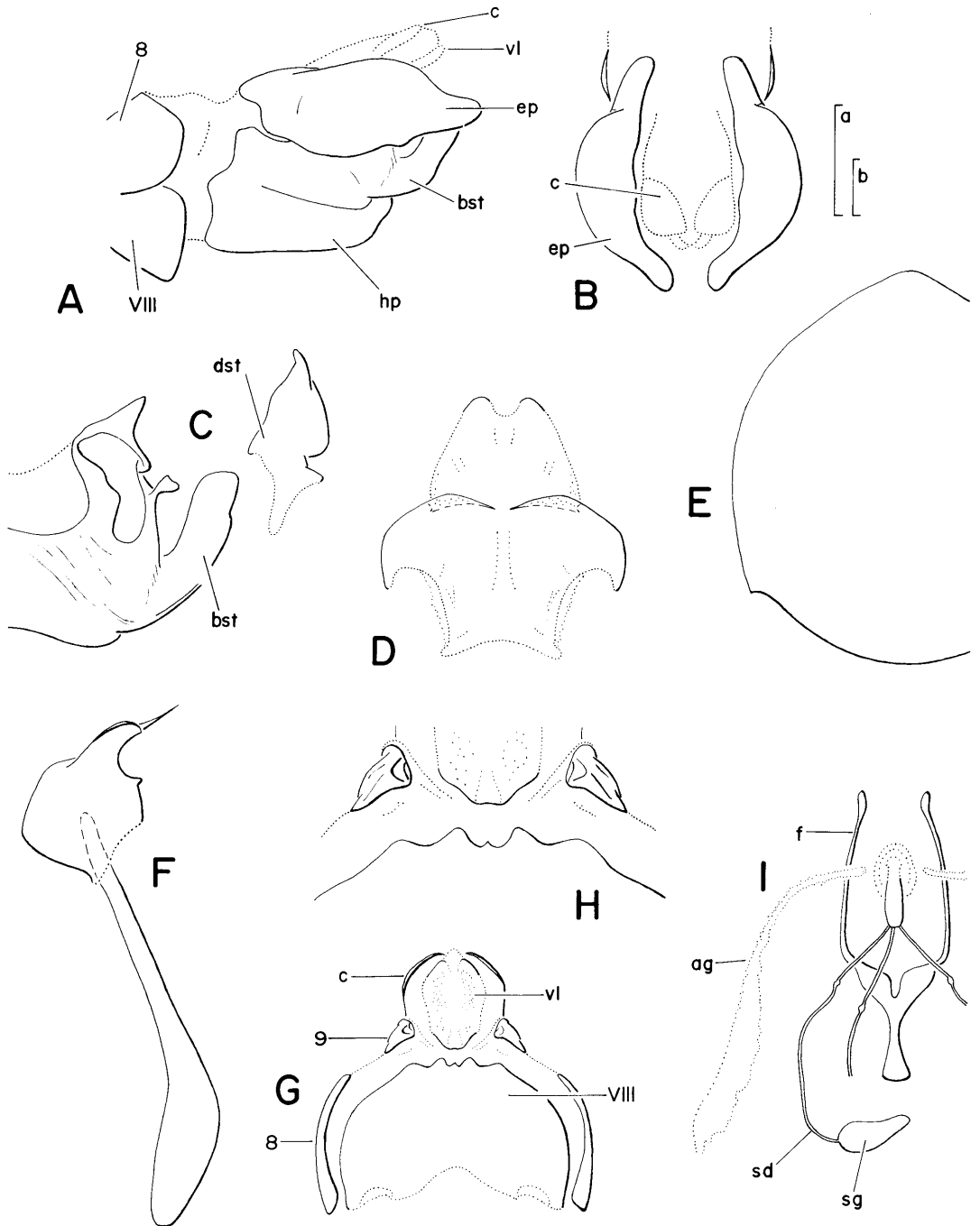
**Distribution.** Limited to areas with hot continental climate, principally eastern deciduous forest (Fig. 8A).

**Flight Range.** Males, 11 June-23 Aug.; females, 2 June-5 Sept.

**Distinguishing Characters.** Neither coloration or setation will distinguish *O. tibialis* from several of the remaining eastern species described herein; only specific genitalic characters will. The genitalia of male *O. tibialis* differ from the remaining eastern species in that the aedeagus has only a stub for a ventral spire. The spire is absent in *O. gemma*, and well developed in the other species (cf. Fig. 1-7F).

**Redescription. Male.** Head width 3.0-3.6 mm (mean = 3.3, SD = 0.17); overall length 12.7-16.3

<sup>1</sup>This paper is dedicated to the memory of the late Joseph Wilcox, longtime worker on the taxonomy of Asilidae and last previous worker on North American *Ommatius*.



**Fig. 1.** *Ommatius tibialis* Say. (A) Hypopygium, left lateral view; (B) same, dorsal view; (C) left gonopod, left lateral view, showing apex of basistylus and entire dististylus, the latter of which has been set apically of its true position for clarity; (D) ventral lamellae of male, ventral view; (E) hypandrium, left  $\frac{3}{4}$ , ventral view; (F) aedeagus and ejaculation apodeme, left lateral view, with lateral wings or "cross apodemes" removed; (G) eighth and beginning of succeeding segments of female abdomen, ventral view; (H) enlargement of juncture between apex of eighth and succeeding segments of female abdomen, ventral view; (I) spermathecae and associated structures, dorsal view. Scale: a = 0.25 mm for C-F and H-I; b = 0.25 mm for A, B, and G. Terms: ag, accessory gland; bst, basistylus of gonopod; c, cerci; dst, dististylus of gonopod; ep, epandrium; f, furca; hp, hypandrium; sd, spermathecal duct; sg, spermathecal gland or reservoir; vl, ventral lamellae; 8, eighth abdominal tergite; VIII, eighth abdominal sternite.

mm (mean = 14.2, SD = 1.00,  $n = 10$ ). Face, frons, and occiput light yellow gold pollinose, pollen darker on parts of occiput, along eye margins grading into decumbent tomentum; proboscis shiny black; palpi light brown to black; mystax yellow white to almost pure white, with setae denser ventrally but slightly stouter dorsally; hairs of beard fine white, of palpi and proboscis yellow white; postocular setae yellow white or occasionally black, ocular setae black. Antennae black; postpedicel moderately dark brown pollinose; setae yellow white on ventral side of scape, black otherwise; arista plumose, plumes in one rank basally, two apically.

Mesonotum dark yellow gold pollinose, dorso-laterally with two large and almost contiguous dark brown vittae, one anterior to, one posterior to, transverse suture, both nearly contiguous medially with a dark brown longitudinal stripe posteriorly obscured by the pollen. Hairs white, long on humeral calli and just above wings, shorter on mesoscutum; 1 notopleural, 1 presutural supra-alar, 1 postsutural supra-alar, 1, and occasionally 2, post-alar, and 4-5 weak postsutural dorsocentrals, intermixed with, and not always clearly distinguished from, fine, long yellow white hairs, these continuing onto both scutellar disk and margin. Pleurae silvery white tomentose, tomentum becoming yellowish on upper parts of anepisterni, anepimeri, and occasionally also on katapisterni. Katatergite and hypopleuron on each side with colinear but interrupted row of yellow white bristles; episterni with scattered, fine, yellow white hairs; anatergite dirty silvery pollinose.

Halteres dark yellow, knob often darkened and occasionally blackish. Wings with microtrichae in cells  $R_1$ ,  $M_3$ , and all marginal cells, densest in cell  $R_1$ , sparsest and sometimes appearing altogether absent in cells  $M_3$  and  $A_{1+2}$ , giving radial field a brownish tinge, especially in anterior portion of cell  $R_1$ ; costa beyond tip of subcosta thickened and anteriorly produced; cells  $R_1$  and  $R_{2+3}$  with membrane fluted perpendicularly to long axis of wing; anterior cross-vein about two-fifths length of discal cell; veins dark brown.

Abdomen light brownish gray pollinose, light gray laterally on segments 2-5; hairs yellow white, laterally long on first segment, progressively shorter on posterior segments, dorsally short.

Pro- and meso-thoracic femora brown to black anteriorly, dark yellow posteriorly; tibiae dark yellow, mesotibiae blackened somewhat at apex; metatarsi basally dark yellow, with apices blackish; tarsomeres 2-5 blackish. Metathoracic femora brown to black except for extreme base and somewhat irregular stripe of dark yellow along base of posterodorsal margin; tibiae dark yellow from basal half to at most basal three-fourths, blackish apically, more so on anterior surface; posterior surface reddish; metatarsi blackish dorsally, reddish ventrally; tarsomeres 2-5 blackish dorsally. Claws

reddish on basal sixth, black otherwise; empodia reddish to black; pulvilli dirty yellow.

Genitalia, dark to reddish brown, apices of epandrium and basistylus yellowish, as illustrated in Fig. 1 A-F.

**Female.** Head width 3.0-3.4 mm (mean = 3.3, SD = 0.12); overall length 13.8-16.4 mm (mean = 14.3, SD = 0.83,  $n = 10$ ). Similar to male except: mystax almost always with several black bristles dorsally; beard with hairs sometimes yellow white; wing with costa not thickened or produced anteriorly, radial field without brownish tinge, cells with fluting reduced or absent, and anterior cross-vein about two-thirds length of discal cell; pro- and meso-thoracic femora occasionally dark yellow basally; metathoracic femora dark yellow on basal third to half, more so posteriorly.

Genitalia as illustrated in Fig. 1 G-I.

**Male Neotype.** NEW YORK (Suffolk Co.), Babylon, L.I., 1-VIII-1938, F.S. Blanton, S. W. Bromley Collection 1955 (with leptocerid as prey) (USNM).

**Specimens for Fig. 1. Male.** CONNECTICUT (Fairfield Co.), Stamford, 10-VIII-1944, B.T.R. Lab. Col., S. W. Bromley Collection 1955 (USNM).

**Female.** CONNECTICUT (New London Co.), Lyme, 15/18-VI, A. B. Champlain (USNM).

**Spermathecae.** CONNECTICUT (Fairfield Co.), Stamford, 5-VII-1944, B.T.R. Lab. Col., S. W. Bromley Collection 1955 (USNM).

**Specimens Examined.** 80 males, 91 females, 7 undet. sex, from D.C. and the following states and counties: CONNECTICUT, Fairfield, New Haven, New London; DELAWARE, Kent; FLORIDA, Liberty; GEORGIA, Coweta, Dekalb-Fulton; KENTUCKY, Harlan, Lyon; MASSACHUSETTS, Barnstable, Hampden, Worcester; MARYLAND, Ann Arundel, Calvert, Charles, Montgomery, Prince Georges; MICHIGAN, Ingham, Van Buren; MISSOURI, Carter; NEW JERSEY, Bergen, Burlington, Camden, Essex, Mercer, Morris, Somerset, Union; NEW YORK, Kings, Putnam, Queens, Rockland, Suffolk, Westchester, Ulster; NORTH CAROLINA, Wake; OHIO, Fairfield; PENNSYLVANIA, Bucks, Philadelphia; TENNESSEE, Morgan; VIRGINIA, Charles City, Chesterfield, Fairfax, Henrico, Madison, Montgomery, Page, Rockingham, Virginia Beach, Wise, York.

**Collections with Specimens.** FSCA, JW, SWB, USNM, UWY, VPI.

**Recorded Prey.** *Homoptera*: Acanaloniidae (1), Cicadellidae (1); *Coleoptera*: Chrysomelidae (1), Tenebrionidae (1); *Trichoptera*: Leptoceridae (1); *Diptera*: Tipulidae (1); *Hymenoptera*: Formicidae (♂) (1).

**Etymology.** Say probably named *O. tibialis* for the "white" tibiae on all three pairs of legs. The tibiae when viewed under a microscope are in fact yellowish.

**Biology.** Bromley (1946) stated that *O. tibialis* occurred in "meadows or moist areas where herb-

age is rank" and described it as being "rather sluggish, alighting on tips of twigs or tall weeds." Tips of twigs or plant parts seem to be a favorite perch: Blanton (1939) recorded 94 specimens thus poised and of 15 specimens we examined with label data delineating circumstances of capture 12 were perched on plants. The species does not limit itself to arboreal perches, however, as two specimens were collected on sand.

The reputed sluggish habits and sometime association with sandy environments may bring *O. tibialis* into contact with predacious sphecoid wasps: Muesebeck and Krombein (1951) listed a specimen as prey of *Crabro cribrellifer* (Packard).

**Comments.** Say never designated a holotype for *O. tibialis*; and the specimens he described no longer exist (S. S. Roback, personal communication). These specimens had "thighs [femora] dark chestnut," and inhabited Pennsylvania, a state containing only 2 of the 7 eastern *Ommatius* species. One species, with the anterior surface of pro- and meso-femora either yellowish or dark brown, is predominantly austral and is confined to the extreme eastern part of the state near Philadelphia. The other, with the anterior surface of pro- and meso-femora always dark brown, is by comparison boreal and found throughout the northeastern United States. This latter species is the most probable candidate for the species Say described.

Specimens of the second, "boreal" species trace to *O. tibialis* in the keys in Curran (1928) and Wilcox (1936) based on coloration and setation.

### *Ommatius gemma* Brimley

(Fig. 2 and 8B)

*Ommatius gemma* Brimley 1928: 205; Wilcox 1936: 173, 177 (pl. X); Brimley 1938: 340; Fattig 1945: 28; Bromley 1950a: 5; Bromley 1950b: 238; Hull 1962: 435; Scarbrough 1972: 377; Martin and Wilcox, in Stone et al., 1965: 398.

**Distribution.** Limited to areas with subtropical climate, principally the Coastal Plain of the southeastern states (Fig. 8B).

**Flight Range.** Males, 12 June–30 Aug.; females, 1 Aug.–20 Sept. J. Wilcox (deceased) had records of specimens dated 4 Feb.–28 Oct. (personal communication).

**Distinguishing Characters.** The presence of two clearly differentiated marginal scutellar bristles will distinguish this species from the remaining eastern species, which have none.

**Redescription.** *Male.* Head width 2.1–2.8 mm (mean = 2.5, SD = 0.32); overall length 8.5–13.0 mm (mean = 10.9, SD = 1.65,  $n = 6$ ). Face, frons, and occiput light yellow gold pollinose, pollen somewhat whitish on face, darker on parts of occiput, along eye margins grading into decumbent tomentum; proboscis shiny black; palpi light brown to black; mystax pure white, with setae denser

ventrally, but slightly stouter dorsally; hairs of beard fine white, of palpi and proboscis yellow white; postocular setae yellow white, ocellar setae black. Scape of antennae dirty yellow, remaining segments black; postpedicel moderately dark brown pollinose; setae yellow white on scape, black otherwise; arista plumose, plumes in one rank basally, two apically.

Mesonotum dark yellow gold pollinose, dorso-laterally with two large and almost contiguous dark brown vittae, one anterior to, one posterior to, transverse suture, both nearly contiguous medially with dark brown longitudinal stripe posteriorly obscured by pollen. Hairs white, long on humeral calli and just above wings, shorter on mesoscutum; 1 notopleural, 1 presutural supra-alar, 1 postsutural supra-alar, 1, and occasionally 2, postalar, and 4–5 weak postsutural dorsocentrals intermixed with fine, long, yellow white hairs continuing sparsely onto scutellar disk but not to margin; two marginal scutellars. Pleurae silvery white tomentose, tomentum becoming yellowish on upper parts of anepisterni, anepimeri, and occasionally also on katapisterni. Katatergite and hypopleuron on each side with co-linear but interrupted row of yellow white bristles; episterni with scattered, fine yellow white hairs; anatergite dirty silvery pollinose.

Halteres light yellow. Wings with microtrichae in cells  $R_1$ ,  $M_3$ , and all marginal cells, densest in cell  $R_1$ , sparsest and sometimes altogether absent in cells  $M_3$  and  $A_{1+2}$ , giving apex of radial field brownish tinge; costa beyond tip of subcosta slightly thickened and anteriorly produced; cells  $R_1$  and  $R_{2+3}$  with membrane fluted perpendicularly to long axis of wing; anterior cross-vein between two-fifths and half length of discal cell; veins dark brown.

Abdominal segments yellow pollinose posteriorly, blackish anteriorly, yellowish laterally on segments 2–6; hairs yellow white, laterally long on first segment, progressively shorter on posterior segments, dorsally short.

Femora yellow, anterior surface dark brown on apical sixth; pro- and meso-tibiae completely light yellow; metatibiae dark yellow from basal half to at most basal three-fourths, blackish apically, more so on anterior surface; posterior surface reddish; pro- and meso-thoracic metatarsi light pinkish yellow, with apices slightly darkened; metathoracic metatarsi light pinkish yellow on basal surface, blackish dorsally; all remaining tarsomeres slightly darkened. Claws reddish on basal sixth, black otherwise; empodia reddish to black; pulvilli dirty yellow.

Genitalia, reddish brown, as illustrated in Fig. 2 A–F.

*Female.* Head width 2.1–2.7 mm (mean = 2.5, SD = 0.20); overall length 9.8–12.9 mm (mean = 11.5, SD = 1.26,  $n = 10$ ). Similar to male except with mystax sometimes yellow white and occasionally with a few black bristles dorsally; postocular setae occasionally black; wing with costa not

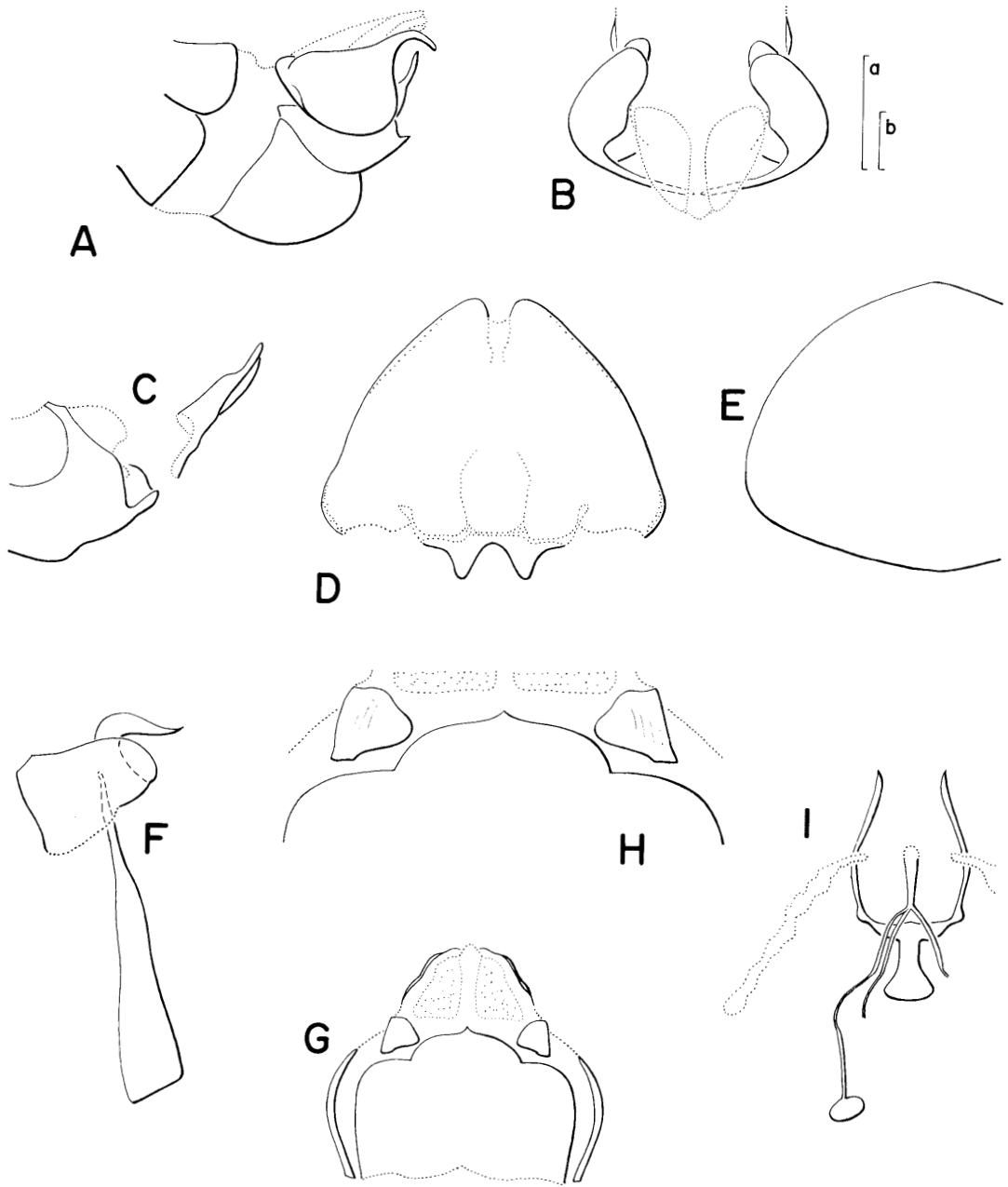


Fig. 2. *Ommatius gemma*. A-I as in Fig. 1. Scale: a = 0.25 mm for C-F and H-I; b = 0.25 mm for A, B, and G.

thickened or produced anteriorly beyond tip of subcosta, fluting much reduced or absent, and anterior cross-vein at two-thirds length of discal cell; anterior three-fourths of each abdominal tergite less dark; and metathoracic metatibiae dark reddish yellow.

Genitalia as illustrated in Fig. 2 G-I.

**Specimens for Fig. 2.** *Male*. MISSISSIPPI, Calhoun Co., T11S R8W Sec. 25, 12-VII-1978, D. F.

Stanford, *Ommatius gemma*, det. Lavigne 1981 (UMS).

*Female*. VIRGINIA, Roanoke Co., Roanoke River at Niagara Power Plant at crossing of Blue Ridge Parkway and river 6.1 mi N U.S. Rte. 220, 14-VIII-1976, 1 p.m., S. W. Bullington, ca. midway up 6 in. high grass stem in sun, head up, lot no. 24g (SWB).

*Spermathecae*. VIRGINIA, Roanoke Co., Roa-

noke River at Niagara Power Plant at crossing of Blue Ridge Parkway and river 6.1 mi N U.S. Rte. 220, 8-VIII-1976 1:30 p.m., S. W. Bullington, mid-way up horsetail stem in shade, head up, lot no. 22f (SWB).

**Specimens Examined.** 6 males, 11 females, from the following states and counties: FLORIDA, Alachua; MARYLAND, Prince Georges; MISSISSIPPI, Calhoun; VIRGINIA, Roanoke. Wilcox provided records for D.C. and the following additional counties (and states); ARKANSAS, Polk, Scott, Washington; FLORIDA, Broward, Dade, Highlands, Jackson, Lake, Leon, Sarasota; KANSAS, Riley; MARYLAND, Montgomery; MISSISSIPPI, Tishomingo; OKLAHOMA, Osage, Choctaw; VIRGINIA, Fairfax.

**Collections with Specimens.** FSCA, SWB, UMS, USNM.

**Recorded Prey.** None.

**Etymology.** Brimley did not state his reason for choosing the specific epithet "*gemma*." The Latin "*gemma*" comes from the combining form "*gem-*" meaning "bud" or "gem."

**Biology.** Scarbrough (1972) recorded *O. gemma* as occurring in "cultivated fields, along paths in woods, roadsides and near streams." Margins of streams and rivers probably are a preferred habitat. Stems or leaves of semiaquatic plants provided the perch for all four specimens we examined having ecological data.

**Comments.** In Brimley's (1928) original description, the "*marginellus*" he compares with *O. gemma*, appears to have actually been *O. tibialis*, as he refers to it as having marginal scutellar "hairs all long and none differentiated from the others." The true *O. marginellus*, unknown in the continental United States, has two well differentiated marginal scutellar bristles (Curran 1928) rather than hairs.

Curran (1928), although correctly separating *O. tibialis* from *O. marginellus*, did not include *O. gemma*, described only two months earlier, in his key. Wilcox (1936), however, did.

*Ommatius floridensis*, sp. nov.

(Fig. 3 and 9A)

*Ommatius marginellus* (Fabricius), Johnson 1913: 61.

*Ommatius tibialis* Say, Wilcox 1936: 172; Bromley 1950b: 238; Goslin 1950: 305; Goslin 1958: 219.

**Distribution.** Limited to areas with subtropical climate, principally the eastern Coastal Plain of the southeastern states, with outlying populations along the coast north to Long Island, N.Y. (Fig. 9A).

**Flight Range.** Males, 8 Mar.–11 Nov.; females, 17 Mar.–10 Oct.

**Distinguishing Characters.** The principal character distinguishing *O. floridensis* from the re-

maining new eastern species, and the described species as well, is the shape of the apices of the epandrium (cf. Fig. 1–7B) in the male, and the shape of the posterior margin of the eighth abdominal sternite in the female (cf. Fig. 1–6H).

**Description.** *Male.* Head width 3.0–3.5 mm (mean = 3.3, SD = 0.20); overall length 13.5–16.4 mm (mean = 14.8, SD = 0.883,  $n = 10$ ). Face, frons, and occiput light yellow gold pollinose, pollen darker on parts of occiput, along eye margins grading into decumbent tomentum; proboscis shiny black; palpi light brown to black; mystax yellow white to almost pure white, with setae denser ventrally but slightly stouter dorsally; hairs of beard fine white, of palpi and proboscis yellow white; postocular setae yellow white or occasionally black, ocellar setae black. Antennae black; postpedicel moderately dark brown pollinose; setae yellow white on ventral side of scape, black otherwise; arista plumose, plumes in one rank basally, two apically.

Mesonotum dark yellow gold pollinose, dorso-laterally with two large and almost contiguous dark brown vittae, one anterior to, one posterior to, transverse suture, both nearly contiguous medially with dark brown longitudinal stripe posteriorly obscured by pollen. Hairs long on humeral calli and just above wings, shorter on mesoscutum, just above wing bases black or sometimes mixed black and yellow white, white otherwise; 1 notopleural, 1 presutural supra-alar, 1 postsutural supra-alar, 1, and occasionally 2, postalar, and 4–6 weak postsutural dorsocentrals intermixed with, and always sharply distinguished from, fine, long, yellow white hairs continuing onto both scutellar disk and margin. Pleurae silvery white tomentose, tomentum becoming yellowish on upper parts of anepisterni, anepimeri, and occasionally also on katapisterni. Katatergite and hypopleuron on each side with colinear but interrupted row of yellow white bristles; episterni with scattered, fine, yellow white hairs; anatergite dirty silvery pollinose.

Halteres dark yellow, knob often darkened and occasionally blackish. Wings with microtrichae in cells  $R_1$ ,  $M_3$ , and all marginal cells, densest in cell  $R_1$ , sparsest and sometimes appearing altogether absent in cells  $M_3$  and  $A_{1+2}$ , giving radial field brownish tinge, especially in anterior portion of cell  $R_1$ ; costa beyond tip of subcosta thickened and anteriorly produced; cells  $R_1$  and  $R_{2+3}$  with membrane fluted perpendicularly to long axis of wing; anterior cross-vein from two-fifths to half length of discal cell; veins dark brown. Abdomen light brownish gray pollinose, light gray laterally on segments 2–5; hairs on dorsum of abdomen black, white, or occasionally mixed, laterally long on first segment, progressively shorter on posterior segments, dorsally short.

Pro- and meso-thoracic femora brown to black anteriorly on basal two-thirds in some specimens, dark yellow in others, dark yellow posteriorly; tibiae dark yellow; apical sixth of mesothoracic tibiae

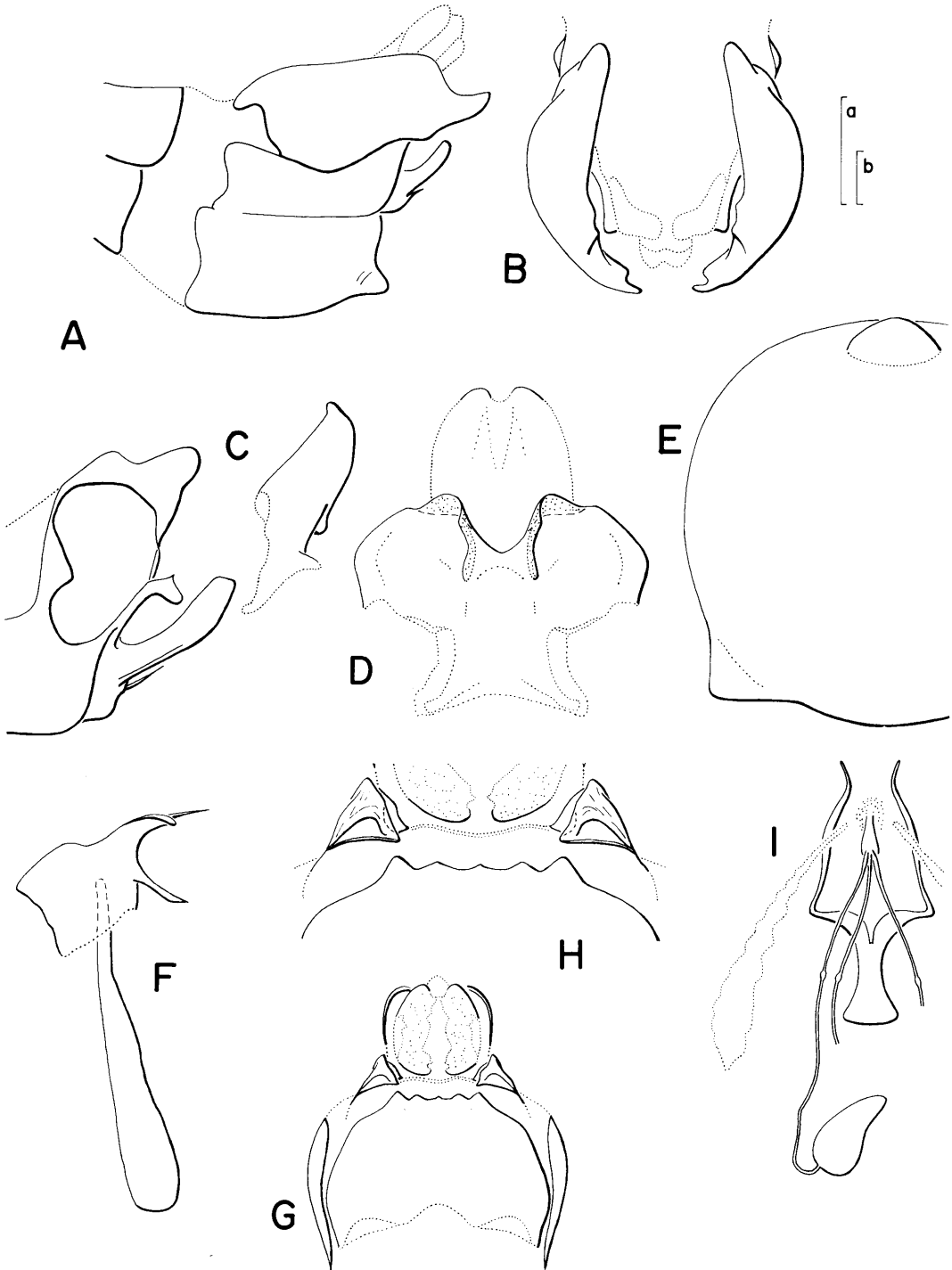


Fig. 3. *Ommatius floridensis*, sp. nov. A-I as in Fig. 1. Scale: a = 0.25 mm for C-F and H-I; b = 0.25 mm for A, B, and G.

always darkened, of prothoracic tibiae, sometimes darkened, especially on anterior surfaces; metatarsi basally dark yellow, with apices blackish; tarsomeres 2-5 blackish. Metathoracic femora dark yellow from basal half to three-fifths, brown to black otherwise; tibiae dark yellow from basal half to at most basal three-fourths, blackish apically, more so on anterior surface; posterior surface reddish; metatarsi blackish dorsally, reddish ventrally; tarsomeres 2-5 blackish dorsally. Claws reddish on basal sixth, black otherwise; empodia reddish to black; pulvilli dirty yellow.

Genitalia, dark to reddish brown, apices of epandrium and basistyli yellowish, as illustrated in Fig. 3 A-F.

**Female.** Head width 3.0-3.6 mm (mean = 3.2, SD = 0.19); overall length 10.1-17.4 (mean = 14.6, SD = 2.00,  $n = 10$ ). Similar to male except wing costa not thickened or produced anteriorly, radial field without brownish tinge, cells with fluting reduced or absent, and anterior cross-vein about two-thirds length of discal cell.

Genitalia as illustrated in Fig. 3 G-I.

**Male Holotype.** FLORIDA (Dade Co.), Miami, 8-III-1956, C. F. Dowling, Jr., *Ommatius tibialis* Say, Weems 1956, det. C. H. Martin 1958 (FSCA).

**Female Allotype.** FLORIDA, Jackson Co., Fla. Caverns St. Park, 16-VI-1974, H. V. Weems, Jr., *Ommatius tibialis* Say, det. J. Wilcox 1976 (FSCA).

**Specimens for Fig. 3.** **Male.** VIRGINIA, (Virginia Beach), Cape Henry, 3-VII-1938, P. W. Oman (USNM).

**Female.** FLORIDA, Alachua Co., San Felasco Hammock, 23-V-1977, G. B. Fairchild and H. V. Weems, Jr., insect flight trap (JW).

**Spermathecae.** FLORIDA, Levy Co., 17 mi NE Cedar Key, 25-V-1970, D. L. Bailey, collected in malaise trap (USNM).

**Paratypes.** 141 males, 122 females, 1 undet. sex, from the following states and counties: FLORIDA, Alachua, Bay, Broward, Clay, Dade, Duval, Franklin, Gadsden, Hendry, Highlands, Hillsborough, Indian River, Jackson, Jefferson, Leon, Levy, Liberty, Marion, Monroe, Okaloosa, Orange, Pinellas, Putnam, Santa Rosa, Seminole, Wakuilla; GEORGIA; NEW JERSEY, Camden; NEW YORK, Suffolk; NORTH CAROLINA, Carteret, Wake; PENNSYLVANIA, Philadelphia; TENNESSEE, Campbell, Morgan; VIRGINIA, Hanover, Suffolk, Virginia Beach.

**Collections with Specimens.** FSCA, JW, SWB, USNM, UWY.

**Recorded Prey.** *Diptera*. Syrphidae (1).

**Etymology.** The name is derived from the state name, Florida, where the species has been collected most often.

**Biology.** Goslin (1950) listed *O. floridensis* as "a common species found on the tips of twigs and dead weed stalks along the borders of woods"; he believed it to be *O. tibialis*. Common indeed it must be, to be so easily trapped: Of 145 specimens

we examined having some type of ecological or collecting data, most were collected from a malaise trap, while the remainder were caught in various other types of traps.

**Comments.** Wilcox (1936) referred to a single male of "*O. tibialis*" from Florida as possibly being new, but refrained from describing it as such since he lacked additional specimens. J. Wilcox loaned us the specimen in question and it belongs to the species here described.

Unlike many other specimens of *O. floridensis* with the entire anterior surface of the pro- and meso-femora dark, the Wilcox specimen, with only the "apices of the femora black," did not trace to *O. tibialis* in the key in Wilcox (1936). In contrast, in the key in Curran (1928), all *O. floridensis* trace to *O. tibialis*.

***Ommatius wilcoxi*, sp. nov.**

(Fig. 4 and 9B)

*Ommatius tibialis* Say, Williston (in part) 1885: 76; Howard 1902: pl. XVI, fig. 25; Wilcox (in part) 1936: 172.

*Ommatius* sp., Fattig(?) 1945: 28.

**Distribution.** Apparently limited to a belt extending along the extreme margin of the Coastal Plain of the southeastern states from Virginia to Texas, but not including southern Florida (Fig. 9B).

**Flight Range.** Males, 30 May-31 Aug.; females, 20 June-19 Aug.

**Distinguishing Characters.** The entirely dark reddish yellow coloration of all femora as well as dusky appearing wings serve best to separate superficially *O. wilcoxi* from all other *Ommatius* in the eastern United States. As previously indicated, genitalic separation in this genus is critical.

**Description.** **Male.** Head width 3.0-3.8 mm (mean = 3.5, SD = 0.25); overall length 13.0-16.7 mm (mean = 14.9, SD = 1.28,  $n = 10$ ). Face, frons, and occiput light yellow gold pollinose, pollen darker on parts of occiput, along eye margins grading into decumbent tomentum; proboscis shiny black; palpi light brown to black; mystax yellow, with setae denser ventrally but slightly stouter dorsally; hairs of beard fine white, of palpi and proboscis yellow white; postocular setae usually black, occasionally yellow white; ocellar setae black. Antennae black; postpedicel moderately dark brown pollinose; setae yellow white on ventral side of scape, black otherwise; arista plumose, plumes in one rank basally, two apically.

Mesonotum dark yellow gold pollinose, dorso-laterally with two large and almost contiguous dark brown vittae, one anterior to, one posterior to, transverse suture, both nearly contiguous medially with dark brown longitudinal stripe posteriorly obscured by pollen. Hairs white, long on humeral calli and just above wings, shorter on mesoscutum; 1 notopleural, 1 presutural supra-alar, 1, and oc-



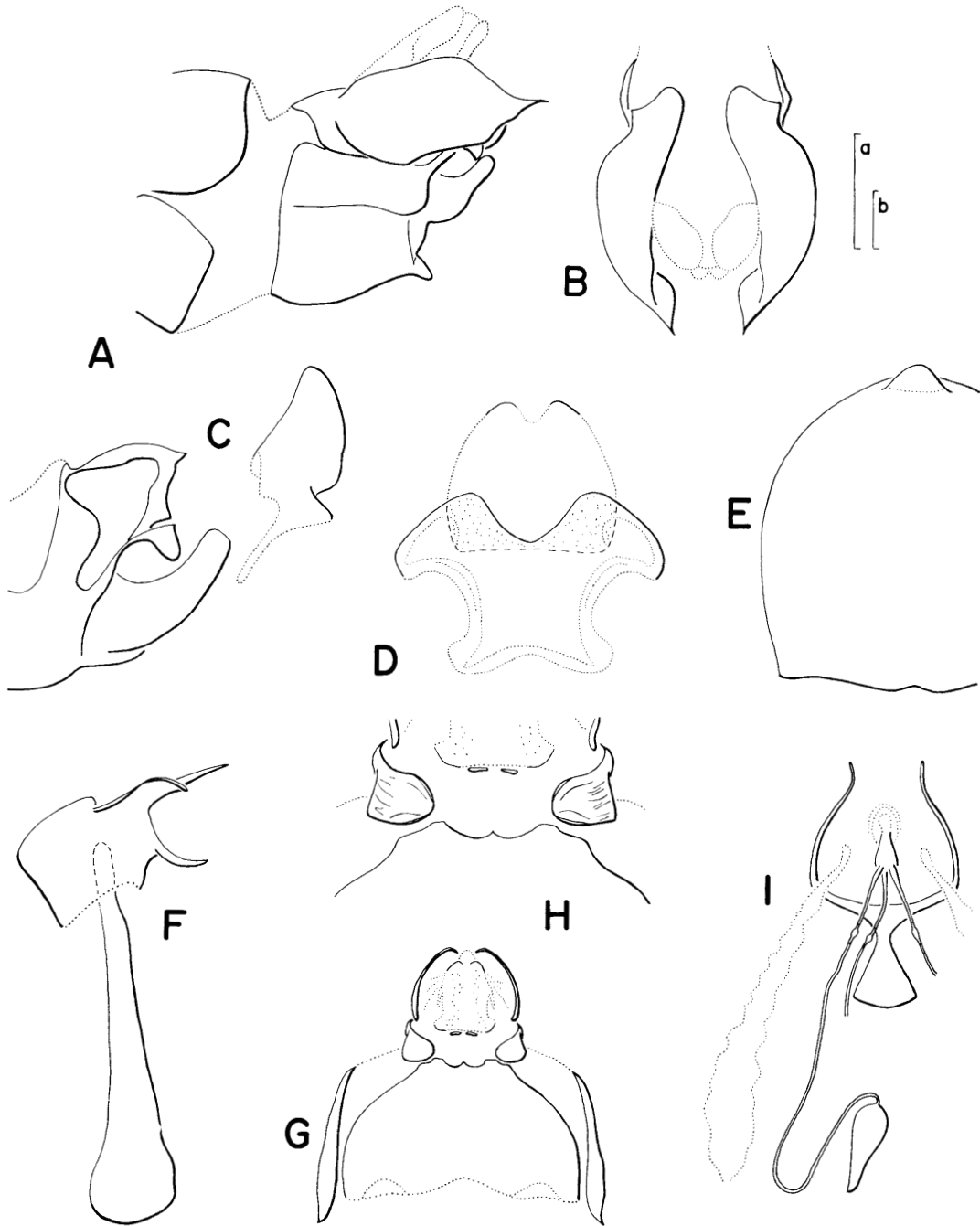


Fig. 4. *Ommatius wilcoxi*, sp. nov. A-I as in Fig. 1. Scale: a = 0.25 mm for C-F and H-I, b = 0.25 mm for A, B, and G.

asionally, 2, postalar, and 4-5 weak postsutural dorsocentrals intermixed with, and not clearly differentiated from, scattered fine, long, yellow white hairs continuing onto both scutellar disk and margin. Pleurae silvery gold tomentose. Katatergite and

hypopleuron on each side with co-linear but interrupted row of yellow white bristles; episterni with scattered, fine, yellow white hairs; anatergite dirty silvery pollinose.

Halteres dark yellow, knob often darkened and

occasionally blackish. Wings with microtrichae densely packed, in all cells except 2nd basal cell, lower half of 1st basal cell, and alula, giving entire apical three-fourths of wing surface dark brownish tinge; costa beyond tip of subcosta thickened and anteriorly produced; cells  $R_1$  and  $R_{2+3}$  with membrane fluted perpendicularly to long axis of wing; anterior cross-vein about two-fifths length of discal cell; veins dark brown.

Abdominal segments each dark brownish to blackish gray pollinose on anterior five-sixths, becoming yellow gray posteriorly; dorsally hairs usually black, sometimes white, otherwise hairs yellow white, laterally long on first segment, progressively shorter on posterior segments, dorsally short.

Legs with femora, tibiae, and metatarsi entirely dark reddish yellow with remaining tarsomeres similar but blackish dorsally. Claws reddish on basal sixth, black otherwise; empodia reddish to black; pulvilli dirty yellow.

Genitalia, reddish brown to black, as illustrated in Fig. 4 A-F.

**Female.** Head width 3.2-3.8 mm (mean = 3.4, SD = 0.20); overall length 14.1-17.4 mm (mean = 15.2, SD = 1.01,  $n = 10$ ). Similar to male except with wing costa beyond tip of subcosta not thickened or anteriorly produced, fluting much reduced or absent, and anterior cross-vein at two-thirds length of discal cell.

Genitalia as illustrated in Fig. 4 G-I.

**Male Holotype.** GEORGIA, Tift Co., 7 mi. S Tifton on Rte. 319, 7-VIII-1977, 12:45 p.m., on dead grass stem in sun, head up, in dry parched field with scattered pine stumps and scattered pine trees interspersed with small oaks (SWB).

**Female Allotype.** FLORIDA (Escambia Co.), Pensacola, 20-VI-35 (USNM).

**Specimens for Fig. 4.** **Male.** FLORIDA (Escambia Co.), Bratt, 30-V-1934, Alton Blanton, "C" (USNM).

**Female.** GEORGIA (Tift Co.), Tifton, 24-VI-1939, F. S. Blanton, "Brom" (USNM).

**Spermathecae.** GEORGIA (Tift Co.), Tifton, 24-VI-1939, F. S. Blanton, *Ommatius* prob. sp. nov., det. S. W. Bromley, "Brom" (USNM).

**Paratypes.** 19 males, 9 females, 1 undet. sex, from the following states and counties or parishes: ALABAMA, Escambia; FLORIDA, Escambia, Okaloosa, Santa Rosa, Walton; GEORGIA, Thomas, Tift; LOUISIANA, St. Tammany; NORTH CAROLINA, Dare; TEXAS, Bexar; VIRGINIA, Chesterfield, York.

**Collections with Specimens.** FSCA, JW, SWB, USNM, VPI.

**Recorded Prey.** None.

**Etymology.** The specific epithet honors J. Wilcox, the first to suspect "*O. tibialis*" might consist of a number of closely related species.

**Biology.** The biology of *O. wilcoxi* is unknown. The two specimens with meaningful habitat data were taken in xeric habitats.

**Comments.** Wilcox (1936) mentioned a single male of "*O. tibialis*" from Texas as possibly being new, but refrained from describing it as such, because he lacked additional specimens. J. Wilcox loaned us the specimen in question and it belongs to the species here described. Bromley also suspected the existence of *O. wilcoxi*, as 1 specimen from the USNM is labeled "*Ommatius* prob. n. sp., Det. S. W. Bromley." Another USNM specimen, photographed by Howard (1902) as "*O. tibialis*" for pl. 16, fig. 25 of *The Insect Book*, also belongs here.

In the key in Curran (1928), specimens of *O. wilcoxi* trace not to *O. tibialis*, as might be expected, but to *O. spatulatus* Curran, from Sao Paulo, Brazil, but differ in many characters. Most notably, in the holotype male of *O. spatulatus* the apices of the epandrium are, as the specific epithet suggests, spatulate instead of pointed as in *O. wilcoxi*; and in the allotype the eighth abdominal sternite ends in a single, median point somewhat as in *O. gemma* (cf. Fig. 2H) instead of in two blunted points (Fig. 4H). In the key in Wilcox (1936), specimens of *O. wilcoxi* will not trace beyond couplet 5 because of the entirely reddish pro- and meso-femora.

#### *Ommatius ouachitensis*, sp. nov.

(Fig. 5 and 10A)

*Ommatius marginellus* (Fabricius), McAtee and Banks (in part) 1920: 26.

*Ommatius tibialis* Say, Bromley 1934: 104; Wilcox (in part) 1936: 177 (pl. X); Schaefer (in part?) 1968: 116; Scarbrough (?) 1972: 377.

**Distribution.** Found eastward from just west of the eastern boundary of areas with prairie climate (Fig. 10A).

**Flight Range.** Males, 28 May-12 Aug.; females, 4 June-1 Sept.

**Distinguishing Characters.** The shape of the apices of the epandrium will distinguish males of *O. ouachitensis* from all others excepting *O. oklahomensis* (cf. Fig. 1-7B), which differs by having ventral lamellae consolidated ventromesally to form a somewhat conelike but truncate projection (cf. Fig. 5D and 6D). The shape of the posterior margin of the eighth abdominal sternite will distinguish females from those of all other eastern species (cf. Fig. 1-6H).

**Description.** **Male.** Head width 2.7-3.7 mm (mean = 3.4, SD = 0.33); overall length 11.9-17.6 mm (mean = 15.5, SD = 1.88,  $n = 10$ ). Face, frons, and occiput light yellow gold pollinose, pollen darker on parts of occiput, along eye margins grading into decumbent tomentum; proboscis shiny black; palpi light brown to black; mystax yellow white to almost pure white, with setae denser ventrally but slightly stouter dorsally; hairs of beard fine white, of palpi and proboscis yellow white; postocular setae usually black, only occasionally

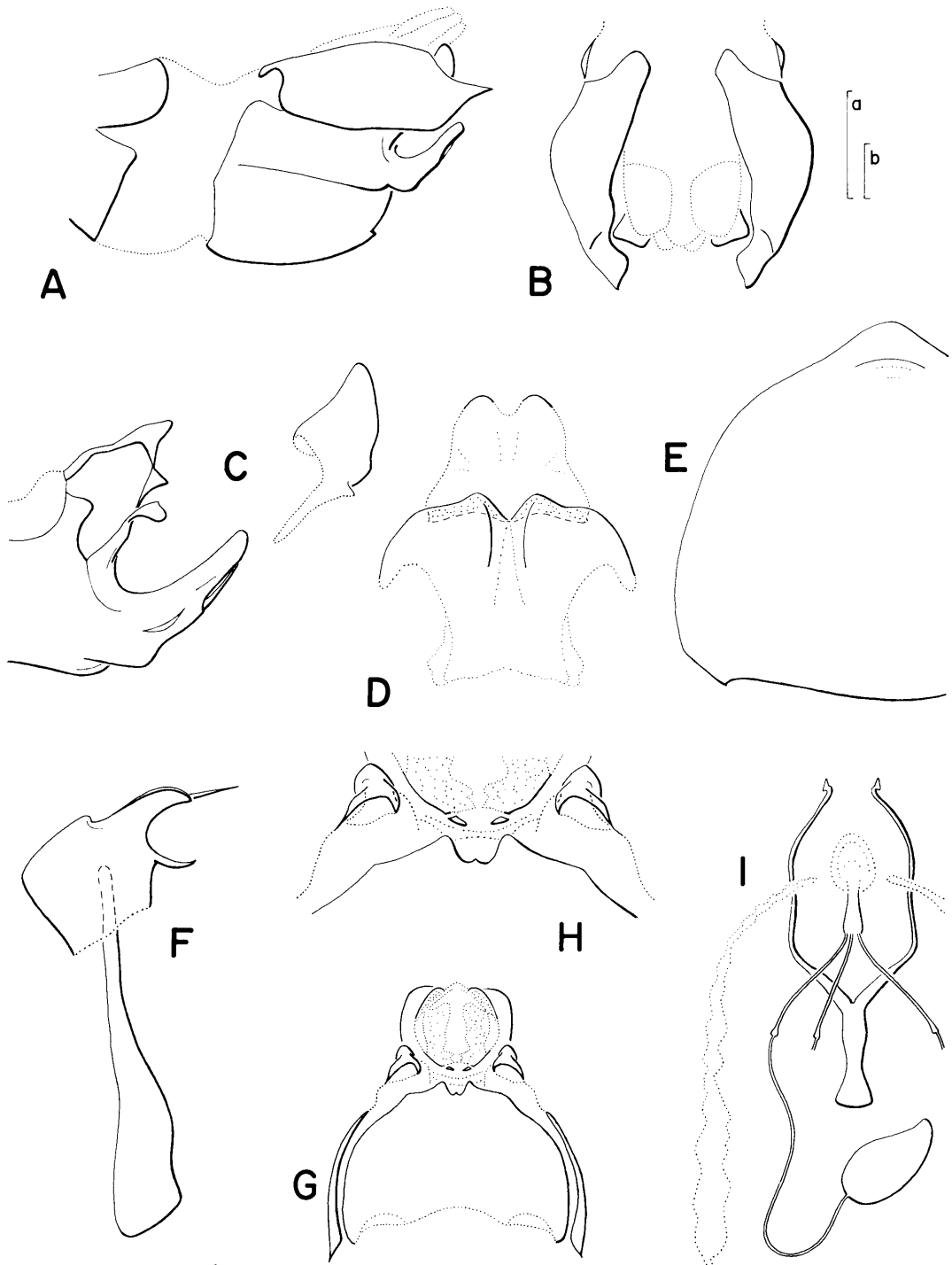


Fig. 5. *Ommatius ouachitensis*, sp. nov. A-I as in Fig. 1. Scale: a = 0.25 mm for C-F and H-I; b = 0.25 mm for A, B, and G.

yellow white, ocellar setae black. Antennae black; postpedicel moderately dark brown pollinose; setae yellow white on ventral side of scape, black otherwise; arista plumose, plumes in one rank basally, two apically.

Mesonotum dark yellow gold pollinose, dorso-laterally with two large and almost contiguous dark brown vittae, one anterior to, one posterior to, transverse suture, both nearly contiguous medially with dark brown longitudinal stripe posteriorly obscured by pollen. Hairs white, long on humeral calli and just above wings, shorter on mesoscutum; 1 notopleural, 1 presutural supra-alar, 1 postsutural supra-alar, 1, and occasionally 2, postalar, and 4-5 weak postsutural dorsocentrals intermixed with, and not always clearly distinguished from, fine, long, yellow white hairs continuing onto both scutellar disk and margin. Pleurae silvery white tomentose, tomentum becoming yellowish on upper parts of anepisterni, anepimeri, and occasionally also on katapisterni. Katatergite and hypopleuron on each side with co-linear but interrupted row of yellow white bristles; episterni with scattered, fine, yellow white hairs; anatergite dirty silvery pollinose.

Halteres dark yellow, knob often darkened and occasionally blackish. Wings with microtrichae in cells  $R_1$ ,  $M_3$ , and all marginal cells, densest in cell  $R_1$ , sparsest and sometimes appearing altogether absent in cells  $M_3$  and  $A_{1+2}$ , giving radial field a brownish tinge, especially in anterior portion of cell  $R_1$ ; costa beyond tip of subcosta thickened and anteriorly produced; cells  $R_1$  and  $R_{2+3}$  with membrane fluted perpendicularly to long axis of wing; anterior cross-vein about two-fifths length of discal cell; veins dark brown.

Abdomen light brownish gray pollinose, light gray laterally on segments 2-5; hairs yellow white, laterally long on first segment, progressively shorter on posterior segments, dorsally short.

Pro- and meso-thoracic femora usually brown to black anteriorly, occasionally yellow basally and apically along anterior dorsal and ventral margins, dark yellow posteriorly; tibiae dark yellow, mesotibiae blackened somewhat at apex; metatarsi basally dark yellow, with apices blackish; tarsomeres 2-5 blackish. Metathoracic femora more or less entirely brown to black on about apical two- to three-fifths, without distinct stripe of yellow along posterodorsal margin; tibiae dark yellow from basal half to at most basal three-fourths, blackish apically, more so on anterior surface; posterior surface reddish; metatarsi blackish dorsally, reddish ventrally; tarsomeres 2-5 blackish dorsally. Claws reddish on basal sixth, black otherwise; empodia reddish to black; pulvilli dirty yellow.

Genitalia, reddish brown, as illustrated in Fig. 5 A-F.

**Female.** Head width 3.3-3.6 mm (mean = 3.4, SD = 0.14); overall length 14.4-17.4 mm (mean = 15.6, SD = 1.02,  $n = 10$ ). Similar to male except mystax occasionally with one or two black bristles

dorsally; wing with radial field lacking brownish tinge, fluting reduced or absent, and anterior cross-vein between two-thirds and three-fourths length of discal cell.

Genitalia as illustrated in Fig. 5 G-I.

**Male Holotype.** OKLAHOMA (Pushmataha Co.), Nashoba, 15-VI-1934, A. E. Pritchard, A. E. Pritchard Collection 1962 (USNM).

**Female Allotype.** OKLAHOMA (McCurtain Co.), Page, 23-VI-1934, A. E. Pritchard, A. E. Pritchard Collection 1962 (USNM).

**Specimens for Fig. 5.** *Male.* KANSAS (Douglas Co.), Lawrence, Collection J. M. Aldrich (USNM).

*Female.* OKLAHOMA (McCurtain Co.), Broken Bow, 19-VI-1934, A. E. Pritchard, A. E. Pritchard Collection 1962 (USNM).

**Spermathecae.** OKLAHOMA (Choctaw Co.), Hugo, 20-VI-1934, A. E. Pritchard, A. E. Pritchard Collection 1962 (USNM).

**Paratypes.** 47 males, 56 females, 1 mated pair, from the following states and counties or parishes: ALABAMA, Macon; ILLINOIS, Champaign; KANSAS, Atchison, Cowley, Douglas, Labette; KENTUCKY, Lyon; LOUISIANA, East Baton Rouge, Evangeline; MARYLAND, Montgomery; MISSISSIPPI, Yalobusha; MISSOURI, Boone, Jackson, Vernon; OKLAHOMA, Choctaw, Delaware, LeFlore, McCurtain, Nowata, Ottawa, Pawnee, Pittsburg, Pushmataha; TEXAS, Dallas, Harris; VIRGINIA, Fairfax.

**Collections with Specimens.** FSCA, JW, USNM, UWY.

**Recorded Prey.** None.

**Etymology.** The name is based on the Ouachita Mountains of southeastern Oklahoma.

**Biology.** Probably *O. ouachitensis* is found along the borders of woods. One specimen was taken on the bark of *Liriodendron* (tulip tree).

**Comments.** Specimens of *O. ouachitensis* trace to *O. tibialis* in the keys in both Curran (1928) and Wilcox (1936).

The posterior margin of the eighth abdominal sternite of the female *O. ouachitensis* is elongated into points (Fig. 5H); and the most pronounced points of all the specimens examined occur on one taken in copula at Plummer's Island (Montgomery Co.), Md., a locality marking the known eastern boundary of the species. The peripheral and somewhat relict character of the locality in relation to the remainder of the species' range has probably contributed to the isolation of the population and consequent abnormal elongation of the points.

***Ommatius oklahomensis*, sp. nov.**

(Fig. 6 and 10B)

*Ommatius tibialis* Say, Schaefer (in part?) 1968: 116.

**Distribution.** Limited to areas with prairie climate, apparently of the oak and bluestem parkland type (Fig. 10B).

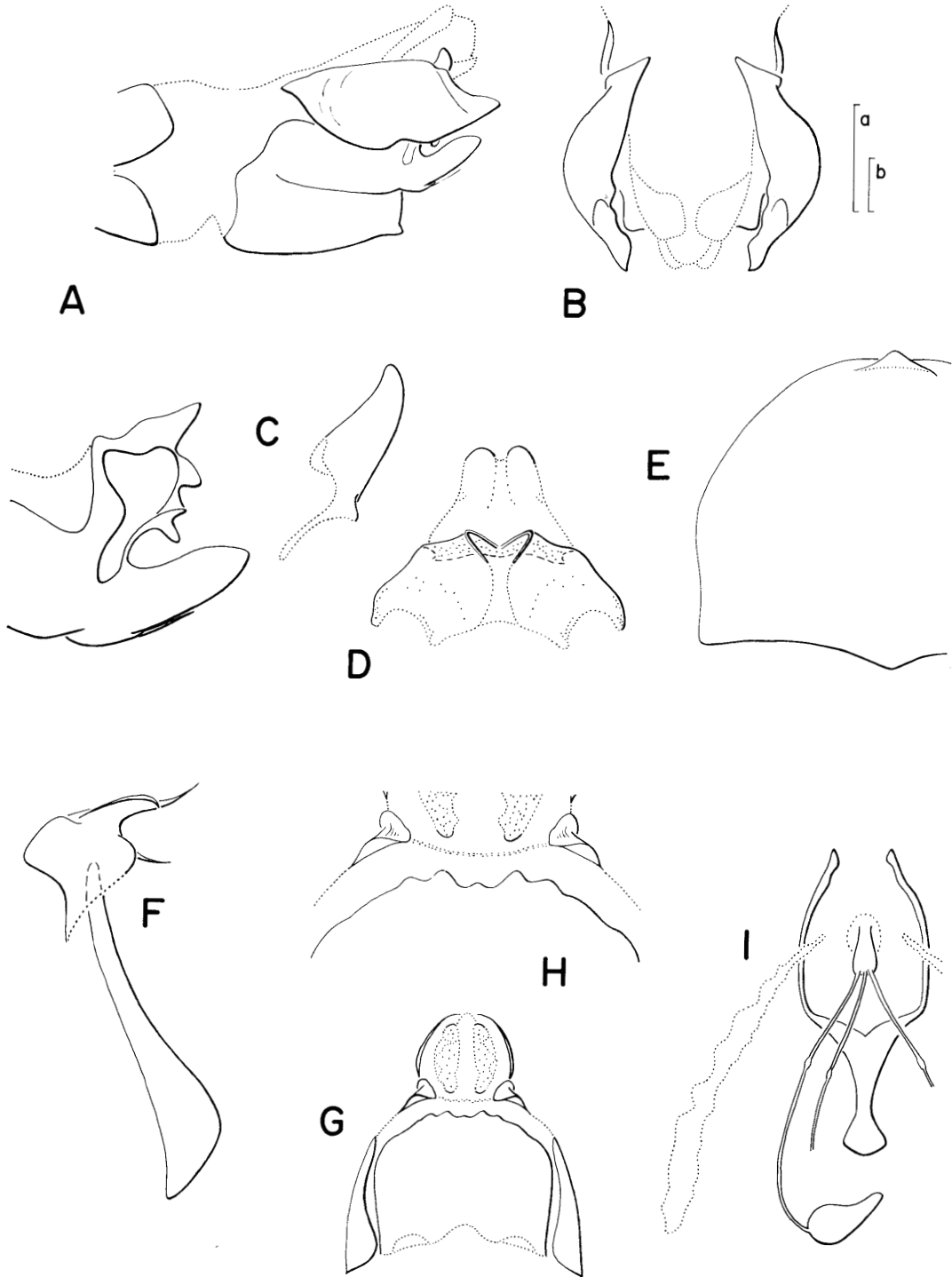


Fig. 6. *Ommatius oklahomensis*, sp. nov. A-I as in Fig. 1. Scale: a = 0.25 mm for C-F and H-I; b = 0.25 mm for A, B, and G.

**Flight Range.** Males, 8 June–12 July; females, 7 June–15 July.

**Distinguishing Characters.** *Ommatius oklahomensis* resembles *O. ouachitensis* greatly in structure and general appearance; and only specific genitalic characters, in particular the shape of the ventral lamellae in the male (cf. Fig. 5D and 6D) and posterior margin of the eighth abdominal sternite in the female (cf. Fig. 5H and 6H), serve to distinguish one from the other. *Ommatius oklahomensis* differs from all the remaining eastern species in the shape of the apices of the epandrium in the male (cf. Fig. 6B, 1–4, and 7B) and from all except *O. tibialis* in the shape of the posterior margin of the eighth abdominal sternite in the female (cf. Fig. 6H and 2–5H). *Ommatius oklahomensis* and *O. tibialis* females differ in the shape of the ventral margins of the ninth abdominal tergite (cf. Fig. 1H and 6H). Specifically, in females of *O. oklahomensis*, ventrally on each side, the anterior surface of the ninth tergite is only weakly sclerotized and more or less transparent, thus forming a “window,” whereas in females of *O. tibialis* the corresponding areas are heavily sclerotized and opaque. Geography can also serve to separate females of these two allopatric species (cf. Fig. 8A and 10B).

**Description.** *Male.* Head width 2.7–3.6 mm (mean = 3.3, SD = 0.32); overall length 13.3–16.9 mm (mean = 15.9, SD = 1.26,  $n = 10$ ). Face, frons, and occiput light yellow gold pollinose, pollen darker on parts of occiput, along eye margins grading into decumbent tomentum; proboscis shiny black; palpi light brown to black; mystax yellow white to almost pure white, with setae denser ventrally but slightly stouter dorsally; hairs of beard fine white, of palpi and proboscis yellow white; postocular setae usually black, only occasionally yellow white, ocellar setae black. Antennae black; postpedicel moderately dark brown pollinose; setae yellow white on ventral side of scape, black otherwise; arista plumose, plumes in one rank basally, two apically.

Mesonotum dark yellow gold pollinose, dorso-laterally with two large and almost contiguous dark brown vittae, one anterior to, one posterior to, transverse suture, both nearly contiguous medially with dark brown longitudinal stripe posteriorly obscured by pollen. Hairs white, long on humeral calli and just above wings, shorter on mesoscutum; 1 notopleural, 1 presutural supra-alar, 1 postsutural supra-alar, 1, and occasionally 2, postalar, and 4–5 weak post-sutural dorsocentrals intermixed with, and not always clearly distinguished from, fine, long, yellow white hairs continuing onto both scutellar disk and margin. Pleurae silvery white tomentose, tomentum becoming yellowish on upper parts of anepisterni, anepimeri, and occasionally also on katepisterni. Katertergite and hypopleuron on each side with co-linear but interrupted row of yellow white bristles; episterni with scat-

tered, fine, yellow white hairs; anatergite dirty silvery pollinose.

Halteres dark yellow, knob often darkened and occasionally blackish. Wings with microtrichae in cells  $R_1$ ,  $M_3$ , and all marginal cells, densest in cell  $R_1$ , sparsest and sometimes appearing altogether absent in cells  $M_3$  and  $A_{1+2}$ , giving radial field brownish tinge, especially in anterior portion of cell  $R_1$ ; costa beyond tip of subcosta thickened and anteriorly produced; cells  $R_1$  and  $R_{2+3}$  with membrane fluted perpendicularly to long axis of wing; anterior cross-vein from two-fifths to as much as half length of discal cell; veins dark brown.

Abdomen light brownish gray pollinose, light gray laterally on segments 2–5; hairs yellow white, laterally long on first segment, progressively shorter on posterior segments, dorsally short.

Pro- and meso-thoracic femora brown to black anteriorly, dark yellow posteriorly; tibiae dark yellow, mesotibiae blackened somewhat at apex; metatarsi basally dark yellow, with apices blackish; tarsomeres 2–5 blackish. Metathoracic femora brown to black except for extreme base and somewhat irregular stripe of dark yellow along base of posterodorsal margin; tibiae dark yellow from basal half to at most basal three-fourths, blackish apically, more so on anterior surface; posterior surface reddish; metatarsi blackish dorsally, reddish ventrally; tarsomeres 2–5 blackish dorsally. Claws reddish on basal sixth, black otherwise; empodia reddish to black; pulvilli dirty yellow.

Genitalia as illustrated in Fig. 6 A–F.

*Female.* Head width 3.0–3.3 mm (mean = 3.2, SD = 0.15); overall length 12.3–14.9 mm (mean = 1.41, SD = 0.979,  $n = 7$ ). Similar to male except with wing costa not thickened or produced anteriorly, radial field without brownish tinge, cells with fluting reduced or absent, and anterior cross-vein about two-thirds to three-fourths length of discal cell.

Genitalia as illustrated in Fig. 6 G–I.

**Male Holotype.** KANSAS, Montgomery Co., 26-VI-1926, R. H. Beamer, *Ommatius tibialis* Say, det. J. Wilcox 1935 (JW).

**Female Allotype.** KANSAS, Saline Co., 7-VI-33, C. W. Sabrosky (USNM).

**Specimens for Fig. 6.** *Male.* MISSOURI, Henry Co., 7 mi East Clinton, 28-IV-1973, C. H. Nelson, on *Diospyros virginiana* L., *Ommatius tibialis* Say, det. J. Wilcox 1977 (FSCA).

*Female.* OKLAHOMA (Alfalfa Co.), Cherokee, 4-VII-1934, A. E. Pritchard, A. E. Pritchard Collection 1962 (USNM).

*Spermathecae.* OKLAHOMA (Alfalfa Co.), Cherokee, 4-VII-1934, A. E. Pritchard, A. E. Pritchard Collection 1962 (USNM).

**Paratypes.** 10 males, 6 females from the following states and counties: KANSAS, Cowley, Lyon, Montgomery, Reno, Saline, Shawnee; MISSOURI, Henry; OKLAHOMA, Alfalfa, Craig, Delaware, LeFlore, Marshall, Pittsburg.

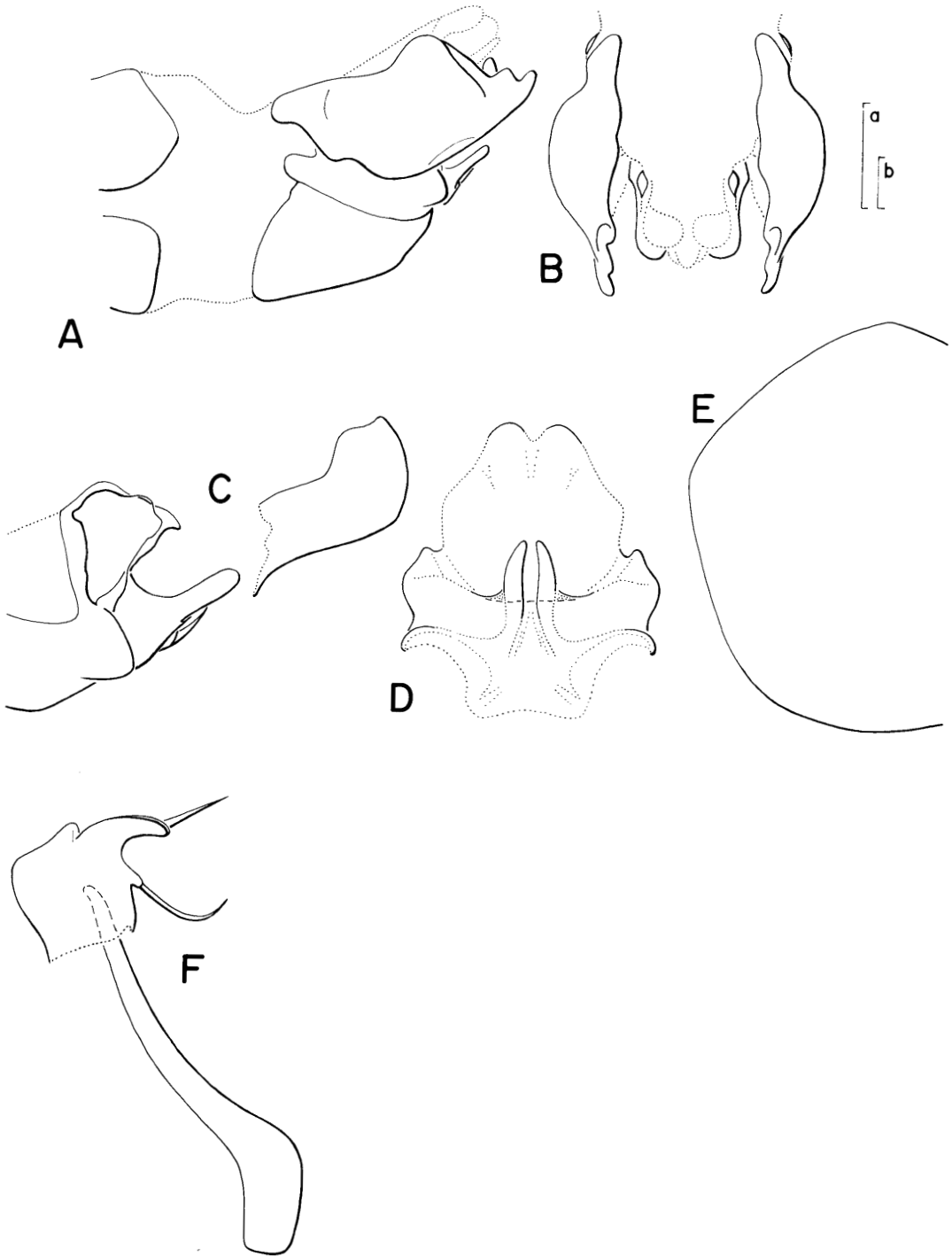


Fig. 7. *Ommatius texanus*, sp. nov. A-F as in Fig. 1. Scale: a = 0.25 mm for C-F; b = 0.25 mm for A and B.













