

## THE ORTHOCLADIINAE (CHIRONOMIDAE: DIPTERA) OF CALIFORNIA I. THE CRICOTOPUS INFUSCATUS GROUP<sup>1</sup>

James E. Sublette and Mary F. Sublette<sup>2</sup>

In earlier reviews of the California chironomid fauna (Sublette, 1960, 1964) a third part embracing the Orthocladiinae was projected. The wealth of new material encountered has necessitated publication in smaller parts rather than as a single companion third part to the two mentioned above. This is the first of a projected series forming a continuation of the earlier works.

The *Cricotopus infuscatus* group is named for those species resembling *C. infuscatus* (Malloch) (Sublette, 1970) in genitalic features. In the Californian fauna only *C. fuscatus* Wirth has been previously described.

Morphological terminology and definition of the genus *Cricotopus* follow Brundin (1956). All illustrations, except leg and abdominal color patterns, are drawn to the same scale. Figures of abdominal chaetotaxy are shown with the anterior end of each tergum to left.

ACKNOWLEDGMENTS.—We should like to thank Saul I. Frommer, Department of Entomology, University of California, Riverside, and Charles Apperson, Humboldt State College, Arcata, for the loan of material and W. W. Wirth, U. S. Department of Agriculture, Washington, D. C., for supplying paratype examples of *Cricotopus fuscatus* Wirth.

### *Cricotopus edurus* Sublette and Sublette, NEW SPECIES

HOLOTYPE MALE (Type No. 71259, USNM). P. L. Boyd

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<sup>2</sup>Eastern New Mexico University, Portales, New Mexico 88130.



Desert Research Center, Palm Desert, Riverside County, California, at UV light between markers 0 and -1, Saul Frommer and Larry LaPré. 20 June 1969.

*Coloration*: Narrow ground color of head and thorax infusate yellow; antennal pedicels, thoracic vittae, a spot on each pleuron, mesosternum and postnotum blackish-brown; a narrow border of the scutellum concolorous with the dark marking of the thorax, center of scutellum slightly paler; palpi and antennal flagella infusate; fore legs entirely blackish; middle and hind legs with the basal half of the femora dark brown, slightly paler than the apical half; middle and hind tibiae with a broad median infusate yellow band; remainder of legs dark (figure 1). Abdomen dark brown except for terga 6 and 7 which have the apical one-third infusate yellow with the band on each tergum being slightly narrower in the center (figure 2).

*Head*: Antennal ratio, 1.21. Palpal proportions, 9:17:21:34. Frontal tubercles absent. Eyes hairy, dorsal extensions short and wedge-shaped. Clypeus very broad, as wide as the antennal pedicel. Antennal flagellum fully haired to near the tip; with an apical rosette of short hairs. Postocular bristles in a partially doubled row, reaching almost to the v-shaped vertex. Tentorium, figure 3.

*Thorax*: Pronotum (figure 4) moderately broad and slightly tapered with the two halves contiguous along a suture, anteriorly with a slight notch; laterally with the usual clump of about 6 bristles. About 22 fine dorsolateral bristles in a partially doubled row which is slightly expanded posteriorly. Dorsomedial bristles in one row, short, decumbent. About 4 prealar bristles. Scutellum with a straight row of about 9 bristles.

*Wing*: Membrane glabrous. Costa slightly extended beyond  $R_{4+5}$ ; length of extension, 0.02 mm.  $R_{4+5}$  ends proximal to M at 0.16 of the distance between the apex of Cul and M.  $R_{2+3}$  ends at 0.50 of the distance between the apex of  $R_1$  and  $R_{4+5}$ .  $Cu_2$  strongly sinuate at tip; tip at an angle of  $24^\circ$  to main axis of  $Cu_2$ . Anal ends distal to f-Cu, at 0.40 of the distance between f-Cu and apex of  $Cu_2$ . Anal lobe well developed, right angled. Venarum ratio, 1.09. Wing length, 1.75 mm. Squama fully fringed.

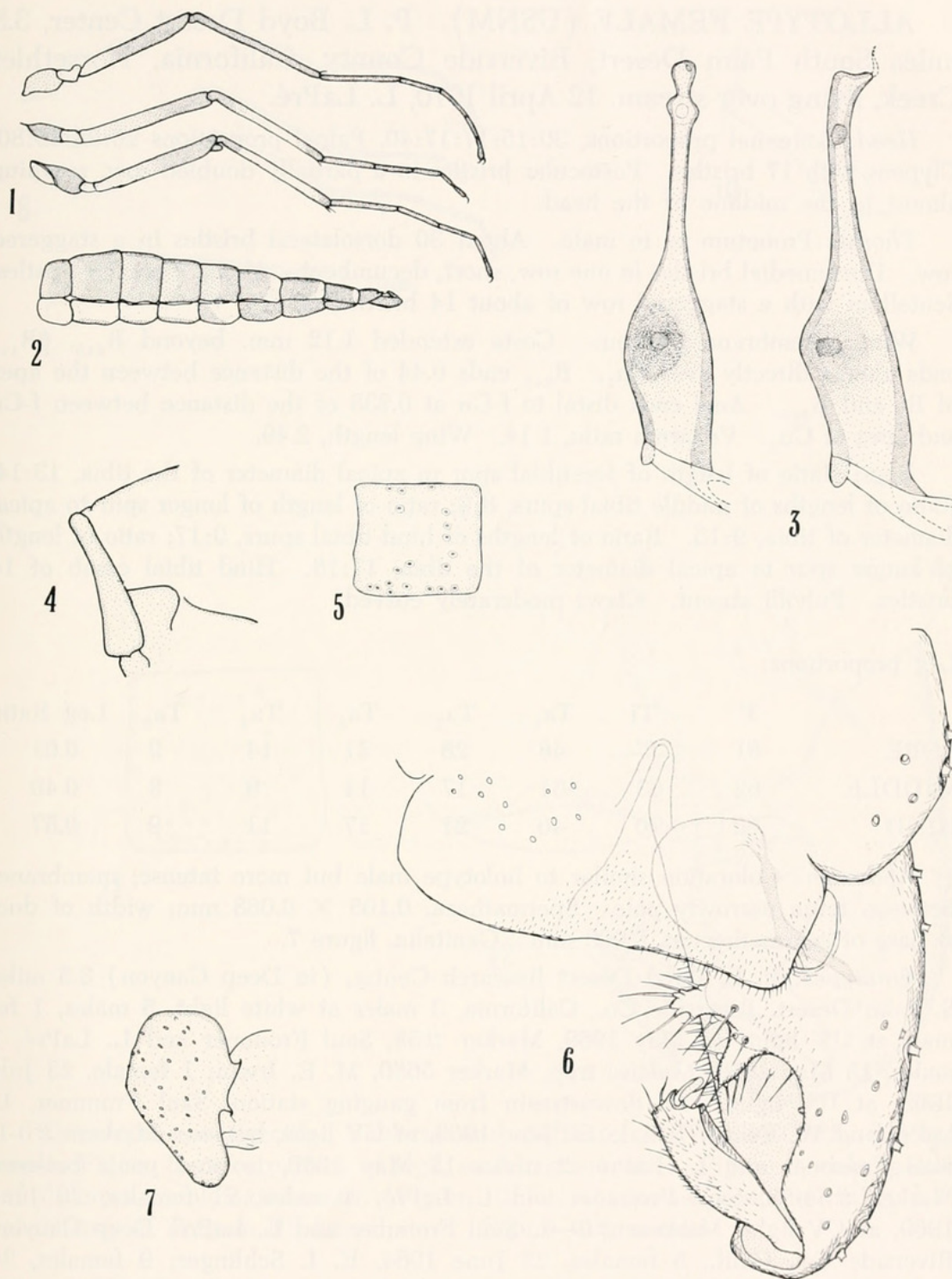
*Legs*: Foretarsus with short hairs only. Foretibial spur long; ratio of length of spur to apical diameter of tibia, 32:32. Middle tibial spurs subequal in length; ratio of length to apical diameter of tibia, 20:32. Ratio of length of hind tibial spurs, 15:40; longer spur rather sinuate with inconspicuous side denticles reaching almost to the middle of the spur; ratio of length of longer spur to apical diameter of the tibia, 40:39. Hind tibial comb of 12 bristles. Pulvilli absent. Claws moderately curved, with blunt spatulate tips; basally each claw with one long hair.

Leg proportions:

	F	Ti	Ta <sub>1</sub>	Ta <sub>2</sub>	Ta <sub>3</sub>	Ta <sub>4</sub>	Ta <sub>5</sub>	Leg Ratio
FORE	37	52	30	18	12	10	7	0.58
MIDDLE	42	43	20	12	8	6	6	0.47
HIND	41	49	27	14	11	7	6	0.55

*Abdomen*: Chaetotaxy of third tergum, figure 5; genitalia, figure 6.





*Cricotopus edurus* Sublette and Sublette, NEW SPECIES: Figure 1, color pattern of legs, semidiagrammatic. Figure 2, color patterns of abdomen, semidiagrammatic. Figure 3, variations in tentorium, paratype males. Figure 4, lateral view of pronotum of holotype male. Figure 5, chaetotaxy of Tergum III, lateral view, holotype male. Figure 6, genitalia, holotype male. Figure 7, genitalia, allotype female.



**ALLOTYPE FEMALE (USNM).** P. L. Boyd Desert Center, 3.5 miles South Palm Desert, Riverside County, California, Horsethief Creek, flying over stream, 12 April 1970, L. LaPré.

*Head:* Antennal proportions, 30:15:17:17:40. Palpal proportions 20:32:40:80. Clypeus with 17 bristles. Postocular bristles in a partially doubled row, reaching almost to the midline of the head.

*Thorax:* Pronotum as in male. About 30 dorsolateral bristles in a staggered row. Dorsomedial bristles in one row, short, decumbent. About 7 prealar bristles. Scutellum with a staggered row of about 14 bristles.

*Wing:* Membrane glabrous. Costa extended 1.12 mm. beyond  $R_{4+5}$ .  $R_{4+5}$  ends almost directly over  $Cu_1$ .  $R_{2+3}$  ends 0.44 of the distance between the apex of  $R_1$  and  $R_{4+5}$ . Anal ends distal to f-Cu at 0.238 of the distance between f-Cu and apex of  $Cu_2$ . Venarum ratio, 1.14. Wing length, 2.49.

*Legs:* Ratio of length of foretibial spur to apical diameter of the tibia, 13:14. Ratio of lengths of middle tibial spurs, 8:9; ratio of length of longer spur to apical diameter of tibia, 9:15. Ratio of lengths of hind tibial spurs, 9:17; ratio of length of longer spur to apical diameter of the tibia, 17:18. Hind tibial comb of 14 bristles. Pulvilli absent. Claws moderately curved.

Leg proportions:

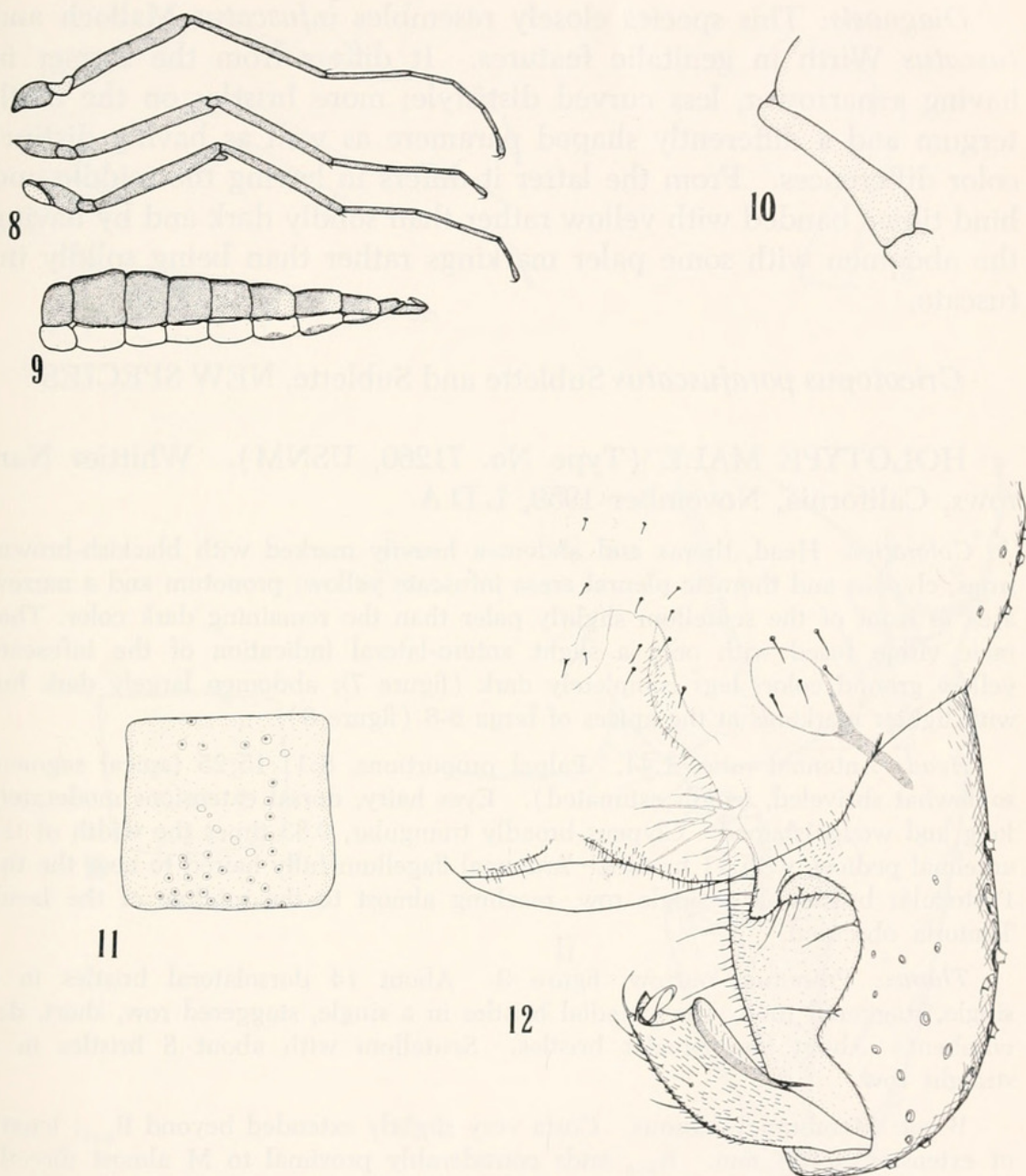
	F	Ti	Ta <sub>1</sub>	Ta <sub>2</sub>	Ta <sub>3</sub>	Ta <sub>4</sub>	Ta <sub>5</sub>	Leg Ratio
FORE	61	75	46	28	21	14	9	0.61
MIDDLE	62	63	31	17	14	9	8	0.49
HIND	60	70	40	21	17	11	9	0.57

*Abdomen:* Coloration similar to holotype male but more intense; membranes between terga narrowly pale. Spermatheca,  $0.105 \times 0.068$  mm; width of duct at base of spermathecum, 0.008 mm. Genitalia, figure 7.

*Paratypes:* P. L. Boyd Desert Research Center, (in Deep Canyon) 3.5 miles S. Palm Desert, Riverside Co., California, 3 males at white light, 5 males, 1 female at UV light, 15 May 1969, Marker #58, Saul Frommer and L. LaPré; 2 males, 18 May 1969, Malaise trap, Marker 5680, M. E. Irwin; 1 female, 23 July 1969, at UV light, 100' downstream from gauging station, Saul Frommer, L. LaPré and W. Ewart; 1 male, 20 June 1969, at UV light, between Markers #0-1, Saul Frommer and L. LaPré; 2 males 15 May 1969, isolated pools between Marker #54-58, Saul Frommer and L. LaPré; 4 males, 21 females, 26 June 1969, at UV light, Markers #0-1, Saul Frommer and L. LaPré; Deep Canyon, Riverside Co., Calif., 5 females, 23 June 1964, E. I. Schlinger; 9 females, 24 September 1963, at light, E. I. Schlinger and M. E. Irwin; 4 females, 28 October 1963, at light, E. I. Schlinger and M. E. Irwin; 12 females, 18 May 1964, at light, M. E. Irwin; 1 female, 28 March 1963, E. I. Schlinger. (Paratypes deposited in the USNM, California Academy of Science, University of California, Riverside, and the author's collections).

**MALES.**—Wing length, range 1.54 to 1.95, mean 1.80 mm (8); foreleg ratio, range 0.54 to 0.61, mean 0.58 (8); middle leg ratio, range 0.42 to 0.47, mean





*Cricotopus parafuscatus* Sublette and Sublette, NEW SPECIES, holotype male: Figure 8, color pattern of legs, semidiagrammatic. Figure 9, color pattern of abdomen, semidiagrammatic. Figure 10, lateral view of pronotum. Figure 11, chaetotaxy of Tergum III, lateral view. Figure 12, genitalia.

0.45 (8); hind leg ratio, range 0.54 to 0.57, mean 0.56 (8); antennal ratio, range 1.09 to 1.29, mean 1.21 (6); venarum ratio, range 1.09 to 1.12, mean 1.10 (8).

FEMALES.—Wing length, range 1.40 to 1.81, mean 1.61 (9); foreleg ratio, range 0.55 to 0.61, mean 0.56 (8); middle leg ratio, range 0.41 to 0.46, mean 0.43 (11); hindleg ratio, range 0.52 to 0.61, mean 0.56 (13); venarum ratio, range 1.06 to 1.14, mean 1.10 (11).



*Diagnosis:* This species closely resembles *infuscatus* Malloch and *fuscatus* Wirth in genitalic features. It differs from the former in having a narrower, less curved dististyle; more bristles on the ninth tergum and a differently shaped paramere as well as having distinct color differences. From the latter it differs in having the middle and hind tibiae banded with yellow rather than solidly dark and by having the abdomen with some paler markings rather than being solidly infusate.

*Cricotopus parafuscatus* Sublette and Sublette, NEW SPECIES

HOLOTYPE MALE (Type No. 71260, USNM). Whittier Narrows, California, November 1959, L.D.A.

*Coloration:* Head, thorax and abdomen heavily marked with blackish-brown; frons, clypeus and thoracic pleural areas infusate yellow; pronotum and a narrow area in front of the scutellum slightly paler than the remaining dark color. Thoracic vittae fused with only a slight antero-lateral indication of the infusate yellow ground color; legs completely dark (figure 7); abdomen largely dark but with lighter markings at the apices of terga 6-8 (figure 8).

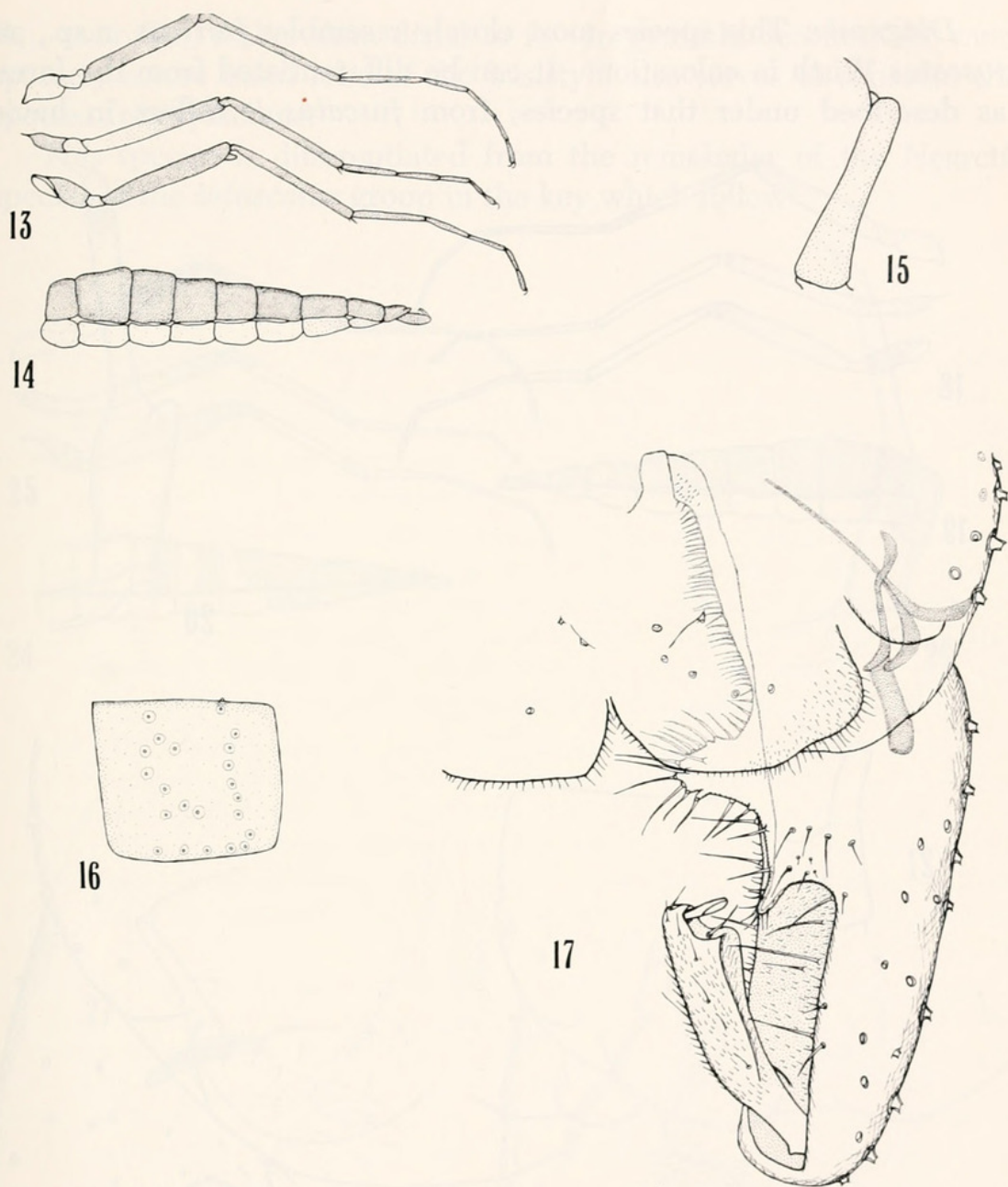
*Head:* Antennal ratio, 1.44. Palpal proportions, 8:11:15:25 (apical segment somewhat shriveled, length estimated). Eyes hairy, dorsal extensions moderately long and wedge-shaped. Clypeus broadly triangular, 0.83 times the width of the antennal pedicel, with 11 bristles. Antennal flagellum fully haired to near the tip. Postocular bristles in a single row, reaching almost to the midline of the head. Tentoria obscured.

*Thorax:* Pronotum narrow, figure 9. About 14 dorsolateral bristles in a single, staggered row. Dorsomedial bristles in a single, staggered row, short, decumbent. About four prealar bristles. Scutellum with about 8 bristles in a straight row.

*Wing:* Membrane glabrous. Costa very slightly extended beyond  $R_{4+5}$ ; length of extension, 0.023 mm.  $R_{4+5}$  ends considerably proximal to M almost directly over  $Cu_1$ .  $R_{2+3}$  ends at 0.50 of the distance between the apex of  $R_1$  and  $R_{4+5}$ .  $Cu_2$  rather strongly downcurved beyond the middle then recurved, down-curved portion at an angle of  $23^\circ$  to basal part of  $Cu_2$ . Anal margin of wings crumpled. Anal lobe well developed, right angled. Venarum ratio, 1.11. Squama with at least 11 fringe hairs. Wing length, 2.53 mm.

*Legs:* Foretarsus with short hairs only. Foretibial spur long; ratio of length of spur to apical diameter of tibia, 12:9. Middle tibial spurs subequal in length; ratio of lengths, 5:5; ratio of length of spurs to apical diameter of tibia, 5:10. Ratio of length of hind tibial spurs, 3:13; longer spur sinuate with side denticles reaching almost to the middle of the spur; ratio of length of longer spur to apical diameter of the tibia, 13:12. Hind tibial comb of 13 bristles. Pulvilli present, very small. Claws moderately curved, with bifurcate tips.





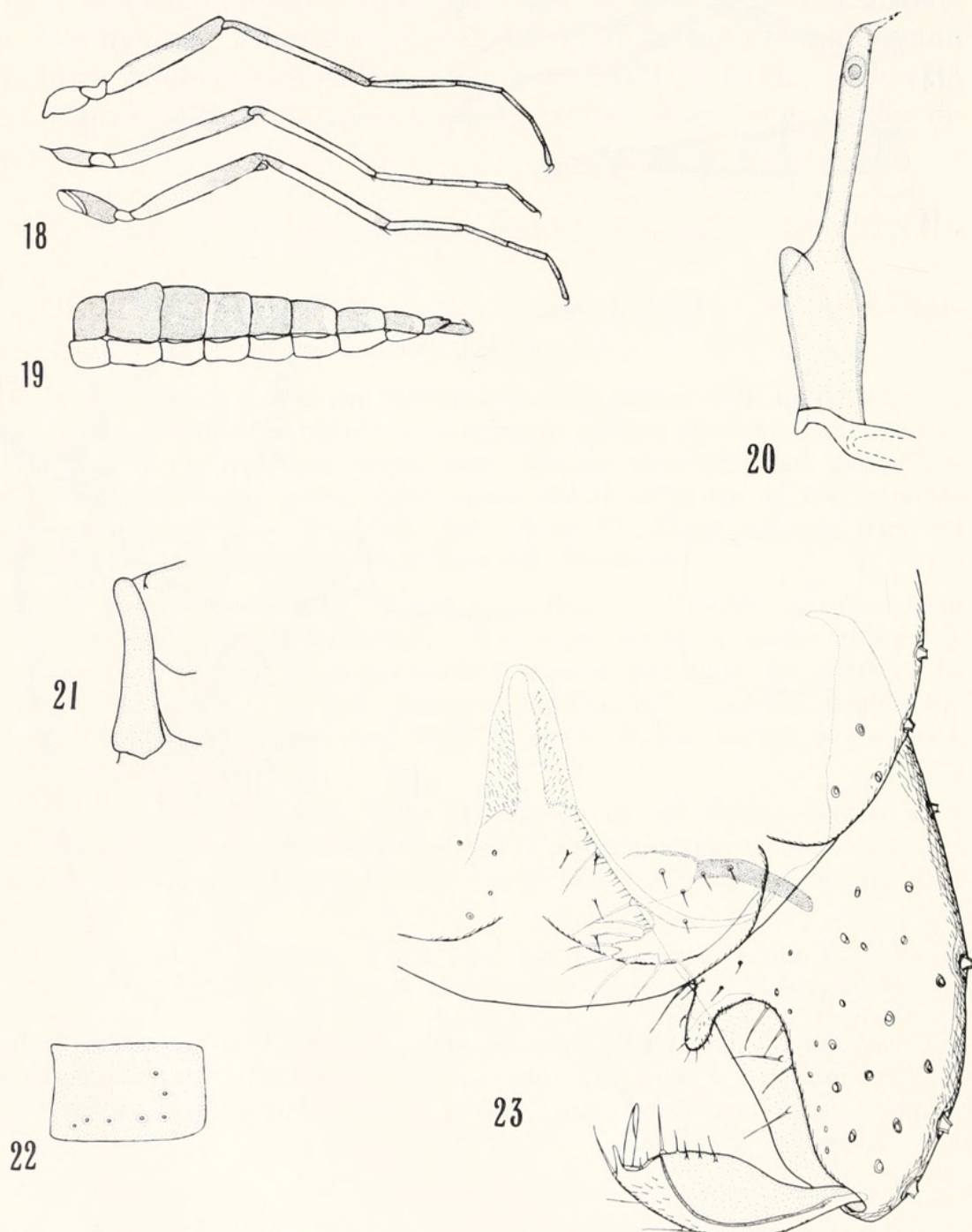
*Cricotopus fuscatus* Wirth, paratype male: Figure 13, color pattern of legs, semidiagrammatic. Figure 14, color pattern of abdomen, semidiagrammatic. Figure 15, pronotum, lateral view. Figure 16, chaetotaxy of Tergum III, lateral view. Figure 17, genitalia.

Leg proportions:

	F	Ti	Ta <sub>1</sub>	Ta <sub>2</sub>	Ta <sub>3</sub>	Ta <sub>4</sub>	Ta <sub>5</sub>	Leg Ratio
FORE	52	66	59	21	15	11	7	0.59
MIDDLE	54	56	26	14	10	7	7	0.46
HIND	55	65	36	18	14	8	8	0.55

Abdomen: Chaetotaxy of Tergum III, figure 11; genitalia, figure 12.

**Diagnosis:** This species most closely resembles *furtivus*, n.sp., and *fuscatus* Wirth in coloration. It can be differentiated from the former as described under that species; from *fuscatus* it differs in having

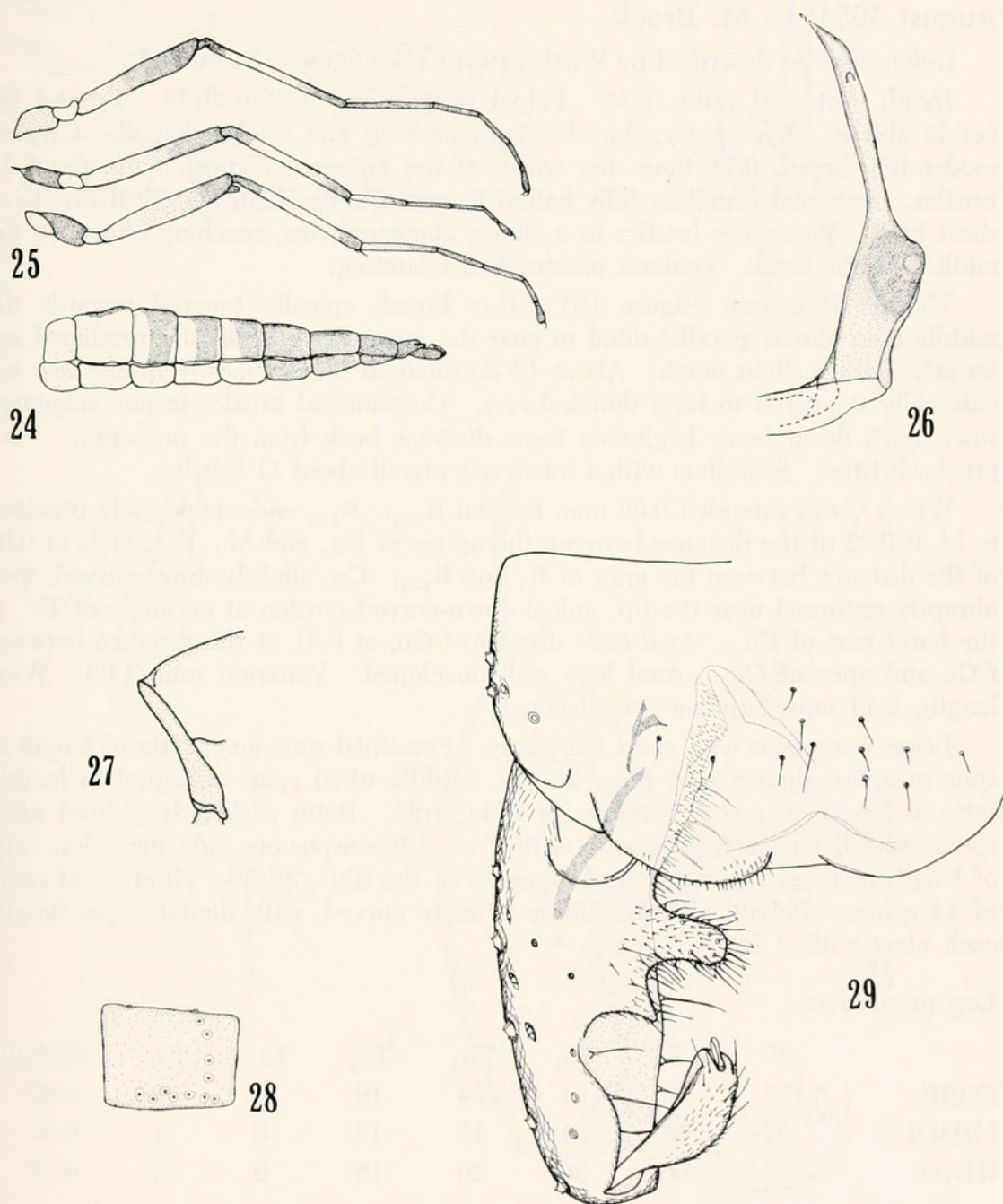


*Cricotopus obscurifuscus* Sublette and Sublette, NEW SPECIES: Figure 18, color pattern of legs, semidiagrammatic, holotype male. Figure 19, color pattern of abdomen, semidiagrammatic, holotype male. Figure 20, tentorium, paratype male. Figure 21, pronotum, lateral view, holotype male. Figure 22, chaetotaxy, Tergum III, paratype male. Figure 23, genitalia, holotype male.



$R_{4+5}$  over  $Cu_1$ , rather than distal to it. In genitalic features the more sparsely setose basal lobe of the basistyle also serves to separate this species from *fuscatus*.

This species is differentiated from the remainder of the Nearctic species of the *infuscatus* group in the key which follows.



*Cricotopus irwini* Sublette and Sublette, NEW SPECIES, holotype male: Figure 24, color pattern of abdomen, semidiagrammatic. Figure 25, color pattern of legs, semidiagrammatic. Figure 26, tentorium. Figure 27, pronotum, lateral view. Figure 28, chaetotaxy, of Tergum III, lateral view. Figure 29, genitalia.



*Cricotopus fuscatus* Wirth

*Cricotopus fuscatus* Wirth, 1957, Pan-Pacific Ent. 60:247-250.

*Material Examined:*

PARATYPE MALE, Sagehen Creek, Hobart Mills, California, 23 August 1954, E. M. Brock.

*Coloration:* As described by Wirth (1957) (See figures 13 and 14).

*Head:* Antennal ratio, 1.34. Palpal proportions, 12:20:20:45. Frontal tubercle absent. Eyes hairy, dorsal extensions long and wedge-shaped. Clypeus moderately broad, 0.71 times the width of the antennal pedicel, with about 16 bristles. Antennal flagellum fully haired to near the tip; with an apical rosette of short hairs. Postocular bristles in a single, staggered row, reaching almost to the midline of the head. Tentoria obscured in mounting.

*Thorax:* Pronotum (figure 15) rather broad, apically tapered towards the middle then almost parallel-sided to near the apex which is slightly produced anteriorly; with a slight notch. About 19 dorsolateral bristles mostly in one row occasionally staggered to form doubled row. Dorsomedial bristles in one staggered row, short, decumbent; beginning some distance back from the pronotum. Five prealar bristles. Scutellum with a transverse row of about 11 bristles.

*Wing:* Costa extended 0.06 mm. beyond  $R_{4+5}$ .  $R_{4+5}$  ends moderately proximal to M at 0.22 of the distance between the apices of  $Cu_1$  and M.  $R_{2+3}$  ends at 0.50 of the distance between the apex of  $R_1$  and  $R_{4+5}$ .  $Cu_2$  slightly down-curved, then abruptly upturned near the tip; apical down-curved portion at an angle of  $18^\circ$  to the basal part of  $Cu_2$ . Anal ends distal to f-Cu, at 0.31 of the distance between f-Cu and apex of  $Cu_2$ . Anal lobe well developed. Venarum ratio 1.09. Wing length, 2.49 mm. Squama fully fringed.

*Legs:* Foretarsus with short hairs only. Foretibial spur long, ratio of length of spur to apical diameter of tibia, 25:19. Middle tibial spurs subequal in length; ratio of length to apical diameter of tibia, 7:21. Ratio of length of hind tibial spurs, 10:26; longer spur sinuate with 1 or 2 inconspicuous side denticles; ratio of length of longer spur to apical diameter of the tibia, 26:25. Hind tibial comb of 14 spines. Pulvilli absent. Claws strongly curved, with digitate tips; basally each claw with 3 hairs.

## Leg proportions:

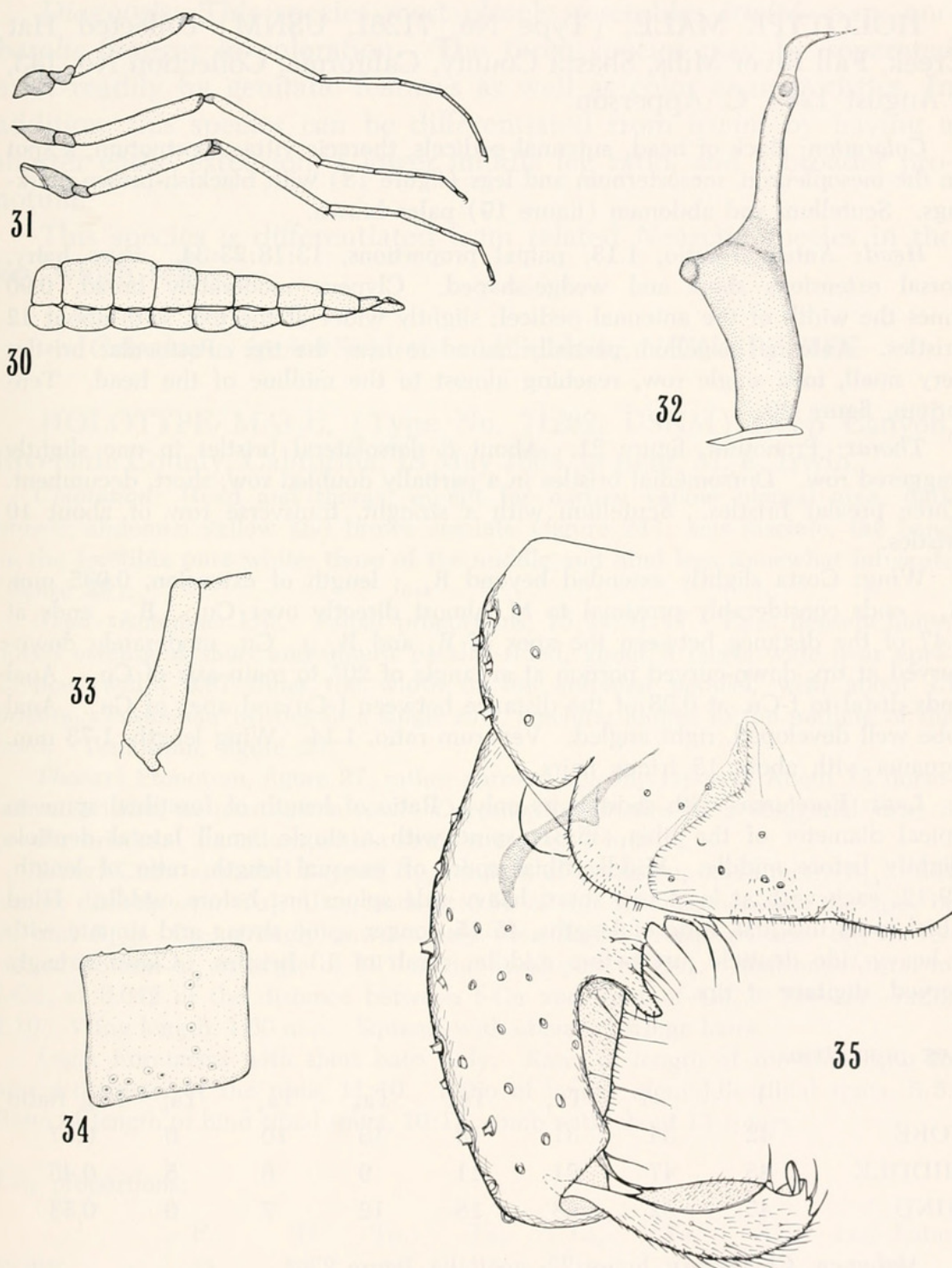
	F	Ti	Ta <sub>1</sub>	Ta <sub>2</sub>	Ta <sub>3</sub>	Ta <sub>4</sub>	Ta <sub>5</sub>	Leg Ratio
FORE	52	68	41	24	19	13	9	0.60
MIDDLE	57	58	21	16	12	8	7	0.36
HIND	53	66	36	20	15	9	8	0.55

*Abdomen:* Chaetotaxy of Tergum III, figure 16; genitalia, figure 17.

*Other material examined:* Paratypes, 1 male, 1 female, Sagehen Creek, Hobart Mills, California, 23 August 1954, E. M. Brock. (USNM) Male: Wing length, 2.53. Venarum ratio, 1.14. Antennal ratio, 1.31. Leg ratios, fore, 0.62; middle,



0.48; hind, 0.58. Female: Wing length, 2.89. Venarum ratio, 1.10. Antennal proportions, 9:6:7:7:20. Leg ratios, fore, 0.57; middle, 0.46; hind, 0.57.



*Cricotopus subfuscus* Sublette and Sublette, NEW SPECIES, holotype male: Figure 30, color pattern of abdomen, semidiagrammatic. Figure 31, color pattern of legs, semidiagrammatic. Figure 32, tentorium, paratype male. Figure 33, pronotum, lateral view. Figure 34, chaetotaxy of Tergum III, lateral view. Figure 35, genitalia.



*Cricotopus obscurifuscus* Sublette and Sublette, NEW SPECIES

HOLOTYPE MALE, (Type No. 71261, USNM) collected Hat Creek, Fall River Mills, Shasta County, California, Collection No. 143, 5 August 1969, C. Apperson.

*Coloration*: Back of head, antennal pedicels, thoracic vittae, postnotum, a spot on the mesopleuron, mesosternum and legs (figure 18) with blackish-brown markings. Scutellum and abdomen (figure 19) paler brown.

*Head*: Antennal ratio, 1.13; palpal proportions, 13:18:23:34. Eyes hairy, dorsal extensions short and wedge-shaped. Clypeus moderately broad, 0.90 times the width of the antennal pedicel; slightly wider at the top, with about 12 bristles. Antennal flagellum partially haired to near the tip. Postocular bristles very small, in a single row, reaching almost to the midline of the head. Tentorium, figure 20.

*Thorax*: Pronotum, figure 21. About 6 dorsolateral bristles in one slightly staggered row. Dorsomedial bristles in a partially doubled row, short, decumbent. Three prealar bristles. Scutellum with a straight, transverse row of about 10 bristles.

*Wing*: Costa slightly extended beyond  $R_{4+5}$ ; length of extension, 0.035 mm.  $R_{4+5}$  ends considerably proximal to M, almost directly over  $Cu_1$ .  $R_{2+3}$  ends at 0.47 of the distance between the apex of  $R_1$  and  $R_{4+5}$ .  $Cu_2$  moderately down-curved at tip; down-curved portion at an angle of  $20^\circ$  to main axis of  $Cu_2$ . Anal ends distal to f-Cu, at 0.28 of the distance between f-Cu and apex of  $Cu_2$ . Anal lobe well developed, right angled. Venarum ratio, 1.14. Wing length, 1.73 mm. Squama with about 15 fringe hairs.

*Legs*: Foretarsus with short hairs only. Ratio of length of foretibial spine to apical diameter of the tibia, 35:31; spine with a single, small lateral denticle slightly before middle. Middle tibial spurs of unequal length, ratio of length, 19:12; each with at least two short, heavy side spines just before middle. Hind tibial spurs unequal, ratio of lengths, 45:15; longer spine strong and sinuate with a heavy side denticle just before middle; comb of 13 bristles. Claws strongly curved, digitate at tips.

Leg proportions:

	F	Ti	Ta <sub>1</sub>	Ta <sub>2</sub>	Ta <sub>3</sub>	Ta <sub>4</sub>	Ta <sub>5</sub>	Leg Ratio
FORE	42	54	31	18	13	10	6	0.57
MIDDLE	45	47	21	11	9	6	5	0.45
HIND	45	52	28	15	12	7	6	0.53

*Abdomen*: Chaetotaxy, figure 22; genitalia, figure 23.

*Paratypes*: 3 males, Hat Creek, Fall River Mills, Shasta Co., California, C. Apperson, Collection No. 143, 5 August 1969. (Paratypes in California Academy of Science and the author's collection.) Wing length, range 1.73 to 1.78, mean 1.76 (3). Venarum ratio, range 1.07 to 1.12, mean, 1.09 (3). Leg ratios: fore,



range 0.59 to 0.62, mean 0.60; middle, range 0.45 to 0.47, mean 0.46; hind, 0.54 to 0.57, mean 0.56 (3).

**Diagnosis:** This species most closely resembles *irwini*, n.sp. and *basalis* Staeger in coloration. The three species may be separated most readily by genitalic features as well as color characteristics. In addition, this species can be differentiated from *irwini* by having a shorter costal extension, a lower middle leg ratio, and a broader pronotum.

This species is differentiated from related Nearctic species in the key which follows.

### *Cricotopus irwini* Sublette and Sublette, NEW SPECIES

**HOLOTYPE MALE**, (Type No. 71262, USNM) Deep Canyon, Riverside County, California, 18 May 1964, at light, M. E. Irwin.

**Coloration:** Head and thorax, except for narrow yellow pleural area, dark brown; abdomen yellow and brown fasciate (figure 24); legs fasciate, the band on the foretibia pure white; those of the middle and hind legs somewhat infuscate (figure 25).

**Head:** Antennae lost. Palpal proportions, 15:24:31:47. Eyes densely hairy, dorsal extensions short and almost parallel-sided, about 3 facets wide near apex. Clypeus width 0.97 times the width of the antennal pedicel, with about 15 bristles. Postocular bristles in a single row, reaching almost to the midline of the head. Tentorium, figure 26.

**Thorax:** Pronotum, figure 27, rather narrow, apically tapered. About 12 dorso-lateral bristles, in mostly one row. Dorsomedial bristles in a staggered row; 3 prealar bristles. Scutellum with a straight row of 4 bristles.

**Wing:** Costa extended beyond  $R_{4+5}$ ; length of extension, 0.042 mm.  $R_{4+5}$  ends almost directly over  $Cu_1$ .  $R_{2+3}$  ends at 0.56 of the distance between the apex of  $R_1$  and  $R_{4+5}$ .  $Cu_2$  strongly down-curved then slightly recurved near tip; down-curved portion at an angle of  $19^\circ$  to the basal part of  $Cu_2$ . Anal ends distal to f-Cu, at 0.042 of the distance between f-Cu and apex of  $Cu_2$ . Venarum ratio, 1.10. Wing length, 1.60 mm. Squama with about 12 fringe hairs.

**Legs:** Foretarsus with short hairs only. Ratio of length of foretibial spur to apical diameter of the tibia, 11:10. Ratio of length of middle tibial spurs, 5:5. Ratio of length of hind tibial spurs, 10:15, comb with about 13 spines.

Leg proportions:

	F	Ti	Ta <sub>1</sub>	Ta <sub>2</sub>	Ta <sub>3</sub>	Ta <sub>4</sub>	Ta <sub>5</sub>	Leg Ratio
FORE	42	52	31	16	13	10	6	0.60
MIDDLE	43	42	22	11	8	6	5	0.52
HIND	40	50	28	13	10	6	6	0.56

**Abdomen:** With a mid-dorsal, anterior and posterior large seta; with a sparse



row of transverse setae near posterior border and with a sparse lateral row on each side (figure 28); genitalia, figure 29.

*Diagnosis:* The unusually strongly projecting and setiferous basal lobe on the basistyle is distinctive among Nearctic *Cricotopus*. The combination of color characteristics as given in the key which follows is also unique.

### *Cricotopus subfuscus* Sublette and Sublette, NEW SPECIES

**HOLOTYPE MALE** (Type No. 71263, USNM), Hat Creek, Fall River Mills, Shasta County, California, 5 April 1969, C. Apperson.

*Coloration:* Antennae, thoracic vittae, postnotum, mesosternum, a spot on each mesopleuron and a narrow rim on scutellum blackish-brown. Head and thoracic ground color infusate yellow, palpi somewhat darker. Abdomen (figure 30), almost uniformly infusate with a slight greenish tinge. Legs (figure 31), with the coxae, trochanters and femoral-tibial joint blackish-brown; remainder of legs infusate with the apical tarsomere darker than other segments.

*Head:* Antennal ratio, 1.39. Palpal proportions, 18:28:30:51. Eyes hairy, dorsal extensions long and wedge-shaped. Clypeus with 10 bristles, width of clypeus 1.03 times the width of the antennal pedicel. Antennal flagellum fully haired to near the tip. Tentorium, figure 32.

*Thorax:* Pronotum broad and almost parallel-sided on the apical two-thirds (figure 33). At least 12 dorsolateral bristles. About 20 dorsomedial bristles in a single, staggered row; 5 prealar bristles. Scutellum with a staggered row of about 14 bristles.

*Wing:* Length of costal extension beyond  $R_{4+5}$ , 0.034 mm.  $R_{4+5}$  ends proximal to M, at 0.21 of the distance between  $Cu_1$  and M.  $R_{2+3}$  ends at 0.50 of the distance between the apex of  $R_1$  and  $R_{4+5}$ .  $Cu_2$  down-curved near apex; down-curved portion at an angle of  $18^\circ$  to basal part. Anal ends at 0.182 of the distance between f-Cu and apex of  $Cu_2$ . Venarum ratio, 1.12. Wing length, 2.17 mm. Squama with about 11 fringe hairs.

*Legs:* Foretarsus with short hairs only. Ratio of length of foretibial spur to apical diameter of the tibia, 13:15. Ratio of middle tibial spur length, 6:6. Ratio of hind tibial spur lengths, 6:16, about 13 bristles in the comb. Pulvilli absent. Claws apically bifurcate, moderately curved.

Leg proportions:

	F	Ti	Ta <sub>1</sub>	Ta <sub>2</sub>	Ta <sub>3</sub>	Ta <sub>4</sub>	Ta <sub>5</sub>	Leg Ratio
FORE	56	66	40	24	17	12	8	0.60
MIDDLE	56	59	28	16	12	9	7	0.47
HIND	56	68	39	20	15	10	8	0.57

*Abdomen:* With a mid dorsal row of 3 to 5 setae on each tergum; each with a posterior, transverse row and a lateral longitudinal row on each side; each seta surrounded by a paler area; tergum I with the rows expanded, tergum III, figure



34; genitalia, figure 35. The narrow and strongly projecting parts of the basal lobe are distinctive.

*Paratypes*: Eleven topotypic males, wing length, range 2.04 to 2.44, mean 2.33 mm. (11); venarum ratio, range 1.09 to 1.12, mean 1.11 (10); antennal ratio, range 1.30 to 1.54, mean 1.39 (9); foreleg ratio, range 0.58 to 0.63, mean 0.61 (10); middle leg ratio, range 0.44 to 0.48, mean 0.46 (11); hind leg ratio, 0.54 to 0.61, mean 0.58 (10).

*Diagnosis*: This species can be separated from all other members of the *infuscatus* group on genitalic features as well as color as is given in the key which follows.

### *Cricotopus furtivus* Sublette and Sublette, NEW SPECIES

HOLOTYPE MALE (Type No. 71264, USNM), Horsethief Creek, 10 miles S. Palm Desert, Riverside County, California, over stream, 12 April 1970, Saul I. Frommer.

*Coloration*: Antennal pedicels, back of head, thoracic vittae, mesosternum, a spot on each mesopleuron, postnotum and legs (figure 36) with blackish-brown markings; antennal flagella, palpi, scutellum and abdomen (figure 37) somewhat paler.

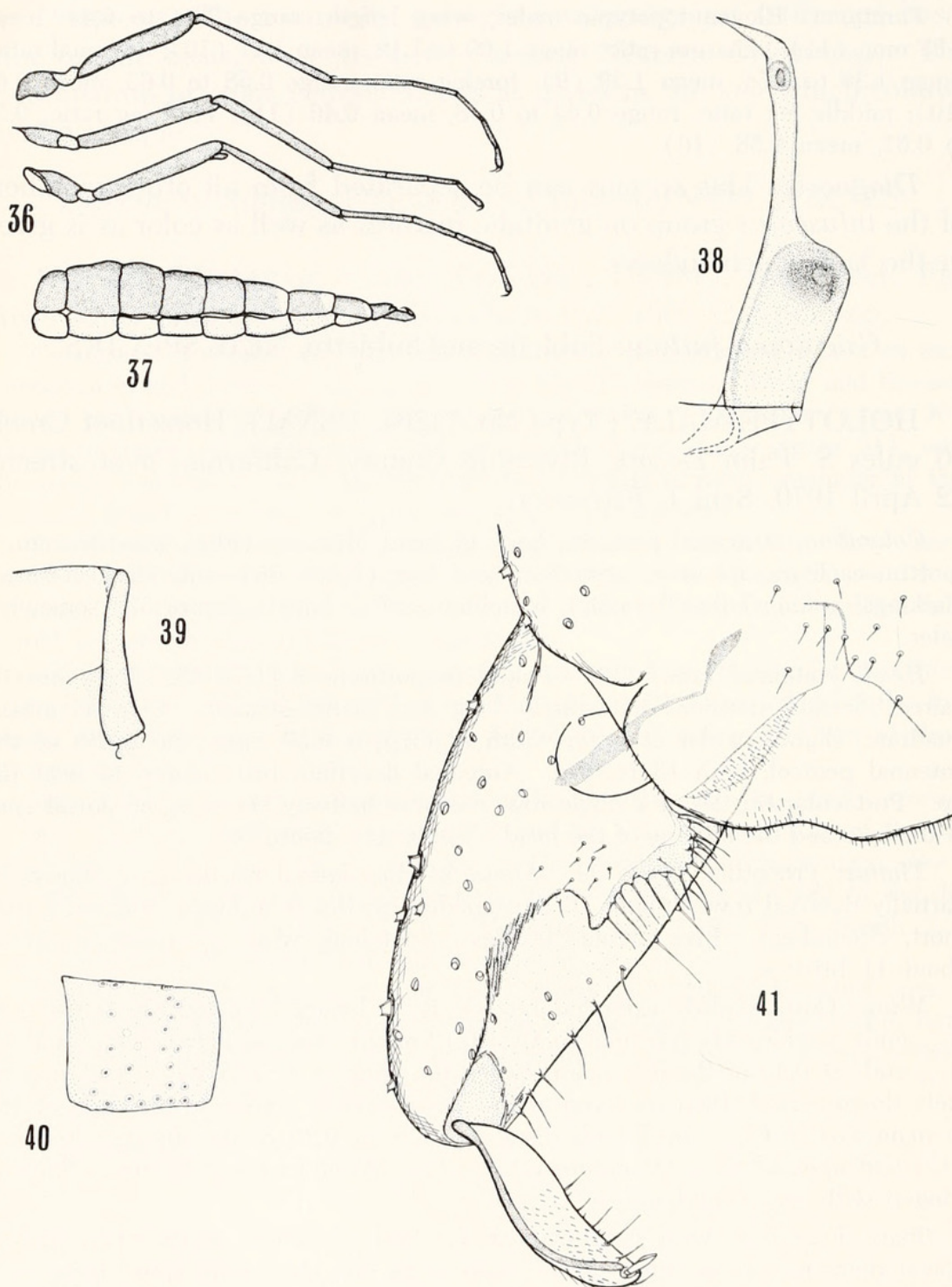
*Head*: Antennal ratio, 1.33. Palpal proportions, 8:11:15:25. Eyes heavily haired; dorsal extensions moderately long and wedge-shaped. Clypeus almost quadrate, slightly wider at base; width of clypeus 0.50 times the width of the antennal pedicel; with 13 bristles. Antennal flagellum fully haired to near the tip. Postocular bristles in a single row, reaching halfway between the dorsal apex of the eyes and the midline of the head. Tentorium, figure 38.

*Thorax*: Pronotum, figure 39. About 24 dorsolateral bristles in a staggered, partially doubled row. About 16 dorsomedial bristles in a single, staggered row, short, decumbent. Five prealar bristles. Scutellum with a transverse row of about 11 bristles.

*Wing*: Costa slightly extended beyond  $R_{4+5}$ ; length of extension, 0.035 mm.  $R_{4+5}$  ends considerably proximal to M at 0.13 of the distance between  $Cu_1$  and M.  $R_{2+3}$  ends at 0.43 of the distance between the apex of  $R_1$  and  $R_{4+5}$ .  $Cu_2$  moderately down-curved, then recurved at tip; down-curved portion at an angle of  $15^\circ$  to main axis of  $Cu_2$ . Anal ends distal to f-Cu, at 0.20 of the distance between f-Cu and apex of  $Cu_2$ . Venarum ratio, 1.13. Wing length 2.13 mm. Squama fringed with about 12 hairs.

*Legs*: Foretarsus with short hairs only. Ratio of length of foretibial spur to apical diameter of the tibia, 22:17; spur with one short side spine below the middle. Middle tibial spurs subequal in length; ratio of length to apical diameter of tibia, 10:18; spurs with one or two short side spines below middle. Ratio of lengths of hind tibial spurs, 9:22; longer spur somewhat sinuate with side spines below the middle of main spine; comb of about 12 spines. Pulvilli absent. Claws curved with digitate tips.





*Cricotopus furtivus* Sublette and Sublette, NEW SPECIES, holotype male. Figure 36, color pattern of legs, semidiagrammatic. Figure 37, color pattern of abdomen, semidiagrammatic. Figure 38, tentorium. Figure 39, pronotum, lateral view. Figure 40, chaetotaxy of Tergum III, lateral view. Figure 41, genitalia.



Leg proportions:

	F	Ti	Ta <sub>1</sub>	Ta <sub>2</sub>	Ta <sub>3</sub>	Ta <sub>4</sub>	Ta <sub>5</sub>	Leg Ratio
FORE	44	55	34	22	15	10	8	0.62
MIDDLE	46	48	23	13	9	6	6	0.48
HIND	45	55	29	16	13	7	7	0.53

*Abdomen:* Terga each with an anterior and a posterior irregular band of setae which become joined laterally (figure 40); genitalia, figure 41.

*Diagnosis:* This species resembles *fuscatus* Wirth and *parafuscatus*, n.sp. in having all legs largely dark. It can be differentiated from both species in having the R<sub>2+3</sub> terminate at 0.43 of the distance between the apex of R<sub>1</sub> and R<sub>4+5</sub> rather than halfway as in those species. The termination of R<sub>4+5</sub> is more distal than *parafuscatus* and more proximal than *fuscatus*. The pronotum is apically more tapered than in those species. Above all, the male genitalia are distinctive among Nearctic *Cricotopus*.

This species is differentiated from the remainder of the Nearctic species of the *infuscatus* group in the key which follows.

#### KEY TO THE NEARCTIC SPECIES OF THE INFUSCATUS GROUP OF THE GENUS CRICOTOPUS

1. All tibiae entirely dark ..... 2
- 1'. With at least some tibiae fasciate yellow or white or almost entirely pale ..... 4
2. Fore coxa and basal half of middle femura infusate yellow; Length of costal extension about 0.06 mm. .... **fuscatus** Wirth
- 2'. Fore coxa and basal half of middle femur dark; length of costal extension less than 0.04 mm. .... 3
3. Proximal portion of basistyle lobe longer, with about 6 bristles; 9th tergum with about 13 bristles on either side of the midline (figure 12) ... **parafuscatus** n.sp.
- 3'. Proximal portion shorter and broader, with about 12 bristles; 9th tergum with 5-6 bristles on either side of the midline (figure 41) .... **furtivus** n.sp.
4. Fore tibia dark ..... 5
- 4'. Fore tibia with a median whitish, yellowish or infusate yellow fascia or tibia mostly pale infusate yellow ..... 7
5. Middle and hind tibiae with both a proximal and a distal dark band ... **edurus** n.sp.
- 5'. Middle and hind tibiae entirely pale ..... 6
6. Middle and hind femora with the basal half pale .... **ceris** Roback (Pennsylvania)
- 6'. Middle and hind femora narrowly infusate yellow on base ..... **infuscatus** Malloch (Central U.S.)
7. All legs pale infusate with the femoral-tibial articulation conspicuously darkened as are the coxa and trochanter ..... **subfuscus** n.sp.
- 7'. Legs with contrasting light and dark fasciae ..... 8
8. Middle and hind tibiae with both basal and apical dark fasciae ..... 9
- 8'. Middle and hind tibiae with only apical dark fasciae ..... 11
9. Apical dark fascia of fore tibia broader than basal ..... **irwini** n.sp.



- 9'. Basal and apical dark fasciae subequal in length ..... 10
10. Yellow tibial fasciae on all legs infusate; basal and apical dark fasciae on middle and hind tibiae broad (genitalia, cf. figure 6, Oliver, 1962) .....  
..... *basalis* (Staeger) (N. Canada, Greenland, N. Europe)
- 10'. Yellow fasciae infuscae only on fore leg; dark fasciae on middle and hind tibiae narrow, (genitalia, figure 23) ..... *obscurifusus* n.sp.
11. Genitalia with anal point (Sublette, 1966, figure 8) wing length about 2.5 mm.  
..... *varipes* (Coquillett) (Eastern N. America)
- 11'. Genitalia without anal point (Sublette, 1967, figure 23) wing less than 2.0 mm.  
..... *exilis* Johannsen (Eastern N. America)

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ABSTRACT.—The *Cricotopus infuscatus* group in California includes *C. fuscatus* Wirth and six new species, *C. parafuscatus*, *C. edurus*, *C. obscurifuscus*, *C. irwini*, *C. subfuscus*, and *C. furtivus*. A key to Nearctic species of the group is given. JAMES E. SUBLETTE and MARY F. SUBLETTE, *Eastern New Mexico University, Portales, NM 88130*.

*Descriptors:* California, Diptera, Chironomidae, Orthoclaadiinae, *Cricotopus infuscatus* group.





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