

DESCRIPTIONS OF FIFTEEN NEW SPECIES OF CERATOCAPSUS (HEMIPTERA, MIRIDÆ).*

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The writer has published a key in the "Hemiptera of Connecticut" (1923) to the species of *Ceratocapsus* known from the northeastern United States. Since then considerable material from the south and southwestern states has been studied with the result that several new species have been recognized. The writer is preparing a key in which it is hoped to include all the known North American species, and later to publish with figures of the male genitalia for each species. However, pressure from various students for determinations of species has made it necessary to publish descriptions and make the names available at the earliest possible moment, with the result that the present paper is offered now.

Ceratocapsus taxodii new species.

Allied to *luteus* Kngt., and runs in the couplet with that species in my key (Hem. Conn., 1923, p. 525), but is distinguished by length of antennal segment II which is slightly greater than width of vertex plus dorsal width of an eye, also by the smaller size and reddish coloration, and yellow antennæ having segment IV reddish.

♂. Length 3.2 mm., width 1.3 mm. Head: width .77 mm., vertex .26 mm. Rostrum, length 1.17 mm., reaching to middle of hind coxæ. Antennæ: segment I, length .27 mm.; II, .86 mm.; III, .51 mm.; IV, .51 mm.; all segments nearly equal in thickness, yellow, segment IV reddish. Pronotum: length .60 mm., width at base 1.08 mm.; impunctate, alutaceous like the hemelytra. General body form very similar to *luteus*; coloration nearly uniformly reddish, in dark specimens becoming dark reddish due to a slight infuscation of the chitin; legs and antennæ uniformly yellowish except segment IV which is reddish. Pubescence very similar to that of *luteus*, although the simple pubescence somewhat more prominent. Membrane uniformly pale fuscous, becoming gradually paler toward base. Genitalia distinctive, form near that of *luteus* but the right clasper with apical third decurved and flattened at apex to a chisel-like edge.

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♀. Length 3.1 mm., width 1.3 mm. Head Width .68 mm., vertex .31 mm. Antennæ: segment I, length .27 mm.; II, .86 mm.; III, .51 mm.; IV, .51 mm. Pronotum: length .60 mm., width at base 1.08 mm. Very similar to the male in pubescence and coloration.

Holotype: ♂, June 16, 1927, Colyell, Louisiana (H. H. Knight); author's collection.

Allotype: Same data as the type.

Paratypes: 14 ♂ ♀, taken with the types on cypress (*Taxodium distichum*). FLORIDA—♂ ♀, June 1, Sanford; 10 ♂ ♀, July 23, 1926, Jacksonville, (E. D. Ball). ILLINOIS—♂, June 28, 1909, Pulaski (C. A. Hart), in cypress swamp. LOUISIANA—12 ♂ ♀, June 15, Bogaloussa; ♂, June 15, Covington; 2 ♂ 2 ♀, June 18, 1917, Shriever (H. H. Knight). MISSISSIPPI—6 ♂ ♀, July 24, Columbus; ♂ 2 ♀, July 15, Durant; ♀, July 23, Natchez; ♂ 2 ♀, July 22, Port Gibson; 2 ♀, June 18, Vicksburg (C. J. Drake). TENNESSEE—18 ♂ ♀, July 16, 1919, Walnut log (W. L. McAtee), on cypress.

Ceratopsus bifurcus new species.

Allied to *lutescens* Reut., and very similar in coloration, but differs in the more prominent, bristly pubescence, vertex broadly but distinctly concave, and by the very distinct genital claspers.

♂. Length 4.1 mm., width 1.8 mm. Head: width .91 mm., vertex .30 mm.; eyes more prominent above than in *lutescens*, being emphasized by the shallowly concave vertex. Rostrum, length 1.43 mm., attaining hind margins of intermediate coxæ. Antennæ: segment I, length .37 mm.; II, 1.28 mm.; III, .63 mm.; IV, missing. Pronotum: length .74 mm., width at base 1.4 mm.

Coloration nearly identical with *lutescens*; uniformly pale yellowish, head and two lines above base of coxal cleft bright red. Genital claspers distinctive; left clasper with basal, dorsally projecting process, bifurcate on apical half and curving distad, the dorsal prong more slender and curving inward. Right clasper very different from *lutescens* and *rubricornis*, being more nearly the form of *modestus* Uhl., but the apical half decurved, thick, and ending in an abrupt sharp point.

♀. Length 4 mm., width 1.9 mm. Head: width .86 mm., vertex .37 mm. Antennæ: segment I, length .37 mm.; II, 1.33 mm.; III, .60 mm.; IV, .56 mm. Pronotum: length .78 mm., width at base 1.46 mm. Similar to the male in coloration and pubescence.

Holotype: ♂, April 2, 1921, Miami, Florida (D. M. DeLong); author's collection.

Allotype: May 5, 1926, Cocoa, Florida (E. D. Ball); author's collection.

Paratype: ♀, June 14, 1921, Miami, Florida (D. M. DeLong). ♀, April 20, 1912, Marco, Florida (W. T. Davis). 2♂ 4♀, July 23, 1926, Jacksonville (E. D. Ball).

Ceratocapsus rubricornis new species.

Allied to *lutescens* Reut., and very similar in coloration, but distinguished by the genital claspers and the uniformly red antennæ.

♂. Length 4.3 mm., width 1.7 mm. Head: width .87 mm., vertex .31 mm. Rostrum, length 1.4 mm., reaching upon base of hind coxæ. Antennæ: segment I, length .47 mm.; II, 1.5 mm., equal in thickness to segment I, although more slender basally; III, .77 mm.; IV, .70 mm.; deep red, last two segments somewhat darker red. Pronotum: length .86 mm., width at base 1.4 mm.; relatively longer than in *lutescens*.

Coloration and pubescence nearly as in *lutescens*, but differs in the uniformly red antennæ; uniformly yellowish, head, propleura above middle of coxal cleft, and hind tibiæ, bright red. Genital claspers distinctive; differs from *lutescens* by the long decurved, sickle-shaped apical half of right clasper, and the broader basal spine.

♀. Length 4.4 mm., width 1.9 mm. Head: width .81 mm., vertex .37 mm. Antennæ: segment I, length .47 mm.; II, 1.63 mm.; III, broken. Pronotum: length .80 mm., width at base 1.43 mm. Coloration and pubescence similar to the male.

Holotype: ♂, June 22, 1921, Agricultural College, Mississippi (C. J. Drake); author's collection.

Allotype: Same date as the type.

Paratype: ♂, taken with the type.

Ceratocapsus divaricatus new species.

This species runs to *incisus* Knegt. in my key (Hem. Conn., 1923, p. 525), but differs in the sparsely set, erect long hairs on hemelytra, in the larger and more prominent eyes, and the more strongly infuscated membrane.

♂. Length 3.3 mm., width 1.2 mm. Head: width .78 mm., vertex .25 mm. Rostrum, length 1.03 mm., scarcely attaining posterior margins of intermediate coxæ. Antennæ: segment I, length .23 mm., brown, a red annulus at base; II, .73 mm., gradually thickened from base toward apex where it attains the thickness of segment I, dark fuscous brown, more reddish brown at apex; III, .41 mm., scarcely attaining the thickness of segment II, brownish black; IV, missing. Pronotum: length .68 mm., width at base 1.19 mm.; finely punctate.

Brownish black to piceous, clavus and base of corium brown; coxæ apically, bases of femora, apices of tibiæ except hind pair, and tarsi, more or less pale. Membrane dark fuscous, bordering the cuneus and

more or less behind anal vein, pale with a tinge of brown. Dorsum finely punctate; rather thickly clothed with silvery, fine scale-like pubescence, and intermixed with sparsely set, erect, long brownish hairs, the arrangement very similar to that of *setosus* Reuter. Genitalia very distinctive, right clasper with a distal acuminate process (length .185 mm.), also with an incurved sickle-shaped arm arising from the thick base. Left clasper with an erect basal process, terminating in a point turned at right angles, the apical arm makes a right angle turn dorsally, producing a vertical process which terminates above in a broad spear-shaped point set at a right angle; the points on the two arms of the clasper point in opposite directions like the hands on the upraised arms of an Egyptian dancer, but the left hand or point is much larger than the other.

Holotype: ♂, May 15, 1926, Sanford, Florida (E. D. Ball); author's collection.

Ceratocapsus balli new species.

Allied to *divaricatus*, and is distinguished most easily by the differently formed male genitalia; pronotal disk impunctate. Runs to *sericus* Kngt. in my key (Hem. Conn., 1923, p. 525) but is distinguished by the shorter antennal segments, smaller and more slender form, and by the piceous and more strongly shining aspect.

♂. Length 3.4 mm., width 1.17 mm. Head: width .74 mm., vertex .257 mm. Rostrum, length 1 mm., reaching to middle of intermediate coxæ. Antennæ: segment I, length .24 mm.; II, .85 mm.; III, .46 mm.; IV, .40 mm. Pronotum: length .60 mm., width at base 1.13 mm.; disk impunctate, strongly shining, clothed with rather long simple pubescence. Hemelytra with pubescence and punctuation nearly as in *divaricatus*; apical half of corium and cuneus piceous, strongly shining. Membrane and veins pale with yellowish tinge, dark fuscous on apical half, or behind a transverse line formed by apices of areoles.

Genital claspers distinctive, although indicating a close relationship with *divaricatus*; right clasper forming a rather long, curved, U-shaped structure, the internal arm more slender, the apex bent or hooked. Left clasper with basal prong short, acuminate, suberect, the apical arm somewhat curved, non-angulate, the apex broad and flat, forming a point at each side of the flattened apical area.

♀. Length 2.9 mm., width 1.2 mm. Head: width .66 mm., vertex .30 mm. Antennæ: segment I, length .23 mm.; II, .76 mm.; III, .44 mm.; IV, .40 mm. Pronotum: length .57 mm., width at base 1.1 mm. Coloration, pubescence, and punctuation, very similar to that of the male.

Holotype: ♂, May 15, 1926, Sanford, Florida (E. D. Ball); author's collection.

Allotype: Same data as the type.

Paratypes: ♂, May 5; ♂, May 9, 1918, Gainesville, Florida (C. J. Drake). 3 ♀, June 1, 1926, Sanford, Florida (E. D. Ball), collected on live oak.

Ceratocapsus uniformis new species.

This species runs to *incisus* Knegt., in my key (Hem. Conn., 1923, p. 525), but differs in the shorter antennal segment III, which is not equal to width of vertex plus dorsal width of an eye, in the shorter and more ovate form, uniformly dark brown color, fuscous membrane, and the differently formed genital claspers.

♂. Length 3 mm., width 1.5 mm. Head: width .70 mm., vertex .27 mm. Rostrum, length 1 mm., reaching upon middle of hind coxæ. Antennæ: segment I, length .23 mm.; II, .80 mm.; III, .43 mm.; IV, .37 mm.; yellowish, segment IV brownish, and segment I with red mark at base as in *rufistigmus*. Pronotum: length .60 mm., width at base 1.26 mm.

Dorsum more sparsely clothed with yellowish simple pubescence than in *pumilus* Uhler, and intermixed with fine scale-like pubescence; punctuation slightly stronger and more distinct. Coloration uniformly dark reddish brown, darker on anterior half of pronotum and somewhat paler on basal margin. Membrane uniformly fuscous brown. Legs yellowish, hind femora more brownish on apical half. Genital structures very suggestive of *pumilus*, but differs in the much smaller and margined tubercle above base of left clasper; the middle prong of left clasper lying flat against the large apical prong; the middle prong of the right clasper flat and blade-like.

♀. Length 3 mm., width 1.5 mm. Head: width .70 mm., vertex .31 mm. Antennæ: segment I, length .23 mm.; II, .86 mm.; III, .43 mm.; IV, .37 mm. Pronotum: length .60 mm., width at base 1.28 mm. Similar to the male in punctuation, pubescence, and coloration.

Holotype: ♂, July 18, 1915, Springfield, Missouri (H. H. Knight); author's collection.

Allotype: July 22, 1915, Hollister, Missouri (H. H. Knight).

Paratypes: DISTRICT OF COLUMBIA—♂ ♀, July 30, Aug. 18, 1907; Washington (W. L. McAtee). ILLINOIS—♂, July 20, 1909, Fountain Bluff. MARYLAND—♀, Aug. 14, Beltsville; ♂, July 12, Odenton; ♀, July 19, ♀, Aug. 2, 1914, Plummers Island (W. L. McAtee); ♀, July 9, 1905, Marshall Hall (J. G. Sanders). MISSISSIPPI—♀, July 24, Columbus; ♀, July 9, 1921, Corinth (C. J. Drake). VIRGINIA—6 ♀, July 27, 1898, Paris (O. Heidemann); ♂, Aug. 1, 1915, Mount Vernon (W. L. McAtee). WEST VIRGINIA—2 ♀, Aug. 20, 1891, Berkeley (O. Heidemann).

Ceratocapsus quadrispiculus new species.

Allied to *uniformis* and very similar in size and coloration, but differs in the strongly arcuate embolar margins and very distinct genital characters; rostrum somewhat shorter, membrane uniformly dusky, legs uniformly yellowish.

♂. Length 2.9 mm., width 1.5 mm. Head: width .68 mm., vertex .31 mm. Rostrum, length 1.04 mm., not attaining hind margins of middle coxæ. Antennæ: segment I, length .24 mm.; II, .81 mm.; III, .42 mm.; IV, .32 mm.; yellowish, segment IV reddish, segment I, with red mark near base. Pronotum: length .58 mm., width at base 1.2 mm.

Coloration very similar to *uniformis* but the dorsum more densely clothed with pubescence. Membrane uniformly dusky, paler than in *uniformis*. Legs yellowish. Genital structures distinctive; left clasper with four prongs, the middle pair having a common base, curving upward and U-shaped; right clasper with basal prong short, flat, the broad apex curving slightly upward to a point, the apical prong recurved above, rather broad and flattened at apex, and nearly reaching base of clasper, also having a short, curved subapical prong.

Holotype: ♂, June 16, 1917, Colyell, Louisiana (H. H. Knight); author's collection.

Paratypes: 2 ♂, taken with the type. ♂, July 23, 1922, Glen Echo, Maryland (J. R. Malloch).

Ceratocapsus complicatus new species.

Suggestive of *pumilus* Uhler, but having long erect simple pubescence on the dorsum as in *setuosus* Reut., runs to *pumilus* in my key (Hem. Conn., 1923, p. 525) but distinguished at once by the long erect pubescence; usually two fuscous spots are visible on pronotal disk, one behind each callus.

♂. Length 3.8 mm., width 1.5 mm. Head: width .77 mm., vertex .257 mm. Rostrum, length 1.16 mm., just attaining hind margins of middle coxæ. Antennæ: segment I, length .27 mm., yellowish, with red mark near base; II, 1 mm., yellowish; III, .57 mm., reddish brown; IV, .47 mm., dark reddish. Pronotum: length .68 mm., width at base 1.26 mm.

Coloration and punctuation nearly as in *pumilus*, but pubescence nearly as in *setosus*. Genital structures very distinctive; right clasper with basal fork directed downward where it divides into two sickle-shaped blades which recurve inwardly, the dorsal half of clasper with a pair of shorter, U-shaped prongs above, the posterior fork twice as long as the other; left clasper shaped like the tail of a fish apically, with a short spine above near base; the chitinous terminal portion of the aedeagus divided into a pair of ventrally curved blades.

Holotype: ♂, July 22, 1915, Hollister, Missouri (H. H. Knight); author's collection.

Paratypes: ♂, May 19, July 4, 1918, Gainesville, Florida (C. J. Drake). ♂, July 24, 1921, Columbus, Mississippi (C. J. Drake). 2♂, Aug. 9, 1913, Plum Point; ♂, Aug. 14, 1914, Beltsville, Maryland (W. L. McAtee).

Ceratopsus fuscicornatus new species.

Suggestive of *punctulatus* Reuter described from Texas, but differs in the shorter pubescence, shorter antennal segments, and the setigerous punctures of the dorsum not infuscated.

♂. Length 2.7 mm., width .97 mm. Head: width .67 mm., vertex .214 mm. Rostrum, length 1.03 mm., extending upon middle of hind coxæ. Antennæ: segment I, length .26 mm.; II, .91 mm., not equal to one and a half times width of head; III, .63 mm., nearly equal to width of head; IV, .38 mm.; yellowish, last segment dusky. Pronotum length .44 mm., width at base .88 mm.

Dorsum more finely and closely punctate than in *punctulatus* but the punctures not infuscated. Clothed with fine golden yellow simple pubescence and intermixed with fine scale-like silvery pubescence, the whole interspersed with a series of erect, longer golden yellow hairs, much as in *setosus* Reut., but shorter than those on *punctulatus*. Coloration rather uniformly yellowish, cuneus and sometimes the corium tinged with reddish, scutellum and inner apical angles of corium usually infuscated, hind tibiæ and head sometimes becoming infuscated. Membrane fuscous, pale within areoles and bordering apex of cuneus. Genital claspers distinctive, the right clasper with claw-like hook above base while the apical process terminates in a hook of equal size and form.

♀. Length 2.6 mm., width 1.03 mm. Head: width .61 mm., vertex .28 mm. Antennæ: segment I, length .21 mm.; II, .86 mm.; III, .60 mm.; IV, .40 mm. Pronotum: length .44 mm., width at base .83 mm.; III, .60 mm.; IV, .40 mm. Very similar to the male in punctuation, pubescence and coloration.

♀. Brachypterous form. Length 2.2 mm., width 1 mm. Head: width .64 mm., vertex .28 mm. Rostrum, length 1.14 mm., extending behind posterior coxæ or to base of ovipositor. Antennæ: segment I, length .26 mm.; II, .88 mm.; III, .56 mm.; IV, .46 mm. Pronotum: length .43 mm., width at base .76 mm. Hemelytra rounded at apex, cuneal fracture distinct, membrane reduced to a narrow margin bordering inner side of cuneus, last segment of abdomen and tip of ovipositor exposed above. Punctuation, pubescence, and coloration similar to the macropterous form.

Holotype: ♂, October, 1925, Tampa, Florida (E. D. Ball); author's collection.

Allotype: Same data as the type.

Paratypes: ALABAMA—36♂♀, September 5 and 6, Eufaula; ♀, September 8, 1926, Clanton, at light (H. H. Knight). ARIZONA—3♀, July 20, 1917, Texas Pass; ♀, July 22, 1917,

Tucson (H. H. Knight). ARKANSAS—♂, September 10, 1926, Newark, at light (H. H. Knight). FLORIDA—♂ ♀, May 3, 1916, Cocoa; ♀, May 15, 1926, ♂, August 25, 1925, Sanford (E. D. Ball); ♂, April 16, 1914, Orlando (G. G. Ainslie). IOWA—♂, May 8, 1926, Ames (H. H. Knight), collected at light. NEW MEXICO—♂, July 12, 1917, Deming (H. H. Knight), at light. TEXAS—3 ♀, August 30, Brownwood; ♂, June 26, Gillette; 3 ♂, June 23, Richmond; 2 ♂, July 2, Sabinal; 2 ♂ 1 ♀, June 25, 1917, Victoria (H. H. Knight).

Morphotype: ♀, August 25, 1925, Sanford, Florida (E. D. Ball); author's collection.

Paramorphotypes: ♀, July 12, 1917, Tucson, Arizona (H. H. Knight). 3 ♀, May 5, 1926, Cocoa, Florida (E. D. Ball); ♀, July 1, 1917, Helotes, Texas (H. H. Knight).

Ceratopsus barbatus new species.

Runs to *modestus* Uhler in my key (Hem. Conn., 1923, p. 525), but is distinguished by the more prominent and thickly set, suberect pubescence, the eyes also distinctly pubescent.

♂. Length 4.2 mm., width 1.8 mm. Head: width .86 mm., vertex .32 mm.; eyes and head clothed with prominent erect pubescence. Rostrum, length 1.5 mm., reaching to middle of hind coxæ. Antennæ: segment I, length .38 mm.; II, 1.33 mm., somewhat more slender than segment I; III, .59 mm., equal to thickness of segment II; IV, .50 mm., equal to thickness of segment III; uniformly dark brown, clothed with prominent pubescence. Pronotum: length .80 mm., width at base 1.42 mm.; impunctate.

Clothed with prominent, erect or suberect, simple brown pubescence. Coloration uniformly dark brown, the pronotum and scutellum darker brown, sometimes nearly piceous, apex of scutellum reddish; antennæ and legs usually of a lighter shade of brown. Genital claspers distinctive although closely related to *modestus* Uhler; apical half of left clasper with the two arms widely divergent.

♀. Length 4.4 mm., width 1.8 mm. Head: width .83 mm., vertex .38 mm. Antennæ: segment I, length .37 mm.; II, 1.33 mm.; III, .56 mm.; IV, .44 mm. Pronotum: length .80 mm., width at base 1.45 mm. Pubescence and coloration similar to the male.

Holotype: ♂, July 11, 1926, Vienna, Virginia (H. H. Knight); author's collection.

Allotype: Same data as the type.

Paratypes: 2 ♂, taken with the types on *Pinus virginiana* to which tree the species appears to be confined in its breeding habits. DISTRICT OF COLUMBIA—16 ♂ ♀, June 24, ♂, July 16, 1897; ♀, July 12; ♂, July 25, 1909, Washington (O. Heide-

mann). MARYLAND—2 ♂ ♀, July 20, 1892, Bladensburg (O. Heidemann). ♂ ♀, June 14, 1914; ♀, August 8, 1915, Beltsville; ♂ 3 ♀, July 25, 1914, Great Falls; ♀, June 17, 1913, Plummers Island (W. L. McAtee), on *Pinus virginiana*. ♀, July 17; ♂, July 25, 1926, Glen Echo (H. H. Knight), on *Pinus virginiana*.

Ceratocapsus mcateeii new species.

Runs to *lutescens* Reut. in my key (Hem. Conn., 1923, p. 525), but differs in the small size, brownish head and pronotum, and by the red hind femora and cuneus; clothed with fine, short, simple pubescence.

♀. Length 2.8 mm., width 1.3 mm. Head: width .64 mm., vertex .29 mm.; brown, lower face more yellowish. Rostrum, length 1.06 mm., reaching upon hind coxæ, yellowish, apex blackish. Antennæ: segment I, length .25 mm., pale yellowish, a red mark at base; II, .95 mm., gradually thickened apically, where it equals thickness (.089 mm.) of segment I, pale, uniformly pale yellowish; III, .53 mm., equal to thickness of segment II, yellowish, apical half reddish; IV, .38 mm., equal to thickness of segment III, reddish. Pronotum: length .53 mm., width at base 1 mm.; impunctate, brown to dark brown, a tinge of red sometimes apparent. Scutellum impunctate, yellowish to dusky; sternum yellowish brown, reddish brown on pleura.

Clothed with fine, short, simple, pale pubescence. Hemelytra pale yellowish, inner apical angles of corium pale fuscous; cuneus red to brownish, apex and outer margin more yellowish. Legs uniformly pale yellowish, hind femora reddish except on base. Venter uniformly yellowish, reddish brown on sides at base.

Holotype: ♀, October 11, 1914, Laurel, Maryland (W. L. McAtee); collection of W. L. McAtee.

Paratypes: ♀, taken with type. ♀, July 12, 1914, Odenton, Maryland (J. D. Hood).

Ceratocapsus downesi new species.

Runs to *pumilus* Uhler in my key (Hem. Conn., 1923, p. 525), but differs in the more slender form and brownish black color, shorter antennal segment II, narrower vertex, and very different male genitalia.

♂. Length, 4.3 mm., width, 1.5 mm. Head: width, .80 mm., vertex .23 mm. Rostrum, (imbedded) probably reaching upon hind coxæ. Antennæ: segment I, length, .27 mm.; II, .97 mm.; III, .58 mm.; IV, .51 mm. Pronotum: length, .62 mm., width at base, 1.28 mm.

Dorsum rather closely and uniformly punctured as in *pumilus*; pubescence very similar to *pumilus*. General coloration brownish black,

hemelytra somewhat translucent so that the punctures appear darker, cuneus blackish with a trace of red in hypodermis; legs pale to brownish black. Membrane pale fuscous, apical half and veins somewhat darker. Genital segment and claspers much more reduced than in *pumilus*; right clasper reduced to a minute rounded knob, but supporting three or four long hairs; left clasper with only two small slender prongs.

Holotype: ♂, July 30, 1922, Saanich District, British Columbia (W. Downes); Canadian National collection.

Paratypes: ♂, Sept. 6; ♂, Sept. 11; ♂, Sept. 14, 1918, Saanich District, B. C. (W. Downes); ♂, Sept. 14, Victoria, B. C. (W. Downes).

Ceratocapsus biformis new species.

Allied to *drakei* Kngt., but distinguished by the dark color, relatively shorter antennal segments, red head and legs, and in structure of the male genital claspers.

♂. Length, 4.9 mm., width, 1.6 mm. Head: width, .74 mm., vertex .28 mm. Rostrum, length, 1.4 mm., reaching upon middle of the hind coxæ. Antennæ: segment I, length, .40 mm., yellowish red; II, 1.4 mm., yellowish brown, becoming brownish black on apical half; III, .84 mm., blackish; IV, .54 mm., black. Pronotum: length, .60 mm., width at base, 1.23 mm.

Punctuation and pubescence nearly as in *drakei*. Color brownish black to black, head, cuneus, and legs bright red, legs sometimes paler, especially on coxæ and bases of femora. Membrane dark fuscous, somewhat paler transversely across apical half of areoles. Genital claspers having the same general form of *drakei*, but right clasper with shorter and more strongly recurved dorsal prong, while the lower prong follows the wall of the genital segment for half its length then turns sharply upward, the bend of the elbow produced into a spear-shaped heel.

♀. Brachypterous, length, 2.7 mm., width, 1.5 mm. Head: width, .73 mm., vertex, .34 mm. Rostrum, length, 1.33 mm., extending upon hind coxæ. Antennæ: segment I, length, .33 mm.; II, 1.03 mm.; III, .64 mm.; IV, .47 mm. Pubescence, punctuation, and coloration very similar to the male, but pronotum more reddish. Hemelytra rounded at apex, cuneus short and rounded, with only a trace of membrane present, cuneal fracture apparent.

Holotype: ♂, August 15–22, 1924, Pingree Park, Colorado (Drake & Hottes); author's collection.

Allotype: Same data as the type.

Paratypes: 6 ♂ 3 ♀, taken with the types. ARIZONA—♀, July 27, 1917, Mt. Lemon, alt. 9000 ft., Santa Catalina Mts., (H. H. Knight); ♂ ♀, August 3, 1905, Huachuca Mts. (H. G. Barber). COLORADO—2 ♀, July 24, 1909, Golden (W. J. Gerhard); 3 ♂ 5 ♀, June 12, 1900, Fort Collins; 2 ♂ ♀, June 13, 1898, Rist

Canyon (E. D. Ball). MONTANA, ♂, September 3, 1912, Bozeman. ♂ 2 ♀ June 24, 1925, Williams, Arizona (A. A. Nichol).

This species was obtained by Drake and Hottes by sweeping grasses and sedges.

Ceratocapsus tricolor new species.

Allied to *biformis*, but distinguished by the genital claspers, black color with pale yellowish clavus and reddish femora.

♂. Length 5 mm., width 1.48 mm. Head: width .77 mm., vertex .31 mm.; eyes finely pubescent. Rostrum, length 1.4 mm., reaching to middle of hind coxæ, blackish. Antennæ: segment I, length .41 mm., yellowish, blackish on the constricted basal one-fourth; II, 1.6 mm., cylindrical, scarcely equal to thickness of segment I, black, slightly yellowish at base, finely yellowish pubescent; III, .98 mm., scarcely equal to thickness of segment II, black; IV, .68 mm., slightly more slender than III, black. Pronotum: length .59 mm., width at base 1.11 mm.; impunctate, scutellum likewise impunctate, but the hemelytra with fine setigerous punctures apparent. Ostiolar peritreme with dorsal lobe broadly convex, whereas *biformis* has a small convex area.

Clothed with long, erect, golden yellow simple pubescence; devoid of the silvery scale-like hairs found in *biformis*. Black, moderately shining, hemelytra more of a fuscous black, clavus pale yellowish translucent, embolium usually somewhat yellowish; membrane pale, apical half fuscous, femora reddish, becoming darker at base; coxæ pale, fuscous at base, front pair reddish to piceous; tibæ reddish brown to fuscous, tarsi yellowish, blackish apically. Genital claspers distinctive, right clasper with the ventral arm broadly arcuate, not sharply bent as in *biformis*, the dorsal arm flattened, bifid on apex.

Holotype: ♂, August 13, 1925, Mancos, Colorado (H. H. Knight); author's collection.

Paratypes: ♂, August 9, 1925, Veta Pass, alt. 8500 ft.; ♂, August 12, 1925, South Fork, Colorado (H. H. Knight). These specimens were swept from mixed growth of sedges in damp places, which seems to indicate the type of habitat.

Ceratocapsus fulvipennis new species.

Runs to *sericus* Kngt. in my key (Hem. Conn., 1923, p. 525), but differs in the smaller size, more abundant erect hairs, intermixed with fine, golden yellow, sericeous pubescence.

♂. Length 4 mm., width 1.48 mm. Head: width .74 mm., width of vertex at base .326 mm., narrowest point forward .281 mm.; eyes finely pubescent. Rostrum, length 1.18 mm., reaching to middle of hind coxæ. Antennæ: segment I, length .25 mm.; II, 1.06 mm., equal

in thickness (.09 mm.) to segment I, slightly more slender near base; III, .62 mm., equal in thickness to segment II; IV, .53 mm., slightly more slender than III; brownish yellow, last two segments fuscous. Pronotum: length .56 mm., width at base 1.2 mm.; impunctate although minutely rugulose, scarcely shining.

Clothed with rather abundant, long erect hairs, and intermixed with shorter simple pubescence, and fine prostrate, sericeous, golden yellow pubescence. Color yellow brown to dark brown, pronotum somewhat darker than head, scutellum more yellowish than brown; hemelytra fulvous, subtranslucent, embolium and cuneus of somewhat deeper color. Membrane uniformly fuscous, areoles somewhat paler. Legs reddish brown to dark brown, tibiae scarcely paler; venter and sternum of the same brown color, shining.

Holotype: ♂, August 7, 1925, Stonewall, alt. 8500 ft., near Trinidad, Colorado (H. H. Knight); author's collection.

Paratype: ♂, taken with the type on pine, probably *Pinus ponderosa*.