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The Entomological Society of Washington
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THE GENUS CEPHALOSCYMNUS CROTCH IN NORTH AMERICA
(Coleoptera: Coccinellidae)

Robert D. Gordon, Systematic Entomology Laboratory, Agricultural Research Service, U. S. Department of Agriculture

ABSTRACT—The genus Cephaloscymnus is reviewed and a key provided to separate the known North American species. C. laevis, C. insulatus, and C. zimmermanni australis are described as new; C. z. zimmermanni Crotch and C. occidentalis Horn are also discussed. Male genitalia of all taxa are figured.

Crotch (1873) erected the genus Cephaloscymnus for the single species zimmermanni Crotch. Horn (1895) added one more species, occidentalis. Casey (1899) included the two species in his revision of American Coccinellidae, but the genus has not been treated as a whole since. I have examined specimens of this genus which include two new species and a new subspecies which are described herein.

Cephaloscymnus is placed in the tribe Scymnini and has no close relatives in North America; it is closely related to Prodlis Mulsant, a Neotropical genus, but Prodlis lacks the metasternal pits present in males of Cephaloscymnus. Another reason for not uniting the two genera at present is that Prodlis is heterogeneous and will probably have to be split into several genera. A few Neotropical species have been described as Cephaloscymnus but almost certainly belong to Prodlis.

Cephaloscymnus may be separated from other North American Scymnini by the elongate, narrow eyes and extremely short antennae. The male genitalia and the shape of the receptaculum seminis must be used to separate members of this genus with certainty. The external characters as used in the key are not dependable unless a series of specimens of each is available.

Cephaloscymnus Crotch

Cephaloscymnus Crotch, 1873, p. 382. Type-species: Cephaloscymnus zimmermanni Crotch, monotypic.

The genus is characterized by the following: large vertical head; eyes narrow, elongate, inner margins nearly parallel; antennae extremely short, 10-segmented, compact club four-segmented, resting in grooves on anterior lobes of frons. Pronotum transverse, narrow, anterior angles extending forward to anterior margin of eyes, lateral margins explanate, more strongly so anteriorly. Metasternum with a large pubescent pit near lateral margin in males. Metacoxal lines complete, semicircular, extending about one-half length of segment.

Key to Species and Subspecies

1. Length 2.15 mm. or more; eastern U. S., Tex., Ariz., N. Mex., and Mexico 2
   Length 2.15 or less; California, Ariz., Tex. 3

2. Pronotum and elytra piceous to black; eastern U.S. ____________________________________________________________________________________________ zimmermanni zimmermanni Crotch
   Pronotum usually reddish, elytra piceous to brown; southwestern U.S. and northeastern Mexico ____________________________________________________________________________________________ zimmermanni australis n. subsp.

3. Ventral surface black (except legs and mouthparts) ____________________________________________________________________________________________ laevis, n. sp.
   Ventral surface piceous or brown ____________________________________________________________________________________________

4. Pronotum finely punctured, anterior angles barely explanate ____________________________________________________________________________________________ occidentalis Horn
   Pronotum coarsely punctured, anterior angles strongly explanate ____________________________________________________________________________________________ insulatus, n. sp.

Cephaloscyninus zimmermanni zimmermanni Crotch
(Figs. 1, 2, 3, 10)

Cephaloscyninus zimmermanni zimmermanni Crotch, 1873, p. 382.

Male and Female.—Length 2.15 to 2.40 mm., width 1.30 to 1.45 mm. Color piceous to black dorsally; underside piceous, tarsi slightly paler. Punctures on pronotum moderately coarse, separated by one-half their diameter; lateral margins strongly explanate. Elytral punctures coarse, separated by less than their diameter. Male genitalia with parameres straight, shorter than basal lobe; basal lobe with dorsal keel, sides parallel and tip broadly rounded in ventral view (figs. 1, 2); siphon enlarged near apex, narrowing abruptly just before apex (fig. 3). Female receptaculum seminis wide, slightly curved with a small projection at apex (fig. 10).

Type Locality.—South Carolina (fide Horn, 1895).
This subspecies is known from D. C., Indiana, Maryland, New Jersey, Virginia and South Carolina. It is apparently widespread but has been rarely collected.

Cephaloscyninus zimmermanni australis, n. subsp.
(Fig. 11)

Male.—Length 2.20 to 2.36 mm., width 1.38 to 1.60 mm. Color piceous to brown dorsally, pronotum red; underside black, legs, mouthparts and epipleura yellowish brown. Punctures on pronotum dense, coarse, separated by less than half their diameter or contiguous; lateral margins strongly explanate. Elytral punctures finer than pronotal punctures, separated by less than half their diameter. Male genitalia identical to those of zimmermanni (figs. 1, 2, 3).
Female receptaculum seminis nearly as in zimmermanni but lacking the small projection at the tip (fig. 13).

Paratypes.—15. MEXICO: Monterrey, E. A. Schwarz collector.
Figs. 1–13, Cephaloscymnus spp. Figs. 1–3, zimmermannii zimmermannii Crotch, ♂: 1, genitalia, ventral; 2, genitalia, lateral; 3, sipho, lateral. Figs. 4–6, occidentalis Horn, ♂: 4, genitalia, ventral; 5, genitalia, lateral; 6, sipho, lateral. Figs. 7–9, insulatus, n. sp., ♂: 7, genitalia, ventral; 8, genitalia, lateral; 9, sipho, lateral. Figs. 10–13, ♀ receptaculum seminis: 10, zimmermannii zimmermannii; 11, zimmermanni australis, n. sp.; 12, occidentalis; 13, insulatus. Figs. 14–16, laevis, n. sp., ♂: 14, genitalia, ventral; 15, genitalia, lateral; 16, sipho, lateral.

This subspecies differs from the nominate form in having the pronotum red rather than piceous or black and the pronotal punctures larger and denser than the elytral punctures, while the pronotal punctures are smaller than the elytral punctures in zimmermanni. The color of the underside is also quite different in the two subspecies. The male genitalia are quite similar in zimmermanni and australis and the female genitalia nearly so. On this basis it was thought best to consider the forms as geographically separated populations rather than distinct species. No specimens have been seen from the area between Indiana and southern Texas, but it is likely that the two species intergrade somewhere in this area.

_Cephaloscymnus occidentalis_ Horn
(Figs. 4, 5, 6, 12)

_Cephaloscymnus occidentalis_ Horn, 1895, p. 111.

*Male and Female.* — Length 1.85 to 2.10 mm., width 1.10 to 1.40 mm. Color brown dorsally, pronotum reddish brown; underside piceous, legs brown. Punctures on pronotum fine, dense, nearly contiguous; lateral margins feebly explanate. Elytral punctures coarse, separated by their diameter or less. Male genitalia with parameres sinuate, shorter than basal lobe; basal lobe with sides parallel, tip emarginate (figs. 4, 5); sipho enlarged near apex, tapering to a sharp point (fig. 6). Female receptaculum seminis sharply curved, tip bent downward (fig. 12).

Type Locality.—Southern California.

Distribution.—Arizona: Hot Springs; Catalina Springs. California: Costa Mesa; Long Beach; Los Angeles; Pasadena. Texas: Brownsville.

_Cephaloscymnus insulatus_, n. sp.
(Figs. 7, 8, 9, 13)

*Male.* — Length 2.00 to 2.10 mm., width 1.10 to 1.30 mm. Color brown dorsally, pronotum reddish; underside piceous, legs, mouthparts and epipleura brown. Punctures on pronotum coarse, dense, contiguous; lateral margins strongly explanate. Elytral punctures subequal to pronotal punctures, separated by less than one-half their diameter. Male genitalia with parameres straight, shorter than basal lobe; basal lobe with tip curved upward, sides tapering to a point in ventral view (figs. 7, 8); sipho enlarged at apical third, apex slender, attenuated (fig. 9). Female receptaculum seminis sharply curved, tip broadly rounded, slightly bulbous (fig. 13).

Holotype.—Male. Santa Rita Mts., Arizona, Hubbard and Schwarz collection (U. S. Nat. Mus. type no. 70400).

Paratypes.—21. Same data as holotype; Oracle, Arizona, Hubbard and Schwarz collection.

This species is most likely to be confused with _occidentalis_ because of its small size. The male genitalia and female receptaculum seminis will serve to distinguish them from each other.
Cephaloscyninus laevis, n. sp.
(Figs. 14, 15, 16)

Male.—Length 2.00 mm., width 1.15 mm. Color light brown dorsally, black ventrally, mouthparts, legs, and epipleurae light brown. Punctures on pronotum coarse, separated by their diameter; lateral margins explanate. Elytral punctures coarser than pronotal punctures, separated by their diameter. Male genitalia with parameres shorter than basal lobe, broad in lateral view; basal lobe with tip curved upward, apex emarginate in ventral view (figs. 14, 15); sipho slightly narrower in apical third (fig. 16).

Holotype.—Male. Nogales, Santa Cruz Co., Arizona, collected by F. W. Nunenmacher; California Academy of Sciences.

The male genitalia place this species near C. insulatus, but the black ventral surface and the relatively moderately punctured pronotum distinguish it from any other described Cephaloscyninus.

References

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The information presented in this book represents the first comprehensive taxonomic study of female horse flies for this region of the World. Detailed descriptions and literature references are given for the 120 species and subspecies included, of which 12 are described as new. Keys are presented to the subfamilies, genera and species and available information on the biology, distribution and medical importance of species is included. Most of the species are illustrated by superb drawings made by Japanese artists at the U. S. Army Medical Laboratory in Japan. This book will serve not only as a valuable general reference but should stimulate additional research on this important group of insects.

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