

The Illinois Species of *Brachymeria* (Hymenoptera, Chalcididae)

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The genus *Brachymeria* Westwood includes a number of primary and secondary parasites often encountered in rearing Lepidoptera and cyclorrhaphous Diptera. *Brachymeria* has usually been treated as the genus *Chalcis*; the hind coxae are elongate and round in cross-section, the hind femora are enlarged and provided with a row of teeth on the lower side, the hind tibiae are arcuate and have a single apical spur, the abdomen is sessile, and the antennae are inserted above the lower margins of the compound eyes. The body is black, but the hind femora are usually colored in part yellow or red.

In the following table of the Illinois species, it is to be noted that the apparent first abdominal segment is actually the third; the malar ridge is a carina running parallel with the fronto-genal suture of the head; the inner tooth of the hind femur is a small projection, ventro-proximad, on the ental surface. All statements regarding color should be taken loosely. In order to verify identifications it is frequently necessary to examine the internal genitalia of the male. In the drawings given of these genitalia, figures 10-14, only the oedagus is shown, the inner and outer sheaths and sagittae being omitted. The sagittae are too variable to be useful for the separation of species.

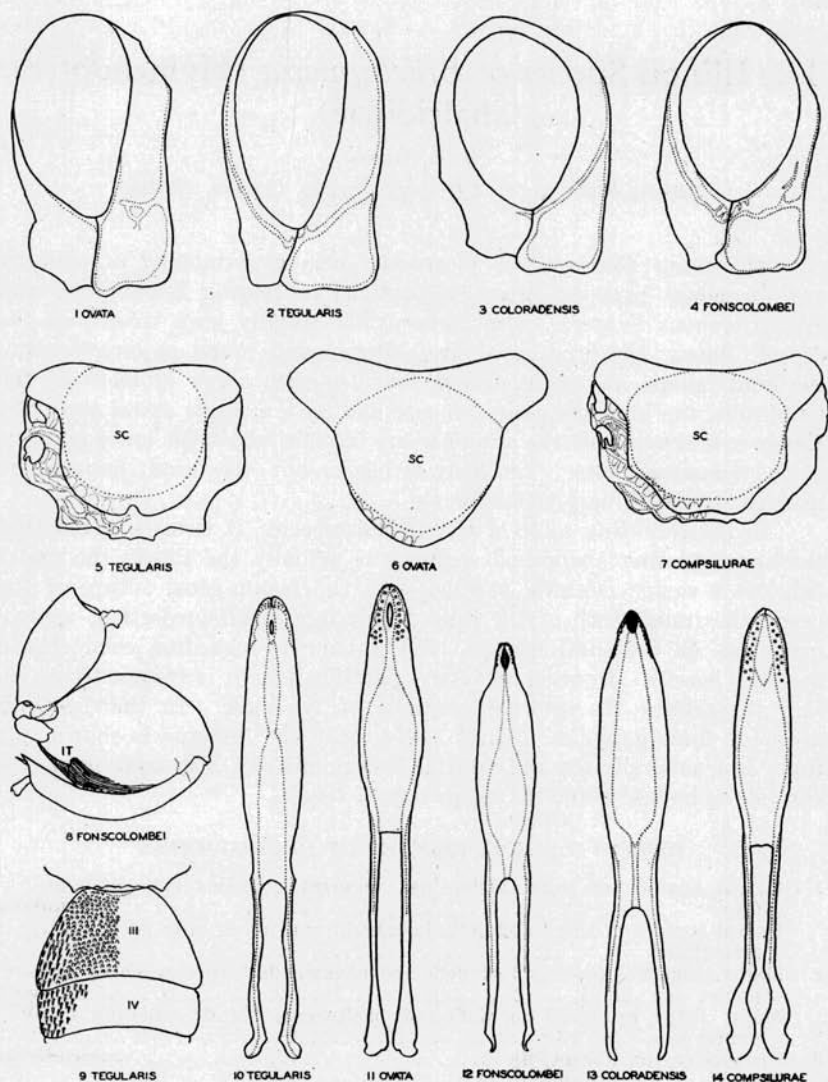
KEY TO ILLINOIS SPECIES OF *BRACHYMERIA*

1. Dorsal surface of third abdominal segment conspicuously punctate, fig. 9 *tegularis*
Dorsal surface of third abdominal segment smooth or only very faintly reticulated 2
2. Malar ridge not branched or deflected backwards before reaching compound eye, fig. 1 *ovata*
Malar ridge branched or deflected backwards before reaching compound eye, figs. 2-4 3
3. Frontal carina absent, fig. 3 *coloradensis*
Frontal carina present, fig. 4 4
4. Hind femora with a distinct, sharp inner tooth, fig. 8 *fonscolombei*
Hind femora without an inner tooth *compsilurae*

Brachymeria tegularis (Cresson) *new combination*

Chalcis tegularis Cresson, *Trans. Am. Ent. Soc.*, 4:60, 1872. Type, number 1825, Philadelphia Academy of Natural Sciences, ♀.

This species is more common west of the Mississippi than in Illinois. The hind femora of the female are almost entirely yellow. The male has not before been described.



EXPLANATION OF PLATE

Figs. 1-4. Lateral aspect of the head, mouth parts omitted.

Figs. 5-7. Dorsal aspect of the scutellum (SC).

Fig. 8. Ental aspect of the hind femur, IT, inner tooth.

Fig. 9. Dorsal aspect of the third and fourth abdominal segments.

Figs. 10-14. Male genitalia.

Male.—Diagnostic characters as in female. Hind femora black with an apical and a small dorsal yellow spot. Malar ridge branched, fig. 2, scutellum bidentate, fig. 5. Oedagus as in fig. 10.

Allotype.—Male; Zion, Ill., July 6, 1932, T. H. Frison et al. Deposited in the collection of the Illinois State Natural History Survey.

Algonquin: Aug. 1, 1895, 1♂. Champaign: July 30, 1891, 1♀. Dayton: July 18, 1879, 1♂. Normal, 1877, 1♂. Urbana: Sept. 1, 1886, 1♀. Zion: July 6, 1932, 1♂.

Brachymeria ovata (Say)

Chalcis ovata Say, *Long's Second Expedition*, 2:326, 1824.

The type of this species is lost, but some of the material on which Cresson (1872) based his redescription has been seen in the Philadelphia Academy of Natural Sciences. This species has been synonymized with *flavipes* Fabr., but Dr. Olav Schröder of the Kiel Museum has kindly compared specimens of *ovata* with the Fabrician type of *flavipes* and states that they are not the same species.

This is by far the most common Illinois species of *Brachymeria*. The malar ridge is unbranched, the scutellum is not bidentate, fig. 6, the antennal scape is longer than in most other species, and there is a single, somewhat irregular row of setae near the anterior margin of the dorsum of the fourth abdominal segment. The hind femora of both the male and female are black with an apical yellow (or red) spot. The male genitalia are shown in fig. 11. This species is a primary parasite of Lepidopterous pupae.

Common throughout the state from June to October; taken in hibernation as an adult. The following material has been reared: Normal: July 8, 1905, from Strawberry leaf-roller, 1♂. Springfield: Sept. 17, 1909, from Bag Worm, 1♀. Urbana: Sept. 10, 1900, from Bag Worm, 1♀; July 6, 1922, from Celery Leaf-tyer, 1♂, 1♀; July 25, 1924, from Tussock Moth, 1♂, 1♀; July 26, 1924, from Tussock Moth, 1♂; Oct. 30, 1935, from Fall Web-worm, 1♀; July, 1936, from Tussock Moth, 5♂, 4♀.

Brachymeria coloradensis (Cresson) *new combination*

Chalcis coloradensis Cresson, *Trans. Am. Ent. Soc.*, 4:60, 1872. Type, number 1826, Philadelphia Academy of Natural Sciences, ♀.

Chalcis dalmanii Thomson, *Hymen. Skand.*, 4:17, 1875. *New synonymy*.

Mr. A. B. Gahan of the U. S. National Museum suggested that *dalmanii* and *coloradensis* might be the same species, and paratypes of the former, kindly loaned for study by Dr. Rene Malaise of the Stockholm Museum, have proven identical with the type of Cresson's species. This species is a secondary parasite of grasshoppers, having been reared by Kelly (1914) in America, Vinokurov (1927) in Eastern Siberia, Olsuf'ev (1929) in Russia, and Rukavishnikov (1930) in Turkestan.

The hind femora of the female are red with an apical yellow spot; in the male they are black with the apex red or yellow, or both. The malar ridge is directed backwards before reaching the compound eye, and the scutellum is emarginate. The male genitalia are shown in fig. 12.

Havana: June 23, 1926, 1♂. Mason City: June 21, 1926, 2♂, 1♀. St. Anne: Aug. 4, 1936, 4♂, 2♀.

Brachymeria fonscolombei (Dufour)

Chalcis fonscolombei Dufour, *Ann. Soc. Ent. Fr.*, 10:11, 1841. Lectotype ♂ and Lectoallotype ♀ in the Dufour collection, Muséum National d'Histoire Naturelle, Paris. *Present designation.*

M. Lucien Berland has kindly compared specimens with the type series in the Dufour collection, and found the specimens sent to be identical with part of the type series; as this series also includes a specimen of *coloradensis*, lectotypes have been designated for *fonscolombei*.

This is a holarctic species, a primary parasite of blow flies. A life history has been published by Roberts (1933). The hind femora of both the male and female are red with an apical yellow spot. The malar ridge is branched, and the scutellum is bidentate or emarginate at the apex. The male genitalia are shown in fig. 13.

Urbana: Oct. 5, 1925, 1 ♀.

Brachymeria compsilurae (Crawford)

Chalcis compsilurae Crawford, *Proc. U. S. Nat. Mus.*, 41:272, 1911. Type, 13802, United States National Museum, ♀.

This species occurs in the north central states and New England; it is a secondary parasite of Lepidoptera. A life history has been published by Dowden (1935). The malar ridge is branched, the scutellum is emarginate, fig. 7, and the basal tooth of the hind femur is larger than the others. The hind femora are black with an apical yellow spot in both sexes. The male genitalia are shown in fig. 13.

Algonquin: 1 ♀. Champaign: May 25, 1890, 1 ♀. Oregon: Aug. 23, 1935, 1 ♀. Urbana: Brownfield Woods, July 25, 1924, 1 ♂; University Woods, July 24, 1934, 1 ♀; July 12, 1935, 1 ♀.