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TELEONEMIA SCHWARZI Drake

Teleonemia schwarzi Drake, Ohio Jour. Sci., XVIII, 1918, p. 326.
Teleonemia sororcula Van Duzee, Calif. Acad. Sci. XII, 1923, p. 142.

T. schwarzi Drake and *T. sororcula* Van D. are identical forms and the former name has priority. Several examples were taken at Palm Springs, California, May 18 and 20, 1917, and July 5, 1924, by E. P. Van Duzee, and May 24, 1940, by R. L. Usinger, these last on *Beloperone californica*. Known only from California and Lower California.

Leptoypa nubilis Drake, new species

Very closely related to *L. drakei* McAtee, but easily separated from it by its broader form, darker color and shorter antennæ. Legs short, yellowish brown, all femora fuscous-black. Antennæ rather short, slightly variable in length, fuscous-black, the apex of third segment pale. Pronotum and elytra dark yellowish brown, considerably marked with fuscous-black more or less covered with whitish exudation, the pubescence very short and golden. Costal area narrow, uniseriate.

Length, 2.20 mm.; width, 0.95 mm.

Holotype, male, and allotype, female, Nos. 5176 and 5177, Calif. Acad. Sci., Ent., and numerous paratypes, Independence, Inyo County, Calif., June 11, 12, and 13, 1929, collected by E. P. Van Duzee and R. L. Usinger on *Ceanothus*.

On account of form, color and markings it seems advisable to treat *nubilis* as a distinct species. More specimens and information concerning its habits may prove that it is not more than a race or variety of *drakei* McAtee.

A REVIEW OF THE GENUS PHYSOCEPHALA OF THE
WESTERN UNITED STATES

(Diptera, Conopidæ)

BY GEORGE E. BOHART

Davis, California

The area in the United States west of the Rocky Mountains apparently contains only two valid species of *Physocephala* Schiner, *P. affinis* (Williston) and *P. burgessi* (Williston). These were the first species described from the West and were placed in the genus *Conops* by Williston who considered the closely allied genera, *Physocephala* and *Conops*, to be identical.

Phyocephala texana Williston was recorded from Colorado and Ormsby County, Nevada, by Kröber (1914), but these specimens are not available to American students and the records have not since been corroborated. The several species and subspecies which were described from western material by M. C. Van Duzee (1927, 1934) are all referable to one or the other of the original two species. I have examined the holotypes, most of the other type material, and specimens determined by Mr. Van Duzee and have compared these with long series comprising several hundred specimens of *affinis* and *burgessi* in my collection and in the California Academy of Sciences. When a sufficient number of specimens from any locality is examined, the range of variation clearly includes such variant types as were used to establish the Van Duzee species. In the case of *affinis* this was found to be true in a series of over one hundred specimens bred from a single colony of bembicid wasps.

The characters which Mr. Van Duzee used to distinguish his species, although useful at times as supplementary features or even primary characters when strikingly distinct, are subject to considerable variation among specimens from a single population or even, in the case of antennal measurements, in a single insect depending upon the degree of inflation of the ptilinum or the angle to which the terminal structures are turned upon their axes. Not even subspecific rank can be assigned these names since their ranges are in all cases coincident or one within another.

PHYSOCEPHALA AFFINIS (Williston)

Conops affinis Williston, 1883, Trans. Conn. Acad. Sci. 4:339.

Phyocephala affinis, Kröber, 1914, Arch. f. Naturgesch. 50:105.

Phyocephala affinis, Van Duzee, 1927, Proc. Calif. Acad. Sci. (4) 16:579.

Phyocephala humeralis Van Duzee, 1927, Proc. Calif. Acad. Sci. (4) 16:580.

Phyocephala humeralis simulans, Van Duzee, 1927, Proc. Calif. Acad. Sci. (4) 16:581.

Phyocephala aurifacies Van Duzee, 1927, Proc. Calif. Acad. Sci. (4) 16:581.

Phyocephala buccalis Van Duzee, 1927, Proc. Calif. Acad. Sci. (4) 16:582.

Phyocephala rubida Van Duzee, 1934, Ann. Ent. Soc. Amer. 27:315.

Phyocephala simulans Van Duzee, 1934, Ann. Ent. Soc. Amer. 27:321.

Physocephala affinis may be differentiated structurally from *burgessi* by the following table of measurements. The figures represent averages taken from fourteen specimens of *affinis* and eight of *burgessi*. The measurements of lengths of antennal segments were made from a dorsal view, along the line of greatest length of the second segment. Antennal widths were made for each segment at its widest point. There was found to be no overlapping of comparative figures between the two species except in total length which proved to be a character of general significance only.

TABLE I. STRUCTURAL DIFFERENCES BETWEEN PHYSOCEPHALA AFFINIS (WILLISTON) AND BURGESSI (WILLISTON).

Mesonotum breadth to length <i>burgessi</i>		Mesonotum breadth to length <i>affinis</i>		Total length of insect* <i>burgessi</i>	Total length of insect* <i>affinis</i>
1 : 1.06		1 : 1.24		11.4 mm.	12.2 mm.
Antennal segment	Comparative length to breadth <i>burgessi</i>	Comparative length to breadth <i>affinis</i>	Length proportion- ate to segment 1 <i>burgessi</i>	Length proportion- ate to segment 1 <i>affinis</i>	
1	2 : 1	2.6 : 1	1	1	
2	3.58 : 1	5.25 : 1	3.9	2.9	
3	2.43 : 1	2.25 : 1	2.5	1.6	

*Exclusive of antennæ.

In addition to these structural features, several usually reliable color distinctions are manifested. *Affinis* is paler red than *burgessi*, the former approaching terra cotta in color and the latter dark, brick red. Some specimens of *affinis*, however, are also dark red. *Affinis*, if with dark markings on the mesonotum, has a pair of lateral longitudinal bands as well developed as the median one. *Burgessi*, on the other hand, usually has a single broad, median black band. *Affinis* is more extensively covered with golden pollenose tomentum than *burgessi*.

Affinis is the more abundant of the two species. It ranges throughout the western United States from eastern Washington, east to Wyoming, south to Arizona, and from there west to the Pacific. This area comprises largely the Great Basin and the

State of California. Kröber (1914) recorded a specimen of this species from Michigan but it seems likely that this was a pale colored *sagittaria* Say. There appears to be a slight tendency for the production of smaller, darker forms in the northern extension of the range of *affinis* but even there most of the specimens are typical. In my collection are four specimens from the Owens Valley, California, which are uniformly smaller than the average *affinis* and have slightly shorter third antennal segments. It may be that more extensive collecting in the Great Basin will reveal nameable subspecies.

Affinis is most often encountered in open, semi-desert brush lands at all elevations up to 9000 feet. I have collected it several times in the forested areas of the Sierra but in these instances always in extensive clearings or in sandy areas around large lakes. Its life history has recently been reported upon as a parasite of *Bembix* wasps¹.

PHYSOCEPHALA BURGESSI (Williston)

Conops burgessi Williston, 1883, Trans. Conn. Acad. Sci. 4:340.

Physocephala burgessi, Kröber, 1914, Arch. f. Naturgesch. 80: 106.

Physocephala burgessi, Van Duzee, 1927, Proc. Calif. Acad. Sci. (4) 16:579.

Physocephala brevicornis Van Duzee, 1927, Proc. Calif. Acad. Sci. (4) 16:580.

Although nearly as widespread as *affinis*, this species is less abundant and more scattered in distribution. It occupies the moister regions in the Sierra and Coast Ranges of California, and timbered areas of Oregon, Washington, Idaho, Utah, Wyoming, and Montana. It presents a very uniform appearance throughout its range. Although it may occur in a wooded area bordering open country which harbors *affinis*, the two species are never taken together. This is illustrated in Wyoming where one finds *affinis* in the open brush lands of Jackson Hole and *burgessi* in the forests of the bordering moraines.

The life history of *burgessi* is unknown. I once observed an individual pursuing a large specimen of *Odynerus* wasp but could not find conclusive evidence of parasitism. This fly has been collected on flowers of *Prunus* and *Ceanothus*.

¹ Bohart, G. E. and J. W. MacSwain 1939. The life history of the sand wasp *Bembix occidentalis beutenmuelleri* and its parasites. Bull. South. Calif. Acad. Sci. 38:84-97.