

**Occurrence of *Chalybion zimmermanni zimmermanni* Dahlbom in a  
Mixed Sleeping Aggregation with *Chalybion californicum*  
(Saussure) in Missouri (Hymenoptera: Sphecidae)**

DAVID A. LANDES AND JAMES H. HUNT  
Department of Biology, University of Missouri—St. Louis,  
St. Louis, Missouri 63121

The sphecid wasps *Chalybion californicum* (Saussure) and *C. zimmermanni zimmermanni* Dahlbom (Hymenoptera: Sphecidae, Sphecinae) are commonly called blue mud daubers. *C. californicum* is more abundant and is distributed from southern Canada into northern Mexico, while *C. z. zimmermanni* ranges from South Carolina through the southern states to Arizona (Bohart and Menke, 1963) with northward extension into Kentucky and southern Indiana (Ward, 1970, 1971). *Chalybion* commonly displays conspecific "sleeping" aggregations in sheltered areas at night or during inclement weather (references of Bohart and Menke, 1976, p. 102; Rau, 1938, 1942; Rau and Rau, 1916; Weiss, 1944). The purpose of this communication is to record the occurrence of *C. z. zimmermanni* in Missouri and to draw attention to its presence in a mixed sleeping aggregation with *C. californicum*.

These observations were made at Washington University's Tyson Research Center near Eureka, St. Louis County, Missouri. The site is largely mature second-growth oak-hickory forest (described quantitatively by Hampe, 1984), with clearings maintained as early successional oldfields by biennial mowing. Substantial populations of the mud daubers *Sceliphron caementarium* Drury and *Chalybion californicum*, as well as a few *Trypargilum politum* (Say) (Sphecidae, Larrinae), nest on and in old warehouses, railroad loading platforms, and other structures near both forest and oldfield habitats.

In 1984, nightly counts were made of sleeping aggregations of *C. californicum* at three buildings. Data from one of these buildings are typical for seasonal span and fluctuations in number (Fig. 1). This site was of particular interest, however, in that it included several *C. z. zimmermanni*, which is distinguished by white pubescence on the thorax. On 29 June, several individuals of *C. z. zimmermanni* were observed in the sleeping aggregation. One to a few were seen sporadically thereafter until 5 September. Two specimens were collected on 16 July to confirm the determination; both were males of the nominate subspecies. One male *C. z. zimmermanni* was marked on the thorax with quick-drying paint and released at the site. It was not seen again, though similarly marked *C. californicum* were seen as many as 42 nights after marking. No *C. z. zimmermanni* were seen at the other two monitored sleeping aggregations, and none of 111 marked *C. californicum* moved from one aggregation site to another. The distances between aggregation sites were 300 m to 1 km.

Examination of collections has revealed three previously unrecognized specimens from Missouri: Boone Co., Columbia, 7 May 1964; Greene Co., Springfield, 24 June 1965 (both, University of Missouri—Columbia collection); and Wayne Co., Greenville, 27 May 1984 (now in University of Missouri—St. Louis collection).

These observations and collection records document that *C. z. zimmermanni* is more widely distributed than has previously been known. It should be carefully sought by other observers of *C. californicum* sleeping aggregations.

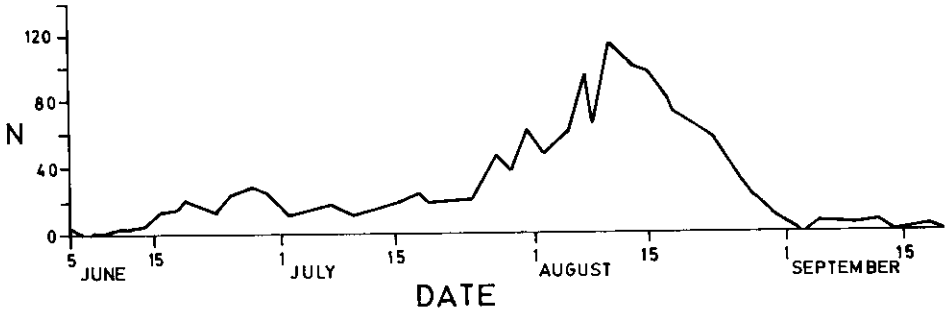


Fig. 1. Number (N) of *Chalybion californicum* (Saussure) present in a nightly "sleeping" aggregation under the eaves of a single small building (Booster Pump House, bldg. #316) at Tyson Research Center, St. Louis Co., Missouri, on the dates indicated in 1984. A few *Chalybion z. zimmermanni* Dahlbom were seen in the aggregation on various dates from 29 June until 5 September.

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- Bohart, R. M., and A. S. Menke. 1963. A reclassification of the Sphecinae with a revision of the nearctic species of the tribes Sceliphronini and Sphecini. *Univ. California Pub. Entomol.* 30: 91-182.
- Bohart, R. M., and A. S. Menke. 1976. *Sphecid Wasps of the World: A Generic Revision*. Univ. California Press, Berkeley. 695 pp.
- Hampe, C. L. 1984. A description of species composition, population structures, and spatial patterns in a Missouri oak-hickory forest. Master's Thesis. University of Missouri-St. Louis. 210 pp.
- Rau, P. 1938. Additional observations on the sleep of insects. *Ann. Entomol. Soc. Amer.* 31:540-556.
- Rau, P. 1942. The sleep of *Chalybion zimmermanni* Dahlb. *Canadian Entomol.* 64:196.
- Rau, P., and N. Rau. 1916. The sleep of insects: an ecological study. *Ann. Ent. Soc. Amer.* 9:227-274.
- Ward, G. L. 1970. The occurrence of *Chalybion zimmermanni* Dahlbom in Indiana. *Proc. Indiana Acad. Sci.* 79:231-233.
- Ward, G. L. 1971. Nest site preference of *Chalybion zimmermanni* Dahlbom (Hymenoptera, Sphecidae). *Proc. Indiana Acad. Sci.* 80:264-266.
- Weiss, H. 1944. Permanent "sleeping" quarters of *Chalybion caeruleum* (Linn.), (Sphecidae, Hymen.). *Entomol. News* 55:270-271.