

## SHORT COMMUNICATIONS

Distributional Notes on Some Social Wasps (Hymenoptera: *Polistes*, *Vespa*,  
*Dolichovespula*, *Vespula*) in MissouriJAMES H. HUNT<sup>1</sup> AND DARRYL P. SANDERS<sup>2</sup>

ABSTRACT: Collection records and observations reveal noteworthy distribution records of several social wasp species in Missouri, U.S.A. The paperwasp *Polistes exclamans* Viereck has diminished in abundance in eastern Missouri; the adventive European hornet, *Vespa crabro* L., apparently extended its range into Missouri in the late 1980's and early 1990's; a single specimen of the aerial yellowjacket, *Dolichovespula arenaria* (Fab.), has been taken south of the species' range; the adventive *Vespula germanica* (Fab.) was apparently static in distribution for more than a decade before recent range expansion.

M. J. West-Eberhard has noted that the easily-identified *Polistes exclamans* Viereck was never mentioned by Phil Rau in his voluminous writings on paperwasps of eastern Missouri that span the years 1918–1946, yet in 1967 when West-Eberhard visited Rau's field sites in St. Louis and Jefferson Counties, *P. exclamans* was common there (West, 1968). In 1974 we began field studies of social wasps in eastern Missouri at sites near those used by Rau and visited by West-Eberhard and also found *P. exclamans* to be common. *Polistes* wasps have been studied intensively since the late 1970's at Washington University's Tyson Research Center in southwest St. Louis County near Eureka and in the 1990's at the Missouri Botanical Garden's Shaw Arboretum in Franklin County near Gray Summit. In recent years *P. exclamans* has been conspicuous by its absence from these study sites; indeed, none at all have been seen by us in the St. Louis region since ca. 1989. The absence in the 1920's through 1940's, then presence in the 1960's to 1980's, and now apparent absence once again of *P. exclamans* from these sites in eastern Missouri suggests either northward extension and southward contraction of the species' range or large-amplitude, long-term cycles of abundance.

The European hornet, *Vespa crabro* L., was introduced into the U.S. in the New York area between 1840 and 1860 (Shaw and Weidhaas, 1956). Akre *et al.* (1980) show a range that extends west to the Mississippi River, crossing it only north of Missouri. A 1986–1988 survey of the social Hymenoptera of Missouri (J. H. Hunt and M. S. Arduser, unpubl.) revealed no observations, collections, or museum specimens of European hornet from the state despite specific searches for it. Beginning in 1989, however, several records came to our attention from the southeastern Ozarks region of Missouri as follows: 1989 - Perry Co., 1993 - St. Francois Co., 1994 - Bollinger Co. (2 records), Iron Co., Cape Girardeau Co., Howell Co. (3 records), 1995 - Crawford Co., Dent Co. (Fig. 1). These records, closely following the unsuccessful search for the species in Missouri in 1986–1988, are not conclusive but suggest that the species spread into the Ozark region during the late 1980's and early 1990's. Support for this supposition can be drawn from the first (1989) Missouri record coming from a county that borders the Mississippi River.

The 1986–1988 statewide survey revealed a single Missouri specimen of the aerial yellowjacket, *Dolichovespula arenaria* (Fab.), collected in September, 1982, in Maryville, Nodaway Co. (Fig. 1). The specimen is a worker and can only have come from a colony near the collection site. The aerial yellowjacket is "transcontinentally distributed in the Boreal Region of North America" (Akre *et al.*, 1980), and the Missouri specimen is a few hundred kilometers south of the nearest margin of the species' range (Akre *et al.*, 1980). This extralimital record of *D. arenaria* illustrates the potential for the species to expand its range and, so, calls for reflection on those factors that may constrain its distribution.

The German yellowjacket, *Vespula germanica* (Fab.), is an adventive pest in several regions of the world, including Australia, New Zealand, and Chile. In North America *V. germanica* was known in 1977 to have expanded its range from the mid-Atlantic states westward into Indiana and Michigan (Akre *et al.* 1980). A colony of *V. germanica*, not recognized at the time as a range extension, was collected in

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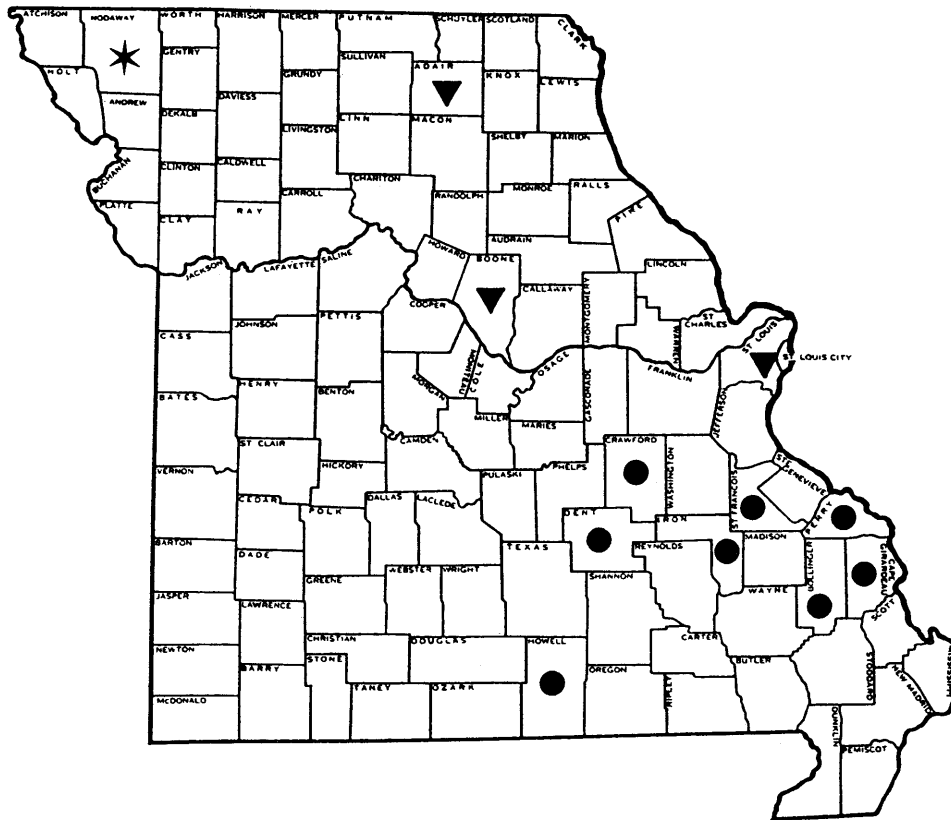


Fig. 1. Map of Missouri showing county outlines and collection localities of *Vespa crabro* (circles), *Dolichovespula arenaria* (star), and *Vespula germanica* (triangles).

Pagedale, St. Louis Co., in 1974 (Grogan and Hunt, 1977), and *V. germanica* has been seen frequently in the urban city of St. Louis and suburban St. Louis County every year since then. However, the 1986–1988 survey of the social Hymenoptera of Missouri revealed no observations or specimens from any other locality in the state. Specimens have now been taken in two other Missouri localities, both home to universities where student collections would likely reveal presence of this easily-collected species: Boone Co. (1993, 1995, 1997) and Adair Co. (1996, 2 collections) (Fig. 1). The abundance of *V. germanica* in St. Louis and St. Louis Co., which together constitute the state's highest density of human habitation, reflects the species' known preference in the U.S. of nesting in buildings (Akre et al., 1980). This preference might also partially explain the species' apparent slow dispersal to less urbanized localities in the state.

We thank M. S. Arduser for his contributions to the statewide survey of social Hymenoptera in 1986–1988, including discovery of the *D. arenaria* specimen; Richard Thoma for collecting the St. Francois Co. *V. crabro*; and Betty Nellums for collecting the Crawford Co. *V. crabro*. Vouchers of the four species discussed here are in the Museum of Natural History at University of Missouri-St. Louis and/or the Enns Entomological Museum, University of Missouri, Columbia.

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