

Distribution of the Introduced Argentine Ant (*Iridomyrmex humilis*) in Natural Habitats of the Lower Sacramento Valley and Its Effects on the Indigenous Ant Fauna¹

INTRODUCTION

SINCE ITS INTRODUCTION into North America about 95 years ago, the Argentine ant (*Iridomyrmex humilis* Mayr) has spread widely in the southern half of the continent, particularly in agricultural and urban habitats (Barber 1916; Smith 1965). First recorded from California in 1907 (Woodworth 1908), *I. humilis* is now found in disturbed habitats at lower elevations throughout much of the state and is a significant pest in homes and orchards (Eckert and Mallis 1937; Flanders 1945; Markin 1970). The foraging and honeydew-gathering activities of *I. humilis* workers disrupt biological control of scales and other homopterous insects on citrus (Flanders 1945, 1958; DeBach 1951). Less attention has been focused on the degree to which *I. humilis* has been able to invade nonurban and nonagricultural habitats in California or its effects on the indigenous insect fauna (but see Erickson 1972; Tremper 1976).

This study is concerned with the distribution and abundance of *I. humilis* in natural habitats in California's lower Sacramento Valley, a region in which the species is well entrenched in certain environments modified by humans. The study addresses three questions: (1) To what extent has *I. humilis* colonized natural habitats in this region? (2) What factors are associated with the invasion of such habitats by *I. humilis*? (3) What effects does the presence of *I. humilis* have on the diversity and composition of the native ant fauna? The results of such an investigation can be expected to provide information about potential natural refuges of *I. humilis* and to give insight into the factors that limit spread of this species.

A "natural habitat" is here defined as a community whose flora and fauna consist largely of indigenous species and whose composition and physiognomy approach the condition presumed to occur before human (or European) settlement. In effect, this study involved sampling the ant communities of woodland and shrub habitats in the lower Sacramento Valley, although it is recognized that none of these natural areas exists in an entirely unaltered state. In particular, riparian woodland, the focus of most of this study, is represented by fragmented and variably disturbed remnants (Roberts, Howe, and Major 1980).

MATERIALS AND METHODS

This study was carried out in Yolo and Solano counties, in an area bounded by latitudes 38°10'N and 38°55'N, and by longitudes 121°30'W and 122°20'W (fig. 1).

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