Pierce's Disease

History and Distribution in Tulare County

Pierce's disease bacteria, *Xylella fastisiosa*, was introduced from the southeastern United States. Pierce's disease was first identified in Southern California near Pomona and Anaheim about 1884 and quickly spread, destroying some 30,000 acres of vineyards. Pierce's disease was identified in Napa Valley and northern Sacramento Valley in 1887 and 1889, but vine loss never approached that which occurred in Southern California.

In 1921, Pierce's disease was found in Tulare County near the town of Exeter, and by 1940 it was identified in most counties in the San Joaquin Valley. A Pierce's disease epidemic occurred in the San Joaquin Valley in 1935-1940, but vine loss never approached that which occurred in Southern California in 1884-1900.

Distribution

Pierce's disease can be found at low levels throughout most of Tulare County, but there are distinct localities (hot spots) where Pierce's disease activity is always highest. These localities haven't changed much since 1947 and are located in riparian environments or on the edge of the vine/tree growing districts near field crops and pasture (see back). An increase in Pierce's disease within hot spots tends to occur following wet years, and this was recently validated with an increase in disease activity in hot spots following the wet El Niño period. Hot spots can also be found in Fresno County, and the geographical locations of these hot spots have also remained relatively constant over the years.

Pierce's disease in the southern San Joaquin Valley has been geographically confined to hot spots primarily in Tulare and Fresno Counties for more than fifty years. Pierce's disease activity has been relatively low in Kern County and north of Fresno County. Why the disease hasn't become widespread in the valley during this time is an enigma. The key to control lies in understanding the environmental and biological criteria that have allowed the Pierce's disease bacteria to flourish in some areas but remain benign elsewhere.

Need for Research

The glassy-winged sharpshooter (GWSS) is a much more efficient vector of the Pierce's disease bacteria than green and redheaded sharpshooters. The green and redheaded sharpshooters are currently the primary vectors of Pierce's disease in the San Joaquin Valley. If GWSS becomes established, managing the bacteria will be equally as important as controlling the vector.

An inventory of plants that host and perpetuate the bacteria is needed. Evaluating hot spot areas will lead to a better understanding of the movement and dynamics of the bacteria in host plants along with vector interactions. This information will be necessary to develop an effective control strategy for Pierce's disease in the San Joaquin Valley if GWSS becomes established.

The incidence and distribution of Pierce's disease bacteria and host plants need to be mapped. Then a management plan can be developed and implemented. To accomplish these goals will take a scientific staff properly equipped and financed and focused on one research issue, the epidemiology of *Xylella fastisiosa* in the southern San Joaquin Valley.

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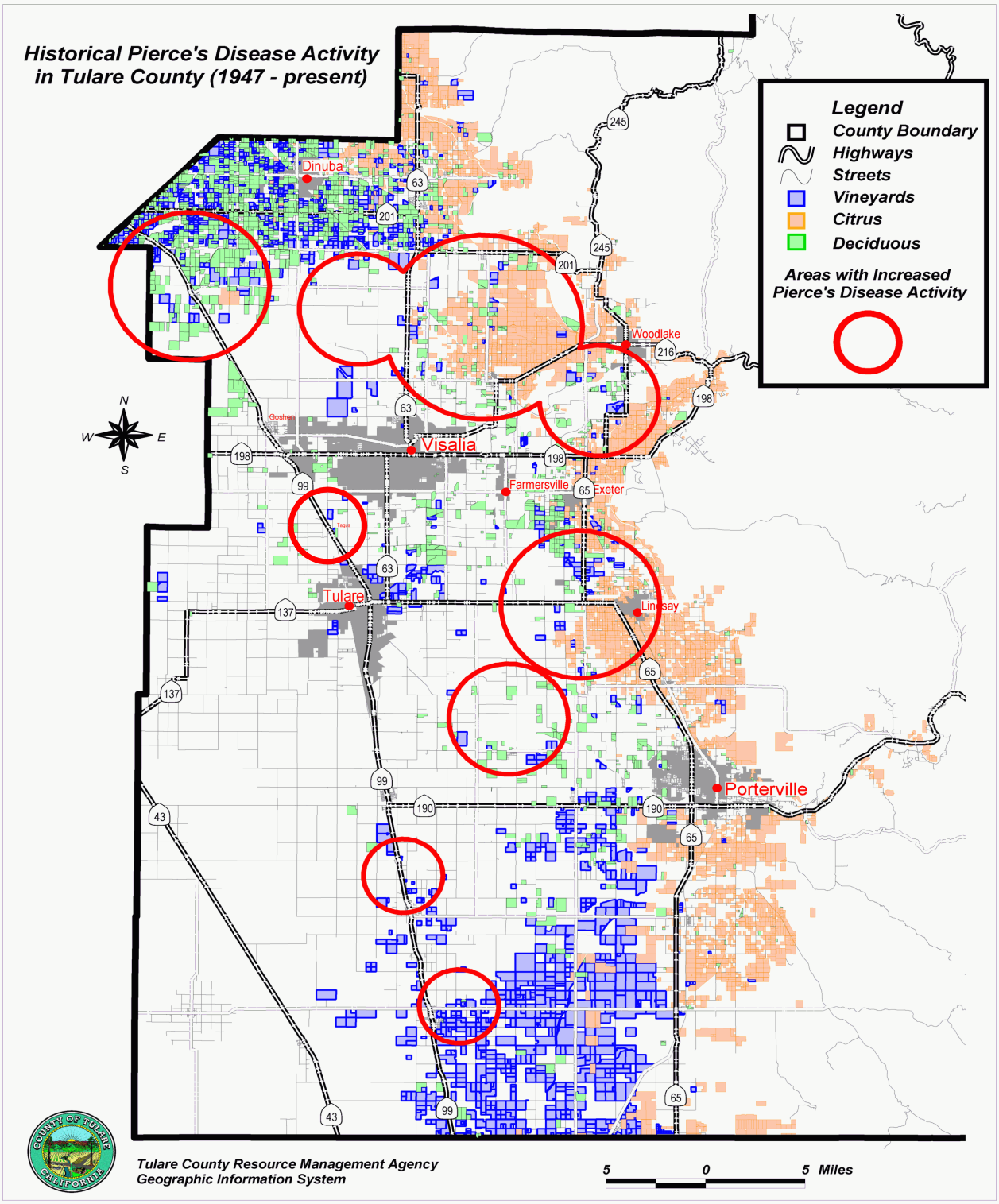

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