

Mosquitoes from the Underworld: Controlling *Culex pipiens* in Underground Utility Vaults in Contra Costa County

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ABSTRACT

Between 2003 and 2007, large numbers of service requests were received from a neighborhood along Behrens Street in El Cerrito, Contra Costa County. Mosquito samples provided by residents indicated the presence of the northern house mosquito, *Culex pipiens*. Inspection of known sources around these locations yielded a few minor mosquito breeding sites but did not explain the scope of the problem, nor did treating those sources significantly reduce the number of service requests. Enhanced surveillance of the area, including “door tagging”, door to door inspections of backyards and inspections of catch basin and storm drains yielded additional small sources but still did little to solve the problem. EVS adult mosquito trapping suggested the problem was larger than expected, as trap counts still exceeded treatment thresholds. Through persistent surveillance and inspection, utility vaults owned by Pacific Bell were found to be holding large quantities of water and were producing *Culex pipiens* in excess of 180 larvae per dip.

We contacted Pacific Bell to request digital maps of vault locations within Contra

Costa County and were informed that county-wide maps were not available. Paper maps were provided for the area of interest, containing vault identifiers, locations and contact information for the engineer responsible for vault maintenance. These maps allowed our inspector to locate and identify additional vault locations. Several of these were also found to be breeding sites and were subsequently treated with larvicides. It is believed that runoff water from landscape irrigation and other sources of “urban drool” act to maintain water in these systems.

Increased cooperation between vector control districts and utility companies is needed to ensure proper maintenance and inspection of vaults. Enhanced surveillance and ‘out of the vault’ thinking are often necessary in situations where clear explanations are not available. Inspections of all vaults, manholes and underground systems should be a routine component of an integrated mosquito control program. Although we did not detect West Nile Virus in mosquito samples collected from these vaults, it should be noted that similar sources exist in other areas within the county and the state. These sites should be considered potential risks to public health.