

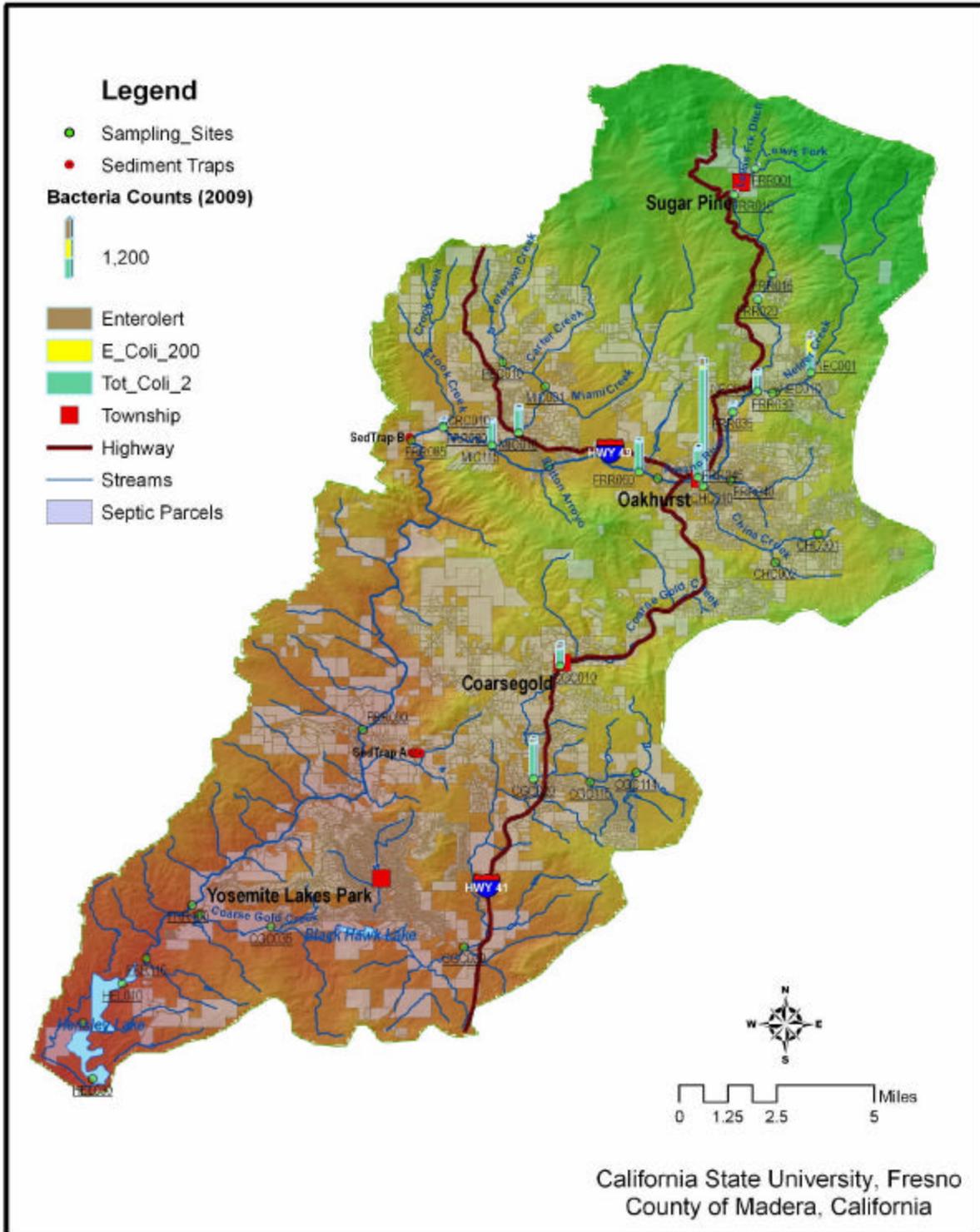
Interdisciplinary study of the Fresno River Watershed (Report 1)

A comprehensive interdisciplinary research of the Fresno River Watershed (Madera County) is under way led by Dr. Steve Blumenshine (Biology) and Dr. Zhi "Luke" Wang (Earth and Environmental Sciences). The goal of this State funded project is to identify the sources and effects of nutrient and sediment transport in the watershed that are affecting the overall health of the watershed and its surface waters, which is indicated by deteriorating water quantity and quality, vegetation, land usability and sustainability.

Based on the first phase study funded in 2003-04, the second phase over the 2008-09 water year is focused on the indicators of watershed health. The specific tasks are to quantify: Macroinvertebrates assemblages as bioindicators of relative habitat health, sediment transport in the watershed and near the streams using GIS-aided simulation models plus on-site sediment trapping experiments, impact of septic systems using site monitoring and GPS/GIS-aided techniques, impact of storm events and especially the first flood on transport processes using live storm water samplers and computer simulations, and baseline studies of the current conditions at proposed development sites.

The project employs three graduate and five undergraduate students. Dr. Wang's Hydrology lab is focused on the overall causes and processes of matter transport in the watershed, and Dr. Blumenshine's Ecology lab examines the relationships among hydrological, chemical, and biological parameters. Results of the field-based research are being disseminated to watershed committees, local communities and academic journals.

Fresno River Watershed Assessment Project



California State University, Fresno
County of Madera, California



Graduate student Brett Moore is supervising undergraduates (Steven Gong, Sarah Rutherford and Eddie Alves) to take samples and measure water quality and discharge at the headwater station (FRR001).



Graduate student Jorge Baca (front) and Zili He are installing a storm water sampler to automatically take water samples during the first flood in Coarsegold Creek (CGC010).



A sediment trap has been used to measure soil erosion and sediment production in the watershed.



Dr. Wang (front) and Jorge Baca are measuring the discharge of the first flood along Fresno River below Oakhurst (FRR060).



Dr. Blumenshine (middle) is recording the discharge data along Nelder Creek (NEC010).