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Timothy A Lucas*, Pepperdine University, Natural Science Division, 24255 Pacific Coast Highway, Malibu, CA 90263. *Undergraduate Research in Modeling the Response of Chaparral Plants to Wildfires.*

This talk will focus on a recent collaboration with an ecologist that has led to an undergraduate modeling project. Specifically, a group of mathematics students have developed several discrete-time models of how various species of chaparral plants respond to wildfires. The chaparral shrubs can be divided into three life history types according to their response to wildfires; non-sprouters are completely killed by fire and reproduce by seeds that germinate in response to fire, obligate sprouters resprout after fire, but their seeds are destroyed by fire, and facultative sprouters both reproduce by seeds and resprout. The students have validated these models using over 25 years of data on the sizes, survival rates, and distribution of chaparral plants. The main study site is located adjacent to Pepperdine University in the Santa Monica mountains which has the highest fire frequency in all of Southern California. Besides the research itself, I will discuss the recruitment and training of mathematics undergraduates and their contributions to the data collection, statistics, modeling and programming involved in the project. (Received September 21, 2011)