

Project Information Form

Project Title:	Using Noninvasive Genetics to Compare How a California Freeway Affects Gene Flow in a Disturbance-averse Versus a Disturbance-tolerant Species
University:	University of California, Davis
Principal Investigator:	Andrea Schreier
PI Contact Information:	Phone: (530) 752-0664 Email: amdrauch@ucdavis.edu
Funding Source(s) and Amounts Provided (by each agency or organization):	Caltrans \$79,820.57
Total Project Cost:	\$79,820.57
Agency ID or Contract Number:	Caltrans 65A0527 TO 015 UCD-CT-TO-015
Start and End Dates:	October 20, 2015 – April 1, 2017
Brief Description of Research Project:	<p>Road networks may have profound impacts on the viability of wildlife populations. In particular, highways can be barriers to wildlife movement, leading to genetic diversity loss, inbreeding, and increased extinction risk for small, isolated populations on either side. The effects that highways have on wildlife movement can be variable, dependent on the unique dispersal behaviors of individual species. In this study, the researchers tested the hypothesis that highways will pose less of a barrier to coyotes, a species tolerant of human disturbance, than to gray fox, a species more sensitive to disturbance. They used landscape genetic tools to determine whether State Route 49, part of the California Essential Habitat Connectivity Project, was a barrier to coyote or gray fox movements.</p> <p>Genetic diversity among both coyotes and gray foxes was high and comparable to other studies. The researchers found little evidence of contemporary genetic structure across State Route 49 for either species. All genetic differentiation that they observed was driven by family structure and relatives were found on both sides of the highway. Coyotes exhibited a significant signal of isolation by distance and a positive association between traffic volume and genetic distance. There are two possible explanations for these findings. State Route 49 may be permeable to coyote and gray fox movement due to successful road crossings. Alternatively, State Route 49 is a barrier to coyote and gray fox movement but there may be a time lag between initial reduction of gene flow and detection of population structure.</p>



National Center for Sustainable Transportation

Describe Implementation of Research Outcomes (or why not implemented): Place any photos here	
Impacts/Benefits of Implementation (actual, not anticipated):	
Web Links <ul style="list-style-type: none">• Reports• Project website	https://ncst.ucdavis.edu/project/using-noninvasive-genetics-to-compare-how-a-california-freeway-affects-gene-flow/