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Authors

Ervin, El L.

Fisher, R. N.

Crooks, K. R.

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FACTORS INFLUENCING ROAD-RELATED AMPHIBIAN MORTALITY IN SOUTHERN CALIFORNIA

E.L. Ervin (858-637-6890, Email: eervin@usgs.gov) and R.N. Fisher, United States Geological Survey,
Western Ecological Research Center, San Diego Field Station, 5745 Kearny Villa Drive, Suite M,
San Diego State University, San Diego, CA 92182-1015.
Fax: 858-974-3563

K.R. Crooks, Department of Wildlife Ecology, University of Wisconsin,
Madison, WI 53706-1598.

Abstract

Roads constitute a direct and often permanent loss of wildlife habitat; they can serve as physical or psychological barriers to animal movements, and are often the source of exceedingly high levels of animal mortality. Our goal was to better understand the effects of roads on amphibian populations in a planned landscape corridor in southern California. Road cruising was employed to examine the usage of roadways and related mortality levels of amphibians. Two hundred and fifty four evening road cruising surveys were conducted between February and April 1999 and 2000. During 93 road nights with "wet roads," we recorded 465 dead animals and 505 live animals on roadways, yielding an overall mortality rate of 48%. In contrast, during 161 road nights that were classified as having "dry roads," we recorded only 25 dead animals and 105 live animals, yielding an overall mortality rate of 19%. In addition to rainfall, the type of road surveyed also influenced road mortality; as expected, the highest mortality rates occurred on highly traveled roads, with small two-lane roads exhibiting the lowest mortality rates. Our results suggest that roadways in the region are negatively impacting amphibian populations, particularly when roads are wet in areas of high traffic volume.

Biographical Sketch: Edward Ervin has worked as a research assistant for Dr. Robert Fisher (USGS) since 1995. Since 1991, Edward's work has focused on the natural history, ecology, and conservation of aquatic-associated amphibian and reptile species in southern California, with an emphasis on the coast range newt (*Taricha torosa torosa*), western spadefoot toad (*Spea hammondi*), arroyo toad (*Bufo californicus*), California red-legged frog (*Rana aurora aurora*), and the two-striped garter snake (*Thamnophis hammondi*). He and Robert Fisher are in the process of standardizing the survey method known as "road cruising." They are also comparing road related mortality levels to various traffic volumes and meteorological conditions in order to investigate the direct impacts on amphibian species by motor vehicle traffic. Edward earned a B.A. in Humanities with a minor emphasis in the sciences from San Diego State University in 1993.