

Title:

Effects of Road Mortality and Mitigation Measures on the Western Rattlesnake (*Crotalus oreganus*) in British Columbia

Abstract:

Direct mortality on roads is a severe threat to the persistence of Western Rattlesnake (*Crotalus oreganus*) populations in the south Okanagan valley. Previous research in our lab found 6.6% of a rattlesnake population in the White Lake Basin are dying annually on roads, despite only moderate traffic levels. A model used to predict the long-term fate of the population suggested that any increases in this rate would predispose the population to risk of extinction within the next 100 years. In response to this scenario, wildlife culverts and directional fencing have been installed at snake roadkill hotspots, with a goal of reducing snake road mortality. We are continuing with extensive road surveys to monitor rattlesnake roadkill rates, and we will be comparing these to past rates to determine the effectiveness of the mitigation measures. Further, we are continuing to monitor the demographics of the population through mark-recapture work, allowing us to update the population persistence predictions. Of particular interest is that another at-risk snake in the Basin, the Western Yellow-bellied Racer (*Coluber constrictor mormon*) appears to be more responsive to the culvert underpasses than the target rattlesnake, suggesting additional work is needed to understand how the behaviour of the different snake species may influence their susceptibility to road mortality and underpass use.