
EVALUATING THE BARRIER EFFECT OF A MAJOR HIGHWAY ON MOVEMENT AND GENE FLOW OF THE NORTHERN FLYING SQUIRREL

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Roads are pervasive sources of habitat fragmentation around the world, affecting an estimated 19 percent of the land area of the coterminous United States (Forman 2000). The barrier effect of roads has been demonstrated for species from multiple taxa. Still, information regarding the response of the vast majority of species to roads is lacking. We examine the effects of a major roadway on the movement and population genetics of Northern flying squirrels (*Glaucomys sabrinus*) in the Cascade Mountains of Washington, USA. During 2009 and 2010, flying squirrels (n = 16) were trapped and radio-tracked to gather data on movement within their home ranges and to detect movement across the roadway. Additionally,

DNA was extracted from cheek cells of 41 individuals and genotyped at 12 microsatellite loci to characterize patterns of population structure. Seven of 16 monitored squirrels crossed the highway at least once during their nightly movements. Randomization tests of the movement data do not indicate significant avoidance of crossing the highway corridor. Movement does not necessarily equate to gene flow, however, and forthcoming analysis of microsatellite data will help elucidate whether current rates of movement are sufficient to maintain genetic connectivity across the highway.