

## **SPATIAL AND TEMPORAL RELATIONSHIPS OF ADULT MALE BLACK BEARS TO ROADS IN NORTHWEST MONTANA, 2003-2004**

Tonya Chilton and Richard Mace, Montana Fish, Wildlife and Parks, 490 N. Meridian Rd., Kalispell, MT 59901

Donald Christian<sup>1</sup>, Division of Biological Sciences and Wildlife Biology Program, University of Montana, Missoula, MT 59812

Roads have direct and indirect consequences for wildlife. Vehicle collisions are a direct cost of roads on wildlife. Indirectly, roads may increase mortality of game species by

<sup>1</sup> Current address: College of Arts and Sciences, University of Wisconsin-Eau Claire, Eau Claire, WI 54702

increasing hunting pressure along these roads. Little is known about how roads affect hunting vulnerability of black bears (*Ursus americanus*), especially adult males. Adult males are the most desirable age and sex class to many hunters, which could lead to over-harvest of this sex and age class. I hypothesized that adult male black bears will avoid roads during spring and fall hunting seasons compared to summer; so road use, and therefore hunting vulnerability should decrease during hunting times. I used a sample of six GPS-collared adult male black bears and ANCOVA methods to evaluate whether these bears avoided roads between seasons. This study illustrates the importance of season in determining how bear use roads. My results showed that road metrics proximate to bears decreased from nonhunting to hunting seasons. Adult male black bears were less likely to be near open roads during legal hunting seasons, which may reduce bear vulnerability during the fall hunt. This is consistent with the idea that bears survive to maturity by avoiding roads thus avoiding hunting and traffic; however other possible explanations exist. Especially in the roaded area, elevation and roads were confounded, making it difficult to tease apart individual effects. Thus, interpretations of bear avoidance of roads should be treated with caution, as bear responses to roads may also be a response to elevation.