

Emma Perkins

*Identifying Causes of Ectoparasite Presence on the American Pika (Ochotona princeps)*

The purpose of this project is to identify probable causes of ectoparasite presence in American pikas (*Ochotona princeps*) and evaluate their connection to properties of the ecosystem. The working hypothesis is that increased presence of ectoparasites in American pika populations is observed at lower altitudes and may be attributed to increased interspecies contact. Data for flea and ear mite abundance on pikas for years 2008 to 2017 (except 2009) was compiled along with possible contributing factors. Data was then analyzed in both R Studio and Microsoft Excel and explored graphically. Predictor variables were analyzed in three categories: Physiological, environmental, and observational factors. A Poisson regression was used to construct models of environmental and physiological factors, in both cases accounting for effects of the observational factor of handling time. Location relative to treeline and month of year with Poisson regression coefficients of +0.62 and -0.61 respectively were the best environmental predictors of fleas, all other environmental factors had a coefficient of less than  $\pm 0.40$ . Male reproductivity with a coefficient of +0.44 was the best physiological predictor of fleas. Month of year with a coefficient of +0.51 and male reproductivity with a coefficient of -0.90 were the best predictors for ear mites. The coefficient on handling time was never greater than  $\pm 0.21$ . These findings lead me to believe that interspecies contact below treeline may be contributing to flea abundance on pikas, while ear mite presence on male pikas may be reducing their reproductivity.