**American Pika Status in Wyoming**

Annual Report for Wyoming Governor’s Big Game License Coalition

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We have completed our fieldwork portion of this study as of September 2011. Our main objectives for the season were twofold: 1.) Establish and survey in a geographically distinct mountain range, the Bighorns, with sites covering a similar yet broad gradient of topography and climate as sites in the Wind River Range surveyed in 2010 in order to test the generality of patterns observed in the Winds and 2.) Revisit all sites from 2010 to pick up temperature sensors and to resurvey a subset of sites to test for annual differences.

Forty sites in the Bighorns were surveyed for scat and at a subset of these temperature sensors were deployed to measure potential microclimate variables experienced by pikas during summer. Survey sites for measuring relative pika abundance indicated by scat/m2 were selected *a priori* based on the habitat and climate characteristics we are interested in testing. Results show clear patterns of relative abundance in relation to habitat measurements.

Preliminary analyses suggest strong support for forage availability and elevation as important predictors of pika abundance in both mountain ranges. We ran a set of 39 general linear models based on intentionally selected predictor variables to test three hypotheses (summer heat, winter snowpack and forage availability) for what might be most limiting for pika populations at this latitude. We then followed up with model selection procedures, specifically AIC*c,* to determine the likelihood of the best-supported model given the data and candidate set of models. The top models within two ΔAIC*c* had varying terms for forage availability metrics and elevation, showing support for these variables. The elevation data suggest a potential ceiling effect on abundance whereby pikas exist at lower abundance at our lowest and highest elevation sites in both ranges. These results suggest that pikas may not simply be able to migrate upslope with on-going climate change as many have suggested.

L. Yandow presented preliminary project findings at the National Wildlife Society meeting in Hawaii and the Wyoming Chapter of the Wildlife Society annual meeting December 2011. Further investigation on identifying the specific climate variables indexed by elevation at our sites is the focus for spring 2012. To address this question, we are using remotely-sensed climate (temperature and snowpack) and temperature sensor data into our model selection analyses.

These data and our results will ultimately be shared with WGFD, the US Forest Service, Tribal Fish and Game, as well as presented at professional meetings and published in a peer-reviewed scientific journal.

Given predicted on-going climate change, its potential impacts to alpine systems, and the potential for the American pika to serve as a sentinel species for such change, we believe that our research will constitute an important contribution. Moreover, to our knowledge, ours is the first systematic study of the pika in Wyoming, which will render threat assessments for the species at our latitude more do-able. Thank you for your support.