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## DIET AND MACRONUTRIENT OPTIMIZATION IN WILD URSIDS: GRIZZLY BEARS VERSUS BLACK BEARS

Cecily M. Costello\*, College of Forestry and Conservation, University of Montana, Missoula

Steven L. Cain, Grand Teton National Park, Moose, WY

Shannon Pils, USGS Northern Rocky Mountain Science Center, Bozeman, MT

Leslie Frattaroli, Grand Teton National Park, Moose, WY

Mark A. Haroldson, USGS Northern Rocky Mountain Science Center, Bozeman, MT

Frank T. van Manen, USGS Northern Rocky Mountain Science Center, Bozeman, MT

When fed ad libitum, ursids can maximize mass gain by selecting mixed diets wherein protein provides  $17 \pm 4\%$  of digestible energy. In the wild, this ability is likely constrained. By visiting locations of 37 individuals during 274 bear-days, we documented foods consumed by grizzly (*Ursus arctos*) and black bears (*Ursus americanus*) in Grand Teton National Park during 2004–2006. Based on published data, we estimated foods and macronutrients as percentages of daily energy intake. Using principal components and cluster analyses, we identified 14 daily diet types. Only 4 diets, accounting for 21% of days, provided optimal protein levels. Nine diets (75% of days) led to over-consumption of protein, and 1 diet (3% of days) led to under-consumption. Highest protein levels were associated with animal matter (i.e., insects, vertebrates), which accounted for 46–47% of daily energy for both species. As predicted: 1) daily diets dominated by vertebrates were positively associated with grizzly bears and protein intake was positively associated with body mass; 2) diets dominated by fruits were positively associated with black bears; and 3) mean protein was highest during spring, when high-energy foods were scarce, however it was also higher than optimal during summer and fall. Although optimal gain of body mass was constrained, bears opted for the energetically superior trade-off of consuming high-energy, high-protein foods. Given protein digestion efficiency similar to obligate carnivores, this choice likely supported mass gain, consistent with studies showing monthly increases in percent body fat among bears in this region.