

**THE EFFECT OF ENVIRONMENTAL VARIABILITY ON GRIZZLY BEAR
HABITAT USE: A WORK IN PROGRESS ^{TWS}**

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The grizzly bear (*Ursus arctos*), with mean adult home range sizes ranging from just under 500 square kilometers to over 800 square kilometers, is a wide-ranging omnivorous carnivore whose habitat requirements are challenged daily by increasing habitat fragmentation. Many of the measurable parameters that characterize habitat use by grizzly bears are influenced by the quality, quantity and distribution of available resources at many temporal and spatial scales. The availability of these resources is further complicated by the annual and inter-annual variability in human land use patterns and a suite of climatic variables. In order to gain ecological insight regarding how the grizzly bear uses the

landscape and what effect human land use changes have on that landscape, it is important to determine the daily movements of grizzly bears. Delineating daily movements and determining the location of resources that act as attractants vs. resources that act as deterrents is an objective of this project. The global positioning system (GPS) technology provides scientists with location information having a high degree of certainty and at user defined intervals. This paper will present the initial findings of a multi year study, based in the Greater Yellowstone Ecosystem, using the technologies of GPS, Geographic Information Systems and remotely sensed data to assess the effects of resource management strategies and land use practices on grizzly bear habitat selection. To date 26 grizzly bears have been instrumented with GPS collars. Based on data from retrieved this project has been able to illustrate that there are indeed patterns of use delineated using the GPS technology that were not captured using traditional radio telemetry methods. Grizzly bear home ranges delineated using this technology are much more discrete showing areas of concentrated use. These results appear to have promise in providing new ecological insights on grizzly habitat selection.