

COMMENTS ON THE IMPORTANCE OF BISON TO GRIZZLY BEARS IN THE
YELLOWSTONE ECOSYSTEM

November 1997

Kerry Gunther, Bear Management Office, Yellowstone National Park
Mark Haroldson, Interagency Grizzly Bear Study Team, Bozeman, MT

Summary: These comments address agency internal review drafts #2 and #3 of the Bison Management Plan Environmental Impact Statement. This report supersedes all previous drafts of our comments.

During the winter of 1996-97, almost one-third of the northern Yellowstone ecosystem bison population was killed in management actions conducted under an Interim Interagency Bison Management Plan. An Environmental Impact Statement on a long-term bison management plan is currently being written. Since bison are an important food source for grizzly bears, a Threatened species, and may influence bear fecundity and survival, an analysis of the potential impacts on bears of the different bison management proposals being considered in the draft Bison Management Plan Environmental Impact Statement is warranted.

In the early 1970's, garbage dumps in the Yellowstone ecosystem where grizzly bears had fed for over 80 years were closed. Following closure of the dumps, human-caused grizzly bear mortality increased significantly causing a population decline. The grizzly bear population decreased by 44.5% from 1967-74. In addition to the increase in human-caused mortality, negative trends in grizzly bear fecundity were also evident following closure of the dumps. Average age of first reproduction and average interval between litters increased slightly while average litter size decreased slightly. By 1975, the grizzly bear population had declined to an estimated 140 bears and was listed as a Threatened species under terms of the Endangered Species Act. For the period 1974-80, there was a continuing, but slower rate of population decline, roughly 2% per year. More recent data indicates that the population is now increasing at a rate of 2 to 5%. The turning point occurred in the mid-1980's and was attributed primarily to lower numbers of human-caused mortalities of adult female grizzly bears. In addition to lower rates of adult female mortality since the mid-1980's, on average, females are now having litters at a younger age and average litter size has increased. These fecundity parameters are now similar to, or more positive than the averages reported prior to the dump closures. Changes in fecundity may be related to fluctuations in

food quality and quantity. With the elimination of garbage, Yellowstone ecosystem grizzly bears now depend on several categories of food including army cutworm moths, ungulate meat, fish meat, whitebark pine nuts, forb roots, forb foliage, and grasses and sedges for most of their energetic needs. Of these food sources, only ungulate meat from elk and bison is known to have increased significantly since the dumps were closed. We hypothesize that ungulate meat from elk and bison may have contributed to the lower average age of first reproduction, the increase in average litter size, the reduction in adult female mortality, and the positive trends in grizzly bear population parameters that have occurred since the mid 1980's. Due to the potential importance of ungulate meat to the grizzly bears in the Yellowstone ecosystem, careful analysis of the impacts of the bison management alternatives being considered under the draft Bison Management Environmental Impact Statement is warranted.