

Glacier Grizzly Bear Research

By C.J. Martinka

Editor's Note: Newspaper clips from all over the United States are increasingly sprinkled with headlines such as "Grizzlies Seen As Imperiled in Wyoming," "Sixth Grizzly Kill May Lead Officials to End Baiting," and "Grizzly Populations Dwindled Rapidly." The New York Times, the Jackson Hole Guide, the Great Falls Tribune and the Washington Post are representative of the wide range of publications devoting space to the subject. In view of this drumbeat of public concern, Park Science asked Clifford Martinka, NPS research biologist at Glacier NP, to update his 1981 statement for the U.S. House subcommittee on Public Lands and National Parks. The following is his response.

Grizzly bears are part of the native wildlife heritage of Glacier NP. Servicewide policy and park plans recognize that scientific information is necessary for proper management of this unique natural resource. Occasional aggressiveness by bears toward park visitors emphasizes the dimension of human safety as part of the need for credible knowledge about the bears. In addition, their threatened status in the contiguous United States requires a factual data base if recovery is to be successful.

Park management has responded to grizzly bear research needs by integrating the capability for field studies into the resident research program. Research activity was initiated in 1967 after grizzlies caused the deaths of two backcountry campers. Study goals included the collection and evaluation of quantitative data on population status, ecological relationships, and management of the bear population. Field data collection was stressed but it quickly became evident that management records were an invaluable source of trend information. University contracts provided topical studies while liaison with other agencies and the scientific community assured that data from regional studies also were available to park managers. This research framework continues; its intensity is largely dependent upon annual support funding levels.

Research findings have been reported in management documents, at interagency meetings, at scientific gatherings, and in several dozen reports, articles, and technical papers. Significant results may be summarized in five categories as follows:

1. **Population Status.** An estimated



Two young bears on a bare meadow finish the remains of an elk carcass.

population of 201 ± 23 grizzlies (1 per 8 square miles) inhabited the park from 1967-76. An average of 34 cubs was produced each year but population levels remained relatively stable over the 10 year period. Natural mortality and dispersal from the park are important factors contributing to population stability. Population data collected since 1976 suggest continued stability; the entire package is being used as baseline data in the regional recovery plan.

2. **Population Ecology.** Park habitats provide a variety of high quality food and cover for grizzlies. Seasonal use of these habitats is relatively predictable and several significant concentration areas have been identified. Habitat use patterns have provided the foundation for two research projects, the results of which provide planning tools to minimize encounters between grizzlies and park visitors.

3. **Grizzly/Visitor Interactions.** Grizzly bears have been involved in 25 confrontations that resulted in 28 visitor injuries and 6 deaths from 1910-80. The number of confrontations is closely correlated with park visitation levels. However, rate analysis during recent decades suggest that confrontations may actually be increasing faster than park visitation. Changing bear behavior is now being investigated as a possible contributor to this trend.

4. **Effects of Management.** Grizzly bear losses resulting from management activities totalled 47 from 1951-82. Annual losses followed the same increasing trend as visits and confrontations. However, losses remain less than one percent of the estimated park population and are considered to be within biologically acceptable limits. It should be recognized that mortality adjacent to the park may involve individual bears from the park population and that total losses are likely somewhat greater than one percent.

5. **Information Systems.** The collection and use of credible information is an essential element of grizzly bear management. Accordingly, the park research effort expanded its data processing program to include development of a management information system. Result was a program which is now incorporated into a servicewide bear information management system (BIMS).

Current research in Glacier continues to emphasize grizzly bear studies. The staff recently was expanded to include a Wildlife Biologist (Kate Kendall) whose sole responsibility will be field bear research. Two principal topics are being addressed:

1. A complete review of existing population data is being conducted to assure that previous analyses accurately reflect population conditions and that existing data sources are efficiently utilized.

2. The effects of food stress on bear behavior are being studied along with the distribution of important foods and habitats within the park. This work is considered requisite to management plans for further separating grizzlies and park visitors.

The issue of behavioral conditioning also is being considered, but inherent complexities have demanded a cautious approach.

It is generally agreed that grizzly bear

management requires a more substantial data base than currently exists in the park. Research plans therefore include some major degree of attention through the 1980's. A program to address the most pressing needs is expected to include the following:

1. Continued efforts to monitor grizzly bear population trends with an emphasis on refinement of techniques for routine collection and evaluation of biological data.

2. Development of a more comprehensive data bank of park visitor statistics, especially numbers and trends of hikers.

3. Completion of an inventory and mapping of park habitats including

distribution and production trends of the bears' key foods.

4. Improvement in our understanding of bear behavior, especially bear reactions to human presence in their habitat, and continued study of the potential for behavioral conditioning of individual bears.

5. Implementation of prototype visitor management packages on an experimental basis to determine if they are effective in reducing confrontations with bears.

Finally, available information permits some judgements and predictions about the future of grizzlies and their management in the park environment. Current population

status may be described as healthy, with a minimum but increasing human influence. Since park visitation continues to rise, and both confrontations and bear removals correlate with visitation, an expanding human impact on the grizzly population is expected. Reversal of this anticipated trend may not be easy but certainly is within the realm of possibility. Park visitors have been and continue to be a significant element in the management picture. An emphasis on this element holds the greatest promise for breaking the trend of increasing losses.

Park management in the future will be further complicated by expanding development and use of adjacent lands. It's likely that impacts on grizzlies will expand there in much the same fashion as

has occurred in the park. Since many park bears travel to adjacent habitats, it could very well be that the park population suffers from factors beyond direct management control. Thus, our ability to conserve 200 bears is probably an optimistic estimate. A more realistic figure may be closer to 100, a value thought by some authorities to be at below minimum viable population size.

To assure full conservation potential, the park obviously must pursue a regional management plan for grizzlies. Progress toward that goal is being made through the recovery plan. Grizzlies have many human friends and it is that relationship which provides a hopeful light for their future.

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NPS Director Russell E. Dickenson, in a major address at Oregon State University on November 22, put the plight of grizzly bears in the category of "do or die" situations that the Park Science is facing.

"The grizzly is alive and well in Glacier," he said, "even though public/private planned and existing activities outside the park may have an effect on the grizzly populations.

"But the grizzly situation in Yellowstone is desperate. Only about 200 of the animals are estimated to remain there, and we are sure of only about 30 females. It would be an absolute tragedy if irresponsible or thoughtless actions toward the grizzly, in the Yellowstone area, were allowed to wipe out this important population."