

Appendix O. Publication on Denali National Park and Preserve Bear Program

BEAR-HUMAN CONFLICT MANAGEMENT IN DENALI NATIONAL PARK AND PRESERVE, 1982-94

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Abstract: In response to a dramatic increase in visitation and in problems with grizzly and black bears (*Ursus arctos*, *U. americanus*) during the 1970s, Denali National Park and Preserve implemented a comprehensive bear-human conflict management plan in 1982. The components of Denali's bear-human conflict management plan include visitor education, food-storage regulations, backcountry closures, and experimental aversive conditioning. Prior to the opening of a paved highway to the National Park in 1972, reports of bear-inflicted injuries, property damage, and bears obtaining anthropogenic food averaged <1/year. In 1982, 40 such incidents occurred. After implementation of the bear-human conflict management plan, incidents decreased steadily until 1988 when 9 occurred, a decrease of 77%. Incidents in which bears obtained anthropogenic food decreased from 23 in 1982 to 1 in 1989, a decrease of 96%. A recent slight increase in incidents (all types) may reflect the activities of either a few bears before they were removed or aversively conditioned, or bears which were never subjected to management actions. Since 1984, aversive conditioning was conducted on 2 black bears and 9 grizzly bears. In 8 of these cases, the bears avoided test camps and did not cause further problems during the season aversive conditioning occurred. Four of the bears aversively conditioned in the backcountry stayed away from camps for at least 2 years. Bears successfully broke into bear-resistant food containers in 12 of 55 attempts since 1979, due to improperly latched or defective lids and overfilled containers. There have been no reports of bears breaking into the newest model of bear-resistant food container. This work updates previous analyses of bear-human conflict in Denali National Park and Preserve.

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Key words: Alaska, aversive conditioning, bear-human interaction, bear-resistant food container, black bear, Denali National Park and Preserve, grizzly bear, *Ursus americanus*, *Ursus arctos*.

Bear management has likely been a part of Denali National Park and Preserve's (formerly Mount McKinley National Park) operations since its creation in 1917, although the first records of such actions are from 1946. Less than 6,000 people annually visited the park when it was accessible only by railroad prior to 1957. The 1958 completion of the Denali Highway increased visitation, but it was the 1972 opening of a paved highway linking the park to Alaska's population centers that increased visitation 5-fold and doubled overnight backcountry use in a year. Concerns about traffic safety and effects on wildlife prompted the National Park Service to restrict private vehicle use on the 154-km road accessing the park's interior and to establish a shuttle bus system. A permit and quota system limiting overnight backcountry use were also implemented.

As visitation and backcountry use increased, so did reports of bear-human conflicts. The Bear-Human Conflict Management Action Program was implemented in 1982 in response to an increase in injuries, property damage, bears charging hikers, and bears obtaining anthropogenic food from <1/year prior to 1972 to 40/year in 1982 (numbers revised in 1994). Between 1917 and 1982

at least 48 bears were destroyed or relocated (0.75 bears/year; Dalle-Molle and Van Horn 1989). Between 1982, when the program was implemented, and 1994 only 2 bears have been removed by management (0.17 bears/year), and the rate of bears damaging property or obtaining anthropogenic food dropped dramatically. Dalle-Molle and Van Horn (1989) described the elements of the program, its implementation, and evaluated its success through 1987. We describe the current elements of the program and evaluate its effectiveness through 1994.

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