

BLACK BEAR MANAGEMENT IN SEQUOIA AND KINGS CANYON NATIONAL PARKS

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Abstract: Traditionally, black bear (*Ursus americanus*) management at Sequoia and Kings Canyon National Parks has consisted mainly of efforts to remove problem animals. In recent years, the ready availability of human food has been recognized as the real problem. The parks' current bear management program is aimed at eliminating all unnatural food sources in an effort to allow the bears to lead as natural a life as possible.

HISTORY AND BACKGROUND

Bears and associated bear problems have long constituted an important part of the natural resources management program at Sequoia and Kings Canyon National Parks. Little is known about the area's bear population before 1890, when Sequoia was established as this country's second national park. At that time, grizzly bears (*Ursus arctos*) still roamed the area. However, the last grizzly recorded in California was killed at Horse Corral Meadow, near the northwest corner of Sequoia National Park, in 1922 (Grinnell et al., *Fur-bearing Mammals of California*, 1937). Since then, only black bears have frequented the area encompassed by these two parks.

Although total visitor use has steadily increased from 1,265,858 in 1959 to 2,168,477 in 1976, the number of bear incidents, as shown in annual summaries, has not correspondingly increased (Table 1). However, the cost of damage associated with these incidents has increased dramatically (Table 1). This increased cost can be attributed in part to inflation and in part to a greater percentage of incidents involving automobiles, and the subsequent high cost of repairs. The occurrence of bear activity in areas of high visitor use is nothing new. In the 1930s, park rangers fed bears on a regular daily

schedule for public viewing (Fig. 1). This practice no doubt helped to attract bears into public use areas.

Through the 1950s and 1960s, after the bear-feeding program was discontinued, habits that had been developed by the program persisted, and it became difficult to keep bears away from people's food. Bear control was emphasized, including trapping problem animals, destroying dangerous ones, and relocating others. By 1972, it was apparent that this approach attacked the symptoms rather than the cause of the problem. A bear management plan was developed that emphasized the elimination of unnatural food sources, education of visitors and employees, enforcement of pertinent regulations, and use of efficient bear-handling procedures. An important part of the plan was the development of an accurate, timely report procedure covering all bear incidents and management actions.

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CONTEMPORARY PROBLEMS

Although natural bear populations undoubtedly existed in these parks before the coming of European man, much of the area is not good natural bear habitat.

Table 1. Annual number of bear incidents and dollar value of damage or loss due to bear incidents in Sequoia and Kings Canyon National Parks. Figures are taken from annual summaries that reflect several reporting procedures. Supporting data are not generally available to explain unusually high or low numbers.

	1959	1960	1961	1962	1963	1964	1965	1966	1967
Incidents	167	277	195	289	64	37	570	66	168
Value (\$)	1,922	1,355	1,900	815	1,270	592	1,945	785	1,373
	1968	1969	1970	1971	1972	1973	1974	1975	1976
Incidents	153	87	604	174	204	287	175	230	221
Value (\$)	1,565	1,840	4,165	1,877	6,059	5,130	5,856	10,474	10,119

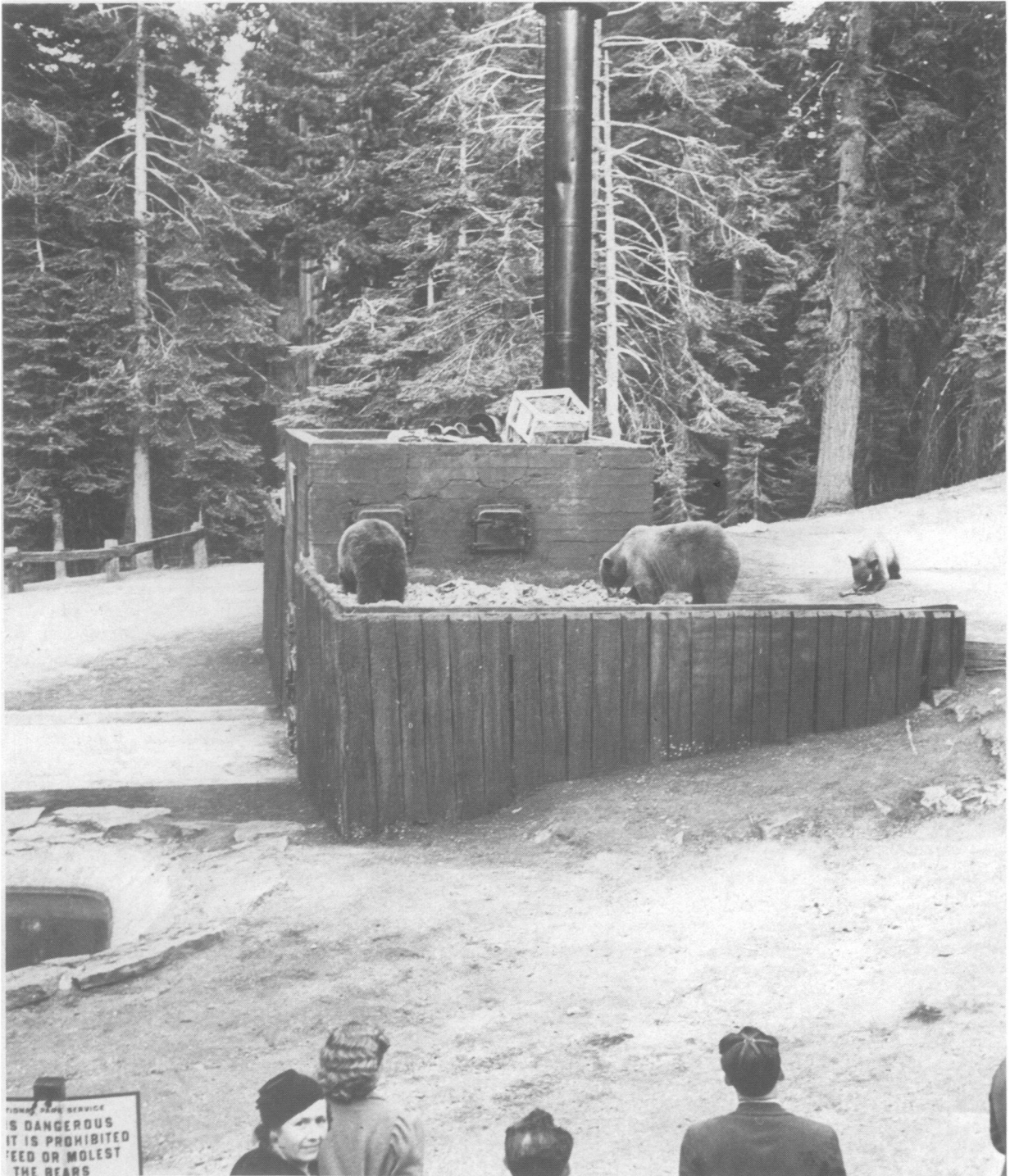


Fig. 1. Bear-feeding operation at Bear Hill in Giant Forest area, Sequoia National Park, 1938.

Vegetation patterns and sighting records indicate that of the 342,166 ha in the two parks, only about 81,000 ha, or 24 percent, appear to be able to support a natural bear population (Fig. 2).

In general, the present distribution of black bears is probably much the same as it was historically. The major exception is that popular camping areas, with readily available unnatural food (i.e., of human origin), have become areas of concentrated bear density, especially large frontcountry campgrounds that are readily accessible by automobile. Approximately 86 percent of all reported bear incidents occur in such locations. Since over 93 percent of Sequoia and Kings Canyon National Parks is relatively inaccessible backcountry, the developed campgrounds, where most incidents take place, are concentrated in that relatively small part of the parks served by the road systems. Most of the management effort is directed at these frontcountry areas of concentrated use.

Most bear incidents in campgrounds involve filching small food items, breaking open portable coolers, or rummaging through improperly discarded garbage.

Occasionally bears tear open tents for food. In most cases the tents are unoccupied and food is left inside. Despite prohibiting regulations, it is suspected that some campers intentionally leave food out to attract bears, hoping to get a close view of the animal. Unfortunately, this suspicion is difficult to prove. A few bears have learned to smash auto windows or otherwise gain access to closed vehicles and campers. These bears pose the most serious problems and must be immediately identified and dealt with. Luckily, most campground bears remain shy and relatively unaggressive. Few personal injuries have occurred during campground incidents (e.g., only 2 minor injuries were reported in both 1975 and 1976).

Concession-operated lodging with outdoor tables and food storage has also been a problem. Lodge guests stay in cabins, some of which have outdoor porches with cupboards for dishes and cooking equipment. Food stored in the cupboards attracts bears onto the porches, which frequently results in property damage as well as loss of food. A few bears have learned to enter the cabins for food. These problems will continue until each park visitor realizes the danger and illegality of making food available to bears.

In at least 2 backcountry locations, bears have become an increasing nuisance in recent years. Common activity patterns include tearing backpacks and climbing trees to remove cached food. Loss of food supplies can be serious when hikers are 2 or more days from the nearest trailhead. Delay in reporting these incidents, remoteness of location, and poor identification of individual bears make these situations difficult to deal with.

BEAR HABITAT IN SEQUOIA AND KINGS CANYON NATIONAL PARKS

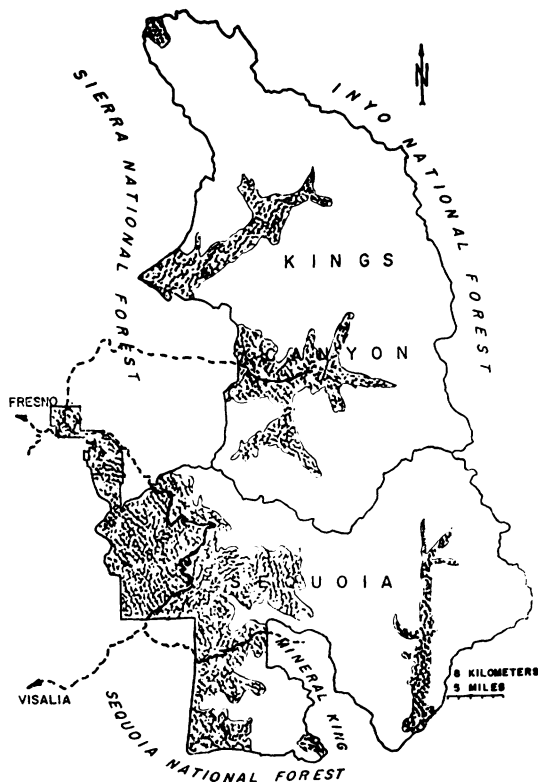


Fig. 2. Map of bear habitat in Sequoia and Kings Canyon National Parks based on plant communities and sighting records.

THE MANAGEMENT PROBLEM

The bear management program at Sequoia and Kings Canyon in the past 3 years has developed 5 elements: waste disposal, education, reporting, enforcement, and management of individual bears. Since improper waste disposal has generally been the major cause of bear incidents, a concerted effort has been made to install bearproof garbage cans at all locations in both parks. To date, nearly 900 cans with concrete bases and heavy metal tops have been installed throughout the parks. In addition, all large dumpster bins have been modified with effective hasps and catches. Garbage pick-up schedules have been arranged as late as possible each day to avoid overflow conditions during the evening hours when bears are most active.

Educational efforts have included placing bear caution signs (Fig. 3) in all campgrounds and restrooms. A 2-minute illustrated slide program with a taped script is

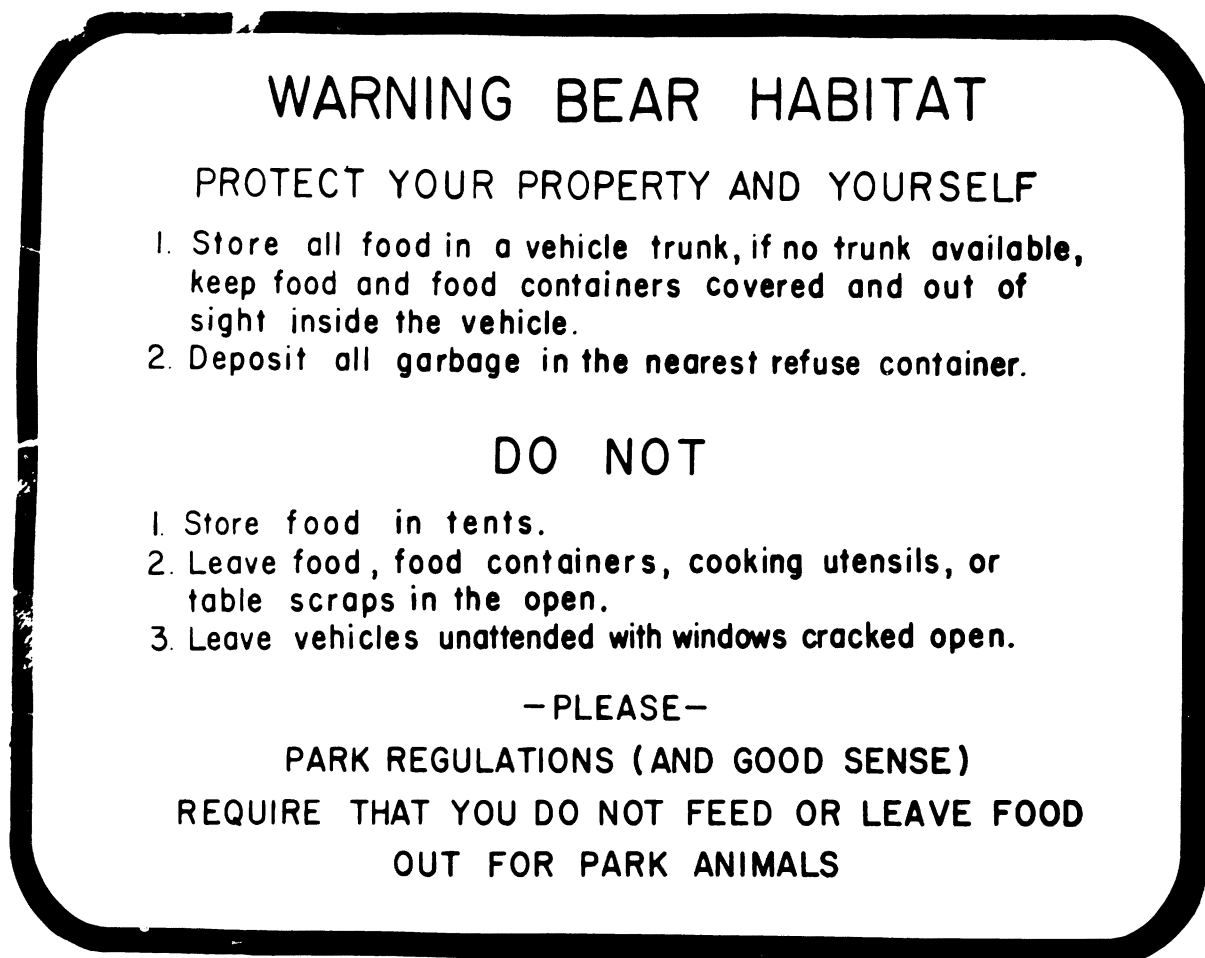


Fig. 3. Painted 23-cm x 30-cm pressed wood sign placed in restrooms and other highly visible campground locations.

shown nightly at each of the 5 locations where campfire talks are given. The program illustrates proper storage of food and disposal of waste and requests visitor cooperation. Attempts are also made to establish verbal contact with all campers when rangers make their evening campground patrols. Finally, brochures that explain the bear problem are given to visitors at park entrance stations and at each campground. This past year, a new attraction-getting brochure was distributed. It calls attention to a serious problem by a simple and direct comic approach. If we can reach everyone who enters the parks with a hard-hitting educational message about the danger and illegality of making food available to bears, our goal of greatly reducing the number and severity of bear incidents will be more easily achieved.

The reporting of bear incidents has developed from the monthly report of past years to a daily report, using the standard National Park Service Case Incident Re-

port Form. A system of immediate reporting by radio or telephone to a central dispatcher who would coordinate the reports for computer storage and analysis is planned for the future. Timely, accurate reports are necessary to gain mastery of bear problems. The active bear season lasts only from April or May through October, and a flexible approach based on a sound reporting system can quickly resolve problem situations.

In 1976, a federal regulation making visitors responsible for protecting food and waste from bears became effective. Warnings were issued in its introductory season. Stricter enforcement, with citations for violations, was carried out in 1977. We hope that gradually intensified application of the regulation along with other elements of the bear management program will change the habits of both people and bears.

Management of individual problem bears is rapidly becoming a sophisticated science that requires the ability to identify individual animals as well as training in

the use of controlled drugs. Decisions on the fate of a problem-causing bear are made only after careful deliberation of past offenses as well as circumstances attending the bear's offenses. Each case is individually considered by a group of park managers and biologists.

Attempts are made to capture specific bears identified as those causing problems. Whenever possible, the capture is made with a baited culvert trap. One problem with this technique is that innocent bears may be inadvertently trapped. Advantage is taken of this situation to mark all trapped bears with readily visible ear tags. Innocent bears are released whether they have been previously marked or not. Having most of the bears that frequent the visitor use areas so tagged has greatly facilitated the identification and capture of individual culprits. In the past, many innocent bears are thought to have been sacrificed in attempts to remove the offending one. Culvert traps present a second problem in that some bears become trap-shy. In such cases, the offender is taken with a Cap-chur gun using Sernylan (phencyclidine hydrochloride). After succumbing to the drug, the bear is placed in a culvert trap to await management action. A high degree of success has been achieved with this method. Snare traps have been used on only 2 occasions in recent years, when individual bears eluded other methods of capture.

If a guilty bear is a first offender or its offense is minor or the result of park negligence, attempts will usually be made to relocate it in some remote area of the parks in hopes of rehabilitation. It is unfortunate that with the limited road access to most parts of these parks, bears cannot easily be moved by mobile traps far enough to challenge their return capabilities. In several instances, relocated bears have returned from as far away as 56 km within 2 weeks. Some bears that have not returned have left the park to become problems elsewhere. As an alternative, helicopter relocations have been made 5 times in the last 2 years. Despite arguments of potential danger in the backcountry from relocated bears, we have no evidence that these animals have caused any problems. In the future, radiotelemetry equipment will be used, where possible, to follow the movement and activities of relocated bears.

Although one of our goals is to minimize the killing of bears, we recognize that it may sometimes be necessary. Bears whose behavior falls within one of the following categories are now considered for immediate destruction: (1) Bears that attack or injure people without provocation. (2) Bears that growl at, rush, chase, or otherwise threaten people without provocation. (3)

Bears that enter occupied areas to take food despite people's actions to chase them away, and are trapped and relocated only to return repeatedly and resume their previous habits. When 1 or more of these criteria are met, park managers decide whether the bear must be destroyed. Since 1974, 4 bears have been destroyed. There may be a transition period of several years during which individual problem animals adjust to the unavailability of unnatural food sources. In the long run, proposed management plans should lead to a more natural bear population.

RESEARCH

Along with an aggressive management program, the parks are sponsoring comprehensive research designed to provide valuable basic information on the ecology of black bears. Under the direction of workers from the University of California, Berkeley, work completed to date has included an intensive capture, mark, and reobservation program as well as scat collection and analysis of naturally occurring food availability (Walraven and White, Unpubl. Prog. Rep. to Natl. Park Serv., 1976). These studies have so far provided a valuable basis upon which to begin to monitor the effectiveness of the management program. The final report on this research has not yet been received but should contribute pertinent information on the relationship between the availability of natural foods and the level and intensity of bear incidents (M. Walraven, personal communication).

The first phase of this research funding has expired. Important continuation studies have been proposed. These studies will include an evaluation of the effects of relocating a bear, both on the bear and on bears that are already in the area in which it is released. Studies of movement and denning patterns, social interactions, and food preferences are also proposed. Extensive use will be made of radiocollars for tracking individual bears.

DISCUSSION

For many years, bear management at Sequoia and Kings Canyon National Parks consisted of little more than efforts to remove problem animals. The real problem of readily available human food, although recognized for some time, has been systematically attacked only during the last 3 years. The current bear management program is based on (1) elimination of unnatural food sources, (2) education of all park visitors and employees, (3) complete and timely reports of

all incidents, (4) enforcement of applicable regulations, and (5) positive identification and effective management of problem bears. Although, as mentioned, the final report from the complementary research study is not yet available, interim recommendations from the study have helped to shape this program.

The systematic approach to the problem has resulted in increasingly effective bear management, but there

are still some areas in need of immediate improvement, namely, reporting of bear incidents, identification of individual animals, and impressing upon visitors the importance of not making foods available to bears. Effective implementation of the outlined bear management program should allow the parks' bears to live as natural a life as possible, with minimum interference by humans.