

BEAR MANAGEMENT PLAN
Katmai National Park and Preserve
1986

INTRODUCTION

Katmai National Monument was established on September 24, 1918. It was subsequently enlarged, and was redesignated Katmai National Park and Preserve by the Alaska National Interest Lands Conservation Act of 1980. Several enlargements of the park were for the explicit purpose of protecting brown bears (Ursus arctos) and their habitat. Katmai provides habitat for the largest protected population of Alaskan brown bears in existence.

The National Park Service was established to "regulate the use of ... national parks ... and to conserve ... the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired...." The purpose of this plan is to provide operational guidelines for the management of interactions between bears and people in Katmai.

Brown bears in Katmai are recognized as a resource of major significance for the enjoyment of park visitors. Because of the protected status of the population, it is also of inestimable scientific value. The policy of bear management in Katmai is to retain the natural population dynamics of bears, allow their natural patterns of feeding and habitat use to continue unimpeded, preclude the learned orientation of bears to people, and minimize bear/human confrontations. Management will emphasize prevention of confrontations, but responsive measures will also be used when preventive management is unsuccessful and confrontations occur. Procedures discussed herein are considered guidelines, permitting flexibility where warranted by specific situations.

Scientific publications upon which this plan is based are listed in the References section. These publications as well as other technical information on bears are available in the park's resource management library.

BIOLOGY OF BROWN BEARS

Brown bears may live as long as 30 years. Females mature at an age of about 4-6 years. After maturing, they produce a litter, with an average of 2 cubs, every 3 or more years, one of the lowest reproductive rates of any North American mammal.

Because brown bears hibernate for a large part of each year, they must obtain a large amount of food during the few months of summer and fall. Each year, a bear spends time in a series of small areas where it can find food. Bears are opportunistic feeders and will scavenge or prey on almost any available food, usually selecting the most protein-rich food available. In Katmai, bears feed on newly sprouted vegetation, winter-killed animals, and moose calves during spring. Some bears then move to streams where salmon (Oncorhynchus spp.) are present. Alternatively, they feed on ripening berries and vegetation such as sedges and horsetails. Spawning salmon are an important source of protein in summer and fall, and the distribution of bears generally reflects the distribution of salmon. The localities in which a bear finds this variety of foods may be widely separated from each other and from the bear's winter den site. Male bears, in particular, travel great distances during the course of a year.

Under most circumstances, bears are intolerant of each other. Numerous instances in which a large bear killed a smaller bear have been documented. It is believed that the general harassment and occasional killing of juvenile bears by large adults is the primary way by which bear populations are naturally regulated. More than half of all juveniles disappear from the population between the time when they are weaned and adulthood. If an adult bear is removed, more juveniles may survive and the local population may temporarily increase. It should be noted, however, that juvenile bears are usually involved in more food-related and dominance confrontations with people than older bears are.

Although bears generally do not tolerate other bears, they sometimes gather at sites where food is plentiful, such as berry patches and salmon spawning streams. Bears that are unable to tolerate the presence of other bears must leave and forego access to the food. Thus, the only bears that remain at a feeding aggregation are bears that can, under some circumstances, tolerate the presence of other bears. The level of human activity in the Brooks River area imposes an additional requirement that bears that feed along the river during the day must also be able to tolerate, to some degree, the presence of people.

DEFINITION OF MANAGEMENT AREAS

Frontcountry includes:

1. Developed areas, which are the area of altered vegetation in the immediate vicinity of Brooks Lodge, Brooks Lake residences, occupied cabins at Lake Camp, and outlying lodges, or, where natural vegetation in these areas is open, area within 100 yds of a building. Developed areas also include outlying lodges, which are defined as the concession- or privately operated lodges at Grosvenor, Nonvianuk, Enchanted, Kulik, and Battle lakes.
2. Area within sight of Brooks Camp campground, except the beach.
3. Areas that receive intensive human use throughout the summer. This presently includes only the Brooks River and Lake Camp areas.

Backcountry includes all other areas of the park and preserve.

BEAR/HUMAN CONFRONTATIONS

There are 3 major types of bear/human confrontations:

1. Food-related confrontations - A bear is attracted by the smell or sight of people's food or garbage, or it has learned through experience that the presence of people or their equipment often means that food is present, and the bear persistently attempts to obtain the food. A bear that has, in the past, learned to associate people or their equipment with food may persistently approach people or damage equipment even when no food is present. Bears' attempts to obtain people's food have resulted in thousands of dollars' worth of property damage in Katmai, generally to camping gear and buildings. In other parks, most bear-inflicted fatalities and injuries to campers have involved bears that had been accustomed to obtaining people's food or garbage. Acquisition of people's food (including fish) by bears in Katmai is, therefore, considered a very serious matter.
2. Surprise close-range encounters - If the bear perceives the person as a threat, it may run away or, if it perceives that it cannot escape because either there is no escape route or the person is too close, it may rush at the person. Such a charge may result in physical contact with the person, but injury is rarely severe unless the person tries to run or fight back. Because female bears with cubs are particularly fearful, they are especially likely to view people as a threat and to charge when encountered at close range, although they are also more likely than other bears to avoid places where they expect to encounter people. A surprise encounter is the type of incident in which hikers are most frequently involved.

3. Dominance interaction - A bear challenges a person for the right-of-way, or its "personal space" is, intentionally or not, infringed upon by a person. Such encounters are common among bears at feeding aggregations such as Brooks River and may also occur between bears and people. Although standing up to a bear's challenge may not be practical, withdrawing will reinforce the bear's dominant attitude.

Research has shown that a lack of fear alone does not make bears more dangerous to people. In fact, a surprise close-range encounter with a bear that does not fear people is unlikely to respond with fear-induced aggression. Acquisition of people's food, in the other hand, does seem to make bears more dangerous.

PREVENTIVE MANAGEMENT

The objective of preventive management is to preclude confrontations and consequently the need for responsive measures. For it to be successful, each aspect of preventive management must be fully and consistently implemented.

Employee Training

All National Park Service (NPS) and concession employees will receive training concerning bear safety and expected behavior toward bears. Rangers will be trained in the biology and behavior of bears and in bear management policy and practices. Several rangers will receive training in the use of firearms, with emphasis on the use of firearms in bear management. To be qualified to carry and use firearms in bear management in Katmai, a ranger must receive joint authorization by both the Supervisory Park Ranger and the Resource Management Specialist following successful completion of the following:

1. Firearms qualification test administered by the Supervisory Park Ranger.
2. Demonstrate familiarity with the Bear Management Plan to the Resource Management Specialist.
3. Observe bear management actions involving use of firearms which are carried out by the Supervisory Park Ranger or the Resource Management Specialist.
4. Carry out bear management actions involving use of firearms which are under the direct supervision of the Supervisory Park Ranger or the Resource Management Specialist.

Visitor Information

To a large extent, human safety and, ultimately, preservation of a natural bear population depends on well-informed and conscientious behavior by people.

All responses to letters of inquiry from prospective park visitors will include information on bears. This will include at least one of the following informational handouts: "Fishing In Bear Country," "Photographing Bears," "About Brown Bears," "Alaska Brown Bear of Katmai," or "Der Alaska Braunbar Von Katmai" (Appendix 1).

All visitors arriving at Brooks Camp will be greeted by a uniformed ranger, who will discuss activity patterns of bears in the area, bear behavior, proper human behavior, park regulations, and the importance of keeping all food secure from bears. If fishermen or campers are present, additional fish- or food-security measures will be discussed. The specific points concerning bear safety and human behavior toward bears that will be presented in orientation greetings are listed in Appendix 2. Each person will also be given the leaflet entitled "Alaska Brown Bear of Katmai" or, if they are German-speaking, "Der Alaska Braunbar Von Katmai."

Display boards have been constructed at both ends of Brooks River. They provide a summary of regulations and recommendations concerning bears, food storage, and fishing. This will help ensure that visitors who are not contacted by a ranger will be presented with the minimum information necessary.

Bears will be the subject of an evening program at least once every 7 days. Bear biology and behavior and appreciation of bears will be stressed.

Whenever a backcountry permit is issued, measures to minimize the likelihood of a food-related or surprise encounter will be discussed. Specific points that will be covered are listed in Appendix 3. Backcountry users will be requested to report all observations of bears. Observation reports will be forwarded to the Resource Management Specialist.

Whenever a uniformed ranger is with people who are viewing a bear, the ranger should offer some interpretation of the appreciative aspects of bears. All rangers are expected, and maintenance personnel are encouraged, to become sufficiently knowledgeable about bears to be able to inform visitors about proper behavior in relation to bears.

Food Security

The federal regulation requiring that food be stored secure from bears will be enforced (36 CFR 2.10). Specific regulations concerning storage and handling of food and fish have been established through the Compendium of Superintendent's Orders (Appendix 4). A case incident report will be written for any incident in which a bear obtains or nearly obtains food, fish, or garbage from people.

People will be encouraged not to take food with them along Brooks River. Picnicking along the river or on the beach of Naknek Lake is prohibited. There is an elevated food cache at Brooks Camp ranger station where day-users may store food. Overnight users should store food in the caches in the campground. Food may also be stored in sealed vehicles or buildings. Storing food away from the outside walls of buildings minimizes the likelihood that a bear will detect its scent.

Food will not be left unattended at any time. Food that is unloaded onto the beach from airplanes will be attended at all times. Campers' gear will not be left unattended unless it is known to contain no food.

Campers at Brooks Camp will be encouraged to avoid attracting bears into the campground by taking precautions in handling of food and garbage. The campground will be patrolled each evening and when arriving campers are escorted to it. A plastic bag will be given to each party of campers, with additional plastic bags available on request. Food must be stored in the elevated cache except when it is being cooked or eaten. Garbage as well as odorous items such as toothpaste and soap will also be stored in the cache. The ladder should be laid down immediately after use of the cache since bears can climb ladders. Garbage should be taken to the ranger station during the day.

Fishermen will be given a plastic bag on request. A fisherman who catches and keeps a fish must immediately carry it, in the plastic bag, to the fish-cleaning building, where it may be stored until the end of the day. Fishermen may not leave their previously caught fish nor any food on the shore while fishing; it must be physically carried at all times or stored in accordance with the Compendium (Appendix 4). If a fisherman with a fish is confronted by a bear, he should not yield the fish to the bear, but should put the fish into the river and let it go, even though it is dead, in such a manner that the bear will not associate it with him. The bear will thus not be rewarded for seeking food from people, a behavior that is likely to endanger people as well as the bear.

To minimize confrontations between bears and people, particularly confrontations in which bears may obtain food from people, ranger patrols will be conducted daily along Brooks River and in the Brooks Camp area during at least the first 3 weeks of July, with the specific objective of preventing confrontations and monitoring human behavior and bear activity.

Backpackers should carry only non-odorous food, wrapped in plastic. While camping, the food must be suspended out of reach of bears, preferably at least 100 yds from the campsite, except when it is being cooked or eaten. If there are no trees or cliffs from which the food may be hung, it should be hidden out of sight, away from the campsite as well as from animal trails. Hiding food beneath thick bushes or even burying it in rubble are good methods of storing food in treeless areas. All trash and garbage should be wrapped in plastic and must be packed out. If burning is used to reduce bulk, the residue must be packed out.

A small number of bear-resistant ABS-plastic food containers are available for use by NPS employees in the backcountry to help ensure that their food is secure from bears. The park does not have an adequate number of containers to distribute them to visitors. The containers are not presently carried by retail outlets.

Garbage disposals in NPS and concession buildings will be used for organic waste, and burnable trash will be placed in the incinerator during morning hours and burned daily. Unburnable garbage will be collected in the compactor room to be hauled out of the park. All garbage will be stored indoors at night. The concession manager will ensure that these procedures are followed by concession employees.

At the end of the season, sewer lines in Brooks Camp will be flushed with water. Absolutely no food will be stored in NPS or concession buildings over the winter. All buildings will be inspected, under the direction of the permanent staff member present at Brooks Camp, before being closed for the winter. The closing will be documented.

Even though there have been few food-related incidents at most outlying lodges, the recommended procedures for storage of food and garbage in a manner that is secure from bears will be strictly adhered to in order to preclude the development of problems that result in inordinate danger to park visitors. A case incident report will be written for any observed case of non-compliance.

Avoiding Encounters

To avoid a surprise close-range encounter with a bear, people should take care to make noise whenever they are traveling outside of developed areas. The objective of making noise is to ensure that no bear in the area, even a bear that is sleeping or feeding in the brush, can ignore the fact that a person is coming. It is essential that the noise be identifiable as indicating a person. Good ways to make noise include shouting, shouting and clapping, and using loud bells. Whistles and freon air-horns are noise-makers, but they are not readily recognizable as indicating people. Use of noise-makers will not necessarily prevent an encounter with a bear, but will ensure that any bear that is seen has chosen to be seen.

Bears will be given the right-of-way in all areas except developed areas. The sight of a person is frequently sufficient to cause a bear to change its direction of travel. Particular attention is to be given to ensure that bears have the right-of-way on the beach of Naknek Lake and in the vicinity of the Brooks River bridge. When a bear is present on the beach, people should move into the woods to ensure that their presence does not cause the bear to detour into Brooks Camp.

No person will approach or remain within 50 yds of a bear, either on foot or by boat. This practice will help ensure that bears' activities in the Brooks River area are unhindered. Effort will be made by NPS employees to stop any person seen approaching a bear if, in the judgment of the employee, it can be done without undue disturbance of the bear. After the person has moved away from the bear, the person's motivation and the prevention of bear/human interactions will be discussed with the person. A case incident report will be written in cases that border on harassment or self-endangerment, and in which the person is contacted.

Because September and October bring the greatest concentration of bears to the Brooks River area, the lodge at Brooks Camp will continue to close the first Tuesday after Labor Day. NPS staff will monitor the securing of concession facilities against break-ins by bears. Two NPS employees will remain at Brooks Camp at least through September to monitor bear activity, to continue discouraging bears from entering Brooks Camp, and to reduce the likelihood of building break-ins.

Wherever there are man-made items in bear habitat, there is likely to be what might be termed vandalism. Vandalism results when a bear investigates, usually by chewing, an item or structure that it has not previously encountered in that location. New signs are commonly damaged. Bears are attracted by petroleum products and also possibly by oils such as linseed oil. They are highly attracted by the smell of sewage. These factors should be recognized whenever these materials are being handled in areas where bears are not desired. If a spill of food, garbage, or sewage does occur, it should be cleaned up as soon as possible, and if the site is in a developed area, the ground on which the spill occurred should be covered with chlorinated lime to minimize its attractiveness to bears.

Structural Methods

Wherever possible, passive structural methods will be used to help prevent conflicts that will result in the need for responsive management.

Brooks Falls provides valuable opportunities for visitors to view and photograph bears fishing and interacting with each other. To permit people to enjoy the experience as safely as possible and with minimal impact on the bears, an elevated viewing platform was constructed at the falls in 1982. Bears have become accustomed to the platform and

commonly walk directly underneath it. Whenever bears are suspected to be in the area, visitors are to remain on the platform or maintain a distance of at least 50 yds from any bear.

The trail to Brooks Falls was rerouted in 1983. The old trail traveled directly from the road to the river, and then along the river. This route overlapped an area of relatively concentrated bear activity, along the river, resulting in conflicts. The new route travels more directly from the road to Brooks Falls. Fishermen and other visitors are still permitted to use the old trail at their discretion.

In the same manner, the path from Brooks Lodge to the Brooks River bridge places human activity directly in an area of concentrated bear activity. Effort is being initiated to resolve this (refer to Issues section). In the meantime, underbrush that obstructs visibility at corners in the path will be thinned to reduce the potential for close-range encounters.

Bears appear somewhat responsive to barriers across their routes of travel. Therefore, various types of drift-fencing and other barriers will be evaluated for use in blocking the routes that bears use to enter Brooks Camp and other developed areas. To avoid trapping a bear in Brooks Camp, however, continuous fencing will not be used.

Although bears occasionally travel through the campground, bear activity there is at a lower level than in the lodge area, which is located adjacent to the mouth of Brooks River. For this reason and because the campground does not have a history of human-injury incidents, fencing at the campground is not considered necessary. In fact, because human safety in the campground depends on consistently secure storage of food and garbage and because it is possible that fencing would lead to a false sense of security and less care in securely storing food, fencing could result in increased danger to campers. Therefore, fencing will not be used to deter bears from entering the Brooks Camp campground.

"Nail boards" consist of a sheet of plywood through which many nails have been driven. These may be placed at doorways, around building foundations, or on walls to deter investigation and damage by a curious bear. Attractants should be removed from the building to reduce the determination with which bears try to gain entry.

In some situations, electric fencing may be used. These include (1) situations in which bears have obtained food from people or from a structure in the past, or (2) situations in which it is not possible to secure food from bears and use of an electric fence will reduce the likelihood that bears will obtain the food. Portable electric fences may also be used by individuals in the backcountry to deter bears from investigating a campsite. It is important to recognize, however, that electric fences generally deter only curious bears, not determined bears that are attracted by food within the fence.

RESPONSIVE MANAGEMENT

Decision Guidelines

The purpose of the following outline is to guide management actions that are taken in response to bear/human confrontations. The guidelines are summarized in Table 1. They are considered flexible, and unusual factors involved in an incident should be taken into consideration. A case incident report will be prepared for any responsive management action taken, giving a full account of events that led to the need for a response as well as a complete description of the bear. Information that is to be included in investigation of incidents is listed in Appendix 5. The Resource Management Specialist will be promptly notified of any incident or management action.

Frontcountry

1. Bear enters developed area

Although every effort is made to eliminate attractants that may draw bears into Brooks Camp, bears sometimes travel through camp or enter camp to feed on natural foods, to avoid people or other bears, or for other reasons. NPS and concession staff will be alert for any bear that appears likely to enter Brooks Camp. The bear will be discouraged from entering Brooks Camp and other developed areas by eliminating whatever is causing it to try to enter or by actively deterring it. This activity will be explained to any visitors that are present.

If conditions permit, a bear within a developed area will be shot with rubber shot and/or a cracker-shell (see "Procedures" below). It is essential to ensure that a route is available for the bear to escape without endangering people. The objective of peppering is to teach the bear to associate its presence in the developed area with an unpleasant experience. The objective of peppering is not to encourage wariness of people. Therefore, if possible, the person who fires should do so without warning the bear or otherwise making his presence known to the bear. Peppering will be done only by NPS personnel who are authorized to use firearms in bear management.

If conditions do not permit the use of firearms, alternative methods that may be used include yelling, clapping, and throwing rocks. Shaking bushes is an effective way to get the bear's attention, but it may generate an unexpected response and should be used only with care. These actions may be done by any NPS employee.

Any people in the vicinity of a bear will be warned of the bear's presence and prevented from approaching. Any management actions that are taken will be fully discussed with the people present. To the extent possible, the bear will continue to be monitored as long as it is in the vicinity of the developed area or as long as there is the potential for a confrontation with people.

TABLE 1. Summary of recommended management actions in response to specific situations. Refer to detailed description of procedures and responsibilities.

Situation	In Frontcountry	In Backcountry
Enters developed area	Pepper if possible. Otherwise chase out. Monitor bear.	Report observation. No management action.
Charges person (not food-related)	Monitor bear. Pepper as it leaves developed area. Identify contributing events.	Adult or juvenile bear: Possible temporary closure. Identify contributing events. Female with young: Possible closure for rest of year. Identify contributing events.
Dominance interaction	Locate bear. Possibly close area. Attempt to locate bear. If dominance behavior is exhibited, pepper bear. If the behavior recurs several times, possibly destroy bear.	Identify contributing events. Possible closure and attempt to pepper bear.
Obtains people's food, not at campground or campsite	Identify contributing events. Attempt to locate bear and elicit approach. Then pepper bear.	Identify contributing events. Possible closure and attempt to pepper bear.
Establishes pattern of obtaining people's food	Identify contributing events. Destroy bear.	Identify contributing events. Possible closure and attempt to pepper bear. Possibly destroy bear.
Obtains people's food at campground or campsite	Identify contributing events. Patrol. Pepper bear.	Identify contributing events. Possible closure and attempt to pepper bear.
Obtains people's food and injures person	Identify contributing events. Destroy bear.	Identify contributing events. Destroy bear.

2. Bear charges person

If a charge has just occurred and the bear is still close to the person, the person will be encouraged to talk to the bear while backing diagonally away from it. Effort will be made to calm the bear, the person, and any onlookers. After the person is separated from the bear, the bear will be monitored and people will be warned of its presence until it leaves the developed area. As it leaves the developed area, it will be peppered with rubber shot. The encounter will be discussed with the involved person to identify its causes. This action, except peppering, may be done by any NPS employee.

3. Dominance interaction

In this situation, a bear challenges a person for the right-of-way or aggressively moves toward a person until the person moves away. There is no evidence that this was a surprise encounter or that the person was encroaching upon the bear, nor does the bear look for food at the place vacated by the person. Very little is known about such encounters, but the potential for human injury seems apparent.

Rangers on routine patrol in the area will watch for the bear. If the bear is seen in the area, an emergency closure will be implemented and people will be cleared from the immediate area to allow the following management action to be carried out safely. Two rangers will intentionally encounter the bear, behaving as visitors would. If the bear exhibits dominance behavior toward them, they will pepper it. If the bear does not exhibit dominance behavior, the rangers will move away. Rangers will continue to monitor the bear until the area can be reopened for visitor use. This action will be under the supervision of the Resource Management Specialist. It will be discussed with any visitors who are present. If a bear develops a pattern of displaying dangerous dominance behavior toward people, destruction of the bear will be considered.

4. Bear obtains people's food, not in campground

If conditions permit, the bear will be peppered with rubber shot as it eats the food. The person to whom the food belonged will be interviewed, discussing events that led to the incident, including the person's motivation for allowing the bear to obtain the food, as well as alternative actions that the person could have taken and the critical importance of preventing bears from becoming oriented toward people as sources of food. A bear that establishes a pattern of obtaining people's food and that can be identified with certainty will be destroyed.

These actions, except peppering and destruction, may be done by any NPS employee. A bear may be destroyed only with prior authorization of the Superintendent unless human safety is in immediate jeopardy. Where possible, the Alaska Department of Fish and Game

(ADF&G) will be advised prior to destroying a bear. In all cases, the ADF&G will be informed of the circumstances surrounding the destruction of a bear.

5. Bear obtains people's food, in campground

Orientation of a bear to a campground as a source of food is a particularly serious matter. The person to whom the food belonged will be talked with, discussing events that led to the incident, including the person's motivation for allowing the bear to obtain the food, as well as the critical importance of preventing bears from becoming oriented toward campers as sources of food. A description of the bear will be obtained if possible. People in the campground will be advised to use extra caution with food and odors. The campground will be patrolled in the early morning and late evening, and at the time of day when the incident occurred, for the next 3 days to ensure that food is secured and to determine whether the bear has again entered the campground. If the bear again enters the campground, whether or not it obtains people's food, it will be peppered and the campground will be patrolled for 3 more days. A bear that establishes a pattern of obtaining people's food and that can be identified with certainty will be destroyed. These actions will be under the direction of the Resource Management Specialist, Park Ranger, or Chief Ranger. A bear may be destroyed only with prior authorization of the Superintendent unless human safety is in immediate jeopardy.

6. Bear injures person

The person and any witnesses will be interviewed to identify events that led to the incident and to obtain a detailed description of the bear. If the incident resulted from a dominance interaction or was associated with a food-related confrontation, the bear will be destroyed if it can be located and identified with certainty. These actions will be under the direction of the Chief Ranger, in consultation with the Resource Management Specialist and the Park Ranger. A bear may be destroyed only with prior authorization of the Superintendent unless human safety is in immediate jeopardy.

Backcountry

1. Adult or juvenile bear charges person

A charge usually results from a close-range encounter by a bear that perceives people as a threat. It is likely that the bear will leave the area immediately after the incident. The area may be closed to visitor use for an appropriate period, such as 3 weeks, to give the bear adequate time to move out of the area as its food patterns shift. The incident will be discussed with the involved person to identify events that led to it. If the incident recurs, the area may be closed to visitor use for the rest of the year.

2. Female with young charges person

Because cubs learn from observing their mother, it is important that the incident not be repeated, so the likelihood that the cubs will learn to charge in response to people will be minimized. Females with cubs often have small home ranges, reducing the likelihood that they will move out of the area. The area may be closed to visitor use for the rest of the year. The incident will be discussed with the involved person to identify events that led to it.

3. Bear obtains food from backcountry campers or hikers

The area may be temporarily closed to visitor use. The incident will be discussed with the involved person to identify events that led to it. If the person's food was not secured according to NPS regulations, the person's motivation and the critical importance of preventing bears from becoming oriented toward people as a source of food will be discussed and the appropriateness of a citation will be considered.

If the area receives heavy human use, and if feasible, an attempt to pepper the bear under circumstances similar to the incident will be promptly undertaken. If the area is not closed or when the area is reopened after temporary closure, all people who use the area for the rest of the year will be informed of the incident. If the bear establishes a pattern of obtaining people's food and can be identified with certainty, it will be destroyed. These actions will generally be under the direction of the Resource Management Specialist. A bear may be destroyed only with prior authorization of the Superintendent unless human safety is in immediate jeopardy.

4. Bear obtains people's food and injures a person

The area will be closed and patrolled, If the bear is not seen, a campsite will be set up in the vicinity of the incident in an attempt to attract the bear. If the bear is seen and can be identified with certainty, it will be destroyed. If it is not seen, or if the incident occurred in an area that receives very little human use, the area will remain closed for the rest of the year.

This action will be under the direction of the Chief Ranger or the Resource Management Specialist. A bear may be destroyed only with prior authorization of the Superintendent unless human safety is in immediate jeopardy.

Procedures

Any management action that is carried out in the presence of visitors will be explained fully to the visitors. For any management action, a detailed record of the action and events that led to it will be recorded in a case incident report. This information will be used to minimize the recurrence of situations that require responsive management.

1. Peppering

Peppering will be carried out only within the specific context with which the bear is intended to develop a negative association. The objective of peppering a bear with rubber shot is to teach it to associate a negative experience with (1) its presence in a developed area or other area that is intensively and regularly used by people, (2) the process of eating people's food, or (3) the process of behaving aggressively toward people. Peppering may be carried out only when the bear is involved in one of these activities. The objective of peppering is not to instill wariness of people.

Any aggressive act toward a bear may escalate into a need to destroy the bear, such as if the bear is injured or if it responds in a manner that endangers human life. Actions such as peppering will therefore be carried out only when this possible outcome is both recognized and warranted.

In the past, #9 birdshot was used to pepper bears at Katmai. Experiments with rubber buckshot ("Cart-A-Buck") have shown that it is more appropriate to the close ranges at which peppering occurs. Also, rubber shot does not have potential for lead toxicity. Therefore, only rubber shot will be used in peppering bears in Katmai. Lead birdshot will not be used.

A bear will be peppered only from the side or diagonally from the rear, with the rubber shot aimed approximately 1 ft behind the bear to minimize the chance of injury. Because bears frequently turn their heads to the side when moving directly away, a bear that is facing directly away will not be peppered because of the possibility of hitting its eyes. Ideally, a bear will be peppered from a distance of approximately 15-25 yds. Rubber shot may be followed by cracker-shells to reinforce the effect. An escape route that will not endanger people must be readily available to the bear. The shotgun used for peppering will also be loaded with slugs and buckshot as back-up for the rubber shot. Whenever possible, a second employee will be present to aid in judging situations and making rapid decisions and, if weapons-certified, to serve as an armed back-up.

When it is not possible to use a shot shell, a cracker-shell may be used, aimed to actually hit the bear before it goes off. Because bears easily learn to tolerate the sound cracker-shells,

it is far less likely that the desired negative association will develop if a cracker-shell is used alone, unless the bear is hit with it. Cracker-shells should be used only when peppering with rubber shot is warranted but not possible, or in conjunction with rubber shot.

2. Other Repellents

Experiments are currently being conducted in other areas on the use of capsaicin spray. These experiments primarily involve free-roaming black bears (Ursus americanus) and caged grizzly bears. No conclusive results have yet been obtained, though work with black bears indicates that it is effective in deterring bears that are attracted to human food if the bear is hit in the eyes at very close range. The park has a supply of capsaicin spray which NPS employees may, at their own discretion, take with them on backcountry trips. It is not to be used in any situation in which a bear is surprised at close-range. It is to be used only in the event that a bear seems attracted to the people themselves and when all other alternatives short of destroying the bear have been exhausted, recognizing the lack of information that exists on how a bear might be expected to respond to the spray. Any user should take care that wind does not blow the spray back into his own eyes.

Slingshots will not be used to repel bears from developed areas. Past experiments with slingshots elicited responses in which the bear whirled toward the person and stared for a few moments before walking away.

3. Destruction

A bear will be destroyed when it is determined that its continued presence will pose unacceptable danger to people. Destruction will be by shooting or drug overdose, out of sight of visitors. The reason for destroying the bear will be discussed with any park visitors who ask about it. An autopsy will be conducted to examine for parasites and gross pathology, and the following will be recorded: sex, approximate age, approximate or measured weight, body length, girth, pad dimensions, and general condition. The skull and skin, as well as the reproductive tract of females, will be salvaged and turned over to the ADF&G.

A bear will be destroyed only with prior authorization of the Superintendent unless human safety is in immediate jeopardy. In all cases, the ADF&G will be notified, in advance if possible, of the circumstances resulting in the need to destroy a bear.

CURRENT ISSUES FOR 1986

A number of issues are currently recognized, and actions are planned to address them during 1986.

Issue: The design of the bridge across Brooks River may disrupt movement of bears along the river. In addition, Brooks River bridge and the path from Brooks Lodge to the bridge is an area where high levels of human activity and bear activity intersect. This results in impacts on bears' use of the area and increases the frequency of confrontations between bears and people.

Action: To reduce the future level of conflict, funding will be sought to construct an elevated boardwalk from the lodge to the river crossing, and thence across the river. Until that time, effort will be made to enhance visibility by cutting back the underbrush along the path where it nears the river.

Issue: Human activity in the vicinity of a salmon spawning stream such as Brooks River inherently leads to some conflicts with the brown bears that also use the stream. A number of ways have been proposed to resolve the conflicts, including moving Brooks Camp, closing the river to fishing, and requiring all fishing to be catch-and-release.

Action: Based on the data currently available, none of these proposals adequately identifies and addresses the underlying causes of bear/human conflicts in the Brooks River area. Also, in addition to the possible benefits that would result from the suggested strategies, each would also involve some cost, such as the financial cost of moving Brooks Camp or the potential impact on bears if the level of sport-fishing along other streams in the park increases as a result of closing Brooks River to fishing. In order to develop management programs that will fully address the causes of bear/human conflicts, the NPS has funded a two-year research project to study interactions between bears and people in the Brooks River area, considering the ecological requirements of bears and ways in which they are affected by human activities.

Issue: Because September and October bring the greatest concentration of bears to the Brooks River area, the NPS has required Brooks Lodge to close the first Tuesday after Labor Day. However, there is little actual data to support this requirement.

Action: In 1985, the NPS prepared an environmental assessment on management of autumn visitor activities at Brooks Camp. In conjunction with the research discussed above, Brooks Lodge

will be permitted to remain open until September 17 in 1986. The research being carried out will address the potential impacts on bears that may result from the later closure.

Issue: Some fishermen are brought to Brooks River by air taxi operators who leave them, along with their food and gear, at the head of the river. A display board was erected at the head of the river in 1985, to advise visitors who may not be met by a ranger concerning food-storage regulations. To comply with these regulations, however, it is necessary for these visitors to walk 1 mile to Brooks Camp, sometimes carrying at least one cooler, to store their food in the cache by the ranger station.

Action: To aid visitors in complying with food-storage regulations, a food cache will be constructed at the head of Brooks River as soon as possible.

Issue: In some instances, use of shot such as the rubber shot is not possible because a bear has cubs following it or because of the possibility of people in the general vicinity. In those instances, it is sometimes possible to shoot the bear with a cracker-shell, but the light weight and erratic trajectory of cracker-shells reduces the effectiveness of this technique. Consequently, the consistency and effectiveness of peppering, particularly involving bears with cubs, is reduced.

Action: Alternatives to rubber shot will be explored. One possibility is "Cart-A-Ball," which is a shotgun shell loaded with a rubber ball which measures approximately 3/4 inch in diameter. Another possibility is soft-plastic slugs. Research is needed to evaluate the effect of peppering on bear behavior.

Issue: Lack of information on the level and nature of encounters between bears and backcountry users precludes early detection of developing problems. In 1985, the first recorded incident in which a bear obtained food from a backpacker occurred.

Action: Backcountry boaters and hikers will continue to be encouraged to report bear observations. After each season, the observation reports will be analyzed for patterns in date, location, bear behavior, and individual bears involved.

MONITORING PROGRAM

During summer and fall, aerial surveys of bears on major salmon spawning streams will be conducted to monitor the composition and productivity of the bear population. Refer to Wildlife Monitoring Plan.

Population composition of bears using Brooks River will be closely monitored during the summer and early fall. Rangers on duty in the Brooks Camp area will maintain a log of individual bears that are seen in the area.

Behavior of bears toward people in the Brooks Camp area will be monitored through observation of bear/human interactions and through evaluation of incidents in which bears obtained people's food or damaged property.

Food habits will be qualitatively monitored through examination of scats that are found.

Patterns in habitat use and behavior of bears in backcountry areas will be identified through evaluation of observations reported by backpackers and river users.

RESEARCH PROGRAM

A two-year NPS-funded study of bear behavior in the Brooks River area is scheduled to begin during 1984. The objective of the study is to examine the relationships among bears' lack of apparent fear of people, the frequency with which bears have an opportunity to obtain food from people, and learning by bears to aggressively seek food from people.

Additional Needed Research

A significant amount of poaching takes place, particularly near the park boundary. Legal sport-hunting of bears also occurs within the preserve and adjacent to the park. Male bears travel widely, and many of the male bears in the park population may therefore be subjected to hunting or poaching. Since adult male bears are believed to play a large part in the natural regulation of bear populations, their harvest could have a major effect on the entire bear population. Research is needed to investigate movements of bears that are subject to harvesting, as well as to evaluate the nature and extent of impact that their harvest has on the unharvested character of the park population.

Although bears are generally intolerant of other bears, they habituate to each other when they aggregate at feeding sites. Only bears that are able to tolerate other bears can remain at feeding aggregations. At Brooks River, a requirement is also imposed that bears be able to tolerate human activity. Research is needed to determine whether this additional requirement at Brooks River tends to exclude any class of bear from using the resource, thereby constituting a potential factor for genetic selection.

In some areas of North America, populations of brown/grizzly bears have been reduced to virtually relict status. It has been theorized that low genetic variability in such small populations may reduce their capacity for long-term survival. Research carried out simulta-

neously in Katmai and in one of these areas could evaluate the level of genetic variability in each area. The status of the Katmai bear population as the largest protected population of Alaskan brown bears gives it unexcelled scientific value in helping to preserve populations in other areas.

ANNUAL REVIEW AND REVISION

The effectiveness of management practices outlined in this plan in meeting bear management objectives will be evaluated by the park staff each year, and the plan will be revised as needed.

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ABOUT BROWN BEARS...

The preservation of a naturally regulated population of brown bears was a primary purpose for several expansions of Katmai since its establishment in 1918 as well as for its designation as a national park in 1980. Thus, protection of bears and their access to important habitats is a primary consideration in the management of human activities in Katmai.

When bears emerge from their dens in late March or early April, very little food is available, and they seek out areas where the plants green-up earliest to carry them through this critical period of food shortage. The fortuitous discovery of a carcass of an animal that died during the winter provides a lucky bear with an unexpected feast. As June approaches, some bears prey on newborn moose calves. Salmon migrating up the Naknek drainage first arrive in the park in late June and, for the rest of the summer, the distribution of bears, reflects the pattern of salmon spawning. Berries, such as crowberries and cranberries, as well as sedges and other vegetation, add variety to the bears' diet.

An abundance of high-protein food is necessary for brown bears, which must not only maintain their large weight, but must gain several hundred pounds during the few short months of summer. In order to obtain the food it needs, a bear must roam widely and take advantage of any opportunity that arises to obtain food. A bear is very curious and will investigate anything that arouses its interest, relying primarily on its phenomenally acute sense of smell, as well as its sense of hearing and its often-underestimated sense of sight. Bears are capable of learning from a single experience and, once a bear discovers a convenient source of food, it will remember it and will seek food there again.

As October passes and winter approaches, the amount and quality of available food diminishes to the point where it can no longer support an active bear. As the days become shorter and colder, a bear digs a den in a location where the soil is deep enough and cohesive enough and where the blowing snow will accumulate and seal the den's entrance from the severe cold outside. The bear's body undergoes profound physiological changes, and it enters a state of hibernation which will last through most of the winter.

Once every three or four years, if she has found adequate food, a female brown bear gives birth to two or so cubs while she hibernates. After the family emerges the following spring, the cubs will stay with their mother through two summers. During that period, the cubs will learn, by watching their mother, everything they will need to know to survive on their own — how to find food, where to dig a winter den, and how to recognize and respond to danger.

A mother bear fiercely protects her cubs from anything she perceives as a threat. Because brown bears typically live in fairly open country where there are few trees that the cubs can climb to escape danger, they must rely on their mother's protection if they are to survive. What would threaten a brown bear? Besides people, other bears. Bears are very antisocial animals. In fact, if a large bear has the chance, it will catch and even kill a smaller bear. Commonly a bear will flee as soon as it sights another bear, without taking the time to evaluate the

other bear's size. In spite of this wariness, however, three-fourths of the young bears in a population die before they reach the age of six. Thus it is the large bears, particularly the adult males, that have a major role in regulating the size of bear populations.

Such antisocial animals face quite a dilemma when they arrive at a salmon-spawning stream and encounter the other bears that are also attracted to the stream. If a bear is going to remain at the stream and be able to successfully catch fish, it must be able to tolerate, to some extent, the proximity of other bears. Still, most bears at salmon-spawning streams spend a considerable amount of effort in evaluating the threat posed by other bears and in avoiding close encounters with them.

Knowledge of the world in which a bear lives helps us understand conflicts between bears and people so we can take steps to prevent them, thereby protecting bears as well as ourselves.

There are two major ways in which bears and people come into conflict. The first involves surprise close-range encounters. If you suddenly encounter a bear at very close range, it is possible that the bear may not know whether you are a person or another bear. If it thinks you are a threat and that it cannot escape, it may believe that it will have to fight for its life in order to survive the encounter. You should avoid such situations by being alert and making noise that any bear in the area will recognize as indicating an approaching person. If you do encounter a bear, help the bear to recognize that you are a person and not a threat, and back away to give the bear more space.

Even if a nearby bear does not seem disturbed by your presence, keep in mind that, unlike people, bears are not sociable. Your presence can make it difficult for a bear to concentrate on fishing and may cause the bear to stop fishing and leave sooner than it otherwise would have. If you stay at least 50 yards from bears, you will make it easier for them to remain in this area. You will also help ensure that people will continue to have opportunities to enjoy watching bears.

The second major type of conflict arises when people allow a bear to obtain their food, thereby teaching it that people are a convenient source of food. After such an experience, the bear is likely to be attracted toward people and may approach people aggressively with the hope that, by doing so, it will be rewarded with food. This situation is very dangerous for people and is likely to result in the eventual destruction of the bear in order to protect people. The only solution is to prevent the situation from developing. Recognize that a bear will eat any food that it discovers, and do your utmost to ensure that no bear obtains food from you or in any way that it might associate with you.

Brown bears are one of the qualities that make Katmai a very special place, and Katmai is one of the few places where we have the opportunity to show that we are able to live with bears, on their terms.

FISHING IN BEAR COUNTRY
Katmai National Park and Preserve

Brooks River provides an opportunity, that few people have, to view bears gathered to feed at a salmon-spawning stream. Under most circumstances, a bear will not tolerate the presence of other bears because it considers them threats or rivals. In fact, if a large bear has the chance, it may even kill a smaller bear. Bears are definitely solitary animals.

To be able to feed on salmon at a place like Brooks River, a bear has to make quite an adjustment. If it cannot become more tolerant of the other bears that are in the area, it will have to leave and forego access to the salmon. For a bear that cannot catch salmon, there is no alternative source for the high-quality protein it needs to survive and reproduce.

At Brooks River, we impose another requirement on the bears: besides being able to tolerate other bears, they must also be able to tolerate people. For most bears at Brooks River, the tolerance is only marginal. The bear may be able to tolerate people at a distance, but if the people approach it, the bear may leave or simply become too uncomfortable to fish effectively. The result of one such encounter may be slight, but similar encounters throughout the summer can add up to significant impact, reducing the opportunities for people to see bears here in the future.

It's not easy for a bear to catch salmon. It is particularly frustrating during July, when the fish are still lively and people can catch them but bears can't. If a bear discovers that aggressive behavior toward a fisherman will result in some food, it learns very quickly to view people as a source of food. The bear confronts fisherman after fisherman with increasing aggressiveness, damages their equipment, and threatens their safety. There are several ways in which the Park Service may resolve the situation. One way is by removing the bear. Another is by instituting fishing regulations that will protect people as well as bears. The best alternative is for you to keep this situation from ever developing by taking care to see that a bear does not get fish or other food from you or your friends.

On the other side of this sheet are some recommendations and regulations that are intended not only to enhance your safety and the safety of people who follow you, but will also help ensure that you have minimal impact on bears while you fish so this remarkable opportunity to fish in bear habitat will be preserved for years to come.

- o Give bears the right-of-way. Stop fishing and move out of the river when an approaching bear is at least 50 yds away. Absolutely never fish in the presence of a bear.
- o Make it easy for bears to live here. Never approach a bear. If you want good photographs, use a telephoto lens. Don't wait for a bear to show it is disturbed. If it has to stop feeding to keep an eye on you, you have already had an impact.
- o Your presence is enough to deter some bears. Do not force a bear, by your presence, to move out of the river or change its activity. If you are on the Brooks River bridge when a bear comes down the river, move to the far end of the bridge so the bear can go ahead and cross to the other side. Whenever you are on the beach, watch for bears and, if you see one, move off the beach.
- o Absolutely never fish when a bear is nearby. If you do and you catch a fish, it is likely that the bear will detect the hooked fish and move to get it. It only takes one or two such experiences for the bear to learn that wherever it sees people, it is likely to find food.
- o If you catch a fish and then see that a bear is nearby, do not reel the fish in. Slowly move away from the bear, keeping the reel underwater to mask its sound. If the bear is very close or seems attracted to you, snap the tippet immediately. Do everything you can to keep the bear from thinking that it got a fish from you.
- o If one person in your group serves as a spotter, watching for bears while the others concentrate on fishing, you won't be surprised by an approaching bear.
- o If a bear approaches you, talk to it, to let it know that a person is present, as you move out of the river. If you have a fish on your line, snap the tippet immediately. If you have a fish in your possession, put it into the river and let it go, even if it is dead, in such a way that the bear will not realize it came from you.
- o It is a federal regulation that you may not leave fish or food where bears can get it. This means that if your pack contains any food or beverages, you may not set it down while you go fish.
- o Picnicking along the river or on the lakeshore is prohibited. Consider not taking any food with you when you fish.
- o All food and fish must be stored secure from bears except when it is being carried, consumed, or prepared for consumption. As soon as you catch one fish to keep, you must immediately take it to the fish-cleaning building at Brooks Camp or place it in a sealed vehicle, aircraft, or building. Carry the fish in a plastic bag to minimize the scent trail as you walk. You can get a plastic bag from any ranger.
- o Cleaning fish along Brooks River is prohibited. If you are fishing too far upriver to take a fish to the fish-cleaning building, consider releasing your fish instead of keeping them.

PHOTOGRAPHING BEARS
Katmai National Park and Preserve

Brooks River provides an opportunity, that few people have, to view bears gathered to feed at a salmon-spawning stream. Under most circumstances, a bear will not tolerate the presence of other bears because it considers them threats or rivals. In fact, if a large bear has the chance, it may even kill a smaller bear. Bears are definitely solitary animals.

An abundance of high-protein food is necessary for brown bears to not only maintain their large weight, but to gain several hundred pounds during the few short months of summer. The congregation of salmon in spawning streams is a rich source of this necessary protein. To be able to feed on salmon at a place like Brooks River, however, a bear has to make quite an adjustment. If it cannot become more tolerant of the other bears that are also in the area, it will have to leave and forego access to the salmon. For a bear that cannot catch salmon, there is no equivalent alternative source for the protein it needs to survive and reproduce.

At Brooks River, we impose another requirement on the bears: besides being able to tolerate other bears, they must also be able to tolerate people. For most bears at Brooks River, the tolerance is only marginal. The bear may be able to tolerate people at a distance, but if the people approach it, the bear may leave or simply become too uncomfortable to fish effectively. The result of one such encounter may be slight, but similar encounters throughout the summer can add up to significant impact. To ensure that people continue to have the opportunity to see bears here in the future, it is important to respect the solitary nature of bears in Katmai. Give them a lot of space and take care not to hinder their activities.

It's not easy for a bear to catch salmon. It is particularly frustrating during July, when the fish are still lively and people can catch them but many bears can't. If a bear discovers that aggressive behavior toward a person will result in some food, it learns very quickly to view people as the most convenient source of food. The bear learns to confronts people with increasing aggressiveness, damaging their equipment and threatening their safety. There are several ways in which such a situation may be resolved, but the best way, for people and for the bears, is for you to keep this situation from ever developing by taking care to see that no bear gets any food from you or your friends.

On the other side of this sheet are some recommendations and regulations that are intended not only to enhance your safety and the safety of people who follow you, but also to help ensure that you have minimal impact on bears during your visit so this remarkable opportunity to see bears in their natural habitat will be preserved for years to come.

- o Make it easy for bears to live here. Always keep a distance of at least 50 yds from any bear. If you want good photographs, use a telephoto lens. Don't wait for a bear to show it is disturbed. If it has to stop feeding to keep an eye on you, you have already had an impact.
- o Give bears the right-of-way. Move out of the way when an approaching bear is at least 50 yds away.
- o There is an elevated viewing platform at Brooks Falls. Most bears have learned that they can safely ignore people who are on the platform. Therefore, whenever you are at the falls, you should remain on the platform at all times. By doing so, you will not disturb bears that are trying to fish and to cope with other bears. If no bears are visible when you arrive, by remaining on the platform you will ensure that you do not deter a bear that may want to come to the falls.
- o Your presence is enough to deter some bears. Do not force a bear, by your presence, to move out of the river or change its activity. If you are on the Brooks River bridge when a bear comes down the river, move to the far end of the bridge so the bear can go ahead and cross to the other side. Whenever you are on the beach, watch for bears and, if you see one, move off the beach.
- o Whenever you hike, make noise to let any bear in the area know that a person is coming. It is important that the noise be recognizable as indicating a person. Loud bells, shouting, and clapping are best. Keep in mind that many animals whistle, so whistling sends an ambiguous message. Because vegetation or a stream may mask your sound, keep your eyes open and be alert.
- o If a bear approaches you, it is likely that either it is not aware of your presence or someone has let it get some food. If this happens, talk to the bear, to ensure that it knows a person is present, as you slowly move away. You may want to clap to get the bear's attention.
- o It is a federal regulation that you may not leave food or fish where bears can get it. This means that if your pack contains any food or beverages, you may not set it down while you go do something.
- o All food and fish must be stored secure from bears except when it is being carried, consumed, or prepared for consumption. There are elevated food caches in the campground and at the ranger station in which you may store your food. Garbage should be taken to the ranger station during the day. If you are loading or unloading gear from a boat or plane, station one person at the boat or plane while the others carry loads back and forth.
- o Picnicking along the river or on the lakeshore is prohibited. Consider not taking any food with you when you go out of Brooks Camp.
- o If you are cooking or eating and then see that a bear is nearby, gather up all of your food and either secure it or move away from the bear. Do everything you can to keep the bear from getting food that it may associate with your presence.

Additional Information for Fishermen

Give bears right-of-way.

When a bear is at least 50 yds away, move out of its path. If it is in the river, move out of the river and away from the bank. Maintain a distance of 50 yds. Do not force a bear, by your presence, to move out of the river.

Never approach a bear.

It's useful to have a non-fishing spotter to watch for bears while you fish.

Keep bears from learning to perceive people as a source of food.

Stop fishing and move out of the river when a bear is nearby.

Never fish when a bear is within 50 yds.

If you catch a fish and then see that a bear is nearby, do not reel the fish in. Slowly move away from the bear, or snap the line.

Any fish that is kept must be immediately taken to the fish-cleaning building where it may be stored for the rest of the day. Place it in a plastic bag to reduce odors as you carry it. A plastic bag is available from any ranger.

Regulation - Fish or food may not be left where it is available to bears. You may not leave a fish on the bank while you continue fishing. If your pack has any food, it may not be set down while fishing. Recommend no food along Brooks River.

If approached by a bear:

Talk, to let the bear know that a person is present, as you move out of the river.

If a fish is on the line, snap the line immediately.

If you have a fish in your possession, put it into the river, even if it is dead, in such a way that the bear does not associate it with you.

A bear charges fishermen because others have taught it that it can get food fishermen. Don't reinforce that behavior.

Additional Information for Campers

Keep bears from learning to perceive people as a source of food.

Regulation - Store all food in the cache whenever the food is not being eaten. Store garbage and other items that have an odor, such as toothpaste, shaving lotion, soap and hand cream, in the cache.

Lay the ladder down immediately after use of the cache, since bears can climb ladders.

Do not leave food unattended for even a moment. Re-store in the cache immediately after meals.

If a bear enters your campsite while food is present, clap and talk to the bear, and then take the food with you as you back away.

Never abandon food to a bear - It will endanger other campers.

APPENDIX 2. Information given to visitors during orientation greeting at Brooks Camp.

Information Given to All Visitors

Preservation of bears and their natural habitat is a major purpose of Katmai.

May encounter bears anywhere.

Particularly likely to encounter bears in the Brooks River area and in the vicinity of other salmon spawning streams.

Avoid surprise encounters.

Be alert.

Make noise, particularly where visibility is low, to let bears know that a person is approaching.

Give bears right-of-way.

Stay at least 50 yds from a bear.

Move out of bear's path.

Don't wait for bear to show that it is disturbed.

Sometimes the sight of people can impede a bear's movement. Don't force it to move out of the river, or to detour through Brooks Camp due to people on the beach. If a bear is traveling down the beach, move off of the beach and into the woods until the bear passes.

Never approach a bear (emphasize this to photographers).

Keep bears from learning to perceive people as a source of food.

Food must be stored securely from bears except when it is being eaten.

Do not leave food (or a pack containing food) unattended for even a moment.

No picnicking along Brooks River or on the beach of Naknek Lake. Recommend no food along Brooks River.

If approached by a bear:

Clap and talk to let it know that a person is present.

Move out of its way, such as at a right angle to its direction of travel.

Never run.

Last resort - Drop a non-food object and/or climb a tree.

Report any property damage to a ranger.

Respect bears and enjoy this unequalled opportunity to see them.

APPENDIX 3. Information given to backpackers when backcountry permits are issued.

Information for Backpackers

Avoid surprising bears while hiking.

Always be alert.

Avoid dense brush and other areas with low visibility, especially where hearing is also hindered, as by a gurgling stream. If you must hike through such an area, make a lot of noise before entering it and while in it.

Recommend use of loud bells since they make noise continuously.

If you see a bear, maintain a distance of at least 200 yds. If it sees you, help it to identify you as a person.

Avoid attracting bears to your campsite.

Look for bear sign before setting up camp. Don't camp where there is evidence of bears traveling, feeding, or bedding.

Avoid taking odorous foods or other items, such as scented soap, hand cream, or deodorant.

Keep your campsite clean.

Store food secure from bears.

It should be suspended out of reach in a tree or tall shrub, or from a cliff. If there is nothing available from which the food can be suspended, store it away from the campsite, out of sight, away from the campsite as well as from animal trails, and where its odor will not be caught and carried by wind. Hiding food beneath thick bushes or even burying it in rubble are good methods of storing food in treeless areas. Wrap food in plastic to minimize odors.

Store all odorous items, including toothpaste, with your food.

If you go on a day-hike from a base camp, put all of your food in a day-pack and take it with you.

Wrap garbage in plastic and carry it out. Do not bury it or leave anything behind. If burning is used to reduce bulk, the residue must be packed out.

Menstruating women should take steps to minimize odors. Store tampons with food, wrapped in plastic and secure from bears.

Report any bear sightings to a ranger when you return your backcountry permit.

APPENDIX 4. Regulations relevant to bear management in Katmai.

Compendium of Superintendent's Orders (excerpted)

In accordance with the provisions of Title 36, Code of Federal Regulations (CFR), Chapter 1, as authorized by Title 16, United States Code, Section 3, the following Superintendent's Orders (Compendium) are established for Katmai National Park and Preserve. Unless otherwise noted, these orders apply in addition to the applicable portions of Parts 1 through 13 of Title 36 CFR:

Regulation: 36 CFR 2.2(d) Food storage. The superintendent may designate all or a portion of a park area where food, lawfully taken fish or wildlife, garbage, and equipment used to cook or store food must be kept sealed in a vehicle, or in a camping unit that is constructed of solid, non-pliable material, or suspended at least 10 feet above the ground and 4 feet horizontally from a post, tree trunk, or other object, or shall be stored as otherwise designated. Violation of this restriction is prohibited. This restriction does not apply to food that is being transported, consumed, or prepared for consumption.

Orders: Food and garbage within one-half mile of Brooks River must be secured within a building, designated food cache, or sealed vehicle or aircraft except while it is in the process of being prepared for consumption, consumed, or carried on a person, with further restrictions as noted below.

Food and garbage within Brooks Camp campground must be stored within the caches provided except while it is in the process of being prepared for consumption, consumed, or carried on a person.

Within 100 yds of Brooks River and on the Naknek Lake beach within one-half mile of the mouth of Brooks River, food and garbage must be secured within a building, designated food cache, or sealed vehicle or aircraft except when it is being carried on a person. (See s13.18 below.)

In all other areas of Katmai National Park and Preserve, food and garbage must be suspended at least 10 feet above the ground, secured in a building, or stored in a designated food cache, a bear-proof container, or a sealed vehicle or aircraft except when it is in the process of being prepared for consumption, consumed, or carried on a person. Backcountry permittees must follow the terms of their permits concerning food storage.

Any fish caught in Brooks River will be immediately released into the river or immediately taken to the fish-cleaning building at Brooks Camp, placed in a sealed vehicle or aircraft, or secured in another building.

Within one-half mile of Brooks River, fish may be cleaned only in a building.

Regulation: 36 CFR 13.18(b) Picnicking is permitted in park areas except where such activity is prohibited by the posting of appropriate signs.

Order: Picnicking or preparation of food is not permitted within 100 yds of Brooks River or on the Naknek Lake beach within one-half mile of the mouth of Brooks River.

Other Regulations Relevant to Bear Management

36 CFR 2.2 Wildlife Protection

- (a) The following are prohibited:
- (2) The feeding, touching, teasing, frightening or intentional disturbing of wildlife nesting, breeding or other activities.

36 CFR 2.32 Interfering with Agency Functions

- (a) The following are prohibited:
- (1) "Interference". Threatening, resisting, intimidating, or intentionally interfering with a government employee or agent engaged in an official duty....
- (2) "Lawful order". Violating the lawful order of a government employee ... during fire fighting operations, search and rescue operations, wildlife management operations involving animals that pose a threat to public safety, ...or other activities where control of public movement and activities is necessary to maintain order and public safety.

APPENDIX 5. Information to be obtained during investigation of bear/human confrontation or bear-caused property damage.

1. Date and time
2. Exact location
3. People involved: name, address, phone, age
4. Sequence of events
 - What were people doing just before bear was seen?
 - What was bear doing when first seen?
 - Initial distance from people
 - Subsequent events*
 - Closest distance
 - How did people terminate the interaction?
5. Did people make noise just before or during interaction?
6. Did people or damaged property have food, smell of food, or appearance of food?
7. Was food eaten?
 - If so, specify what was eaten and what was not eaten.
8. Value of property damage
9. What do people think they could have done to prevent the incident? (if anything)
10. Had people received bear information?
11. Description of bear: size, color, markings
 - If several bears, relative sizes and relative colors
12. Witnesses?

* Do not use "chase" or other ambiguous terms. Do not use "charge" unless the person's description of the behavior technically fits the term.