

A
BEAR/HUMAN CONFLICT MANGEMENT ACTION PLAN

DENALI NATIONAL PARK AND PRESERVE

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BEAR/HUMAN CONFLICT MANAGEMENT ACTION PLAN

The purpose of this action plan is to resolve the bear/human conflict management problems identified in Denali's Natural Resource Management Plan.

PROBLEMS

The pertinent sections of that plan which discuss the bear/human conflict problem at Denali are available in Appendix E of this action plan.

GENERAL GOALS

The goals of the bear/human conflict management program are based on management policies of the National Park Service and legislation which applies specifically to Denali National Park and Preserve. This background material is discussed in the introduction to Denali's Natural Resource Management Plan. The resulting goals for bear/human conflict management are as follows:

1. To maintain the natural processes affecting the genetic integrity, distribution, abundance and behavior of the black and brown (grizzly) bear populations.
2. To provide for visitor safety by minimizing bear/human conflicts and the resulting personal injuries and property damage.
3. To provide opportunities for visitors to understand, observe and appreciate black and brown bears in their natural habitat with minimum interference by humans.

MANAGEMENT POLICY

The bear management policy will meet these general goals by always stressing preventative management as the first step toward solving any problem. Efforts will be continually made to identify the causes of a problem. These causes, not just the symptoms, will be the primary target of our management actions. Since we want to perpetuate natural bear populations and behavior, there must not be unnatural foods available to bears--this is basic to preventing problems. Where bears still conflict with humans in the absence of food rewards, people should be restricted or removed where feasible rather than the bears. When this procedure has been exhausted, a more manipulative management program may be employed to deal with bears whose behavior patterns present an unusual threat to human safety. Behavioral science will be used as the basis for these management decisions. Behaviors classified as defensive will be considered natural with management response directed toward control of human use. Behaviors classified as threatening will be considered undesirable with management response directed first toward behavior modification and then removal of the bear. Opportunity for expression of either behavior will be minimized through parkwide human use management.

SPECIFIC OBJECTIVES

This general policy will be effectively expressed by implementing actions based on the following four specific objectives and their corresponding program elements.

1. Education
To educate park users and employees about bear ecology, the causes of bear/human conflicts, and how they can help prevent these conflicts through their personal actions and compliance with regulations.
2. Removal of Unnatural Food Sources
To remove all unnatural food sources from bears.
3. Management Actions in Response to Bear/Human Interactions
To provide a process which protects Parks users from injury and property damage in specific cases where all our preventative and less bear-manipulative techniques have failed.
4. Research and Evaluation
To improve the factual basis of the bear/human conflict management program through new research and the continual monitoring and evaluation of current policies and programs.

1.0 Education

1.1 Content of Education Program

Education efforts will emphasize the wilderness character of Denali National Park and Preserve, its importance to a natural grizzly population, that grizzlies are wild, unpredictable, dangerous animals, and that there is no guarantee of safety for those that venture into their habitat.

1.2 Information Distribution to User Groups

1.2.1 Alpenglow

Written information for distribution to park users and employees will be centralized in a comprehensive article in the Denali Alpenglow. This article will stress the topics discussed in section 1.1 of this plan, along with camping and hiking practices which contribute to safety in bear country, and a discussion and examples of what to do if a close encounter with a bear does occur. Future revisions of the article will incorporate the suggestions shown on page 22 in Singer (1982).

An active effort will be made to present this publication, specifically pointing out the bear information section, to all users. The majority of users will probably receive this information through a personal contact at Riley Creek Visitor Center, but the following provisions are necessary as a continual

check for those that do not receive this initial contact. Racks or stacks of the Alpenglows will be present at the following locations:

- a prominent spot inside the Riley Creek Visitor center and just outside the Visitor Center entrance
- a prominent spot in the hotel lobby
- the lobby of Park Headquarters office and outside the main door
- the concession employee cafeteria at the beginning of each season
- on all shuttle buses
- a prominent location at Eielson Visitor Center
- a prominent location in the railroad station

The headquarters secretaries will maintain the supply of papers at headquarters. All other sites are the responsibility of the Interpretive Division.

Park staff should be continually checking to see that visitors have received an Alpenglow and have been directed to the bear information section. Supplies of Alpenglows should be kept in Patrol and Interpretive vehicles, so they are available for distribution.

1.2.2 Bulletin Boards

The bear information article from the Alpenglow, directions to bear proof storage facilities in the campground and information on proper food and garbage handling procedures will be included in bulletin board displays. Displays will be put up as soon as areas open. The Interpretive Division is responsible for the initial posting of displays and their maintenance throughout the season. However, it is the responsibility of all employees to make necessary emergency repairs and report these repairs immediately to the Chief of Interpretation for quick, permanent correction. Periodically, it may be necessary to post emergency messages relating to bears. These notices should be cleared through the District Ranger before posting and are to be of a temporary nature only. Uniform notices shown in Appendix D shall be used if they can be applied to the situation.

1.2.3 Signs Explaining Food Storage Regulations

Several small signs reminding campers about proper food and garbage handling practices will be placed in campground restrooms, near water faucets, on bulletin boards, and on shuttle buses. These signs will also direct campers to the central campground bulletin board for an explanation and location of the food storage lockers. Examples are shown in Appendix

1.2.4 Interpretive Activities

All public programs and guided walks will contain some comments on the potential for bear/human conflicts while visiting Denali and explain personal practices which will help to minimize these

conflicts. Introductory remarks for guided walks will also include discussion of what the groups actions will be should they encounter a bear. All pre-program walks by interpreters around campgrounds will stress food and garbage handling, especially for campers without vehicles. The Chief of Interpretation will see that this information is conveyed to the public during these contacts.

If a bear related closure prevents an interpreter from conducting a scheduled program, they will spend a few minutes discussing the closure and ways to minimize bear/human conflicts.

1.2.5 Information for Campground Users

Campers will be told when they receive a permit not to leave food or garbage unattended at any time and that their food should be stored in cars when it is not being used. Campers without vehicles will be informed of the location of the bear proof lockers in the campground or instructed to hang their food at least 10 feet off the ground if a storage locker is not presently available (Riley Creek). Verbal warnings about food/garbage storage will be given when a specific campground is having bear problems. The East District Ranger is responsible for this program element.

1.2.6 Information for Backcountry Users

All parties obtaining a backcountry permit will receive verbal and written (Alpenglow, if not previously received) information about food storage and travelling in bear habitat from the person issuing the permit. This personal contact will be documented by writing "bears" in the remarks section of the backcountry permit (see Appendix C). A slide program on hiking and camping in bear country will also be available at the Visitor Center near the Backcountry Desk area. The backcountry permit desk should be staffed by two people during peak hours. One person will be specifically assigned to providing bear information and distributing experimental bear resistant food containers. The West District Ranger is responsible for this program element.

1.2.7 Information for Private Land Owners Within Park and Preserve, Residence Zone Subsistence Users, and Our Nearby Neighbors.

These groups will be notified of the Park's interest in minimizing bear/human conflicts. The advantages of preventative measures, such as removal of unnatural food sources, will be stressed.

They will be encouraged to bear proof their garbage and food handling practice in order to avoid the property damage and injuries which can result when bears become accustomed to unnatural food sources. Pertinent state and federal regulations will be reviewed and it will be made clear that, if necessary, the Park will seek assistance from the State to enforce them.

A notice discussing these points will be maintained in public places such as the Denali Park Post Office and mailed to more inaccessible individuals and communities. The Management Assistant will see that this information is written and distributed.

1.2.8 Information to Subsistence Users (permit), Mining Operators, Business License Holders, Concession Operations and Holders of Special Use Permits Operating in Bear Habitat

Information as discussed in section 1.2.7 and 2.3 and requirements for bear proof food and garbage handling will be included in all new permits, licenses, contracts plans of operations issued to these groups. Annual agreements will be revised to these standards when they come up for renewal. All longterm agreements which are not up for renewal in the next year will be altered by amendment during 1985. The Management Assistant and District Rangers are responsible for the distribution of this information and the inclusion of these requirements in the various agreements.

1.3 Training

1.3.1 NPS Employees-General

All NPS employees will attend a training session on bear/human conflict management. This session will cover the information presented in the Alpenglow article and stress that minimizing bear/human conflicts is a priority problem for the Park. Consequently, it will be the responsibility of all employees to be alert for situations such as broken garbage storage equipment, poor food storage by visitors, bears around developed areas, and other problems that could lead to bear/human conflicts. These problems will be reported immediately. Employees who have infrequent contacts with the public will be instructed at the very minimum to direct visitors to the Alpenglow, bulletin boards, Visitor Centers, or Protection and Interpretive staff when questioned about bears. It is the additional responsibility of all employees to get people who have been involved in a bear incident in contact with protection personnel.

Special sessions, in addition to the one at general seasonal training, will be held to accommodate Maintenance Division entrance on duty schedules. The Management Assistant and West District Ranger are responsible for arranging these training sessions and the Resource Management staff will help present them. It is the responsibility of the various supervisors to see that time is provided for employees to attend.

1.3.2 Additional Training for NPS Employees Regularly Contacting the Public

The Interpretive, S.C.A., Dispatch and Protection staff will receive additional training on the reporting procedures for bear/human interactions, further information on interpreting the park's bear/human conflict management plan to visitors,

and basic bear biology and behavior. Numerous example situations should be the emphasis of this training. The Resource Management staff will conduct this session.

1.3.3 Training for Concession Employees

The park will make an active effort to contact all concession employees with information about living, working and recreating in bear country. Informational meetings at various times to accommodate shift workers will be held in June. These meetings will cover the information presented in the Alpenglow, request that employees report bear interactions and situations throughout the park that could result in bear/human conflicts, and stress that individual actions, such as proper use of garbage disposal systems, can make a difference in preventing conflicts with bears. It is also in the park's best interest to contact concession employees, because there has been a history of concession employees camping illegally near the hotel in order to avoid the rent for concession housing. Bears have obtained food from these illegal camps in the past. Also, many employees live in tents just outside the park. Bears obtaining food from these camps eventually become our responsibility, when they wander into the park with their bad habits.

The Alpenglow article and a memo summarizing the topics covered in these meetings will be posted at the employees cafeteria and Visitor Transportation System bus office. The Management Assistant will arrange these meetings and the East District Protection staff will post any related information. The Resource Management staff will conduct them.

1.3.4 Bus Driver Training

A section of the annual bus driver training will cover human/bear conflicts and the driver's responsibilities in the park's program to minimize them. There will be a discussion of the major points in the Alpenglow article.

They will be instructed to use this article as the basis for any bear information that is given to the public. Their initial message to the public at the start of the trip will mention this information and current closures. An additional message requesting that visitors not feed ground squirrels and other animals at Eielson Visitor Center will be given just prior to disembarking there. They will be reminded of their responsibility of getting people who have been involved in a human/bear interaction in contact with Protection or Interpretation staff. Photography policies and policies about not letting people off near bears along the road will also be covered. The Management Assistant will arrange this training session and the Resource Management staff will participate.

2.0 Removal of Unnatural Food Sources

2.1 Regulations

2.1.1 NPS Food Handling Regulations

CFR 2.10(d) is the primary regulation which authorizes the following food handling requirements for the different types of users listed under section 2.0 of this plan.

2.1.2 State Regulations and Their Interpretation

SAAC 81.218 Feeding of Game, also applies directly to food and garbage handling. The State's use of this regulation is mainly responsive. If a party complains about a problem bear, the State generally requires that the food and garbage handling at the residence, camp, etc. be completely bear proof before any action will be taken against the animal. Also, in areas with a history of bear problems, an inspection of the food and garbage handling of other area residents is possible if a complaint is received from a neighbor. The State's definition of "bear proof" is based on the proven effectiveness or ineffectiveness of the system and not specific construction guidelines; i.e., if a bear is obtaining food or garbage, the current system is not "bear proof" and must be modified until it is. A few systems such as open barrels, boxes or pits are immediately ruled out for areas with a history of bear problem. If these were inspected because of a complaint, storage in closed steel or heavy wood containers, in a secure building, on an elevated cache, or suspended from wires or poles would probably be required.

Business and other public operations must be inspected and obtain permits as required by 18AAC Chapter 60. This regulation requires that garbage be handled in a "sanitary" manner; i.e., not attracting or accessible to animals or causing flies. Again there are no set guidelines for "bear proof," it is basically whatever works. However, if problems are occurring, the storage practice must be changed or potentially permits could be revoked and fines levied. Generally, at least heavy, securely covered containers are required in areas where bear problems have previously occurred.

2.2 NPS and Outdoor World Ltd. Operations

2.2.1 Food and Garbage Handling by Visitors

The bear proof food lockers located in the campground are an approved alternative storage method for food along with the other method described in CFR 2.10(d).

Backcountry users will store food as described in the Alpenglow article or in bear resistant food containers where they are required.

2.2.2 NPS and Outdoor World Ltd. Waste Disposal Facilities and Procedures

All National Park Service and concession outdoor waste disposal systems will be bear proof. "Waste" here means discarded food, garbage, litter or other decomposable material that might have odors attractive to animals.

The Management Assistant will insure that the concessioner provides and maintains such systems at the hotel and employee residential area. The current systems are not acceptable. An addendum to the concessionaire's contract will require him to follow bear proof food and garbage handling procedures. The Management Assistant will see this contract modification is made immediately. The concessioner will be required to instruct its employees to keep their dumpsters covered and fastened closed at all times except when garbage is actually being placed in the container. No garbage will be stacked by the dumpster or litter cans at any time. Excess garbage will be securely bagged and stored inside a closed building until space in the dumpster is available. However, the concessioner will be required to provide additional dumpsters if this occurs frequently enough to cause health and safety problems in the work or housing area. Once a day a concession employee will pickup any waste material that is scattered around all the dumpsters. The Chief of Maintenance will see that park systems are completed and maintained. He will also see that the following requirements are included in any contracts related to waste disposal and that those requirements are followed by the contractor.

All trash containers which are not of a bear proof design, whether located at employee residences, offices, food services, stores or other facilities will be kept indoors. Protection staff will enforce this.

From May 15-September 15, refuse containers in visitor use areas will be checked daily, and emptied when half full or sooner if there is a strong odor present. Those at C-Camp and the permanent housing area will be checked and emptied in the same manner three times a week. Employees collecting garbage will report any repairs that are necessary to maintain containers in a bear proof condition. It is the responsibility of the Chief of Maintenance to see that these situations are immediately corrected. Plastic liners will be used in all garbage cans. The Chief of Maintenance will see that all garbage collection vehicles, in which garbage is stored overnight, will be bear proof or parked inside.

Additional funding will be allocated so that a program of container cleaning, maintenance, and cyclic replacement can be implemented in order to maintain adequate operational and sanitary conditions.

The park's garbage holding area near Highway #3 will be maintained in a bear proof manner. The doors on the holding tank will be closed and the main fence gate fastened shut at all times. The electric fence will be activated and tested regularly from April 1-November 1. The Chief of Maintenance will maintain all these systems in good working order, fixing any damage or malfunctions immediately. It is the responsibility of anyone using the storage area to report needed repairs immediately to the Chief of Maintenance and collect any loose garbage that is in the dump area and should be in the holding chute.

All campgrounds, picnic areas, park roads, residence areas or other areas of visitor concentrations will be maintained in a litter-free condition. It is generally the responsibility of all employees to help out with this, but it is the specific responsibility of the Chief of Maintenance to provide regular litter patrols. Regular litter patrols are defined as looking for and picking up litter along the roads and in the work sites during travel to and from work sites and in work sites, by persons routinely collecting solid waste and those persons routinely maintaining campgrounds, picnic areas, rest stops, waysides, and visitor centers. Except for annual roadside cleanups, special road cleanups are not currently needed. The Eielson caretaker will regularly patrol near the Visitor Center, picking up small food scraps in areas where people typically picnic. The objective is to prevent ground squirrels from acquiring human food which could cause unnatural aggregations and possibly attract the many bears, which are already in the general area, into the immediate area of the Visitor Center.

Cooking grease at cabins and campgrounds will be disposed of in bear proof garbage cans with plastic liners and not on the ground around cabins.

2.2.3 Enforcement

The prevention, identification and correction of improper food and garbage handling procedures will be a major part of Protection Division patrols. Campgrounds will be patrolled at least each evening in order to inform visitors of proper food and garbage handling procedures. Special efforts will be made to contact campers without vehicles and direct them to the food storage facilities provided in the campground. Unattended food or garbage will be disposed of or impounded and appropriate warnings or citations issued.

Patrols are responsible for correcting emergency sanitation problems such as overflowing garbage cans or litter. Patrols will also be alert for malfunctioning or poorly maintained bear proof

facilities, such as garbage can tops that are ajar, storage lockers left open, or dirty garbage cans that are causing odors.

NPS and concession residence areas will be patrolled daily to make sure that food or garbage isn't being left out on the porches or picnic areas. All Outdoor World Ltd. garbage facilities, a source of many sanitation problems, will be checked at least once during the day and once after 11 p.m. by the late night shift, to see that dumpster lids are closed and fastened and that no garbage or litter is accumulating around the disposal areas. Patrols should also be alert for improper disposal of kitchen wastewater and oils around the hotel and employee residence area.

The park's garbage holding facility off Highway #3 will be patrolled regularly, at least 3 times a week, to insure that the gate is locked, electric fence activated and doors on the garbage holding tank are closed and fastened.

Aerial and foot patrols of the hotel, train station and Riley Creek area will be made by the East District Protection staff. Illegal summer camps are often constructed by concession employees to avoid renting rooms from their employer. These camps have been sources of unnatural food for bears in the past.

All non-compliance and compliance will be well documented in patrol logs on an appropriate form. Violations involving the concession operation will be reported to the Management Assistant for immediate correction. NPS problems will be routed through the Chief Ranger to the responsible division or supervisors of individuals involved.

2.3 Food and Garbage Handling Practices of Other User Groups and Close Neighbors

Our control over the food and garbage handling practices of our neighbors and several other user groups is less direct than our ability to regulate our own operations, those of the general park visitor, and the Outdoor World Ltd. concession operation. The park will make every attempt to gain compliance with a bear proof standard of garbage and food handling from these additional groups through a combination of education and permits or license stipulations based on state and federal law.

2.3.1 Mining Operations

Current stipulations for mining operations on claims within Denali National Park and Preserve require that all garbage and refuse be removed from the claim area or burned daily. This stipulation and a policy of bear proof food and garbage handling will be enforced as strongly as is possible, under the current CFR regulations, through

regular patrols by the Kantishna Patrol Ranger. State regulations could also be used in the new park and preserve, but they would have to be enforced by the state, as we have only proprietary jurisdiction in the new park and preserve areas.

Currently, open pits, barrels or plastic sacks of garbage outside buildings are definitely unacceptable and the Kantishna Patrol Ranger will work to change these through education, warnings and, if necessary, enforcement of appropriate regulations. Storage in securely covered steel or heavy wood containers, elevated storage such as a cache, wire or trees, or inside a closed building is definitely preferred. Stipulations in the Plan of Operations are the main means of control over the food and garbage handling practices around mining operations and will continue to be as specific as state and federal regulations allow. State assistance will be requested, if that appears to be the most appropriate and effective means of enforcement.

2.3.2 Business License Holders, Special Use Permits, Concession Contracts

Stipulations will be used to require bear proof handling of food and garbage from all these user groups. All new and existing permits, licenses and contracts will be modified to include these requirements. They will be reviewed by the Resource Management Ranger to insure that the stipulations used are adequate. General guidelines are similar to section 2.3.1. All garbage must be removed from the park and preserve. The District Rangers are responsible for checking these operators for compliance.

2.3.3 Private Land Within New Park and Preserve or Close Neighbors

Enforcement of state laws are our only option in these areas. Patrol rangers will be alert for problems on these properties and contact state officers, if needed improvements in food and garbage handling cannot be made through friendly agreements and education. The District Ranger will contact the Department of Environmental Conservation to determine if local businesses have current permits and have been inspected recently.

2.3.4 Subsistence Users

The sanitation conditions around cabins and camps of residence zone users that are on the preserve or park lands are controlled by the CFR and state regulations previously discussed. Current regulations will be enforced as described in sections 2.1, 2.3.1, 2.3.2.

All contacts with these users will stress the need for bear proof storage of food and storage. Whenever possible patrols will check cabins and camps for conditions which will attract bears.

Permit stipulations, as described in 2.3.2, which outline approved procedures will be used to control the food and garbage handling procedures of permitted subsistence users. These users will be notified of our intent to enforce these stipulations and regulations by the procedure described in section 1.2.7 and 1.2.8.

3.0 Management Actions in Response to Bear/Human Interactions

This program element is organized into three major sections. Section 3.1, Preparing for Management Actions, discusses the equipment and supplies commonly used in bear management actions, their location, and who is responsible for their procurement and maintenance. Section 3.2, Explanation of Management Terms and Actions, covers in detail definitions, the approved procedures and techniques, and the responsibilities for bear management operations. Section 3.3, Field Guidelines, outlines the responsive procedures for typical types of bear/human conflicts. References are made to section 3.2 so that additional detailed information can be quickly located.

All management actions are considered experimental at this time and the procedures and clearances outlined in this section will be strictly followed and actions well documented.

3.1 Preparing for Management Actions

3.1.1 Equipment

A. Palmer Capture Gun

A gun and complete kit of darts, ammo, syringes, cleaning equipment, etc. will be maintained ready for immediate use at Toklat and headquarters. The equipment at Toklat will be accessible by the park master key. The headquarters equipment will be stored in the gun locker at the Ranger Cache. The District Rangers are responsible for the proper storage and maintenance of this equipment.

B. Immobilizing Drugs

Supplies of immobilizing drugs will be kept in safes at HQ and Toklat. All procurement, storage, and use of these drugs will be in accordance with all federal regulations pertaining to Schedule II Drugs. One individual in the park will maintain the appropriate licenses needed to purchase these drugs. This person is also responsible for maintaining inventories of current supplies, the appropriate storage and handling procedures and an adequate park supply. Currently, this person is the West District Ranger.

C. Protective Firearms

Twelve gauge shotguns, rifles, and large caliber pistols typically used for back-up during immobilization and post-incident patrol operations will be available at headquarters firearms locker and throughout district patrol staff. District Rangers are responsible for seeing that firearms are well maintained, accurately sighted in and adequate supplies of ammunition are available for response to bear incidents.

D. Traps

One portable culvert type bear trap will be kept at Toklat and one at headquarters. District Rangers will see that these traps are cleaned after each use, maintained in good working condition and that at least one centrally located or easily obtainable vehicle in each district can be fitted with the appropriate hitches for trap towing. A trailer hitch ball and blocks for stabilizing the trap will always be stored with each trap.

E. Helicopter Net

A helicopter net, lead line and swivel hook will be kept at Toklat during the summer.

F. Weighing and Measuring Equipment

Currently, the necessary equipment for weighing, measuring, and collecting other data from a captive bear is only available at headquarters. East District Ranger and Resource Management Ranger are responsible for the maintenance and improvement of this equipment. The West District Ranger and Resource Management Ranger will make necessary purchases to provide a future equipment set at Toklat.

G. Signs

District Rangers will see that supplies of approved closure signs are easily available for patrol staff. All roadside patrol cabins should have a supply of signs as well as headquarters and Toklat. See Appendix D for examples of signs and some guidelines on their use.

H. Yearly Arrangements for Helicopter

The Chief Ranger will make arrangements each year for a helicopter that can be brought in on short notice for use in bear management actions.

3.2 Explanation of Management Terms and Actions

The responsive procedures outlined in this section reflect the highly experimental nature of current bear management techniques at Denali. A progressive, step-by-step testing of these techniques, which stresses the initial use of the least manipulative technique, and the thorough documentation of actions and reactions, will be strictly followed during each operation.

3.2.1 General Type of Bear/Human Interactions and Bear Behaviors

These definitions should be used with section 3.3 to determine the type of interaction that has occurred, the bear behavior present, the acceptability of that behavior, and the appropriate management response.

A. Surprise Close-Range Encounters

These types of encounters are not premeditated by the bear. A bear which is suddenly confronted by a person and perceives it as a threat may try to escape, but if the bear feels it cannot escape because the people are too close or no escape route is available, it may charge. Frequently these charges do not result in any physical contact with the person. Prolonged maulings and severe injuries are possible, but do not generally occur unless the person tries to run or fight back. Mother bears are particularly fearful of threats to their young, and seem to be especially likely to view a person as a threat and charge when suddenly encountered at close range. A surprise encounter is the type of incident in which hikers are most frequently involved. This type of incident generally occurs over a very short time span, often a matter of just a few seconds. The behavior involved is considered defensive and a one time occurrence and is therefore acceptable.

B. Natural Inquisitive Approaches

Interactions also occur when bears approach people in an attempt to identify them as a threat or potential prey. Generally they leave the area once they have come close enough to catch a scent or sound from the person. Some bears will remain in the area, but seem to ignore the people and return to other activities. More serious approaches occur when the bear continues to perceive the person as prey, a threat, or a source of unnatural food and resumes its approach. These are covered in the following sections.

C. Dominance Interactions

This type of interaction generally develops over a longer period of time and distance than a surprise encounter

and involves an approach by the bear. Interactions of this type occur continually among bears as they establish dominance hierarchies, but approaches by people, intentional or unintentional may provoke a similar response. The bear actively challenges the intruder of its personal space with a purposeful approach or charge. Submission and slow retreat will likely re-enforce this behavior for the future, but it is probably the most practical and probable response in most cases. It is not known if this type of re-enforcement in itself is really significant for increasing a hazard for people, but the added reward of food, which seems to occur frequently when people throw down packs or food during these more drawn-out interactions is thought to be important. The aggressive responses of bears on kills is also a function of this dominance interaction.

The degree that this behavior maybe acceptably expressed is defined by section 3.2.1 I.

D. People Mistakenly Perceived as Prey

Charges and injuries have occurred when people knowingly or unknowingly interjected themselves between a bear and prey, or acted in a manner that bears perceived as natural prey. This has at times involved a rapid approach, sometimes from a distance. Often this approach is quickly altered when the bear suddenly catches a scent or sound from the people and realizes its mistake. Severe maulings may result if person continues to act as prey; i.e., flees or fights back, or the bear contacts the person before it realizes its mistake.

These interactions are considered to be the result of confusion and no management actions will be directed toward the bear because it is presumed to be a one-time occurrence and not a manageable behavior pattern.

E. Harassment and Provoked Attacks

Approaches to within 50 meters of a bear, or continued approaches or following of animal, may constitute harassment and could provoke several of the interactions previously discussed.

Management actions will not be directed toward the bear for the reasons outlined in 3.2.1 D.

F. Initial Attraction to Unnatural Food

These are situations where a curious bear is initially attracted by the smell or sight of human food or garbage. If rewarded, the bear may eventually associate the mere presence or smell of people or their equipment with an unnatural food source. The bear behavior in this type of interaction is unacceptable and aversive conditioning tests will be tried on the animal.

G. Tolerance of Close Range Encounters with People

Some bears will tolerate the presence of people at close range after surprise encounters or natural inquisitive approaches. This tolerant behavior which probably results from previous non-threatening interactions with people is considered acceptable in chance encounters as long as it does not involve subsequent approaches by the bear after the initial recognition has taken place. The evolution of this tolerant behavior is a recognized result of the inevitable accidental encounters between bears and people, but will not be further encouraged by policies which allow these encounters to be unnecessarily prolonged or intentionally occur.

H. Initiation of Prolonged or Repeated Close Range Encounters With People or Familiarity with Unnatural Food Sources

These are interactions where a bear actively approaches from a distance very soon after it is aware of people or their equipment and makes repeated approaches. Also, it may follow people or tolerate their presence at distances as close as 10-15 meters without any overt, threatening behavior such as described in section I. While it may tolerate people, at close distances or even actively follow or approach them, it is still wary and respectful and can be discouraged from continuing these activities by yelling or rock throwing. The animal may return after being driven off, but it always remains cautious and still reserves some respect for people. Flight or indifference and not bluff charges or threatening postures and vocalizations are typical responses during close encounter or attempts to drive the bear away.

These prolonged and repeated approaches are probably a result of interactions where the bear has obtained unnatural food from people and has begun to define people, their equipment, or a specific area as a source of unnatural food and actively seeks it out when presented with an opportunity such as a nearby camp or group of people. This association has developed in bears in other park areas, and there are indications that some Denali bears may be perceiving hiker camps as an unnatural food source.

This association of human scent and equipment with food in one situation could encourage a general curiosity about people in other non-camp situations.

While not necessarily dangerous in themselves, these behavior patterns will probably be rewarded by the inevitable unattended food, garbage or pack thrown down by

a nervous hiker. Thus the possibility exists that the behavior will be re-enforced and eventually lead to more threatening approaches to obtain food.

These behavior patterns are unacceptable and bears which exhibit them will be selected for aversive conditioning tests or relocation.

I. Serious Threatening Behavior Toward People

These are serious, unacceptable interactions where a bear has acted in an extremely threatening and violent manner toward people. The threatening behavior in this case is not defensive, provoked, or a result of confusion. The animal involved is pugnacious, belligerent and reacts with violence (bluff charge, and threatening postures or vocalizations) to challenges such as attempts to scare it off. It is trying to express dominance in the situation in order to obtain a specific goal such as the right to investigate a camp, developed area, or to force a person to abandon their property or a particular area. When given a choice, it precipitates this type of interaction with people rather than avoiding it. Animals with this behavior are considered to be unnaturally dangerous because of their predisposition to seek encounters and to react violently during those encounters rather than with indifference or wariness.

This type of incident and behavior has not been found at Denali yet. Animals which are suspected of this behavior will be tested using the procedure outlined in section 3.2.4 E. Positive identification of this behavior may call for destruction.

J. Premeditated Predation

Bear knowingly approaches a person as prey.

3.2.2 Management Zones

A. Frontcountry

This term includes all developed areas such as campgrounds, residence areas, hotel facilities, visitor centers, and a zone of 300 meters around them. Also a 1/4 mile wide corridor centered along the park road and the general area enclosed by the hotel, Riley Creek Campground, and the train station will be considered frontcountry. While these are areas where natural processes have been altered in some degree to accommodate high density of human use, they are also adjacent to areas naturally frequented by bears. It is inevitable and natural that through the course of a normal summer bears will occasionally roam through these areas.

Therefore, management activities will still center on the prevention of conflicts through education and the management of people and their food and garbage. Closures and behavior modification will still be attempted before removal of an animal from the area. Removal will be reserved for extreme situations outlined in section 3.3.

B. Backcountry

These are all other areas of the park not defined as frontcountry and which have low density human use. The preservation of natural processes is our overriding management objective and will be reflected in actions which stress prevention and the management of people first. The range of possible actions are explained in section 3.3.

3.2.3 Reporting Procedures

A. Receiving Initial Reports

It is the responsibility of all NPS employees and bus drivers to try and get people who have been involved in an interaction with a bear in contact with interpretive or protection staff. Interpretive staff should follow interviewing guidelines and fill out BIMS form as described in Appendix B, when taking initial reports. If further action is needed, they should notify appropriate protection staff and dispatch. Protection staff will be responsible for further interviews and investigations.

B. Notification

The person receiving initial report will notify other parties based on the following guidelines once the general type of report is clear.

1. General Observation
 - Route appropriate forms to Resource Management Ranger (See Appendix B)
2. Bear within 1/4 mile of developed area
 - Inform other staff (or visitor center staff if in area of V.C)
 - Inform visitors or residents of area
 - Route appropriate forms to District Ranger then on to Resource Management Ranger (See Appendix B).
3. All other more serious situations
 - All of 2 above.
 - Inform Dispatch

4. When dispatch is informed they will contact District Ranger, Resource Management Ranger and Chief Ranger.

C. Documentation

See Appendix B for various forms and use guidelines necessary for documenting interactions, management actions, and biological information. Certain aspects of the data gathering systems will eventually be revised as indicated on page 23 in Singer (1982).

3.2.4 Management Actions

A. Initial Investigation

A complete interview with the people involved will precede any field action. The interview should follow the BIMS form and interviewing guidelines shown in Appendix B, stressing a detailed account of physical setting, location and actions/reaction with one of the main objectives being the identification of the cause and type of incident. If the bear is still in the area, the investigator should try to get a good identification of the bear. If it appears that further management actions will be needed, the bear should be kept in view, as long as it can be done safely and without provoking further problems, until more qualified help arrives.

B. Initial Response Procedures

A quick response to incidents is essential for testing experimental management techniques and initiating management actions. Overall effectiveness will also be increased if the initial team that responds to the situation is capable of performing the full range of management options and is prepared to stay in the area for a few days.

The preferred team will normally be composed of the District Ranger and a member of the resource management or bear research staff. Members of this preferred team must be qualified with shotgun and in immobilization equipment use. A third person may participate as a team member and/or trainee.

Normally no more than 3 people will take part. The team will be equipped to perform a full range of management actions (marking, capture, aversive conditioning, container tests).

The following is an example of how this team might respond to a backcountry incident.

- Initial report and interview taken by field staff.
- Dispatch contacted, dispatch contacts team members.

- Meeting point arranged for team and helicopter, if available.
- Team members get gear and proceed to pick up point.
- Consider fixed wing support to help search incident area.
- If possible one of team interviews victim. Consider taking victim to site if further clarification needed.
- Team goes to site, conducts preliminary search of area with aerial support if available.
- If necessary, remove victims equipment from the area.

The team will be prepared to spend at least 2 days in area. The team will take the appropriate actions in section 3.3.

If this preferred team is not available, and the site is very accessible and can be reached long before the preferred team can get to the area, then an alternative team led by any commissioned patrol ranger, but preferably with experience in investigating bear incidents, will go to the site (in the company of the victims, if necessary). The primary purpose of this alternative approach is to retrieve any abandoned equipment, and complete the initial investigation phase. No other management actions may be taken by this alternative team. A shotgun may be carried by a qualified individual. (See section 3.2.4 F)

The following procedures will be followed if it is absolutely necessary to drive a bear away from the area to retrieve the party's equipment.

1. Take a good long look at the area. Try to determine the number and age classes of bears involved.
2. Keep visitors well out of area and in a safe location.
3. If the bear(s) has still not left the area, use the least disruptive aversive conditioning techniques first. (See section 3.2.4 I) Make sure bear has an escape route. Yelling, waving arms, or throwing rocks from a distance is generally sufficient. These are the techniques available to hikers, note the bear's reaction. This information may be useful in determining subsequent actions by other teams. Give the bear time to react, procede slowly. The objective is to remove the bear from the area, not cause a confrontation that might result in a charge.

If these techniques have failed after repeated attempts, cracker rounds may be used by a qualified employee (3.2.4 F) to drive the bear from the immediate area.

Continued harassment of the bear after it leaves the area is absolutely prohibited. Continued harassment could prejudice later tests.

These are the basic procedures which have been safely used in the past at Denali. If these techniques, along with just plain waiting have failed to remove the bear from the site, the ranger and party will leave the area and retrieval will be done by a team that is qualified and authorized to take stronger actions.

C. Monitor

The emphasis here is on controlling situations which could easily escalate into larger problems with mainly passive, preventative actions. All the potential of this option must be exhausted before moving on to any more manipulative actions. Once initiated, it requires the full time and attention of at least one employee, until the situation is resolved.

The following procedures will be used when monitoring a situation:

1. Take a minute and size up the situation; i.e., number/age class of bears, location of people, bear behavior and mood, direction of travel, etc.
2. Make people in the affected area aware of the bear.
3. Initially and continually patrol the area, removing easily obtainable sources of unnatural food. Check people's food storage, look for loose garbage, garbage cans with tops ajar, etc.
4. Control movements of people, keep them away from the bear(s). Give them a ride past the bear, get them into visitors center, get them back in their cars, etc.
5. Keep bear's movements and behavior in view, especially if further management action may be required.

D. Closures

The purpose of a closure is to immediately exclude people from a hazardous setting such as a carcass, a prime berry patch, the area of a recent incident, etc., or to act as a "cooling off" period that might provide a bear the chance to move off into one of the many remote, unvisited parts of the park before it has a second, immediate opportunity to come in contact with people.

Duration is variable, as it is dependent upon the time it takes to remove the hazard that initiated the closure. Section 3.3 provides criteria for establishing and lifting closures. The type of closure will also vary depending on the circumstances which started it. It may include some variation of use, such as day hiking only, as long as it continues to address the initial hazard. Some variations for specific situations are also given in section 3.3.

Dispatch must be notified of the establishment or lifting of all closures. These actions will be documented by the District Ranger who initiates them, and by dispatch which will record closure information on Opening/Closure Log and notify Riley Creek Information Center, Eielson Visitor Center, Chief Ranger, District Ranger and Resource Management Ranger and include information in morning report.

The District Ranger is responsible for creating or removing these temporary closures in the backcountry. Whenever possible, this should be done after consultation with the Resource Management Ranger. Closure of developed sites such as campground requires consultation with the Chief Ranger. The boundaries for closures caused by incidents in the backcountry will generally use the boundaries of the backcountry unit where the incident occurred. The adjacent unit should be closed if incident occurs on the unit boundary. The boundaries of other closures should be constructed to encompass only the area that constitutes the common access points and any additional locations as specified in section 3.3. Initial and continuing patrols of closures are required in order to remove pre-existing people from the area, to prevent subsequent entries by other, and to determine if closure is still required.

E. Patrols and Tests

1. Patrols to Clear and Enforce Closures

The purpose of this type of patrol is only the initial removal of pre-existing people from a newly established closure and to prevent entry into the area after it has been closed. District Rangers may designate employees to carry out these patrols. The objective of this type of patrol is not to "test" bears encountered for threatening behavior. That type of testing will only be conducted by a team which is qualified, has prior authorization, and uses the procedures discussed in the following sections. Firearms generally will not be carried during these patrols.

2. Patrols to Identify Bears with Unacceptable Behavior Patterns.

a. General Guidelines

These type of patrols will be conducted only in relation to a specific incident. The decision to initiate them will be made jointly by the District Ranger and the Resource Management Ranger. They should utilize the highest qualified personnel available and will include a member of resource management staff or bear research team and a member of the district protection staff.

The purpose of the patrols will be to attempt to determine the level of interest a bear has in obtaining unnatural food and how much respect and wariness it has for people. These characteristics will then be used to determine which of the behavior patterns described in section 3.2.1 is present and what further management actions are allowed. These patrols will test for the same type of unacceptable behavior exhibited in the incident.

An animal probably fits the behavior description in section 3.2.1 H if it returns after at least two attempts during one of these tests to scare it off and other supporting evidence such as an interest and familiarity with unnatural food sources is also observed. If there is uncertainty, the animal should be assigned to section 3.2.1 G until more tests can be tried to clarify the animals behavior.

The judgement that an animal is exhibiting the behavior described in section 3.2.1 I is serious and requires that this behavior pattern be observed three times during these types of tests and that there is a supporting history that this type of violent incident and behavior has occurred before.

The team may make decisions in the field based on information they collect, but these decisions will be based on the guidelines in this plan. All appropriate parties will be contacted as required by these guidelines before each additional management action such as marking, the use of plastic slugs, immobilization, destruction, etc. is initiated. Firearms may be carried by qualified individuals. (section 3.2.4 F) Test will be conducted in closed areas or with close crowd control.

b. Specific Test Procedures

- (1) A test for bears frequenting developed areas.

The incident area will be patrolled, at least during the general hours that the incident occurred. Personnel who are not qualified to take further management actions such as marking, aversive conditioning, capture etc. may be used on stake-outs and patrols. They will keep any bear in view which exhibits behavior of the animal involved in the incident, monitor situation, and notify District Ranger and Dispatch so more qualified personnel can be sent. Prior to and during these patrols or stake-outs, the area should be checked and cleared of unsecured, unnatural food so that any bear which does enter area will not obtain any further "rewards." No baits of food or garbage will be used which might lure another unsuspecting bear into area. Bears which enter the area will be closely followed and observed. Behaviors as outlined in section 3.2.1 F & H can be identified by this procedure.

More confrontational types of tests may be necessary if there is some indication that the animal contacted is more threatening than described in those sections because of the pattern of incidents that has precipitated the patrol and the bear's observed behavior. See section 3.2.4 E 2 c for these procedures.

- (2) A test for bears which actively seek out or identify backcountry camps as sources of unnatural food.

A camp will be set up by the team in the area of the incident as soon as possible after the incident. The team will follow typical behavior of a camping party; preparing meals at normal times, use standard backpackers food, store food in sealed plastic bags, etc. The major exception will be that they will remain in tent as much as possible and especially if there is a bear near the area. During daylight hours, a third person will be stationed at a view point, in radio contact with the people in the tent to watch for approaching bears that are not visible to the people at the camp

- (3) A test for bears which approach, threaten or follow people.
The team will enter the area and approach bears. However, bears will be openly approached only until they are definitely aware of the team. The team should try to keep this distance as large as possible by taking advantage of wind and terrain. The objective

of this test is to determine abnormally threatening bears, not to elicit normal defense or dominance related reactions. Initial approaches of less than 50 meters should never be necessary in backcountry situations. Closer approaches may be necessary in the frontcountry, but the team will always try to keep this distance as large as possible too. The team will remain in this identifiable position for 10 minutes. The team will attempt to scare the bear away by yelling or throwing rocks if it approaches them.

In frontcountry situations, if the bear does not approach (or approaches and is scared away) but remains in the developed area, the team will try to scare the bear completely out of the area by yelling and throwing rocks. If the opportunity presents itself, the team will try to scare the bear away from any unnatural food sources it is investigating using the same techniques.

In the backcountry, a bear will be left alone if its reactions are neutral or it moves off. Yelling and throwing rocks will only be used to scare away those bears which approach. The team should continue to monitor bears which were initially neutral or moved away to see if they follow as the team leaves the area. Attempts to scare it away will be made using the same techniques if it turns out that one of these types of animals follows them.

In all situations, at least two and preferably three attempts to scare the bear away will be tried before making any judgements on the type of behavior the bear is exhibiting. Then if it persists in approaching, following or remaining in the area, further action may be taken if authorized.

No attractants, such as open food or poorly packed food, will be used by the team.

F. Firearm Use for Management Actions

Rifles of 30 caliber or larger or 12 gauge shotguns with slugs will be the primary back-up weapons for any marking, capture, aversive conditioning, or destruction actions. The individual with the capture gun may also carry a large caliber pistol (.357 or larger). Only employees who have participated in a park approved firearms training session conducted by a certified firearms instructor and which specifically covers the use of firearms in wildlife management situations may participate in these operations.

District Rangers and the Resource Management Ranger will jointly select individuals for this training as needed.

Backup procedures will be discussed by team members prior to all management action. Situation will vary, but generally the first three rounds loaded into the shotgun magazine (they will be the last three fired) should be slugs. The last two rounds loaded, one in the magazine and one in the chamber, will depend on the type of action planned. One or both could be plastic slugs for aversive conditioning or both slugs for strictly back-up situations. A warning round, fired in front of and slightly to the side of a charging animal, should be used whenever possible.

G. Marking

Bears may be marked as part of approved research projects or resource management actions. At the present time only bears in aversive conditioning experiments or relocations will be marked. The selection of the animals and how they will be marked will be made by the Resource Management Ranger in consultation with the District Ranger and based on section 3.3. Only animals with a demonstrated history of unacceptable behavior will be considered at this time.

Immobilization, radio collaring and ear tagging are the preferred methods for marking. Other techniques, such as dye, paint or streamer marking may be approved on a case-by-case basis by Resource Management Ranger. Marking with paint darts may be done only by individuals with specific training in the use of the capture gun and marking equipment. District Rangers and Resource Management Ranger will select individuals for this training as needed. Shotgun back-up will be used, along with pistol for the darter (if desired). However, marking attempts will be terminated if the bear's behavior indicates a high potential for a charge, but several attempts using different strategies should be made before moving on to other management options.

Any bear that must be handled will have a numbered ear tag placed in the left ear and a lip tattoo on upper left side. Radio collaring for telemetry monitoring of the bear may be done for relocations or for aversive conditioning tests.

H. Immobilization

1. General Authorizations for Capture Equipment and Immobilizing Drugs.

The use of capture equipment and immobilizing drugs will be restricted to only those employees with specialized training and experience in animal restraint techniques

and equipment, and who have been specifically assigned to bear immobilizing actions. The decisions on who will receive this necessary training and authorization will be made jointly by the individual holding drug license, District Rangers, and Resource Management Ranger. Generally, four to five people should be kept qualified in the park. No additional employees should be qualified until the present qualified individuals gain more field experience, since it is difficult to become proficient with the few opportunities we have for handling bears at Denali.

2. Capture and Care

Bears will be captured or immobilized only for approved research or resource management actions. At the present time this means marking or radio collaring bears for aversive conditioning tests and for relocations or destruction. The decision to capture a bear, and the method of capture will be jointly made by the District Ranger, Resource Management Ranger and Chief Ranger, except in the case of immobilization for eventual destruction which then requires the approval of the Superintendent.

Bears may be captured by use of drug injecting dart or culvert type trap. The dart technique is definitely preferred because it is the most discriminating method, but traps may be used when the circumstances of the situation indicate that there is a high probability of capturing a specific animal. Darting attempts will be terminated when bear's behavior indicates a high potential for a charge. Repeated attempts and different strategies will be tried before the immobilization option is completely abandoned, especially for bears which must be destroyed if capture attempts fail. It is the responsibility of the person leading the darting operation to make sure all participants are aware of the exact plan of action for the capture attempt or any of the changes in strategy or objectives which might occur during the course of the operation

All trap sets will be made by personnel who have completed the yearly training session on trap use. Traps will be placed at the edge of developed areas and explicitly signed to warn visitors away from them. Traps will only be set after people have generally stopped circulating around the developed area and will be locked closed again in the morning when people get up. Generally this means between the hours of 2100 and 0700. Any trap set will be accompanied by extra patrols to make people aware of the problem in the area and to check food and garbage handling.

Any animals held in traps will be immediately moved to a site away from public use areas. Visits to a captive animal will be restricted to employees specifically designated by District Ranger or Resource Management Ranger as caretakers for the animal. Bears will not be held longer than 24 hours unless extraordinary circumstances such as a difficult implementation of a helicopter translocation occurs. The Resource Management Ranger is responsible for the sustained care of animals in these situations. Bears in traps requiring immobilization will be drugged with a jab stick/syringe system. Only employees absolutely necessary to this operation will be present and it will be done away from the public. Bears will be transported to the airstrip in an immobilized condition, not drugged at the strip. In general, each drugged bear will be monitored for respiratory difficulties, convulsions, eye reflex, cyanosis, evidence of premature recovery from the drug, and any other potential problems which if undetected, could be hazardous for either the bear or its workers. Whenever practical, one person will stay with the bear during the entire drugging, handling, and relocation process in order to provide continuity in the use of drugs and care of animal. Biological and drug reaction data will be collected from all animals using a standardized field data form (see Appendix B). The bear's recovery from immobilization will be observed until it is functioning normally. Immobilized animals will be handled in a humane and thoughtful manner at all times.

I. Aversive Conditioning

For the purpose of this plan aversive conditioning will be defined as any threatening action toward a bear. It may range from yelling and waving arms to the use of plastic slugs. All use of aversive conditioning techniques will be treated as experiments, requiring complete documentation.

These are potential management techniques which are only being tested for effectiveness at the present time. Generally, these actions will be initiated in a step-wise manner, the least manipulative and complex first. They may only be used to chase a bear from a specific area or in the case of plastic slugs to alter a particular behavior pattern.

1. General Procedure

A few procedures must be followed during any aversive conditioning tests.

- a. Get a good overview of the situation. Does it really demand any action or will it resolve itself acceptably given a little time and monitoring? How

many bears are there, what types? Define your objective again. Have as many facts together as possible before you provoke a confrontation.

- b. Always provide the bear an escape route. Remove spectators from area before initiating any actions.
- c. Apply techniques in a progressive manner, use the minimum tool that will safely accomplish your objective.
- d. Keep good data on identity of animal, actions and reactions, etc.
- e. Interpret reasons for actions to any visitors who do end up viewing events.

2. Specific Techniques

- a. Yelling, loud noises and throwing a few rocks are simple actions which are often effective and should be tried initially if they can be conducted from a safe location and without endangering others. Any NPS employee can do this.

Cracker rounds or fire crackers will only be used if previously described techniques are ineffective or cannot be conducted safely. They will only be used to remove a bear from a specific site, no continued or general harassment is allowed. Only employees who have received specific training in the use of cracker rounds or fire crackers will be allowed to use them.

- b. Conditioning with rubber or plastic slugs is strictly experimental at the present time. All operations will be cleared by the Resource Management Ranger first. Only marked or radio collared animals may be tested. More specific information on the use of this technique is provided in the study plans shown in Appendix F.

J. Relocations

A decision to relocate a bear generally will be warranted if:

- 1. All experimental aversive conditioning techniques have failed to alter a bear's demonstrated, unacceptable behavior and remove it from the area.
- 2. A bear has possibly been involved in a non-defensive or unnatural food related injury or fatality but identification of the animal or behavior is uncertain.

Some further clarification of these general criteria can be found for specific situations in section 3.3. The decision to relocate an animal will be jointly made by the District Ranger, Resource Management Ranger and Chief Ranger.

The Resource Management Ranger will be responsible for selecting a release site in the park or preserve based on maximum distance from capture site, areas of human use, acceptable habitat, and location of previous relocations. Family groups of spring cubs or yearlings will be relocated as a unit, other age classes may be separated. Relocated animals will be radio collared whenever possible and their movements monitored by Resource Management Ranger to determine survival and movements. A helicopter will generally be required to meet these relocation criteria. Two relocation attempts will be made before considering destruction.

K. Destruction

The decision to destroy a bear may be made if it meets any of the following criteria.

1. The bear has been relocated twice and has returned and the previous unacceptable behavior pattern still exists.
2. Repeated capture attempts of an animal designated for relocation because of a demonstrated safety risk have been unsuccessful.
3. An animal is positively responsible for an injury or fatality from a non-defensive or unprovoked attack (after following people, or attack aimed at securing food, or during attack where food was eventually obtained, or where people were attacked in a tent).
4. Animals with the behavior described in section 3.2.1 I and tied to an incident or pattern of incidents involving that behavior.

Attempts will always be made to give a bear designated for destruction to a zoo or other approved public use or research facility before it is destroyed. Except in emergency situations involving a critical and immediate hazard to human safety, the decision to kill a bear will be made by the Superintendent in consultation with Chief Ranger, Resource Management Ranger, District Ranger, and investigating field rangers, and based on a thorough review of the situation, including the individual bears known history and the particular circumstances involved.

The decision to and the act of destroying a bear is contingent upon a positive identification of the individual. Sows with cubs will be destroyed if they meet the above

criteria. Spring cubs accompanying the sow will be destroyed if they cannot be placed in a public zoo. Alaska Fish and Game will be notified about any destructions. In public use areas, bears to be destroyed will, if at all possible, be immobilized, removed from the area, and then euthanized. In areas away from the public, bears to be destroyed may be shot or euthanized directly. Bears removed from the population may be used for research or interpretive programs or given to museums or universities for processing as scientific specimens. When these outlets are unavailable, dead bears will be returned to the ecosystems in locations approved by Resource Management Ranger or buried in the fenced garbage holding area on Highway 3. Bears destroyed and left in the backcountry will have a closure in force around the carcass until it is consumed.

3.2.5 Management Definitions

The following definitions are utilized in reporting bear/human interactions:

- A. Human/Bear Interaction - Encounters and incidents. Does not include mere sightings.
- B. Bear Injury - Any instance where the bear made physical contact with a human and an injury, however slight, resulted, or in those few cases (only 1 to date) where the human was injured escaping from the bear.
- C. Bear Incident - Any situation where the bear made minimal physical contact with the human and no injury resulted (e.g. walking on a human in a tent, touching a human with a paw), where damage or loss was caused to any type of personal or government property or food, where any serious appearing charge to within close proximity to the human occurred, or where the person took extreme evasive action (climbing a tree, playing dead) in response to the bear, whether or not such evasive action seemed entirely justified.
- D. Bear Encounter - Any situation of close enough proximity between bears and humans that the bear clearly knew of the human presence. This category includes all recorded cases of the bear advancing upon humans where no serious charge, property damage, or physical contact resulted (i.e., curious approaches, distant bluff charges), where the bear moved off, or where the bear showed no reaction in cases where it clearly "should have" responded to the people either due to close proximity or because the humans were yelling at it or whatever; i.e., a "neutral response."
- E. Management Action - Any use of physical force on a bear--destruction, relocation or aversive conditioning--or closure of an area or backcountry unit.

3.3 Field Guidelines

- A. Repeated Observations of Bear(s) In One Location
 - document (section 3.2.3 C)
 - patrol ranger may check area for carcass, prime berry patch, etc. which might warrant a temporary closure
 - contact District Ranger, Resource Management Ranger if it appears closure (section 3.2.4 D) might be needed and Dispatch if closure is implemented
 - remove closure when hazard gone
 - B. Bear Observed Within 1/4 mile of Developed Area
 - document observations (section 3.2.3 C)
 - notify appropriate parties (section 3.2.3 B)
 - be especially alert for food and sanitation problems during routine patrols of nearby developed area, talk to area users
 - initiate monitoring (section 3.2.4 C) if developed area is Eielson Visitor Center or if animal seems to be travelling toward a developed area
 - C. Bear In Developed Area
 - notify appropriate parties (section 3.2.3 B)
 - document initial report or observation (section 3.2.3.C)
 - monitor bears' activities (section 3.2.4 C)
1. Initial Visit
 - initiate aversive conditioning (section 3.2.4 I) (all but plastic slugs only)
 - post "bear in area" signs in campground (see Appendix B)
 - District Ranger will initiate extra patrols to contact visitors and control unattended food and garbage.
 - District Ranger requests Interpretive Division to mention situation in walks and talks.
 - if campground, District Ranger will request that Riley Creek Visitor center give additional warning to campers getting permits for that area.
 - continue to monitor (section 3.2.4 C) bear's activities and behavior patterns when it appears, conditioning
 - document all phases (section 3.2.3 C)
 2. Repeat Visit, Same Bear and section 3.3.C.1 above has not worked
 - a. Initial Closure
 - consider closure (section 3.2.4 D) option, especially for small campgrounds, to give bear a chance to naturally move out of area
 - maintain for 5 days, patrol developed area for presence of bear only
 - no bear after 5 days, open area
 - document all actions (section 3.2.3 C)
 - if bear still frequenting area, reconsider extending closure or 2b below

- o. If no closure, then use full aversive conditioning (section 3.2.4 I)
 - if aversive conditioning fails, then relocate (section 3.2.4 J)
 - document all phases (section 3.2.3 C)
- D. People On Road Without Vehicle Near Bear or People Walking Along Road toward an Area Where a Bear is Close to Road.
 - provide information about current situation and bears in general
 - offer transportation out of area
 - if bear very close, in brush near road where not easily visible then monitor (section 3.2.4 C) situation if possible, or remove people from area
 - if intentionally approaching bear (see section 3.2.1 for a guideline of harassment and disturbance), consider written warnings, citations, etc. (See 36CFR 2.2 (a)(2))
 - document all phases (section 3.2.3 C)
- E. Several Private Vehicles Stopped, Observing Bear.
 - provide information about bears and safety around bear. Stress problems if bears obtain unnatural food and the effects of traffic on wildlife
 - if time permits, monitor (section 3.2.4 C) situation, especially in spring or fall when private vehicles are allowed to drive road and NPS and shuttle bus traffic is light
 - encourage people to move on after reasonable look at animal
 - document on approved forms (section 3.2.3 C) or in patrol log
 - District Ranger should consider stationing out of uniform patrol ranger at groups of photographers. These groups have been the source of problems in the past
- F. Dead Animal
 - notify (section 3.2.3 B)
 - document initial report or observation (section 3.2.3 C)
 - conduct initial investigation (section 3.2.4 A)
 - inform visitors center staff and bus drivers so that visitor entering area can be informed.
- 1. No bear on carcass
 - a. If in area where closure won't be effective, within 300 meters of developed site, in general area enclosed by hotel, Riley Creek Campground, Morino Campground, or within 50 meters of Highway 3, or along Alaska Railroad
 - attempt to move carcass to an area with fewer people or where people can be more easily controlled by

closures or patrols and where scavenging won't be vulnerable to traffic

- District Ranger in consultation with Resource Management Ranger will decide relocation site.
- close relocation area if necessary (section 3.2.4 D)
- open when carcass consumed
- document all phases (section 3.2.3 C)

b. If within 100 meters of backcountry trail or within 1/2 mile of park road on a constricted, regular travel route

- close area at access points and around carcass (section 3.2.4 D)
- patrol area to see if consumed
- open when consumed
- document all phases (section 3.2.3 C)

c. If in backcountry further than 1/2 mile off road and not within 100 meters of trail or common route

- District Ranger will request that people issuing backcountry permits or contacting day hikers inform these parties of the location of the carcass
- discontinue this process when patrol shows carcass is consumed
- document all phases (section 3.2.3 C)

2. Bear on Carcass

a. In frontcountry, along road, view points, starts for travel routes, within 300meters of developed site, or in area enclosed by hotel, Riley Creek Campground and Morino area

- notify (section 3.2.3 B)
- close (section 3.2.4 D) as is necessary to keep people out of hazardous area
- patrol regularly to make sure people not in area
- open when carcass consumed, and bear out of area
- document all phases (section 3.2.3 C)

b. Backcountry

- See section 3.3.f.1.b and c above

G. Single Interaction, No Injury, No Food Obtained

- if person or other people still near bear, get them separated in least disturbing, provoking manner
- conduct initial investigation (section 3.2.4 A) for causes of incident
- monitor situation (section 3.2.4 C)
- notify (section 3.2.3 B)
- document initial phases of incident (section 3.2.3 C)

1. If interaction resulted from intentional or unintentional harassment (section 3.2.1 D)
 - give bear information to correct person's lack of knowledge about bears
 - consider citation, written warnings, etc.
 - no management action toward bear
 - consider one week closure (section 3.2.4 D) for incidents
 - document all phases (section 3.2.3 C)
 2. If interaction resulted from surprise encounter, (section 3.2.1 A), dominance interaction (section 3.2.1 C), people wrongly perceived as prey (section 3.2.1 D), natural inquisitive approach (section 3.2.1 B), or close range tolerance (section 3.2.1 G) then:
 - give bear information to correct any lack of knowledge
 - no management action toward bear
 - consider one week closure (section 3.2.4 D) for incidents
 - document all phases (section 3.2.3 C)
 3. If threatening, unprovoked charge or persistent following that could not be discouraged or possible interest in unnatural food (sections 3.2.1 F,H,I,J)
 - close for one week (section 3.2.4 D)
 - consider using section 3.3 H
- H. Pattern of Charges, Persons Being Followed or Bear Hangs Around Backcountry Camp, or Developed Area and Can't be Scared Off, No Injuries or Food Obtained
- conduct thorough review of all interactions. In particular the motivations for bear's behavior and the possibility that problems in area are related to one animal. If District Ranger and Resource Management Ranger feel a bear represents an unusual threat to visitor safety then:
 1. Patrol procedure (section 3.2.4E) identifies bear with unacceptable behavior described in sections 3.2.1 F, H
 - mark (section 3.2.4 H)
 - test aversive conditioning if unsuccessful, then relocate (section 3.2.4 J)
 2. Patrol procedure (section 3.2.4 E) identifies bear with unacceptable behavior described in section 3.2.1 I or relocation (section 3.2.4 J) unsuccessful
 - consider destruction (section 3.2.4 K)
 - open area when aversive conditioning, relocation, or destruction is completed or if no bear contacted with above behavior patterns after 3 patrols of 3 days/nights each
- I. Bear Obtains Unnatural Food

- conduct initial investigation (section 3.2.4 A) to determine type of incident
- notify (section 3.2.3 B)
- start initial response procedures (section 3.2.4 B)
- document (section 3.2.3 C)
- give information to correct any lack of knowledge about bears
- consider how food and garbage handling practices affected incident when selecting management options

1. In Backcountry

- close area (section 3.2.4 D)
- patrol to clear area (section 3.2.4 E)
- a. If charge or after being followed (packs dropped etc.)
 - (1) if pattern of charges and following exists in area, consider section 3.3 H
 - (2) if no pattern or can't definitely say bear's behavior was specifically directed toward obtaining food from people, then open area after 5 days closure
 - document all phases (section 3.2.3 C)
- b. Food obtained while being prepared, or eaten, or associated with a backcountry camp
 - (1) use section 3.3 H
 - (2) if no pattern, some uncertainty if food was the objective, or if test patrol unsuccessful
 - open after 5 days
 - document all phases (section 3.2.3 C)

2. In Frontcountry

- correct any food or garbage handling problems
- go to section 3.3 C but use full aversive conditioning (section 3.2.4 I) and initiate test patrol (section 3.2.4 E) if necessary to help identify responsible bear

J. Injury or Fatality

1. From defensive or provoked attack or behavior uncertain (section 3.2.1 A-E)
 - separate bear and people, monitor (section 3.2.4 C), especially keep bear in view
 - notify (section 3.2.3 B)
 - close area (section 3.2.4 D)

- initial response procedures (section 3.2.4 B)
 - consider citation, provide information how incident could have been avoided
 - document (section 3.2.3 C)
- a. Bear still in immediate area of incident, identification positive
 - try to continue to observe animal for 3 days, closing areas that it enters to prevent contact with people
 - if some uncertainty about behavior, after this "cooling off" period of 3 days then test patrols (section 3.2.4 E) may be conducted to determine if there is a bear present that is really any unusual threat to people or if incident was just a one time occurrence.
 - see section 3.3 H if test patrol procedure locates bear with behavior described in sections 3.2.1 F,H,I,J
 - if this results in a relocation, patrols should be conducted for an additional 3 days to make certain the right bear was found initially
 - if no patrol felt to be necessary or patrol results show no unacceptable behavior then open areas. If test patrols are used, they should be conducted for 3 days following initial "cooling off" period
 - b. Bear not in area, identification uncertain
 - after 3 day "cooling off" period and closures around areas where animal is suspected to be then follow procedures in a. above
2. From non-defensive, unprovoked attack, attack aimed at securing food, during attack where food was eventually obtained, or behavior described in section 3.2.1 F-J positively present
 - a. Bear still in immediate area of incident behavior and identification positive
 - destroy (section 3.2.4 K)
 - if any doubt about identification or the behavior of the bear, relocate (section 3.2.4 K) and see c below
 - open area when action completed
 - b. Bear not in area
 - initiate test patrol procedures (section 3.2.4 E)
 - if tests locate a bear with behavior as described in section 3.2.1 I then destroy (section 3.2.4 K)
 - if tests locate a bear but identification uncertain and behavior not as severe as described in section 3.2.1 I then relocate (section 3.2.4 J) and see c. below
 - open area when situation resolved or when 5 days of

test patrols have been conducted without contacting a bear with unacceptable behavior

- c. Bear contacted in situation a. or b. was only relocated
 - if bear originally contacted was only relocated, continue test patrols with one team for an additional 3 days and nights after the relocation to help determine if correct animal was moved
 - if another animal is contacted during these additional patrols then see section 3.3 J 2b
 - open area if no bear contacted which meets description and behavior in section 3.2.1 F-J after this additional patrol period.

4.0 Research and Evaluation

The objective of this program element is to improve the factual basis of the Bear/human Conflict Management Program through new research and the continual monitoring and evaluation of current policies and programs.

4.1 Research

Current research funds will be concentrated on testing the design and public acceptance of bear resistant food containers for backpackers, and developing and testing behavior modification techniques on problem bears. Study plans for each of these topics are presented in Appendix F. The Resource Management Ranger will coordinate the implementation of these projects. Future research needs are identified in the Denali Natural Resource Management Plan.

4.2 Evaluation of Bear/human Conflict Management Program

The Resource Management Ranger will evaluate the Bear/human Conflict Management Program annually and document inadequacies. The assistance of bear biologists or others is desirable in the annual review. Appendix B shows the minimum type of field data that will be collected and used in this review. Resource Management Ranger is responsible for any summaries or progress reports from these data with the exception that the Park's Drug Practitioner will prepare summaries of drug usage. The yearly review will include the accuracy and adequacy of written and verbal information given to the public, the adequacy of current data gathering systems, the use, location and content of signs, adequacy of the park and surrounding area's garbage and food storage procedures, evaluation of the program enforcement procedures, adequacy of staff and budget for implementing this plan, and general assessment of any other situations which are contributing to bear/human conflicts. Research findings will be annually evaluated for possible incorporation into policy and programs and in order to identify future research needs.

4.3 Review and Revisions of Bear/human Conflict Management Action Plan

This plan will be reviewed and revised annually. Proposed changes should be submitted to the Resource Management Ranger January 1. He will compile the suggestions and circulate them for comment. If the Resource Management Ranger determines that a proposed revision should be adopted, then the plan will be sent to the Superintendent with the recommended changes identified. This process will be completed by April 1. A staff meeting will also be held to clarify final revisions and emphasize duties and changes for the coming year.

APPENDIX A

SUMMARY OF INDIVIDUAL RESPONSIBILITIES

SUPERINTENDENT

1. Responsible for the Bear/human Conflict Management Plan.
2. Approves/disapproves the destruction of problem bears after consultation with Resource Management Ranger, Chief Ranger, District Ranger and investigating field ranger.
3. Approves/disapproves revisions to the Bear/human Conflict Management Plan.

MANAGEMENT ASSISTANT

1. Adds an immediate addendum to current agreement with Outdoor World, Inc. which requires bear proof facilities and handling practices for all garbage in the hotel, store and concession residence areas. Insures that the concessioner immediately complies with these requirements (section 2.2.2).
2. Incorporates requirements for bear proof food and garbage handling practices into all new and existing special use permits, licenses, concession contracts as outlined in section 1.2.7, 1.2.8 and 2.3.
3. Informs inholders, subsistence users and nearby neighbors of state and federal regulations relating to food and garbage handling as described in section 1.2.7 and 1.2.8 (public notice and letters).
4. Organizes training sessions on prevention of bear/human conflicts for NPS and concession employees and bus drivers at beginning of each season as outlined in section 1.3.

PROTECTION DIVISION

1. Chief Ranger
 - a) Makes cooperative decision with Resource Management Ranger, District Ranger and investigating field ranger on the need for relocation or destruction of a bear.
 - b) Approves/disapproves recommendations for closure of developed sites.
2. District Ranger
 - a) Supervises patrol rangers and insures they adequately accomplish their specific responsibilities as outlined in this plan.
 - b) Initiates recommendations for temporary bear/human conflict related closures and notifies Dispatch when closures are established or lifted.
 - c) Makes recommendations and participates in decisions for relocations or destruction of bears.
 - d) Responsible for maintenance and acquisition of immobilization and capture equipment.

- e) Directs the enforcement of bear management regulations (see sections 2.2.3,2.3). Contacts state enforcement agencies when food or garbage handling problems occur in areas under state jurisdiction.
 - f) One of the primary participants in bear management actions.
 - g) Responsible for posting closure signs and other special bear related notices.
 - h) Contact State Department of Environmental Conservation to determine if local businesses have current permits and have been inspected recently (section 2.1.2).
3. Resource Management Ranger
- a) Develops and revises the bear/human conflict management plan.
 - b) Coordinates and annually evaluates the bear/human conflict management program.
 - c) Monitors impacts of management programs on bear populations.
 - d) Tests new methods of managing bear/human conflicts before they are made operational.
 - e) Makes recommendations and participates in decisions for relocation or destruction of bears.
 - f) Decides on release sites for bears designated for relocations.
 - g) Coordinates bear research in the park.
 - h) Supervises BIMS and other bear management/research records.
 - i) Cooperates with district rangers on maintenance and acquisition of immobilization and capture equipment.
 - j) One of the primary participants in bear management actions.
 - k) Prepare summaries and written reports of park's bear/human conflict management activities for the park, regional office and other agencies and organizations as necessary.
 - l) Makes presentations at training sessions.
4. Drug Practitioner
- a) Purchases, maintains inventories and distributes drugs to field areas.
 - b) Prepares monthly and annual drug use reports.
 - c) Coordinates and teaches annual bear management and handling training sessions.
5. Patrol Rangers
- a) At every opportunity, advises visitors of proper food storage procedures and appropriate behavior when near bears. Enforces pertinent regulations as necessary.
 - b) Alert for developing sanitation problems such as faulty garbage storage equipment, overflowing garbage cans, litter, etc. Makes emergency corrections, verbally reports and then documents in writing these problems for immediate, permanent correction.
 - c) Accurately records BIMS information and immediately passes it on to supervisor.

- d) Patrols campgrounds at least each evening in order to inform visitors of proper food and garbage handling procedures.
 - e) Patrols NPS and concession residence and recreation areas once a day to make sure that food or garbage is not left out on porches or picnic areas.
 - f) Patrols all Outdoor World Ltd. garbage facilities; once during the day and once in the late evening after 11 PM, making sure dumpsters are closed, no garbage or litter is accumulating in the area, and all garbage containers are of a bearproof design approved by the park. Documents both compliance and non-compliance with standards on approved forms or in daily patrol logs..
 - g) Patrols park's garbage holding facility off Highway 3 at least three times a week, making sure gate is locked, electric fence activated, holding tank doors closed, and no loose garbage or litter is accumulating in the area.
 - h) Conducts aerial and regular foot patrols of hotel, train station and Riley Creek area for illegal summer camps.
 - i) Alert for improper food and garbage handling practices by nearby neighbors, permittees, business license holders and subsistence users, and other concession operations.
 - j) Documents all non-compliance found during patrols in writing to supervisor.
 - k) Posts and enforces temporary closures at supervisors direction.
 - l) Immediately informs District Ranger and Dispatch of all bear incidents and bears seen in developed areas.
6. Backcountry Desk Staff
- a) Hand out to all hikers the "Alpenglow" and strongly recommends they read bear article. Also suggest they view slide program on backcountry safety.
 - b) Provide verbal warning about bears and information on proper food and garbage handling to all persons receiving a permit. Document this warning by writing "bears" on permit (see Appendix C).
 - c) Distribute bear resistant food containers to backpackers and keep accurate records of distribution and use.
7. Dispatch
- a) Keeps opening/closing log (Appendix B).
 - b) Immediately informs Chief Ranger, District Ranger and Resource Management Ranger when an incident is reported.
 - c) Immediately informs all parties mentioned in (b) plus Riley Creek and Eielson Visitor Centers of closures and lifting of closures of areas where incidents have occurred and of developed areas where bears have been seen. Also includes this information in morning reports.
8. Campground Permit Desk Staff
- a) Tells campers when they are given permit not to leave food unattended at anytime, to store in their vehicle, or to use bear proof food locker at campground if they do not have a vehicle.

MAINTENANCE DIVISION

1. Chief of Maintenance

- a) Maintains park garbage system in a bear proof condition at all times. Any inadequacies or system failures are considered health/safety problems and consequently will receive immediate, priority consideration in the work program.
- b) Allocates additional regular funding for a program of container cleaning, maintenance and cyclic replacement.
- c) See that electric fence at garbage holding facility on Highway 3 is activated and regularly tested from April 1 to November 1.
- d) Provides regular litter patrols along roads, around developed areas and areas where people congregate and other patrols as necessary (See 2.2.2).

2. Garbage Collectors and Caretakers

- a) Check cans in all visitor use areas daily and housing three times a week, empty if half full, replace with clean plastic liner.
- b) Make sure bear proof can top is correctly seated on top of can.
- c) Pick up any litter seen, including along roads, in turnouts, accumulating around garbage cans or any other area. Eielson caretaker specifically will patrol porches and picnic areas around V.C. for small food scraps and litter at least 3 times a day. Toklat caretakers will pick up around Stoney, Toklat and Polycrome rest areas daily. Teklanika caretakers will pick up around the Teklanika rest stop.
- d) Close and fasten the doors to holding tank in the Highway 3 facility, the gate to the facility and activate the electric fence whenever area is used.
- e) Immediately report such things as faulty containers, containers needing cleaning or oversights in our current garbage handling system, which could minimize its effectiveness in preventing bear/human conflicts.

INTERPRETIVE DIVISION

1. General

- a) Informs the park's visitors of the bear situation at evening programs, visitor centers, on guided walks and during informal public contacts.
- b) Prepares books, pamphlets and other materials on bears and ways to minimize human/bear conflicts.
- c) Maintains adequate supplies of Alpenglou at locations specified in Section 1.2.2.
- d) Responsible for initial posting and maintenance of bulletin boards.

2. Field Staff

- a) Includes comments on potential for bear/human conflicts and recommended personal practices which will help minimize these conflicts in all public programs and guided walks.
- b) Include in introductory remarks a discussion of what groups action will be should they encounter a bear during guided walks.
- c) Spend a few minutes talking about bears if a program is cancelled due to bear activity in an area.
- d) Talk with people about food and garbage handling practices during pre-program walks around campground.
- e) Stress backcountry bear safety and use of Morino Campground food lockers during talks at Morino campground.
- f) Eielson Visitor Center staff will record all bear observations within a 1/4 mile area of Visitor Center.

BUS DRIVERS

1. General

- a) Mention the Alpenglow bear article, current closures and not to feed animals especially squirrels at Eielson Visitor Center in initial message to passengers.
- b) Use Alpenglow bear article as reference when answering questions.
- c) Mention again to visitors immediately before disembarking at Eielson Visitor center not to feed squirrels and gulls.
- d) Get people who have been involved in an interaction with a bear in contact with NPS staff.
- e) Don't let people off near a bear which is close to the road.

OTHER RESPONSIBILITIES

1. General

- a) All supervisors will ensure their employees (concession and park) are aware of the parks bear management objectives and the methods being used to achieve those objectives.
- b) All employees are responsible for correcting deficiencies as they become aware of them or to call them to the immediate attention of someone who can correct them. If informal communication does not result in prompt correction, the recommended action or statement of problem will be given to a higher level supervisor and the Resource Management Ranger.
- c) All park divisions and functions will coordinate their respective bear management needs through the Resource Management Ranger.

APPENDIX B

Documentation

Forms

Form Guidelines

1. Interviewing Suggestions

Try to obtain the following information and use the forms and guidelines outlined in this appendix section when you are interviewing a person who has been involved in an interaction with a bear.

Use a BIMS form as an outline for your interview, most of the important information is there.

Get as exact a location of the interaction as possible. Really question the person about details, i.e., how long did it take to walk to the site, landscape features in the immediate area, points that the site might be visible from. Remember, question the person from the perspective that someone may have to go out and find that exact spot again. Be alert for inconsistencies in time, distance and topography. People unfamiliar with the area are often very confused about exact locations, so clarify this with lots of questions from different angles. Work with a map and your knowledge of the area.

Get a good description of all the actions and reactions that took place before, during and after the interaction. Stress times, distance, physical setting, vegetation, wind direction, etc. in your questioning.

What is the current situation, i.e., when people left camp, bear was still area, dropped pack is still in backcountry, tent and food still at site, etc.

Was food obtained by bear? How was it stored? Be specific.

Who was involved? Get addresses, but also try to find out where people involved in the incident might be staying in the next few days and how we could re-contact them.

What type of prior information from the park did the people involved receive about bears? Were they given verbal and written information, did they see signs, were they warned by bus drivers, etc.?

Covering these points completely in conjunction with a BIMS form should provide the critical initial information required for determining what management responses might be necessary.

BIMS INSTRUCTIONS

- Carry a few BIMS forms at all times.
- Fill in all sections, except those marked "ignore".
- Use BIMS for all:
 - 1.- Bear/people interactions when people are on foot and bear is aware of people, even if it doesn't show any reaction to the people.
 - 2.- Property damage, injury, food and garbage incidents, including a bear unsuccessfully trying to get into a garbage can or vehicle.
 - 3.- Observation of bears seen within 4km (1/4 mile) of developed areas (campgrounds, visitor center, building complexes).
 - 4.- Bear related control actions, such as closures and openings, posted advisories (like warning people that bears have been seen on a particular trail or near a campground), and patrols for bear management purposes.
- Sightings from vehicles but not within .4km of developed area or not acting threatening do not have to be reported on BIMS. Sightings elsewhere while on foot also don't have to be on BIMS if bear was not apparently aware of the people (see 1 above). Sightings can be made on index or natural history cards, especially if the sighting is unusual, such as predation activity, sow with cubs of the year, several bears seen in one area on one day etc.
- An Incident is when a bear causes injury, damage or behaves so that people feel threatened, such as if a bear approaches even if only curious. Incidents also include people acting illegally toward bears, such as harassing a bear that has not threatened them. Also cases of people acting without prudence are incidents, such as following a bear or trying to approach closely so that the bear is pushed away from what it was doing, or otherwise is disturbed.
- Do a separate BIMS for each separate activity (each incident, observation or control). For example, if a bear damages 2 tents in a campground in one night, two separate BIMS should be done.
- Controls - use the same incident number for all controls related to a particular bear as the original incident number used.
- Give BIMS to supervisor promptly.

"BIMS"

EXAMPLE

M-1 (B1)

BEAR INFORMATION MANAGEMENT SY.

- DENALI NATIONAL PARK AND RESERVE

Year (This year) Reference previous Case Incidents #:

Type: (Incident, Control, Observation (circle one))

1.1 Case Incident # Computer # IGNORE

1.2 Report taken by YOUR NAME

1.3 Month 6 / 1.4 Day 12 / 1.5 Time (24 hr.) 2130

(Control Action Release only) / /

UTM Coordinates 1.6 Month 6 / 1.7 Day 12 / 1.8 Time 2130
1.9 EX / 1.10 N IGNORE

Bear's location (circle appropriate)

1.11 Backcountry Unit

1 6 11 16 21 26 31 41
2 7 12 17 22 27 32 42
3 8 13 18 23 28 33 43
4 9 14 19 24 29 34 44
5 10 15 20 25 30 35 45

1.12 Park Road: mile NO DECIMALS

1.13 Highway 3: mile NO DECIMALS

1.14 Developed Areas-Management Area:

24. Riley Creek Cpgd. 30. Igloo Cpgd.
25. Depot/Hotel Area 31. Toklat Road Camp
26. Morino Cpgd. 34. Eielson V.C.
27. C-Camp 32. Wonder Lake Area
28. Headquarters 33. Kantishna Area
29. Savage Cpgd. 40. Off Trail Frontcountry
30. Sanctuary Cpgd. 41. On Trail Frontcountry
31. Teklanika Cpgd. 11. Road/Roadside

1.15 Elevation (nearest 500 feet) 3000

1.16 Vegetation

1. Open tundra 4. Forested
2. Dense brush 3' (-) 5. River bar
3. Dense brush 3' (+) 6. Other

2.0 Location description: 1 mile N of road

+ 1/2 mi. E of SANCTUARY RIVER

3.0 Description (one column per bear, up to 4 bears)

3.1 Species

1 2 3 4 Unknown
1 2 3 4 Black bear
1 2 3 4 Grizzly

3.2 Age

1 2 3 4 Unknown
1 2 3 4 Cub of the year
1 2 3 4 Yearling
1 2 3 4 Sub-adult
1 2 3 4 Adult

3.3 Color

1 2 3 4 Unknown
1 2 3 4 Blonde
1 2 3 4 Lt. Brown
1 2 3 4 Med. Brown
1 2 3 4 Dk. Brown
1 2 3 4 Black
1 2 3 4 Other

3.4 Size

1 2 3 4 Unknown
1 2 3 4 Small
1 2 3 4 Medium
1 2 3 4 Large

3.5 Sex

1 2 3 4 Unknown
1 2 3 4 Male
1 2 3 4 Female

3.6 Estimated weight (nearest 50 lbs.)

300 / 50 /

3.7 Measured weight (nearest 10 lbs.)

/ / /

4.0 Bear Identification

4.1 Name / / /

4.2 Tag # / / /

4.3 Ear tagged

1 2 3 4 Unknown
1 2 3 4 Left
1 2 3 4 Right

5.0 Other identifying marks and description

Cub had very blond
patch under neck

(Key Puncher: INC 6.6-6.10, OBS 6.6-6.10, CON 6.7-6.11)

Bear/Human Behavior (Circle only 1 per cell)

6.6 At first observation the bear was:

1. Not applicable 7. Feeding
2. Feeding on vegetation 8. Feeding
3. Feeding on carcass 9. Feeding
4. Hunting 10. Traveling
5. Digging 11. Other

6.7 The people involved:

1. Not applicable
2. Walked away
3. Ran away
4. Followed the bear
5. Remained in area
6. Photographed bear
7. Harassed bear, explicitly yelled, waved arms
8. Abandoned property
9. Other

6.8 The bear's reaction was:

1. Not applicable (not aware of person)
2. Walked away
3. Ran off
4. Moved off a short distance
5. Ignored person
6. Stopped activity in eastern end
7. Walked toward person
8. Curious about person
9. Curious about property
10. Followed person
11. Charged, bluff
12. Made contact with person
13. Chased person
14. Watched person
15. Other

6.9 Human food eaten by bear?

1. No

2. Yes

0. Unknown

6.10 The people involved were:

1. Dayhiking in backcountry
2. Overnight hiking with permit
3. Overnight hiking without permit
4. Walking on road
5. Driving a vehicle
6. Riding the bus
7. Photographing
8. Camped (either in front or backcountry)
9. Other

NUMERIC ONLY

B-3
USE ONLY ONE OF THESE 4

Only fill out one section. Choose between Incident, Control, or Observation.

INCIDENT

6.1 Incident

1. Visitor service 3. Property damage
 2. Encounter 6. Injury
 14. Bluff charge 11. Fatality

6.2 Law Enforcement Action

1. No action 4. Written warning
 3. Verbal warning 5. Citation

6.3 Offense

1. None 5. Hunting
 8. Harassing 6. Illegal camp
 9. Too close 7. Closed area, entering

6.4 Group size 3 (meters) (at closest)6.5 Distance from people to bear (m) 30
(Key Puncher: Go to Bear/Human Behavior-then return)

7.0 Property Damage

7.1 Type (circle) 7.2 est. of damage

- 11 tent _____
 9 pack _____
 10 foodsack _____
 13 ice chest _____
 14 building _____
 16 motor vehicle _____
 15 towed unit _____
 17 rec. vehicle _____
 18 other _____

7.3 Food (circle)

- 21 Presence unknown
 22 No food present
 24 Food present
 23 Food odor only
 25 Food unguarded
 34 Food abandoned at sight of bear
 35 Food abandoned after bluff
 28 Food hung in tree
 38 Garbage present
 32 Food in vehicle
 33 Other _____

VICTIM/OWNER

8.1 Group Code

(circle)

1. Visitor
 2. Inholder
 3. Concessioner
 4. Contractor
 5. BRS Employee

9.1 Resolution

2. Fine paid 4. Court-conviction
 3. Court-innocent

9.2 Amount of Fine collected _____

9.3 Amount lost in tort claim _____

10.0 Reasons, details, comments (put details below 11.0)

11.0 Prior Information

1. Printed matter 6. Leaf pecker
 3. Sign 8. Band not read
 4. Personal contact 7. Note received
 5. Interpretive program 9. Ignored prior warning

DETAILS: (If 10-343 or 344 was done, attach a copy to this BRS report (very important))

LIMIT TO 50 WORDS

Hiking single file saw
 bears standing looking at
 them. Thompson yelled, bears
 continued watching, people
 then stood quiet. Bears
 moved off to west after
 about 2 minutes.

Hikers had a bell on
 A pack.

8.1 Ted Johnson 23
 Hotel Employee

Mary Smith 22
 213 W 65
 Portland, Or. 94102

CONTROL

6.1 Control Action

- 22 Unsuccessful capture attempt
 23 Capture and release in same location
 24 Capture and release in developed area
 25 Capture and release in backcountry
 37 Capture and release outside park - from
 29 Capture and release outside park - by
 tivity
 30 Killed outside park
 31 Natural death
 33 Illegal kill in park
 34 Accidental management kill
 35 Intentional management destruction

6.2 Relocation site (BC Unit) _____

6.3 Time down _____ 6.4 Time up _____

6.5 Distance relocated (km) _____

6.6 Management Action

- 12 Post hazard warning
 16 Remove hazard warning
 15 Area closed, posted
 17 Area open, posting removed
 8 Other _____

(Key Puncher: Go to Bear/Human Behavior)

7.1 Capture method: 21 Firearm

- 26 Darted tree 27 Sernylan
 24 Trap 29 Other _____

7.2 Dosage (mg) _____

7.3 Time delivered _____

8.0 Case incidents referenced: _____

9.0 Comments (specific release site, conditions before and after handling, measurements): _____

OBSERVATION

6.1 Type

- 42 Track 43 Sighting 44 Other _____

6.2 Observer

- 11 Unknown 16 Contractor
 12 Visitor 17 Local Resident
 15 Concessioner 18 BRS Employee
 14 Bus Driver 20 Other _____

6.3 Bear's distance from observer _____

(Key Puncher: Go to Bear Behavior)

3. Case Incident Reports Relating To Severe

Case incident form #10-343 will be completed for all incidents involving an injury or property damage. The 10-344 can also be used to record additional narrative information for a BIMS report. Copies of all these forms should be attached to the corresponding BIMS forms. Give forms to supervisor promptly.

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

CASE INCIDENT RECORD

1. ORGANIZATION CODE <div style="border: 1px solid black; width: 20px; height: 15px; display: inline-block;"></div>		2. ORGANIZATION (PARK) NAME			3. LOCATION CODE		4. CASE/INCIDENT NO.			
5. LOCATION OF INCIDENT				6. WHEN DID IT OCCUR?	MO.	DAY	YR.	24 HOUR TIME	HRS. MIN.	7. DAY OF WEEK
8. OFFENSE/INCIDENT CODE 4 2 0 0 0 0		9. NATURE OF INCIDENT Bear injury and/or property damage					10. HOW REPORTED			
11. REPORTED BY				12. ADDRESS				13. PHONE { HOME BUSINESS		
14. RECEIVED BY				15. WHEN RECEIVED: DATE		16. TIME BROADCAST		17. WHEN INVESTIGATED DATE TIME		
18. INVESTIGATED BY				19. OFFICER/RANGER NO.		20. WHEN CLEARED DATE TIME		21. DISPOSITION		

22. INVOLVED PERSONS	23. ADDRESS	24. PHONE	25. SEX	26. RACE	27. AGE	28. DATE OF BIRTH
1						
2						
3						
4						

29. DETAILS OF INCIDENT

Narratives should at least include:

1. Description of location of incident
2. Chronology of incident
3. Description of property damage
4. Type of injury sustained
5. Was BIMS filled out and case incident number shown on it?

30. QUANTITY	31. PROPERTY STOLEN OR DAMAGED	32. ESTIMATED VALUE	34. RECOVERED	
			33. DATE	34. VALUE
	specific items damaged			
35. PROPERTY CODE OF HIGHEST VALUE	36. TOTAL		37. TOTAL	
		00		00

INVESTIGATED BY (Signature and Date)

APPROVED BY (Signature and Date)

4. Bear Field Data Form

This form will be completed for all immobilizations. Drug amounts used in unsuccessful attempts should also be recorded on this form so we have a complete record of drug use. Forms will be kept in Resource Management files.

Report completed by: _____ Assisted by: _____ Date completed: _____
 Current tag no. R _____ L _____ Color R: _____ Color L: _____
 Previous tags: R _____ L _____ Date Inst: _____ Tattoo No.: _____
 Date removed: _____ Radio collar No. - Frequency _____
 Streamer: Color R _____ L _____ Streamer symbol: Color _____ Shape _____
 Capture date/time _____ Site _____ Method _____
 Immobil. date/time _____ Drug(s) _____

Injection time/dosage:	Drug:	Location/comments:
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____

Measurements:

Sex _____	Girth _____ cm	Total length _____ cm
Head length _____ cm	Tail _____	Estimated weight _____ lbs
Head circ. _____	Height shoulder _____	Actual weight _____ lbs
Ear notch _____	Hind foot length _____	Estimated age _____
Lactating? _____	Ectoparasites:	Plague sampled _____
Cubs? _____	Lice _____ # _____ sp	Tooth sampled _____
Cub tag nos. _____	Ticks _____ # _____	Hair sampled _____
_____	Eyeworms _____ # _____	Blood sampled _____
_____	Baculum length _____	
_____	Testes (L) _____ (W) _____	
Breast _____	Vulva condition (color) _____	

Distinguishing marks: Blaze _____ Scars _____
 Other _____

Pelage color and condition: _____
 Pelage molt status: Premolt _____ Early molt _____ Midmolt _____ Post molt _____

Behavior/Response to Drug(s):

Time:	Behavior:	Remarks:
1. _____	_____	_____
2. _____	_____	_____
3. _____	_____	_____
4. _____	_____	_____
5. _____	_____	_____
6. _____	_____	_____

Released Site/Location: _____ Date _____ Time _____
 Comments: _____

5. Opening/Closure Log

This log will be kept by the dispatch office at park headquarters. It will be routed to the Resource Management Ranger at the end of September and kept in the Resource Management files.

OPENINGS/CLEARANCES 194

B-10

APPENDIX C

DOCUMENTATION OF WARNINGS

Example of how warnings given to backcountry users are documented on the backcountry permit.

U.S. DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

BACKCOUNTRY USE PERMIT

The visitor must have this permit during the visit.

When signed, this single-visit permit authorizes.

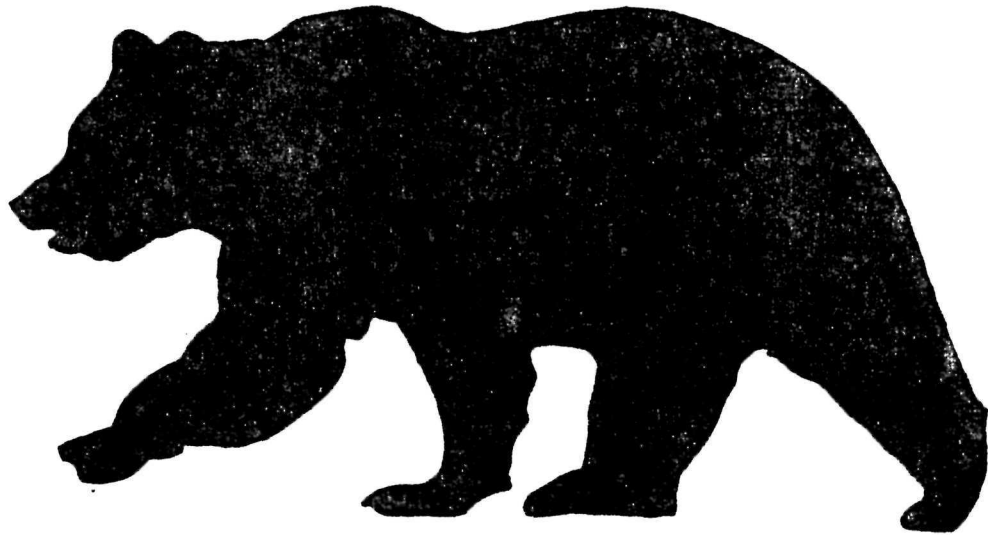
NAME										CAMPSITE NAME										ZONE— SITE		NIGHTS									
ADDRESS																															
CITY																															
To visit										9 8 3 0																					
Give best estimate of start and finish dates										FROM MO/DAY 10 11 12 13 THROUGH MO/DAY 14 15 16 17																					
Location of entry										18 19 20										Warnings:											
Location of exit										21 22 23										Bears											
Primary method of travel										24 25										Rivers											
Number of people in group										26 27										water											
Number of pack or saddle stock										28 29										REMARKS										77 78	
Number of watercraft or other craft										30 31										DATE (VISITOR'S SIGNATURE)											
																				DATE (ISSUING OFFICER'S SIGNATURE)										79 80	

FASTEN THIS TAG TO YOUR PACK, SADDLE, BOAT OR TENT

APPENDIX D

APPROVED SIGNS & NOTICES

1. Notice of food and garbage handling procedures. This message will be used on sign, handout and bulletin boards.



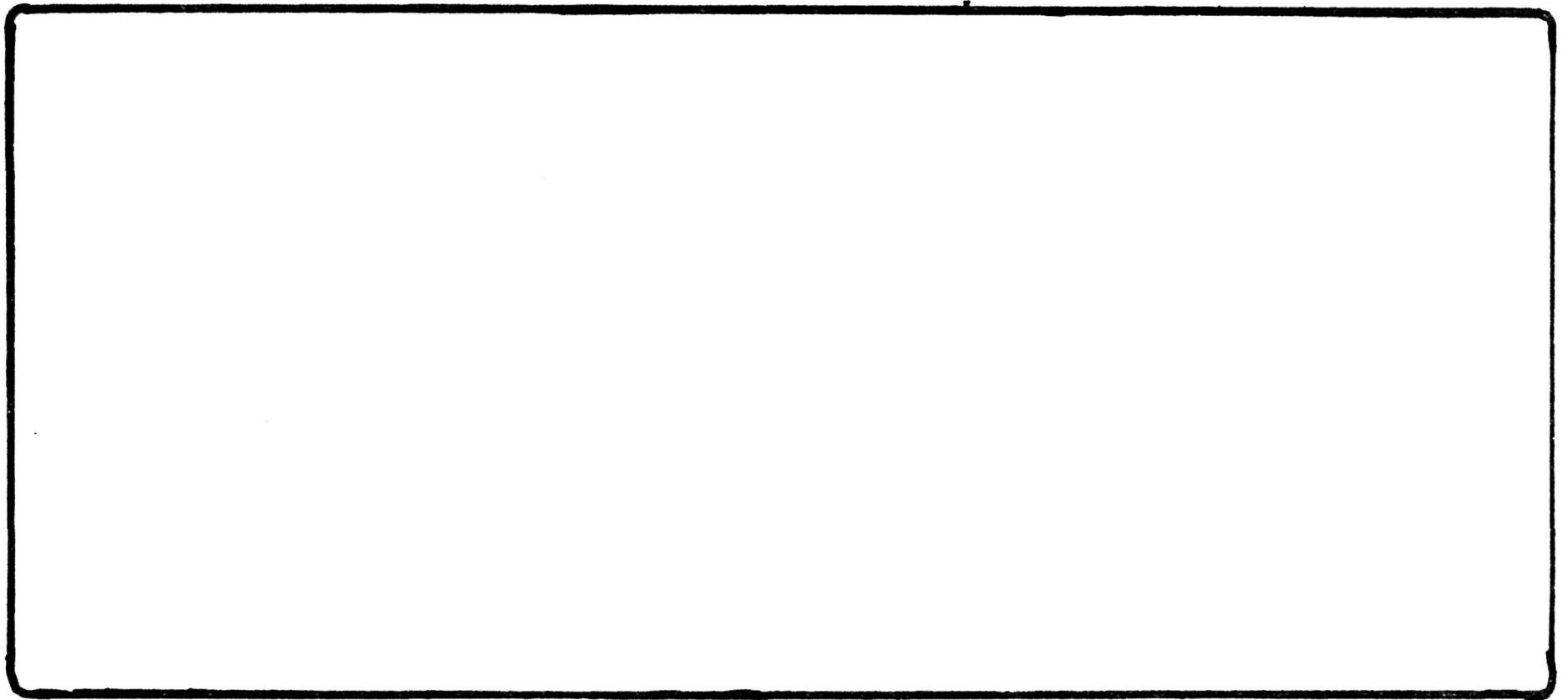
HELP KEEP OUR BEARS OUT OF TROUBLE

BEARS ARE FREQUENTLY PRESENT IN AND AROUND THIS CAMPGROUND. IF THESE ANIMALS OBTAIN HUMAN FOOD, THEY MAY HAVE TO BE DESTROYED. PLEASE HELP KEEP THESE BEARS OUT OF TROUBLE BY DISPOSING OF ALL GARBAGE IN NEARBY CANS AND MAKING AN EXTRA EFFORT TO STORE YOUR FOOD IN THE BEAR PROOF FOOD LOCKER (SEE MAP BELOW). UNATTENDED FOOD IS AN INVITATION FOR BEAR PROBLEMS AND IS PUNISHABLE BY A FINE. . THANK YOU.

2. All Purpose Warning Sign

Use for special cases where other signs or notices are not appropriate. Written addition section must be approved by District Ranger.

WARNING



NATIONAL PARK SERVICE

3. Area Closure Sign

Use for all closures. Post as directed by field Guidelines, Section 3.3.

DANGER

AREA CLOSED

HAZARDOUS BEAR ACTIVITY

NATIONAL PARK SERVICE

(16" x 20" red and black letters)

APPENDIX E

Natural Resource Project Statement -
Bear/Human Conflict Management
(from natural resource management
plan for Denali National Park)

1 Statement of Issue or Problem

With an increase in backcountry use in Denali there has been an increase in bear-human conflicts. Although no fatalities have occurred and injuries are few, the number of property damage and other incidents appears to indicate some bears are intentionally approaching people. The natural behavior of bears may be changing due to increasing human use of bear habitat. Human safety and natural bear behavior and populations may be increasingly endangered. Denali has the highest backcountry grizzly-human conflict rate in the national park system.

1.1 Present Condition

1.1.1 Denali Wilderness - Information on the biology, ecology and status of grizzly bears in Denali is found in Sheldon (1930), Dixon (1938), Murie (1944, 1961, 1981), Dean (1976), Tracy (1977) and Stelmock (1981). Although no attempt at a population census has been made, there is no evidence to suggest numbers are significantly decreasing due to human influence. Based on how commonly grizzly bears have been seen along the park road and in the backcountry over the years they are probably at natural levels, other than, since 1946, for 26 removed from the area by management relocations, destruction and poaching (National Park Service 1981b). There is no evidence of poaching in recent years.

Dean (1976) estimated minimum grizzly densities between 24 to 38 km² per bear for much of the eastern portion of the Denali Wilderness. Black bears generally occupy forested habitat and thus are not observed as readily as grizzlies in Denali where much human use takes place in nonforested areas. Little is known about numbers and distribution of black bears but they are seldom seen and conflicts with them are very rare.

Concern is increasing for the ability of the park to minimize grizzly-human conflict and to provide secure habitat for grizzlies to maintain natural behavior and distribution. With the opening of State Highway 3 in the fall of 1971 use of the park has increased almost tenfold and the number of bear-human conflicts, injuries, property damages, bear control and handling actions and the possibility that some bears may be losing aspects of their natural behavior has increased dramatically.

An indication of the history of problems can be found in the number of human injuries, the number of bears handled and the number of property damage and other incidents. (1) Park records (National Park Service 1981a) show 14 people injured (no fatalities) in 13 incidents in the history of Denali and that more injuries occurred in 1970-81 than all previous years. (2) The number of bears that have been handled by park personnel during 1970-1981 has been nearly as great as the number handled from

1945-1969 (National Park Service 1981b). (3) Records on property damage and other incidents are incomplete until about 1978 and probably reflect how few problems there used to be, for the situation was not deemed serious enough for recording all incidents. There have been 40-80 incidents per year, 1978-1981. In addition there have been about 40 approaches and showing curiosity or lack of fear per year 1978-81. Although complete records prior to 1978 do not exist, the available records and the impression of people familiar with the area over many years indicate there were far fewer incidents in the 1950s and 1960s than in the 1970s and that they were from different causes. Murie (1981) devotes little discussion to bear-human problems, most of his work was prior to 1970; Dean (pers. comm.) thought incidents much fewer and from different causes. Most of the incidents prior to the 1970s seem to be bears raiding work camps where there was lax food and garbage storage. But during 1970- 1981 incidents have mostly been bears raiding backpackers camps or bears approaching hikers.

Garbage dumps and litter cans have been a minor source of problems in the past prior to 1977. Downing (1975) discusses the last park dump and made recommendations. In 1976 this dump, a sanitary landfill, was fenced and since 1980 it has been closed and all garbage hauled out of the park by a contractor. In past years bears frequenting dumps seldom resulted in human incidents and those that did occur were mostly prior to the 1970s. Although for many decades managers had so few bears raiding trash cans in campgrounds and along the road that they did not see a need for bearproof cans, by 1981 almost all such cans had been bearproofed in order to avoid any use by bears.

It is clear that bear-human problems have increased substantially during 1970-1981 compared to previous years and that problems in recent years are primarily related to backcountry use.

Singer (1982) has analyzed available records of bear-human problems and concluded, in part, that Denali's "backcountry incident rate...is the highest in the National Park Service among those parks with both significant grizzly bear populations and backcountry visitor use." Furthermore, "...backcountry bear problems were very rarely experienced prior to 1976, but the increase has been rapid since then." And "The number of interactions in a backcountry unit was positively correlated to total annual visitation. All units with less than 400 visitor nights had no interactions, and interactions increased rapidly after 600-800 visits was exceeded." Finally, he found that "Forty-three (58%) of all backcountry incidents were directly related to a food incentive in the campsite -- in only 1 of those cases was food properly secured from the bear. The lack of suitable trees for hanging food is seen to be a critical problem."

1.1.2

Denali Park Additions and Preserve - Valkenberg (1976) and Bishop (1978) provide some information but overall we know little about

the status of bears in these areas. Both grizzlies and black bears are known to occur and Valkenberg (1976) gives data on hunter and miner kills over the years; doubtless some of the kills resulted from poor garbage handling procedures. Harvest data for sport and subsistence hunters is very limited but it is thought present harvests are well within the productivity of the populations.

Problems encountered by hikers and campers may not have been reported prior to these areas being added to the park, but generally these areas had little such use and so problems were also probably few.

1.2 Current Management Actions

- 1.2.1 Denali Wilderness - Virtually all visitors receive printed literature on behavior in bear country and all backpackers also receive verbal instructions. Because most visitors enter the park on one road contact is extremely high. Bus drivers caution people and frequently talk people out of leaving the road to approach bears for photos. Patrol rangers also caution against close approaches. Professional photographers permits require that photographing bears within $\frac{1}{2}$ mile of the road be from the road and caution against close approaches in more remote areas. The Wilderness Management Action Plan disperses use and limits the numbers of campers in each unit, in part to minimize human-wildlife conflicts and disturbance to wildlife. A Bear-Human Conflict Action Plan sets out responsibilities and procedures for park personnel to follow including education of visitors, handling, relocation and destruction of bears, closures of areas where incidents have occurred, patrol and sanitation standards. Extensive bear country behavior training is given to all employees at the start of each season. Extensive training is also given to those who will be trapping and handling bears.

All trash is stored in bearproof containers until taken out of the park to a landfill by a private contractor. All trash cans in campgrounds and most along the road and in housing areas are bearproofed and the last few will be done in 1982. The Morino walkin campground has a bearproof food storage facility for campers and in 1982 the other campgrounds will have similar units installed for campers without vehicles. Feeding of bears by the public has never been a problem but feeding arctic ground squirrels at Eielson Visitor Center has and some people have thought this might attract bears so a program to halt such feeding and monitor bear use of the area was started (Dalle-Molle 1981).

Since 1977 annual budget requests (10-237s) have been made to support bear-human problem research but no funding has yet been received.

In 1981 contact was made with Yosemite National Park to try to test their prototype backpackers bearproof food containers

here in 1982. Funding support for this has been requested. In 1981 the park requested the regional wildlife biologist conduct a problem analysis based on the data the park has collected. Since 1977 the park has used BIMS (computerized Bear Information and Management System) to document and record all bear-human problems. Since 1980 we have also attempted to get people to report all bear encounters, even those where the bear apparently is aware of people but does not react. All historical reports on bears have been placed in BIMS.

- 1.2.2 Denali Park Additions and Preserve - Subsistence and sport harvest information is being gathered by the park staff from contacts with users and Alaska Department of Fish and Game personnel and records. Miners and others are beginning to be required to maintain sanitary facilities to park and state standards. State harvest regulations are followed for sport and subsistence users.

1.3 Results of Current Action

- 1.3.1 Denali Wilderness - Developed area garbage related bear incidents have been very infrequent for several years. The use of the shuttle and tour buses has prevented significant road problems such as people approaching bears or cars forming bear jams which does occur when the road is open to unlimited private vehicles early and late in the season.

Vigorous patrols and public contacts have doubtless helped prevent more problems, although this cannot be measured. Closures of backcountry units are always done if an incident occurs and patrols search for bears to test reactions to determine the problem ones for relocation. Vigorous effort to document all details of all encounters and incidents is made and these are placed in BIMS but reporting and data handling processes are still substandard. There is a high awareness and cooperation among employees (park and concession) regarding the need to inform visitors and to report problems. Feeding of ground squirrels at Eielson has been significantly reduced and no bear problems have occurred there for some time.

Backcountry problems continued to rise with increases in visitor use of the backcountry but starting in 1978 backcountry visitor nights began slightly decreasing and incidents did too, although encounters rose slightly (Singer 1982:figure 2). Whether management actions have reduced the number of problems in the backcountry cannot be measured, although it seems likely that area closures, relocations of bears and vigorous education in behavior probably have prevented some problems.

Despite the advances made the conflict rate in the backcountry is the highest of parks with grizzlies. Food related backcountry problems have grown. Bears exhibiting behavior traits that include close approaches to humans have increased so that the potential for problems has grown. While no one has ever been

killed by bears in Denali, it seems reasonable to expect it to occur someday, for with tens of thousands of visitors in bear country the odds favor a surprise encounter or other situation eventually leading to a fatality. It is unrealistic to expect to avoid injuries or even a fatality, for this is wilderness and natural hazards are part of what gives meaning to Denali. Yet all reasonable efforts should be made to provide safety considerations within the framework of legislation and policy to protect humans and to protect natural bear populations and behavior. In order to provide all reasonable efforts a number of improvements in Denali's management are required, including the following (also see Singer 1982).

(1) More staff time must be devoted to bear-human conflict management for supervision, program development and field activities.

(2) Upgrade data management, including improved reporting procedures, more training for employees, greater visitor awareness to report conflicts, increased followup on reports to obtain more details and insure accuracy and improved automatic data processing.

(3) Increase research into bear-people problems. Increase research into basic bear biology in order to provide the background information necessary to understand natural processes and conditions, how humans interact with them and how management actions effect them.

(4) Increase capability to more effectively educate the public in minimum impact practices to reduce bear-human conflicts, including development of communication programs and increased personal contacts with visitors prior to going into the park. Research (#3) will provide improved methods and practices for the education program to communicate.

(5) Improve field response capabilities to handle problems in a timely, effective manner. This could include more employees trained in bear handling techniques and ready availability of a helicopter.

(6) Annual management and scientific review of each year's operational program by a group consisting of both NPS and non-NPS members.

(7) Policy and financial support for a continuous vigorous program to deal with the underlying causes of the problems rather than treating just symptoms. For example, a policy of merely relocating or killing "problem" bears will never resolve the situation in the long term for other bears will develop the same traits. In trying to provide for high levels of visitor use and maintain natural conditions simultaneously compromises of these dual objectives will be made but they can be minimized through vigorous and imaginative programs to research and apply new ideas.

However, reasonable policies without operational resources to implement the policy does little good. Thus some of the actions proposed here and in Singer (1982) have been suggested in the past but have not received the necessary funding. Resolution of the funding problem is the single most important obstacle to seeking improved bear-human conflict management.

- 1.3.2 Park Additions and Preserve - Work has just started in these new areas so it is too early to determine results.

2 Alternative Actions and Their Probable Impacts

2.1 Denali Wilderness -

- 2.1.1 Continue present management actions which will probably help to keep some problems from increasing such as garbage related and auto campground food related. However backcountry food related problems will continue to rise and habituation problems may increase leading to human safety problems and alteration of natural bear behavior.

- 2.1.2 Take vigorous measures to determine bears involved in problems and relocate them far from the park or destroy them. Relocation to other areas may place other people in proximity to problems. The park is not large enough for significant numbers of relocations to be successful based on the findings of Miller and Ballard (1981) who worked to the east of Denali, and other landowners and agencies increasingly do not want bears relocated to their lands. Relocations may interfere with other bears' habitat use and home ranges. Some bears may not be able to survive transplanting to lowland habitat in large areas of the park additions and preserve that are very different from the alpine habitat of the Wilderness. Problems would likely still continue as other bears found backpackers food and had high contact rates with backpackers. A significant reduction in the bear population in the Wilderness could then occur as more bears had to be removed thus significantly altering the natural condition of the area.

- 2.1.3 The seven actions proposed in 1.3.1 will be implemented. Present management actions will continue, while beginning research into backpack food containers, bear density and habitat use and visitor use patterns, assess effectiveness of area temporary closures and determine threshold levels in visitor use in various areas that should not be exceeded if problems are to be reduced. The impact of these should be to find ways to reduce bear-human problems and so provide better safety and maintain more natural bear conditions.

2.2 Park Additions and Preserve -

- 2.2.1 Continue present actions which mainly involve data collection. The impact will probably be continued occasional killing of

bears because of attractions to unsecured food and garbage and possibly some poaching.

- 2.2.2 Increase air and ground patrols to deter poaching and increase efforts to obtain better food and garbage handling to reduce attracting bears around mining inholders and subsistence users camps and cabins. This should reduce problems which lead to property damage and to bears being shot. Such efforts will largely be through more contacts with these users to encourage better practices. Miners are required to take necessary measures to properly dispose of garbage in their Plans of Operations and all users are also required under State law to handle food and garbage so as not to attract bears (5AAC81.218).

3 Recommended Course of Action

- 3.1 Denali Wilderness - Alternative 2.1.3 is recommended as the most likely way to reduce problems and maintain natural bear behavior and populations.
- 3.2 Park Additions and Preserve - Alternative 2.2.2 is recommended as the best course of action at present to prevent bear problems and needless destruction of bears. For the small amount of visitor use of these areas, alternative 2.1.3 should be used here also in order to prevent problems from developing. especially as use increases.

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APPENDIX F

STUDY PLANS
FOR
CURRENT BEAR RELATED RESEARCH
1984

Aversive Conditioning (behavior modification) tests

Objective: To change problem bears behavior without having to remove bears from the park population, as occurs with relocations and killing.

Aversive conditioning (AC) is predicated on the park also having a strong program to prevent bears from obtaining human food or garbage. AC is not a substitute for good food handling. It would only be used when there is an unavoidable breakdown in food/garbage handling (e.g. bear got food outside park) and bear is showing signs of learning to aggressively seek human foods. If AC fails then relocations or killing would be considered.

Bear behavior and AC have been discussed in the scientific literature. Based on animal behavioral knowledge there is no reason that AC cannot work in concept. Attempts at using chemicals in garbage have not been very successful as an AC method. Using rock salt and #9 shot has met with some success at McNeil River (ADFG) and Katmai. Canadians have had excellent success with rubber 37mm bullets on polar bears, and have made its use operational. Use of .12 gauge plastic rounds on black bears in Canada has been successful. Reports from other areas including Yellowstone indicate others have tried it but none of these have documented their attempts or designed and followed through with a thorough test. The Canadian research is the most thoroughly documented and based on a sound design and methodology.

Testing of AC with .12 gauge plastic slugs on frontcountry and backcountry problem bears in Denali follows the pertinent sections of the Bear-Human Conflict Management Plan.

In brief we would seek to test the hypothesis that Denali bears who have gotten human food/garbage can be aversively conditioned to stop the behavior that gets them human food/garbage. We believe there is a better chance of AC succeeding here than in many other areas because: (1) Denali bears do not have a long history of intense use of human foods (2) nor do they rely on human foods for a significant part of their diets (3) they have a plentiful supply of natural foods available (4) they have not exhibited strong aggressive behavior to the extent bears in other areas have, i.e., injuries have been relatively few and usually minor and several have been due to human activities virtually beyond our control anyway.

Methods used are in the management plan but here is a summary. Two techs with bear drugging and handling experience would respond to incidents and seek to test bears behavior. They would hike to bear and test. Tests would be conducted by setting up a tent in view of the bear or in a location where it was likely bear would come into viewing tent. Team would stay in tent with food container 15-20 m away. If bear approached food container it would be drugged and radio collared. Its reactions upon reviving would be recorded. If it did not react to the tent or container but left it would be tracked from a distance and the test repeated a day later. If the bear again approached the camp it would be hit with the plastic bullet. Monitoring again would continue and the test repeated in

a few days to a week. This would continue periodically throughout the summer until at least 3 times the bear did not approach the camp or show aggressive behavior. Bears collared would be monitored for 2-3 years. Bears that had at least 3 opportunities (knew of camp presence) but did not attempt to get food or approach people would be judged to be conditioned. If this worked on 3 or 4 bears we feel it would be enough evidence to justify making the AC procedure an operational part of the bear management plan. If it failed on 3 or 4 then it would be judged ineffective.

Of course there is a lot more to this. For example, maybe AC will work only on certain age/sex classes of bears. Or only on bears that have gotten food just once or twice. Many such unknowns can complicate the testig but by closely monitoring at least a few bears and repeated testing them we will go a long way to learning whether AC should be pursued in Denali.

AVERSIVE CONDITIONING
DATA FORM

Aversive conditioning test # _____ Date: _____ Time: _____

Reference previous test # _____ or BIMS # _____

Observer(s): _____

Location: _____

Wind direction: _____ Speed: _____ Temp: _____ Precip amount: _____ Type: _____

Circle:

Grizzly or Black Cub Subadult Adult Male Female Unknown Weight: _____

Marks or description: _____

Radio collar # _____ Frequency: _____ Ear tag #s: R: _____ L: _____

BEHAVIORS:

Walk; trot; Run; Spun around

Stand on 4; Upright

Frontal posture; Side posture

Head high; Head low; Ears back; Lip curl

Gnash teeth; Jaw pop; Snarl; Huff; Moan; Growl

Sniff air; Sniff ground; Sniff object

Bite hit area; Scratch; Roll; Lick

Defecate; Urinate