

# **SHENANDOAH NATIONAL PARK**

  

## **BLACK BEAR MANAGEMENT PLAN**

2005

SUBMITTED:

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Chief, Natural & Cultural Resources                  Date

CONCURRED:

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Chief Ranger    Date

APPROVED:

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Superintendent    Date

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## I. Introduction

The eastern black bear (*Ursus americana*) is indigenous to Shenandoah National Park (SNP) and the entire Blue Ridge Mountain chain. When the Park was established, the bear population was so low that sightings were considered rare. Through the protection offered by the Park, the population slowly increased until by the late 1950's there were an estimated 75 bears in the Park. Since the 1960's, much of the Park's hardwood forest has reached mast-producing age. Intensive farming near the Park boundary has increased the availability of preferred bear forage such as apples, peaches, corn, and honey. This abundance of food, coupled with the protection of good habitat, led to a dramatic increase in the bear population between 1960 and 1974.

In 1972, the Park entered into a research agreement with the Virginia Department of Game and Inland Fisheries (VDGIF). The resulting research project consisted of a large-scale trapping program designed to provide information on population density, home range, population dynamics, natality, recruitment rates, growth rates, and mortality. During the four-year period of intensive trapping, over 300 individual bears were processed. Data from this study showed that the Park was sustaining a healthy population of approximately 300-plus animals. Considering that these bears were not evenly distributed over the 306 square miles of Parkland, the population density in good habitat exceeded one bear per square mile, which is considered high even for excellent bear habitat. This research showed that estimated densities in good habitat were roughly 1.5 bears/mi<sup>2</sup> in Shenandoah National Park. It should be noted that SNP provides a unique un-hunted preserve that acts as the nucleus for the bear population in Northwestern and Northcentral Virginia. This is especially illustrated by the fact that in 1997, 58% of the state's bear harvest came from the eight counties surrounding the park.

VDGIF data collected from 1991 to 2000 shows that the statewide bear harvest has been increasing at an average annual rate of 6.3 percent per year.

### Virginia Bear Harvest

| <u>Year</u> | <u>Total</u> | <u>Counties containing SNP</u> | <u>SNP Counties % of Total Harvest</u> |
|-------------|--------------|--------------------------------|--|
| 1991        | 657          | 306                            | 46.6                                   |
| 1992        | 488          | 272                            | 55.7                                   |
| 1993        | 789          | 328                            | 41.6                                   |
| 1994        | 517          | 259                            | 50.1                                   |
| 1995        | 602          | 287                            | 47.7                                   |
| 1996        | 624          | 257                            | 41.2                                   |
| 1997        | 788          | 458                            | 58.1                                   |
| 1998        | 914          | 355                            | 38.8                                   |
| 1999        | 915          | 469                            | 51.2                                   |
| 2000        | 1000         | 468                            | 46.8                                   |
| 2001        | 874          | 458                            | 52.4                                   |
|             |              |                                | <b>11-year average 48.2 %</b>          |

In addition to this, the number of nuisance complaints made to VDGIF has more than tripled from 1980 to 1998. Since 1980, nuisance complaints have increased 44 percent (VDGIF Bear Mgt.

Plan – Draft). Additionally, SNP nuisance bear capture numbers have increased from 1991 to 2002.

### Nuisance Bear Captures in SNP

| <u>Year</u> | <u>Total</u>                       |
|-------------|------------------------------------|
| 1991        | 0                                  |
| 1992        | 0                                  |
| 1993        | 0                                  |
| 1994        | 0                                  |
| 1995        | 4                                  |
| 1996        | 2 (best estimate – few records)    |
| 1997        | 5                                  |
| 1998        | 1                                  |
| 1999        | 6 (plus one repeat immobilization) |
| 2000        | 7                                  |
| 2001        | 15                                 |
| 2002        | 3                                  |
| 2003        | 3                                  |
| 2004        | 3                                  |
| 2005        | 3                                  |

The increase in SNP nuisance bear captures, combined with an overall increase in nuisance bear incident reports from 1995-2002, increased bear sightings from 1999-2002 (based on staff observations), and increased harvest numbers from the 8 surrounding SNP counties, all support the assertion that the park's bear population is continuing to grow.

A bear population-monitoring program was designed and implemented in 1983. In 2000, this survey protocol was revised and improved to coincide with state and regional survey methods. The new field protocol includes a system of 185 permanently established bait stations which are geographically distributed throughout the Park (refer to project N-49 for details). Bait station surveys are a relatively quick and inexpensive means of tracking populations of carnivores over a wide area. Bait station surveys can be used to determine the relative abundance and distribution of a species and to track gross trends in the population of that species. Bait station surveys do not provide absolute densities or population size nor do they provide answers to questions about food supply, habitat quality and use, survival, or demographics. The bait station survey can not measure or predict black bear density levels (which are probably at or near all time highs) but only visitation rates in the near vicinity. As visitation rates increase or decrease in significant terms and as sustained positive or negative trends emerge, then we may surmise (if what we detect correlates with harvest, mast crop, and other data) that the population is generally increasing, decreasing or remaining generally stable over the long-term.

During the 1960's, it became evident that direct management of the growing bear population was necessary. Large numbers of bears were foraging for human food in the picnic areas, campgrounds, and concession facilities. Property damage incidents increased significantly, and managers became concerned about visitor safety. In 1974, funding was requested to initiate an intensive bear management program. In 1975, all of the Park dumps were closed to the depositing of edible refuse.

In February 1976, a comprehensive Bear Management Plan was implemented. This plan called for a program of three main objectives:

- A. To restore and maintain the natural integrity, distribution, and behavior of the black bear population.
- B. To provide for a minimum of adverse bear/human conflicts.
- C. To provide opportunities for visitors to observe and appreciate the black bear in a natural state.

To achieve these objectives, a program consisting of seven elements designed to treat the causes of the problem was implemented. These included:

1. Control of all unnatural food sources within the Park.
2. Education and enforcement of new food storage regulations.
3. Removal of problem bears.
4. Reporting.
5. Record keeping.
6. Public relations.
7. Research.

Within six years, bear property damage incidents decreased from 231 in 1975, to 43 in 1981, and property damage was reduced from \$14,672 in 1975 to \$644 in 1981. During this time period, 41 problem bears were removed from the Park and transferred to the State Game Commission for release in remote areas of the State in western Rockingham, Augusta, and Rockbridge counties.

Between 1982 and 1986, both frontcountry and backcountry bear incidents continued to decline reaching a low of less than 10 incidents per year. This low incident rate remained about the same until 1995. During those 13 years, only one or two problem bears may have required some management action per year. Overall, the bear management program initiated in 1975 was very successful, and the objectives as stated in the Plan were accomplished.

However, from 1997 through 2001, nuisance bear incidents and relocations increased dramatically. Most of those centered around the frontcountry areas of Big Meadows, Skyland, Loft Mt., and Mathews Arm Campground. During this time we also saw an increase in reports of nuisance bears outside of the Park boundary (local neighbors having problems with bird feeders, pet food, trash raids, occasional livestock depredation, etc.).

**Bear management problems have resurfaced which require re-emphasis on frontcountry priorities. This revised plan addresses these developing concerns and revised management objectives.**

|   |
|---|
| Gypsy moth defoliations during the 1986-1995 epidemic caused spotty but heavy oak mortality in certain areas of the forest. Monitoring indicates that gypsy moth-related mortality ranged from 20-100 percent in higher elevations. Dry ridges had the highest mortality since those were |
|---|

predominated by the white oak group, preferred food of the gypsy moth. In the North District, oak mortality was increased by the drought years of 1987 and 1988. In spite of oak mast loss during this time, Kasbohm (1994) found that in the aftermath of gypsy moth-related oak mortality, black bears in the Park were successful in adopting alternative food sources in their search for food. Since 1995, the gypsy moth has remained at endemic levels throughout the park (exception Spring 2002). There exists the possibility for spot-outbreaks in the future, but there is little chance that the gypsy moth will cause large-scale forest change as was seen in the earlier epidemic due to the presence of a natural control agent, *Entomophaga maimaiga* fungus.

## II. The Problem

The Park's bear management concerns continue to be centered around frontcountry areas. From 1997 to 2000 an average of 5 bears were trapped/relocated per year, increasing to 15 bears in 2001. This recent increase, coupled with an overall increase in bear incident reports from 1997-2001, and increased sightings from 1999-2002 (especially yearlings and sows with 2-3 cubs) suggest that the park's bear population is continuing to grow. Most of these nuisance problems have centered around the Big Meadows Area, Skyland Area, Lewis Mt. Area, Loft Mt. Area, and Mathews Arm Campground. From 1999-2002, Skyland Lodge (and the Dormitories) was a hotbed of nuisance bear problems. Most of the nuisance problems were caused by improper trash disposal, unintentional feeding, intentional feeding, and not securing buildings. However, from 2003-2005, most of those problems were addressed and the number of nuisance complaints and captures have dropped off significantly at Skyland (added 10/24/05).

In addition to this, the number of nuisance complaints made to VDGIF has more than tripled from 1980 to 1998. Since 1980, nuisance complaints have increased 44 percent (VDGIF Bear Mgt. Plan – Draft). Additionally, SNP nuisance bear capture numbers have increased from 1991 to 2002 (see table above in **Introduction**).

The increase in SNP nuisance bear captures, combined with an overall increase in nuisance bear incident reports from 1995-2002, increased bear sightings from 1999-2002 (based on staff observations), and increased harvest numbers from the 8 surrounding SNP counties (see Virginia Bear Harvest table in **Introduction**), all support the assertion that the park's bear population is continuing to grow.

Since 1980, statewide agricultural damage has increased substantially (as it has in the 8 surrounding counties). Over the past decade, the number of bear complaints requiring VDGIF response has increased 44% (VDGIF 2001 Draft Bear Mgt. Plan). The full extent of bear damage experienced by VA residents is not known. Most of this damage is to corn and orchard crops; however, occasional complaints of livestock, and beehive damage are received. If trapping efforts are not successful and depredations persist, farmers are issued permits to kill the offending bears. There seems to be an increase in bears taken by kill permits in the last 4-5 years. This is especially apparent in land just outside the park in Rappahannock and Madison Counties.

Illegal bear poaching continues to be a concern. Bear parts, particularly gall bladders, teeth, and claws bring high prices in parts of Asia and elsewhere, making commercial poaching very profitable. Bears are also poached for their head and hides. It is not known at this time what effects poaching may be having on SNP bear population levels and distribution. However in 1999, a statewide anti-bear poaching operation (SOUP) uncovered a supply of illegal gall bladders and bear paws. This operation was the product of investigations conducted over the last

16 years that yielded approximately 400 cases related to the illegal trafficking of Virginia Black Bears. Although the full extent of illegal trade remains unknown, research projects suggest only minor bear losses due to illegal harvest. It is doubtful that poaching is having a significant impact on the statewide bear population (2001 Virginia Black Bear Management Plan – Draft).

*There has also been a recent increase in neighboring (park) bears being taken by VDGIF kill permit in nearby apple orchards. At this point, we do not know what effect this form of mortality will have on the park's bear population.*

The physical and topographical parameters of the Park environment contribute in several ways to a unique management situation. The Park has become an island of highly productive wildlife habitat surrounded by human development. In some areas, Industrial and housing developments are replacing suitable bear range adjacent to the Park. As more and more large farms and forest tracts are subdivided and developed, the ability of the bears to freely disperse will be hampered. In addition, this development often results in posting of private property against hunting. The legal harvest of bears from adjacent lands has been the only means of removing excess animals (typically, two thirds of the legally harvested SNP bears are males). If hunting (access) was gradually curtailed, the increased bear population could greatly magnify bear management problems in the Park's frontcountry, backcountry, and on private lands along the Park boundary.

When the Park was established, most of the more fertile lowlands and large hollows were not included because of their economic value as agricultural areas. This resulted in the present configuration of the Park consisting of a 90-mile section of the main Blue Ridge and numerous contiguous side ridges. Only the smaller hollows between these side ridges were included in the Park. The resulting serpentine boundary line produces a ratio of boundary to Park acreage that is very high. To encompass the Park's ~196,000 acres, the boundary is 351 miles long. This is a ratio of one mile of boundary for every 553 acres. If the Park were square or rectangular, as is the case in many parks carved from public domain, the ratios would be one mile of boundary for every 2377 acres. Consequently, *Shenandoah National Park has over four times the edge effect on wildlife habitat than it would with a regular boundary (not really true since much of the actual boundary is not differentiable in terms of vegetative cover change).* In addition, there is **four** times the amount of adjacent agricultural area for bears to obtain food sources. The predominate forest type in the Park consists of mixed hardwoods. Dominant species on the more mesic sites are red oaks, white oak, red maple, and hickory. Chestnut oak becomes more prevalent on the xeric ridges and higher elevations. The forests have now reached maturity and are generally heavy mast producers. This combination of a diversified food supply produced on the forest edges, concentrated food sources on adjacent agricultural areas, and high mast production from a mature oak/hickory forest within the Park, results in a unique and highly productive bear habitat.

### **III. Bear Management Objectives**

- A. Promote natural processes so as to protect the park's bear population from man-caused threats and forest change impacts.
- B. Continue to implement and enforce visitor use regulations that will deter and reduce illegal wildlife-related visitor behavior. Improve patrol coverage or "uniformed presence" in nuisance bear hotspots (e.g. BMCG, Skyland Lodge, MACG). Continue to investigate and enforce poaching activity.

- C. Maintain both frontcountry and backcountry use areas in such a way that minimizes human/bear conflicts. This includes improvements (or refinements) in SNP Sanitation management and Concessions (ARAMARK) management.
- D. Conduct targeted management actions that will minimize adverse bear/human conflicts. These actions may include deterrence, exclusion, capture, relocation, and euthanasia.
- E. Increase public Black Bear Awareness/education through a variety of park programs, media, signing strategies, seminars, training, orientation, roving contacts, adjacent landowner phone response, outreach, etc.
- F. Continue to maintain a cooperative black bear management program with the Virginia Department of Game and Inland Fisheries. This includes information sharing (information from statewide harvest totals and kill permits for lands adjacent to the Park), assistance with population or hard mast surveys, program support, and LE coordination with anti-poaching efforts

Bear management in parks that receive heavy visitor use has been recognized as a challenging and often difficult endeavor. In most cases, management programs and actions have been directed at individual animals rather than the population as a whole. The main thrust of this plan will be to manage the population as a continually dynamic resource. In the unique park ecosystem found at Shenandoah, where reproduction and mortality are variable, an individual animal has little impact on the general health and integrity of the total population. Since the Park's frontcountry and backcountry areas exhibit different types of bear problems and management concerns, these two areas will be addressed separately in the plan.

In the backcountry and wilderness areas, management efforts to alleviate bear/human conflicts will concentrate on the altering or controlling of visitor activities rather than taking action against offending bears. This concept is based on the premise that backcountry users are temporarily encroaching on established bear territories. It is more ecologically sound to adjust visitor use patterns to be more compatible with known bear habitat.

Management efforts in the frontcountry will be directed at controlling the presence of bears in the developed areas established for visitor use. We will continue to make every effort to prevent the conditioning (habituation) of bears in these areas. All bears which continue to frequent frontcountry areas and exhibit conditioned, nuisance, or aggressive behavior will be trapped and removed, according to the criteria established in Section D, Trapping and Removal of Problem Bears. (Aversive Conditioning will be used as a first step where appropriate)

The following management actions will be used Parkwide in an effort to mitigate adverse bear/human conflicts. They should be viewed as a step-up plan in which the least restrictive or severe action that will address the problem is used first. If this procedure does not work, then the next action is used. However, since there is a great deal of variability in the type and magnitude of problem bear activity, it may be necessary to bypass some steps or even to go to the most severe action immediately. Thorough field investigations are necessary to rapidly determine the most appropriate management action to be taken.

**A. Control and Removal of Unnatural Food Sources**



Bears are drawn into the vicinity of people by the presence of human food. A major element of this plan will be to continue to remove, to the greatest extent possible, all sources of human food. This will be accomplished in both the frontcountry and backcountry areas of the Park.

**1. Frontcountry**

- a. Bear-proof trashcans and dumpsters will continue to be used throughout the Park.
- b. Bear-proof dumpsters will be phased in where there have been perennial problems with over-flowing trash cans during high visitation periods. Examples include Big Meadows Campground, Pinnacles Picnic Area, and Big Meadows Picnic Area.
- c. Bear-proof trash houses will be maintained and properly used by the various concession operations.
- d. Park refuse will be collected and transported to landfills outside the Park in such a way as to prevent bears and other animals from gaining access to it. *(Problems currently with the location, animal accessibility, and storage duration of trash in the park "Trash" trucks. Consideration should be given to removing these or building fenced areas to park these in).*~~-dated-~~
- e. Food storage regulations will be enforced at campgrounds and picnic areas. As per special regulation, Title36, Code of Federal Regulations, Section 2.10, visitors are required to store food items, when not being prepared for eating, in a vehicle or camping unit which is constructed of solid non-pliable material, or to suspend it at least ten feet above the ground and four feet horizontally from any post, tree trunk, or limb. Special food storage poles (or metal bear-proof lockers at some walk-in sites at BMCG) are located in the campgrounds for use by those campers who do not have any other suitable storage facility.
- f. Regulations prohibiting the feeding of bears (or unintentional baiting) will be strictly enforced. (need to focus more on Skyland Lodge/ARAMARK Dormitory Residents).
- g. The Ranger Division needs to work with the district magistrate to increase the fine for illegal wildlife feeding, harassing, etc. to \$50.00.

**2. Backcountry**

- a. Refuse from trash receptacles maintained in the backcountry (boundary access points) will be picked up frequently enough to prevent trash overflow.

- b. Backcountry campers are subject to the same food storage regulations as campground users. The primary method is to suspend the foodsack from a tree limb so that it is at least ten feet above the ground and four feet from the trunk. This procedure is effective in keeping mildly conditioned bears and other wildlife away from foodstuffs. However, aggressive bears showing advanced conditioned behavior are usually persistent enough to get to food sacks even when maximum effort has been made to comply with the regulations. The other acceptable method is to use NPS-approved bear-proof food storage canisters.
- c. Food storage poles will continue to be maintained at trail huts.
- d. Backcountry campers will continue to be required by regulation to pack out all refuse.

## **B. Visitor Warning**

### 1. Frontcountry

When a bear has been seen frequenting a campground or picnic area, efforts should be increased to warn visitors of the possibility of a bear encounter and to assure **complete** compliance with food storage regulations.

### 2. Backcountry

When increased bear activity is noticed, such as a sow with cubs being frequently seen, or property/food damage incidents start to occur in a backcountry area, the following steps should be taken:

- a. The incident should be promptly reported to biologists and law enforcement staff.
- b. A general announcement will be broadcast to all backcountry camping permit issuing stations advising them of increased bear activity. An emphasis will be placed on assuring that all campers obtaining permits for the area of nuisance bear activity will be cautioned about proper food storage.
- c. When possible, patrols of the areas should be increased, and all campers in the area checked for proper food storage.
- d. Approved aversive conditioning methods may be applied to the problem bear if an opportunity presents itself, and it is believed that it might have a positive effect (e.g. The bear is in the early stages of nuisance behavior).
- e. These procedures will remain in effect for a minimum of *eight days*, or as long as nuisance bear activity continues to occur.

## C. Restrictions of Visitor Use

### 1. Frontcountry

Only under extreme conditions will campgrounds or picnic areas be closed to the public because of bear activity. This alternative will be considered only when there is a real and demonstrated threat to visitor safety that cannot be mitigated in any other way.

If such a condition occurs, approval for closure will be sought from the Superintendent. The facility will be properly signed *and guarded* to prevent visitor access.

### 2. Backcountry

When two or more bear incidents occur within a five-day period within a given area, that area may be closed to overnight use. The decision to close an area will depend on the severity of the incidents and the difficulty in closing that particular area.

When one unprovoked incident occurs which results in a visitor injury, the area will be closed to overnight camping, and depending on the nature of the incident, to day-use as well. In the event of an unprovoked bear attack resulting in injury or death, the area will be closed to all travel. The following steps will be taken to effect restrictions of visitor use.

- a. Appropriate field investigations will be made of all incidents.
- b. The district ranger, in consultation with the appropriate staff member of the Natural Resources Division, will recommend appropriate action to the Chief of Natural & Cultural Resources. Approval authority for the restriction of visitor use or the closing of an area rests with the Superintendent.
- c. The standard "aggressive bear, area closed" signs (SNP-259) (see appendix ?) will be posted at all trailheads and trail junctions leading into the problem area.
- d. Park Headquarters will send a general e-mail announcement to all permit-issuing stations advising personnel of the closure. The trails closed to entry or the specific area closed to camping will be specified and backcountry codes given.
- e. No permits will be issued for the trail and area codes specified.
- f. If necessary, patrols will be scheduled to assure visitor compliance. Physical barricades may be placed at trailheads.
- g. Restrictions will remain in effect for eight days unless the bear has been caught or is known to have left the area.

## D. Trapping and Removal of Problem Bears

The decision as whether or not a particular bear should be captured and removed from the Park should be based on two primary factors:

- (1) Visitor safety
- (2) The probability of the bear being successfully returned to a natural lifestyle.

Black bears are a valuable Park resource. Every attempt should be made to control or adjust human activities to prevent situations from getting to the point that the only alternative is the removal of the bear. Individual bears will pass through developed areas or happen by backcountry campsites during the normal course of their travels. The mere presence of a bear in close proximity to people should not be of major concern. It is the behavior of the animal that needs to be monitored. Bears that have become "conditioned" to the presence of humans behave differently than non-conditioned or wild bears. Examples of conditioned behavior are: (1) the bear cannot be scared away from developed areas or places where food may be present, (2) the bear shows aggression toward humans by walking towards people with teeth bared, or bluff charges, (3) the bear breaks into tents or vehicles, and (4) the bear tries to bite or swat a person who did nothing to aggravate the bear. Bears that start showing these types of conditioned or aggressive behavior need to be managed. In general the following guidelines should be used:

- Bears that show nuisance/conditioned behavior on two or more occasions (severe incidents include; bluff charges, raiding campsites, persistent following (>4 minutes), aggressive behavior, etc.) within a seven day period should be considered for capture and removal unless unusual circumstances exist. Aggressive behavior includes; head lowering/swaying, jaw popping, raised back hair, bluff charge, low-moan vocalization, and paw stamping.
- All incidents must be documented on a nuisance bear incident report form.
- Chief of Natural & Cultural Resources (or Branch Chief of Natural Resources) must be notified of incidents before any capture and removal, as well as after unless emergency conditions exist.

### 1. Frontcountry Procedures

#### a. Live Trapping with Culvert Traps

The use of culvert-type live traps will be the preferred method of capturing yearling nuisance bears in developed areas, as it requires the least manpower. However, when dealing with an older nuisance bear (2 years or greater) or a previously trapped bear, the use of chemical immobilization capture is often the preferred method. In public use areas, traps can be set either day or night depending on conditions and behavior of the bear. When a bear is trapped, biologists with the assistance of other staff will "work up" the bear at that location. Employees not involved with the immobilization of the bear will be in charge of crowd control and visitor education. Public crowds should be kept at a distance of at least 50 ft. to minimize auditory disturbance and stress to the bear.

All traps will be clearly marked with appropriate danger warnings. In situations where traps are set in campgrounds, the campsite will be either barricaded or roped off to prevent visitors from tampering with the trap.

b. Live Trapping with Foot Snares

Under certain limited and carefully monitored circumstances, foot snares may be employed to capture bears when efforts with a culvert trap have failed. Snares will be set and tended by qualified staff in the Natural Resources Division. Approval to use snares in the frontcountry must be obtained from the Chief of Natural Resources in consultation with the Chief Park Ranger.

c. Capture Weapons

If live trapping a bear is unsuccessful, the use of immobilization drugs administered by capture weapon should be considered. The use of this equipment will be in accordance with the Park Wildlife Handling and Immobilization Guidelines.

Since most capture attempts on free roaming bears occur in public use areas, enough manpower must be available to keep visitors at a safe distance and to provide information to the visitor about the operation. Many visitors are highly concerned about the welfare of the Park bears, others are merely curious. Whenever possible, field rangers should answer questions and provide information about how and why we are capturing the bear. This is not always possible during the capture attempt. Therefore, after the bear is removed from the scene, a ranger should stay in the area for a while to answer questions. It is hoped that this will not only provide education and information for the visitor, but will increase voluntary compliance to basic elements of our bear management program (to minimize human/bear conflicts).

If the bear is to be removed from the Park, transportation arrangements will be made by the Branch Chief of Natural Resources or the Park (Wildlife) Biologist.

Consideration should be given to bears that require removal from the Park during the fall hunting season. When a bear is released in an unfamiliar area, his chances of surviving hunting pressure are greatly reduced until he has had a chance to settle into a home range. In addition to this, consideration should be given to immobilization timing. A bear that is immobilized within 45 days of hunting season may not have completely detoxified the drug, posing a threat to anyone who eats the meat. As of 2001, new ear tags have been made directing hunters to call the Park Biologist before consuming the meat.

**2. Backcountry Procedures**

Trapping of conditioned problem bears will be attempted only when the specific animal can be identified as the one responsible for the incidents. Culvert traps or foot snares (rarely) may be used. Snares may only be used when the area has been closed to all travel. They should be placed out of sight of the trail and checked each morning. Non-target bears will be released at the capture site.

The live capture of free-roaming bears utilizing immobilization drugs may be attempted only if there is reasonable vehicular access into the area (or the crew is equipped with a stokes litter with wheel and a carry-out team).

**E. Relocation of Problem Bears**

(dated - below)

In some cases, captured bears will be transferred to the Virginia Department of Game and Inland Fisheries (VDGIF). Bears will not be relocated to areas outside the Park boundaries without expressed permission of the receiving agency. Although we have a cooperative agreement with the VDGIF, it is still necessary to contact the State Bear Biologist working out of the Verona Office to arrange for a bear transfer. The VDGIF usually makes their releases on State-owned lands or national forests. This procedure provides a means by which the State can reintroduce bears into areas with depleted populations. Arrangements for transfers will be made by the Branch Chief of Natural Resources or Park (Wildlife) Biologist.

#### **F. Destruction of Problem Bear**

The district ranger may recommend that a bear be destroyed if the animal's behavior indicates a real threat to visitor safety or it has been involved in a documented unprovoked attack, resulting in serious personal injury. The authority for destruction rests with the Chief of Natural & Cultural Resources unless a field ranger should encounter an actual attack in progress. In such cases, the ranger is authorized to take immediate action and destroy the bear. When it has been decided that a bear will be destroyed, the following procedures will be followed:

1. The area will be closed to all visitor access.
2. A minimum of two firearms qualified permanent uniformed staff members will be involved.
3. The team will be armed with either high-powered rifles, or shotguns loaded with rifled slugs.
4. The carcass will be removed from visitor travel areas.

#### **G. Disposal of Wildlife**

All wildlife within the park boundary is considered federal property and bears or any body parts thereof shall not be used for personal benefit.

Animals within the park must be disposed of in an approved manner:

- Natural Resources Personnel should dispose of animals with assistance from other divisions. *Carcasses containing no immobilization drug may be buried in a somewhat remote area, using a backhoe to dig a six feet deep hole (minimum).* Carcasses that have immobilization drug in them (recently immobilized, euthanized, etc.) must be transported to the Page County Landfill/Dump and buried at least six feet underground.
- Skulls can be cleaned, cataloged and maintained for interpretative, educational, or research purposes.
- Bear carcasses and/or parts may be assigned on loan to museums, universities or other educational institutions.

#### **V. Personnel and Training**

The success of this program requires the full support of all field divisions. The primary responsibility for overall program management rests with the Division of Natural & Cultural Resources. Rangers, interpreters, and maintenance staff all have important roles that are necessary for the successful implementation of this plan.

Field personnel responsible for trapping and capture operations will be certified as meeting Servicewide and SNP training and experience qualifications. Certification can be obtained by passing an NPS-sponsored training course that meets NPS-77 guidelines for content and hours. Such courses will be given periodically as needed in SNP and are offered through other NPS Regions and Parks. District rangers will nominate persons on their staff whom they wish to have certified by a SNP training course. The District Resource Specialist will be principally involved along with primary and in some cases, secondary backup personnel as approved through the supervisory chain. The objective is to maintain Parkwide consistency through the use of a fairly small core group of responders. Attempts will be made to organize and conduct “refresher” workshops annually for capture and immobilization procedures, safety and equipment. This will include range qualifications in the spring and perhaps at other times as needed for currency ahead of anticipated “busy” season(s). Every attempt will be made to keep equipment inventories current to prevent shortages during periods of high demand. Details of our training procedure can be found in the SNP Guidelines for the Capture and Drug Immobilization of Wildlife.

Tailgate critique sessions will be held after each capture attempt using immobilization drugs to evaluate the operation and to recommend any changes in future operations.

## **VI. Safety**

Although visitor safety and the safe handling of bears during capture efforts are included in the previous elements; the major concerns are again listed for easy review.

- A. Culvert traps will usually be set in a somewhat secluded section of a public use area (e.g. Campground, Lodge Area, or Picnic Ground). Traps may be set during the day or night depending on behavior. In high use areas, traps may be tripped and secured during the day to eliminate any hazards to visitors that they may be present during daylight hours. Traps will be clearly marked "DANGER" and will be flagged off and signed at all times.
- B. Foot snares will be closely tended when set in or near public use areas. Captured bears will be immediately immobilized and removed from the area.
- C. Capture attempts of free-roaming bears with drugs may be attempted in the vicinity of visitors with extreme caution and visitor awareness. Capture weapons will be handled as dangerous weapons and will be used only by properly trained and certified personnel. During capture operations with visitors observing, one member of the capture team will be designated the visitor information person. He/she will be responsible for providing visitors with project goals and rationale.

Any accidents or injuries will be immediately reported to the Chief Ranger.

- D. Necessary precautions will be taken to assure the safe handling of captured bears. Visitors will not be allowed to assist in the handling of immobilized bears.

- E. Bears in traps will remain on site with a uniformed employee to prevent visitors from tampering with the trap or teasing the bear. Traps containing bears will be locked to prevent unauthorized release of the animal, as well as protection from an unpredictable/aggressive bear.
- F. Drugs used for the immobilization of bears will be stored in locked cabinets or safes in accordance with the Drug Enforcement Agency's regulations for controlled substances. Accurate records will be kept on the amount of drugs received, distributed, and used.
- G. When not in use, traps will be locked and stored in a safe, accessible area.

## **VII. Environmental Compliance**

The actions detailed in this plan were reviewed for compliance with the National Environmental Policy Act (NEPA). It has been judged that these actions are categorically excluded under Appendix 2, 516DM2. Applicable exclusions are: B4, resource plans; D2, minor visitor use restrictions; and E7, removal of individual animals that pose a threat to visitor safety. Further environmental analysis is not necessary or warranted.

## **VIII. Reporting**

Incidents: All incidents involving aggressive or conditioned behavior, property damage, or personal injury will be reported on the Bear Incident/Management Record. It should be noted that individual bears will occasionally pass through or forage in and near developed areas without presenting any management problems. The presence of a bear in these areas should not be reported as an incident until the animal shows conditioned behavior or is seen repeatedly over a several day period.

All requested information on the form should be filled out. The exact location of the incident should be specified. Bear incidents should be thoroughly investigated. It is important to get an accurate description of the bear, and it's behavior characteristics at the time of the incident. Use the back of the form if necessary to thoroughly describe the incident. A DI-134 and Form 10-343 must also be completed for all incidents resulting in personal injury. The report should be forwarded to the Natural & Cultural Resources Division as soon as possible. This procedure allows us to maintain constant, Parkwide awareness of bear activity necessary to predict potential management problems. If a bear is captured, a Wildlife Capture Record (SNP-48) will also be completed. Instructions for this form are found in the Wildlife Capture and Immobilization Guide.

## **IX. Guidelines for Information and Education**

1. The Division of Interpretation and Education, in consultation with other divisions, will set annual priorities for the development of informational materials and programs that address bear management. These items may include posters, newspaper articles, newsletters, exhibits, fliers, signs, brochures, powerpoint programs, webpage, website updates, and radio messages for the park's Information Station. Materials should discuss bear problems, management efforts, results, visitor conduct, proper camping procedures, proper food



storage, trash disposal, and the dangers to bears and visitors caused by careless visitor actions.

2. The Public Affairs Office, Division of Interpretation and Education, and the Division of Natural and Cultural Resources will work with the media to disseminate accurate and timely messages to the public. This may include news releases, magazine articles, and radio and TV interviews. Visual, taped, or written information will also be provided to the media when possible.
3. Interpretation and Education and Fee Staff will disseminate bear life history and habitat information through appropriate programs and visitor contacts. These may include campfire programs, guided walks, Junior Ranger Programs, and visitor center contacts. Appropriate bear information will be provided to visitors at information/entrance stations. Nuisance bear caution/alert messages will be incorporated into programs when appropriate. Programs may be developed as needed, to present timely updates about nuisance bears, visitor conduct, food storage, and reporting of incidents.
4. During periods of Nuisance Bear activity in backcountry areas, bear information will be included with replies to inquiries concerning Backcountry camping and hiking (written, phone, or in person).
5. During periods of nuisance bear activity, Natural Resource staff, Fee staff, LE Staff, and/or Interpretation staff will post information at trailheads, campground bulletin boards, picnic grounds, Lodges, and other areas as needed.
6. The Ranger Activities Division and Backcountry Permit Staff will provide information to backcountry campers (through direct contacts). Topics will include bear behavior, backcountry conduct, use of foods or techniques that reduce odors, food storage/suspension, and food waste disposal in bear country. Posters, written materials, video programs, and “step by step” displays should be used at permit stations.
7. Division Chiefs and Supervisors will ensure that all employees understand their responsibility to effectively answer bear-related questions or to direct to a source for answers. Each employee should be aware of his/her role and responsibility.
8. Natural Resources Staff will present bear information programs during appropriate employee training, providing updates on population trends, bear incident summaries, past nuisance bear management actions, and current nuisance bear management efforts. Other bear-related training will be provided for park employees when necessary or requested. **Mandatory training for all ARAMARK Dormitory Residents (Skyland and Big Meadows Lodge employees) will take place every June. This 1-hour training will cover the importance of minimizing human/bear conflicts, proper food storage, proper trash disposal, ramifications of illegally feeding/baiting bears, visitor and personal safety implications, and proper nuisance bear incident reporting.**
9. The Natural Resources staff, and park visitor contact staff will work with the VA Dept. of Game and Inland Fisheries to disseminate bear information to adjacent landowners and visitors regarding proper food storage, animal feed storage, exclusion techniques, and trash disposal. Offsite talks and community outreach will be used to take bear issues and conservation messages to park neighbors, including the need for reporting illegal hunting activity.

10. Interpretation and Education Staff will integrate information about black bear habitat loss and illegal hunting into educational programs (e.g. school programs, lesson plans, and teacher workshops).

## **X. Sanitation and Garbage Disposal**

1. All outdoor garbage cans and dumpsters will be bear-proof. Removable plastic liners used in cans should be secured in such a manner to prevent excess liner material from being exposed after the lid is in place.
2. Garbage collection will be scheduled to ensure that **cans** and dumpsters are not over-filled and left overnight. In developed areas, **Maintenance Division, campground hosts, and Fee staff will ensure that all garbage (including aluminum foil) is removed from grills and fire pits.** If garbage containers become overfilled, Maintenance will secure all loose material in other bear-proof containers before dark.
3. At Skyland and Big Meadows Lodges, trash and garbage will be packed out at regular intervals that will avoid unreasonable odor, sanitation and storage problems. Garbage will be stored indoors (a trash house) in containers with plastic liners and a sealed lid to reduce odors.
4. Information on proper disposal of garbage will be provided to all park residents, concession employees, and ARAMARK Dormitory Residents.
5. Bear-proof food storage lockers were evaluated for effectiveness at Big Meadows Campground (30+ walk-in sites). **Proper use and compliance was good and they have been proven to be effective.** Additional lockers may be provided at other walk-in sites (Loft Mt. CG) if funding permits.
6. Storage lockers may be provided at high-use backcountry sites if bear-visitor food incidents become a problem.

## **XI. Guidelines for Enforcement Actions**

1. Protection rangers will cite observed bear-feeding (or baiting) and improper food storage violators as appropriate.
2. Ranger Patrols will focus around lunch and dinnertime and will target high-use picnic areas and campgrounds where there are perennial food storage and feeding problems. Food and food containers left outside of hard-sided vehicles or camper units constructed of solid material, not properly suspended, or not stored in bear-proof lockers will be cause for a citation.
3. Random patrols of the Skyland Lodge and Big Meadows Lodge Dormitory Areas will take place at least one evening per week. Rangers (or Natural Resource staff) will focus on improper trash disposal, intentional feeding, and non-secured buildings (e.g. employee dorms). Citations will be issued as necessary. Park staff will communicate with ARAMARK supervisors as needed.

4. Garbage disposal regulations will be enforced. Backcountry campers will be expected to pack out all trash. They will be cited if they litter, bury their trash, or dispose of it in privies.
5. Roadside “Bear Jams” will be the joint responsibility of the Ranger Activities Division (LE and Fee) and the Natural Resources Division. The minimum action required of all park employees will be to inform the Communications Center of the location of the bear jam so that available personnel can take appropriate action. The following is the recommended approach when dealing with a bear jam:

Personnel should first attempt to separate the visitors from the bear, then in a professional manner, get motorists to either clear the area or have visitors move their vehicles completely off of the roadway. Generally, loud noises will move the bear far enough away to either get the motorists to leave on their own or provide time for the ranger to clear the scene. This type of action is only a short-term solution and does relatively little to reverse beggar bear behavior. A few common points of information should be provided to visitors to relieve common concerns that visitors may have. These points should be provided in the explanation.

- Roadside bears are not part of the natural scene.
- Wild bears are afraid of people and do not regularly visit or linger around roadsides during the day.
- Bears conditioned to human presence, food and garbage (panhandlers) lose their fear of humans, which creates a very dangerous situation for both people and bears.
- Panhandler bears develop into very visible animals, which makes them easy targets for poachers. These animals are often taken by poachers.
- Panhandler bears are significantly more dangerous than true wild bears.
- Visitors to Eastern Parks have been seriously injured because they have not maintained a safe distance from panhandler bears.
- Panhandler mothers teach their cubs the panhandling habit, thereby perpetuating the cycle of panhandling.
- Feeding bears human food or allowing them to obtain garbage, often indirectly kills them.
- Everyone has a responsibility to ensure that wild bears remain wild.

## **APPENDIX A**

### Bear Management Research Action Statements

The following research action statements define research areas or needs that are necessary to better understand black bear population dynamics and its relationship to visitor use within the Park. In order to develop management actions which deal directly with correcting adverse bear/human interactions in the backcountry and wilderness areas, a thorough understanding of all aspects of bear behavior is needed.

1. Black Bear Population Monitoring

The revised (1999) bear population-monitoring program (Bear Bait Station Survey) conducted during early summer each year should be continued.

2. The Effects of Poaching on the Bear Population

*The illegal poaching of bears in certain locations within the Park or excessive kill permit mortality in specific areas near the boundary may be effecting local population levels or causing unnatural distribution patterns. Better methods of determining the magnitude of poaching activity and its effects on the resource are needed to protect the bear population from excessive mortality.*

3. The Effects of Legal Hunting on Population Levels and Distribution

Hunting pressure adjacent to the Park boundary can be either a positive or a negative influence on population levels. Legal and controlled hunting is the preferred method of removing excess animals from high population areas. Currently, Park management has no method of influencing harvest levels or the establishment of annual hunting regulations or seasons.

4. The Effects of increasing numbers of black bears taken by kill permits in adjacent lands.

Since the VDGIF has greatly scaled back nuisance bear trapping efforts (since 2000), more kill permits are being issued by the VDGIF. It appears that more bears are being taken in adjacent lands. Increasing numbers of nuisance bears have been taken in Rappahannock and Madison County orchards in 2001.

5. The Effects on High Density Backcountry Use on the Utilization of Home Range by Black Bears

Seasonal high-density visitor use within a bear's home range may adversely affect normal habitat utilization patterns. Repeated disruptions may lead to adverse bear/human conflicts. Visitor use may need to be regulated in currently popular areas to protect critical bear habitat.

6. The Effects of Land Use Changes in the Vicinity of the Park on Population Size, Structure, Movement Patterns, and Habitat Utilization

Rapid changes in land use near the Park threaten to drastically alter bear habitat, movement patterns, and mortality from legal hunting. Bear management in the future is very likely to be confounded by conflicting interests of Park visitors and adjacent landowners and hunters. Actions need to be initiated now to set the stage for future mitigation actions.

## **APPENDIX B**

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## APPENDIX C

### Black Bear Population Monitoring Annual Index Summary

The latest data reflect bear activity in the near vicinity of transects and or individual stations during those days of July 2000 and June 2001 when baits were suspended from tree limbs. There was a tremendous variability between the two years at both the transect and district level but the parkwide difference between 2000 and 2001 were not significant.

The bait station survey can not measure or predict bear density levels (which are probably at or near all time highs) but only visitation rates in the near vicinity. As visitation rates increase or decrease in significant terms and as sustained positive or negative trends emerge, then we may surmise (if what we detect correlates with harvest and other data) that the population is generally increasing, decreasing or remaining generally stable. This is what the bear bait station is designed to provide over the long-term.

| <b>Year</b>                          | <b>North District</b> | <b>Central District</b> | <b>South District</b> | <b>Park Average</b> |
|--------------------------------------|-----------------------|-------------------------|-----------------------|---------------------|
| 1983                                 | 8%                    | 7%                      | 11%                   | 9%                  |
| 1984                                 | 30%                   | 20%                     | 31%                   | 34%                 |
| 1985                                 | 30%                   | 26%                     | 54%                   | 36%                 |
| 1986                                 | 24%                   | 35%                     | 42%                   | 33%                 |
| 1987                                 | 14%                   | 33%                     | 58%                   | 37%                 |
| 1988                                 | 14%                   | 27%                     | 58%                   | 35%                 |
| Lack of Data from 1989 through 1999. |                       |                         |                       |                     |
| 2000                                 | 20.30%                | 48.30%                  | 26.40%                | 31.80%              |
| 2001                                 | 16.90%                | 29.30%                  | 43.40%                | 29.40%              |







### Shenandoah National Park Black Bear Bait Station Survey

