Management of
Habituated Wolves
in
Yellowstone National Park

September 12, 2003

Yellowstone National Park
Wyoming

LYNNE ROSCROW, 2001

These two Druid wolf pups commonly approached cars and people during February and March 2002.

Management of Habituated Wolves in Yellowstone National Park

Yellowstone National Park
Wyoming

September 12, 2003

Recommended/Approved by:

Douglas W. Smith, Wolf Project Leader, YCR	Date
Glenn Plumb, Supervisory Wildlife Biologist, YCR	Date
Tom Olliff, Chief, Branch of Natural Resources, YCR	Date
John D. Varley, Director, YCR	Date
Suzanne Lewis, Superintendent, YNP	Date

JEANNE MUELLNER

Two Druid Peak pack wolves approaching a garbage can and a parked vehicle. These wolves are the same two pictured on the inside cover.

PROBLEM STATEMENT

Wolves are among the shiest of all wildlife and are generally suspicious of humans. Historically, problem wolves are rare and have an almost zero probability of attacking a human. However, some wild wolves have shown aggressive behavior towards humans, and it is the purpose of this plan to acknowledge that possibility in Yellowstone National Park (YNP) and take steps to prevent such an occurrence.

Wolves are intelligent animals that learn quickly, so changing the behavior of a problem wolf is difficult. Also, because problem wolf behavior is rare, there is little published information and management strategies on this topic, and the common solution is wolf removal. Unlike other aspects of wolf management, where a plethora of information exits, there was little information upon which to draw for formulation of this management plan.

Our management objectives discussed in this plan are to: 1) maintain a wild population of wolves in YNP; 2) prevent the development of habituated wolves; 3) reduce wolf–human contact; 4) prevent human injury due to an habituated wolf; 5) educate the public about proper wolf viewing so as to prevent habituation; and 6) gather more information on habituated wolves to help manage future situations that may develop. We intend to achieve these goals through human education and intolerance of fearless wolves that may pose a threat to human safety. Should cases of problem wolves occur, and non-lethal management actions are unsuccessful in eliminating the problem, then removal of the problem wolf will take place. We recommend, however, that wolf removal be considered on a case-by-case basis.

Our strategy is two pronged, involving management of both people and wolves. Since wolves have not been recorded to attack people on their first encounter with humans, and require exposure to humans before attacking, we will use a graded response. It should be noted, however, that YNP wolves have more exposure to people than is typical, hence sometimes more aggressive actions may be necessary. Our first response to a report of a habituated or unafraid wolf would be to warn and educate the public, increase our monitoring intensity, and visit the site where problems were reported. This would primarily be to gather more data, allowing formulation of future responses if necessary (*see Appendix I*). If the problem continues we would negatively condition the animal with cracker shells, bean bag rounds, or rubber bullets, all proven to be non-injurious deterrents. If hazing fails, then the final step would be wolf removal. A diagrammatic representation of this management approach is represented in Figure 1.

Before we describe the plan in detail, a review of what is known about problem wolves and a characterization of them is important for perspective, plan design, and implementation. Also, discussion of problem wolves in YNP is necessary to justify this management plan and any proposed action.

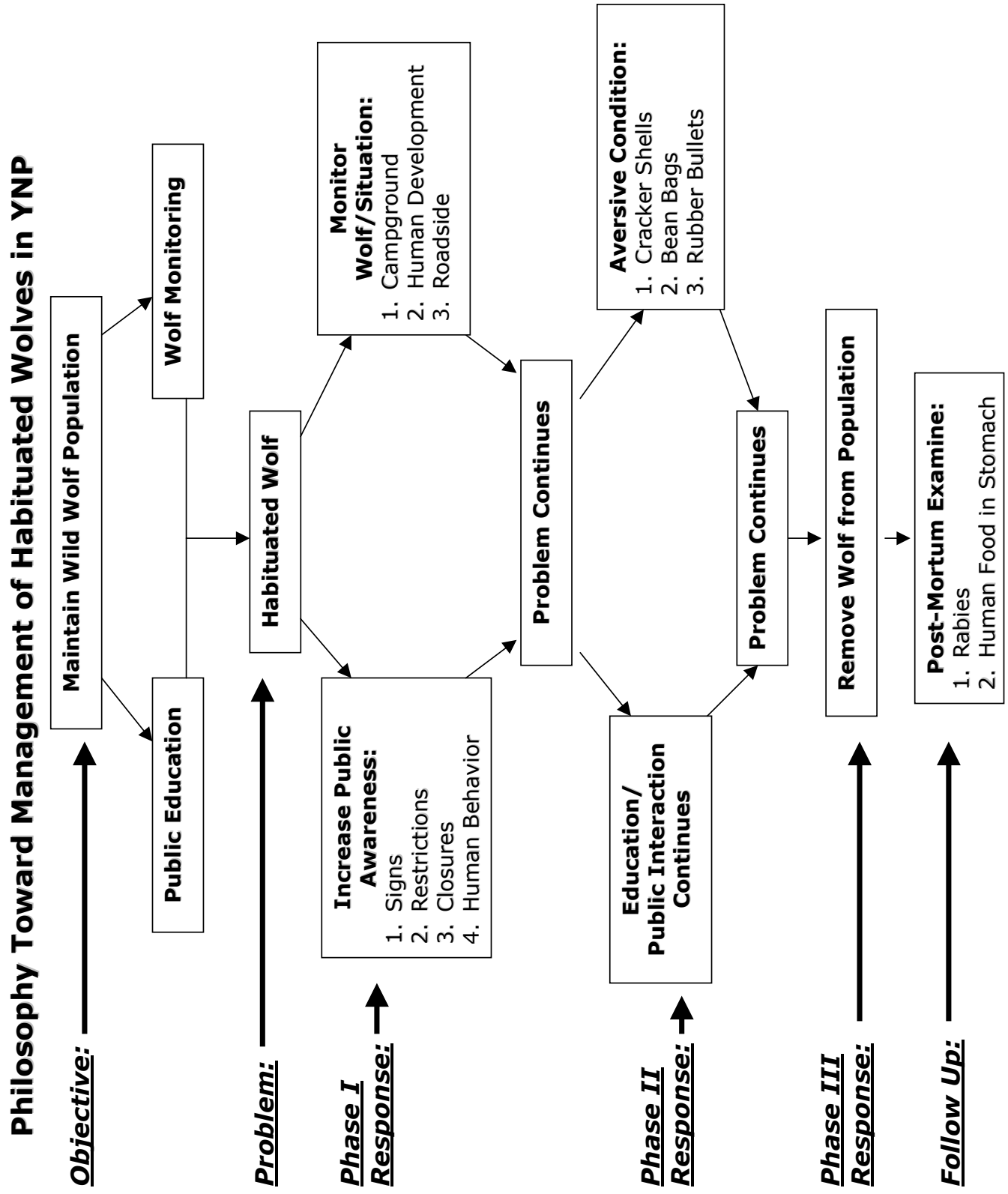

Figure 1. Flow chart depicting the philosophical, step-by-step approach to management of habituated wolves in Yellowstone National Park.

LYNNE ROSCROW, 2001

A wolf approaching a car in Lamar Valley. The windshield is visible in the lower part of this photo.

BACKGROUND ON HABITUATED WOLVES

Almost all of the wolves that have shown aggression towards humans have lost their wildness by being repeatedly exposed to humans and losing their fear as a consequence (Linnell et al. 2002, McNay 2002a, Carnes and Van Ballenberghe personal communication). McNay (2002a) defines habituation as "the loss of an animal's fear response to people arising from frequent non-consequential encounters." Wolves in YNP are probably non-consequently exposed to people more than any other place in North America. Habituation appears to be a prerequisite for an aggressive act towards a human, and food rewards most commonly promote habituation, but there are cases of non-food-conditioned wolves attacking humans (McNay 2002b). The main objective of this plan is to prevent and reverse wolf habituation.

Second to habituation, humans who act in a non-threatening manner appear to be a key factor in wolf aggression towards people. Most aggressive behavior by wolves toward humans has been on adults lying prone on the ground or children. Wolves are threatened by people, and merely holding one's ground and standing tall can deter even a habituated wolf. This is effective in deterring captive wolves, which are more dangerous than wild wolves, because they have repeated experience with people and often are not afraid of them. Yet a confident, tall human, or flaring one's jacket if not tall, is often all that is needed to deter a captive wolf.

Another factor in wolf habituation is the age of the wolf. The majority of habituated wolves are young. Young wolves are curious, learning, and often not involved with

killing prey and other important pack activities, so are attracted to novel stimuli like humans. Reinforced by food, wolves may quickly learn that humans are an easier source of food rather than working through the dominance hierarchy of the pack (pups are the lowest ranking wolves in the pack and often eat last at a fresh kill). Yearling wolves are also susceptible, and the two most problematic wolves in YNP to date have been yearling males. Other areas also report that young wolves are usually the ones that grow accustomed to humans. The Mexican Wolf Project in the American southwest and Banff National Park in Alberta, Canada, also report problems with pup and yearling wolves. Adult wolves tend to avoid human contact, but still can pose a problem as seen in the incident in Icy Bay, Alaska, when an adult wolf attacked a child (McNay 2002b). Wolves born in the Lamar Valley of YNP in 1997, and exposed to large numbers of humans their whole life, avoid people. It therefore appears that there is a critical period of time during which wolves can become habituated, after which they are not as susceptible, or revert to more people-aversive behaviors after they mature.

Many people fear that the expansion of wolf range, mostly into areas of higher human population density, will increase the number of wolf–human encounters and lead to aggressive behavior toward humans. Recent studies summarizing wolf–human encounters worldwide have concluded that wolves are among the least dangerous wildlife species for their size and predatory potential (Linnell 2002, McNay 2002a). In rare cases where wolves have killed people, most attacks were made by rabid wolves. Predatory attacks were aimed mainly at children, while aggression towards humans in general was unusual and episodic. In the 20th century, confirmed and suspected wolf attacks were rare and occurred mainly in Europe, Asia, and Russia, many of which were considered due to rabies or predatory attacks. Since 1900, there have been a total of 273 attacks by wolves in all of Europe (>80% by rabid wolves), resulting in 27 deaths. Combined reports from India, Afghanistan, Iran, China, and Russia yield a total of 1,579 attacks (70% by rabid wolves) resulting in 539 deaths. In North America, 21 aggressive encounters towards humans by presumably healthy wolves were confirmed in the 20th century (Carnes and Van Ballenberghe, personal communication; McNay 2002a, has 27 attacks), none of which resulted in death, whereas 6 attacks by confirmed rabid wolves were documented (1900–1950s), resulting in two deaths.

Aggression Toward Humans by Other Wildlife

It is important to put wolf aggression towards humans into context by comparing them with attacks by other large carnivores and wildlife species (as seen by the following review from Linnell et al. 2002). For example, between 1890 and 2001, 17 fatal and 72 non-fatal attacks by cougars have been reported in North America. In this same time period, 71 people have been killed by grizzly bears with an average of 4 attacks annually in North America. Outside of North America in the 20th century, tigers, lions, leopards, and Eurasian bears have killed a combined total of 6,297 people. Attacks by other wildlife species are much more common than large carnivore attacks. An average of 27,000 people in the United States are bitten by rodents annually, 750 by skunks, and 500 by foxes. Between 1978 and 1992 alone, bison in YNP injured 56 people, whereas only 12 people were injured by black and grizzly bears within the same time period. Domestic dogs attack an estimated one million people annually in the United States. Carbyn (1989) reported several attacks on people by coyotes in YNP.

Conditions Leading to Wolf Aggression Toward Humans

Despite the rarity of wolf aggression toward humans in North America, it is important to understand how documented incidents relate to managing wolf–human interactions in places like Yellowstone National Park. Of the 21 aggressive acts towards humans by healthy wild wolves, three occurred during aggressive encounters between a wolf and a domestic dog in the presence of a human. The remaining 18 incidents were caused by habituated wolves. Five of these attacks occurred in Algonquin Provincial Park, Ontario, Canada, between 1987 and 1998 by four different wolves, again mostly on children. All four of the Algonquin wolves had been closely associating with humans for weeks or months leading

up to the attacks, and it is likely that some (but not all) of these wolves had obtained food from humans during that time. In 2000, on Vargas Island, British Columbia, Canada, habituated wolves attacked sleeping campers severely enough to require stitches. Habituated wolves on Ellesmere Island, Nunavut, have also injured people. In 2001, Denali National Park closed a campground because wolves were unafraid of people, became a nuisance, and stole shoes and cookware. Two wolves were killed in Banff National Park because one killed a dog in a person's yard, and another was fed and approached humans (behavior such as this has already been recorded in YNP). Despite the concern that range expansion of wolves will lead to more wolf–human encounters resulting in aggression towards humans, it is important to note that none of the recently recorded interactions were from areas where wolves were newly established.

Human behavior was the primary factor contributing to human injuries in North American incidents. Therefore, management of wolf-human encounters ultimately means managing human behavior to prevent wolf habituation. The objective of this plan is to acknowledge the possibility of habituated wolves in YNP, and manage both wolves and humans to prevent wolf habituation, human injury, and wolf removal.

Habituated Wolves in Yellowstone National Park

Interest in humans by wolves was first recorded in Lamar Valley in 1999. A yearling male (#163) in the Druid Peak pack showed little fear of humans and walked near people on several occasions. It was unknown if #163 had obtained human food, but he was observed visiting a garbage can and eating a plastic wrapper. The wolf was closely monitored, harassed by a ranger on one occasion, but dispersed that winter and died of natural causes (possibly killed by a cougar).

In 2001 another yearling male (#224), again from the Druid Peak pack, closely approached several humans. He was observed slowly walking by people at close range even while his pack mates hurriedly left the scene. On one occasion, Wolf Project personnel ran and yelled at the wolf, which caused it to flee. This wolf was only a problem in the spring and summer when roadside viewers were at their maximum. The wolves left their den in midsummer and moved away from the road, reducing contact with humans and eliminating the problem. He dispersed from the pack and Lamar Valley in early 2002. He was later killed in a control action for showing bold and unafraid behavior near a ranch in Paradise Valley.

During the winter of 2001 and 2002 numerous cases of wolves closely approaching humans were reported. In December 2001 a wolf was reported "within 1 foot" of a visitor on the side of the road, who then "attempted to pet the wolf," but the wolf jumped back. This wolf was looking for food on the side of the road and apparently ingested some candy and sandwich meat. In December 2001 and in January 2002, wolves walked up to observers in stopped vehicles. In another case, wolves crossing the road stopped on the pavement and walked toward observers, who were not in their vehicles. In February 2002, Wolf Project staff tried to scare off two wolf pups, but the wolves ignored the approaching person, who then threw a snowball, which the wolves chased. In February, a visitor in a vehicle was observed throwing food and photographing two wolves at the roadside. Later, near the same spot, a wolf approached a visitor within nine feet. All of the above reports were from the Druid Peak pack, and were likely the same two pups each time.

Besides the Druid Peak pack, one other pack of wolves has closely approached humans. Numerous reports from the Gibbon Meadow area detailed wolves walking near snowmobiles and snow coaches during the winter of 2001–2002. These individuals, descendents of wolves originally from British Columbia, Canada, were initially afraid of snowmobiles, but during the winter of 2001–2002 were seen more commonly as compared to previous winters when they were not reported being observed.

LEGAL AUTHORITY AND COMPLIANCE

The U.S. Fish and Wildlife Service (USFWS) has legal authority over management of endangered species (Endangered Species Act 1973). The USFWS under the authority of the nonessential experimental status of wolves in YNP {17 CFR 32(3)(x)} has permitted and trained park staff to haze wolves with rubber bullets and bean bag rounds (Dominic Domenici, USFWS, Law Enforcement, Special Agent from Casper, WY, conducted the training). Further, the USFWS has also granted YNP the authority to remove wolves should it be necessary and deemed appropriate by park staff. The USFWS has authorization for this under {17 CFR 84(3)(v)}, "The Service (USFWS), or agencies authorized by the Service, may promptly remove (place in captivity or kill) any wolf the Service or agency designated by the Service determines to present a threat to human life or safety." The USFWS also encourages active management to prevent habituation of wolves in YNP to prevent human injury, "As allowed by the experimental population regulations, I encourage Yellowstone National Park to continue to actively manage wolves in the Park to reduce the chances of habituation to humans and the potential threat to human safety that habituation may cause. If a wolf behaves in an habituated manner toward humans, the Service recommends that less-than-lethal munitions be utilized initially but that if the habituated behavior continues that the individual wolf be lethally removed, as soon as possible" (*Appendix I, Memorandum from Wolf Recovery Coordinator, Ed Bangs, 10 July 2003*). Finally, Section 7 consultation was done during the original wolf EIS and is not required to haze or remove wolves in YNP (Ed Bangs, USFWS Wolf Recovery Coordinator, personal communication).

Management of wolves in this fashion is consistent with historic management of the threatened grizzly bear in YNP. Bear aversive conditioning and hazing is a common practice in YNP and has occurred since 1983 under the authority of the 1983 Environmental Impact Statement (Gunther 1996). As with wolves, the USFWS transferred the authority to the superintendent of YNP to decide on the methods for repelling and/or removing bears (Gunther 1996). Therefore, this plan is consistent with management practices and policy setting precedents established for other threatened or endangered species in YNP.

Park regulations also provide for the conditioning and/or removal of animals that pose a threat to human safety. "Removal of nuisance animals may be undertaken to reduce a threat to public health or safety (NPS 77, Native Animal Management, Nuisance Animals: 17). Further, section 4.4.2.1 of Management Policies (2001) states, "Where visitor use or other human activities cannot be modified or curtailed, the Service may directly reduce the animal population by using several animal population management techniques..." that include "destruction of animals by NPS personnel or their authorized agents."

LYNNE ROSCROW, 2001

Two cases of wolves obtaining human food along the roadside have been recorded. In one case, a wolf was observed approaching a vehicle, similar to the wolf in this photo, and the passenger threw it food to take a photograph.

MANAGEMENT OF HABITUATED WOLVES

The general approach toward prevention of habituation and response to habituated wolves will be one of ever-increasing management intervention: from relatively benign intervention to non-injurious harassment to removal (*Fig. 1*). However, reviewers of this plan strongly recommended an aggressive strategy (e.g., rapid negative conditioning for a habituated wolf or even questionably habituated one) to prevent wolf aggression towards a human. Reviewers stressed that the unusually high exposure wolves have to people in YNP increases the likelihood of unpredictable wolf behavior. Also, it would be hard to know when an individual wolf has been exposed enough to humans to make it a likely candidate for aggressive behavior.

Two basic strategies will underlie the approach: 1) educate the public about their behavior when viewing wolves from the roadside or encountering wolves in the backcountry, and 2) understand and work with the natural behavior of wolves to prevent habituation. Recourse to more aggressive management will take place on a case-by-case basis and if preventive measures fail. Area closures may be warranted in some cases, until appropriate action has taken place to address a problem. Education measures should target all wildlife, not just wolves, as most safe hu-

man behaviors that apply to general wildlife observation also apply to wolves.

A) Human Behavioral Modification and Public Education

Wolves have quickly become among the most popular of all wildlife viewing opportunities in the park. From being observed only occasionally, wolves are now being observed every day of the year. The Druid Peak pack dens 400 m from the road in Lamar Valley, and the wolves cross the road daily in summer close to visitors. Through 2002, approximately 100,000 people have seen wolves in YNP. The proximity of wolves to people in Lamar has necessitated monitoring and management of visitor activity in response to wolf activity so as to prevent habituation. As a result of this program, both human and wolf safety are enhanced (see Smith et al. 2000, Smith et. al. 2001, and Smith et. al. 2002 for details on the Druid Road Project). Enthusiastic wolf watchers often drive and park hazardously, and in their zeal to see a wolf, they have interfered with natural wolf behavior (e.g., prevented them from crossing the road). Active management has allowed the wolves more natural behavior and increased the orderliness and safety for wolf viewers. This tremendous attention and exposure to humans has caused some wolves to lose their natural fear of humans. Most of the close human approaches by wolves involve animals from the Druid Peak pack. Through staff already on the scene, as well as interpreters directing visitors to wolf viewing opportunities, wolf-viewing etiquette should be emphasized and stressed. Educating people about how their actions affect wolves and other wildlife is essential to successful modification of human behavior to avoid wildlife habituation. The points below will be stressed.

1) Maintain a safe viewing distance from wolves at all times.

Wolf viewing situations will sometimes involve humans and wolves in close proximity. Visitors should not encourage or allow wolves to get close to them. Anticipating wolf travel and retreating or getting into a vehicle are ways to prevent encounters and avoid blocking wolf travel routes. Encounters may also occur during backcountry outings, even in well-established human use areas. As with road or near-road wolf encounters, visitors in the backcountry should not approach wolves, or allow wolves to get close to them. Allowing wolves to move through the area or hiking around or away from them will help reduce encounters. Visitors should not allow wolves to approach them within 50 meters. Should a wolf move within this distance, humans should respond as described below. Closure to visitor access may be necessary if a certain situation becomes unmanageable.

2) If a wolf does approach.

If avoiding a wolf is unsuccessful, or a safe retreat is unavailable, visitors should not run from the wolf. Visitors should group together to give the appearance of a bigger threat, and should raise their hands, clap their hands, throw rocks, flare any loose clothing such as a jacket, yell, and stand their ground, as running may elicit a response by the wolf to chase. If the wolf approaches, the visitors should continue to stand their ground and strike at the wolf with a stick or pole should one be available. Small children can be susceptible, as they are less threatening; do not leave them alone. Many of the same precautions for a close bear or mountain lion encounter apply for a wolf as well. This message will be proactively disseminated to the public when a habituated wolf situation has been reported or is ongoing.

3) Do not feed wolves.

Education must reinforce to the public that feeding wildlife can lead to the death of an animal and human injury. As with bears and some other wildlife, wolves that learn how to get human foods even once may attempt to do so again. Visitors will be reminded that both

actively feeding wolves, as well as indirectly providing food through careless food handling in designated picnic areas, campsites, pull-outs, or backcountry sites, is strictly prohibited and punishable by law.

4) Dogs may attract wolves.

In YNP, dogs are not allowed in the backcountry, and are restricted to developed areas and roadsides, provided they are on a leash. The public will be informed that dogs may attract wolves, unprotected dogs may be attacked, and interfering in a dog–wolf interaction may result in injury. Walking a dog may be an attractant to a wolf; small children should not walk dogs alone. If a wolf approaches, follow the same steps under #2 above, although expect greater difficulty in deterring the wolves.

B) Wolf Behavioral Modification

Wolves show a high degree of behavioral flexibility, and adapt very readily to novel situations, whether it is human or non-human-influenced conditions in their environments. Central to wolf habituation management is an understanding of wolf behavior, especially what constitutes normal versus abnormal. Overall, wolves are naturally wary and elusive, and avoidance of humans by healthy wild wolves is the norm. Wolves living in fragmented habitats, or areas with partial to frequent human presence, generally show a high degree of tolerance towards human activity and infrastructure, but still exhibit avoidance and fear in direct encounters. In such areas, wolves traveling near human developments, using roads as travel corridors, and showing a certain level of curiosity towards human activity, should all be considered "normal" wolf behavior, because these behaviors reflect wolves' natural ability to adapt to their surroundings. In contrast, wolves that do not show some degree of fear towards humans when encountered, and associate humans with food, exemplify "abnormal" behavior.

Limits of "normal" or acceptable behavior will be set considering some YNP wolves may experience moderate to high exposure to human activity and infrastructure, especially in places such as Lamar Valley. As a result, we expect to see YNP wolves show a high degree of tolerance towards humans. The Druid Peak pack's behavior of hunting, raising pups, and behaving like normal wild wolves, while seemingly ignoring large crowds of humans watching from the roads throughout the year, is one such example. This degree of tolerance will not be viewed as a problem itself, but managers will quickly respond to any of the following activities:

a) continuously approaching people without signs of fear,
b) frequently entering human developments without fear,
c) becoming habituated to humans and human food items,
d) acquiring human foods at least once, and
e) attacking or injuring a human.

These behaviors should be considered abnormal and dealt with as soon as they are recognized.

1) Increase monitoring and data gathering on the situation.

Given that wolves are reluctant to attack humans (McNay 2002a) our initial response to a habituated wolf will be to gather more information. Knowledge of the situation circumstances, (e.g., was food involved, what age/sex was the wolf?) will be gathered as soon as a problem situation develops and a course of action taken. The Wolf Project office should be contacted immediately should a habituated wolf situation develop. The Wolf Project systematically tracks habituated wolf reports and behavior (*Appendix II*), so the first response will entail passive management activity such as visitor education through direct contacts and posted signs.

2) Conduct hazing and aversive conditioning.

If further monitoring indicates a problem, or an immediately dangerous situation is recognized, negative conditioning will be done immediately. Several techniques are available to discourage wolves from close human encounters. Cracker shells are commonly used already on bears and have been used in YNP on wolves successfully. Only trained personnel would be allowed to use cracker shells (e.g., rangers, Bear Management, Wolf Project). We will also use beanbag rounds or rubber bullets. These munitions are fired from a shotgun and not fatal if used properly. Again, only trained personnel will be authorized to use them. Additional staff will be necessary if this technique is used, as this activity may occur in view of the public and visitor control and/or education will be necessary. We will make the public aware of the consequences of improper wildlife viewing behavior. Specific use of these munitions is discussed in the YNP bear management plan (Gunther 1996) and appropriate staff will be trained under such protocol.

3) Wolves in developed areas.

Similar to bears, wolves will not be allowed to frequent campgrounds or human developments. If wolves are reported to use developed areas, then negative conditioning will be used to deter them. If necessary, staff will continuously monitor these situations. We will close campgrounds if wolves visit frequently and do not respond to hazing. Campground closure should also be considered as a first response, as this has been successful in Denali National Park.

C) Wolf Removal

If a wolf does not respond to hazing or aversive conditioning, or should a wolf exhibit particularly aggressive and non-modifiable behavior, or attack a person, then it will be removed from the population. Translocation is not recommended because there are few places to take the wolf where it will not come back. Placement in a captive facility is possible but placement under current conditions is difficult (e.g., most places have enough wolves). Therefore, it is likely that removal will entail killing the individual wolf. We will take this action when it appears a wolf may injure a person. Park managers will immediately implement this option without delay. When it becomes necessary to remove a wolf, a rapid response will be essential, and any administrative steps or procedures will be discussed ahead of time. Removal of individual problem wolves will not significantly affect the YNP wolf population. Since removal will entail a specific individual, we will likely be able to find, dart, and sedate the offending wolf, remove it from the field, and lethally inject it out of view of the public.

D) Wolf Management Action and Decision Process

Wolf Project Leader and Biologist (or designee), along with Chief, Branch of Natural Resources (or designee) shall be responsible for all decisions to initiate hazing, aversive conditioning, trapping, immobilization, or management removal of habituated wolves. Following this decision, notification will be made to the Director, Yellowstone Center for Resources, Chief Ranger (or designee), and at least one person (or designee) from the following three positions: Assistant Chief Ranger or District or Sub-district Ranger from the district in which the wolf is a management concern. A permanent record of each habituated wolf management issue will be maintained by the Wolf Project.

APPENDIX I

July 10, 2003

MEMORANDUM

To: Doug Smith, Wolf Project Leader, Yellowstone National Park

From: Ed Bangs, Wolf Recovery Coordinator, U.S. Fish and Wildlife Service

Subject: Harassment and lethal control of habituated wolves

The Service recommends that the National Park Service actively manage gray wolves that appear to be habituated to people in Yellowstone National Park. Wild wolves are rarely a threat to human safety but there have been several instances where people have been attacked by wolves in North America. Almost all of these cases appear to involve wolves that have, to some extent, been habituated to people, usually through food conditioning. The Service, as allowed by the nonessential experimental population regulation, provided training and a permit under 17.32(3)(x) to Yellowstone National Park to participate in a research and management project to injuriously harass wolves that appear to be losing their natural fear and avoidance of humans. In addition the Service would authorize Yellowstone National Park under the experimental population rules to remove any wolf that was habituated to the extent it represented a potential threat to human safety. The Service can issue such authorization under [17.84 (3)(v)] "The Service, or agencies authorized by the Service, may promptly remove (place in captivity or kill) any wolf the Service or agency designated by the Service determines to present a threat to human life or safety."

As allowed by the experimental population regulations, I encourage Yellowstone National Park to continue to actively manage wolves in the Park to reduce the chances of habituation to humans and the potential threat to human safety that habituation may cause. If a wolf behaves in an habituated manner towards humans, the Service recommends that less-than-lethal munitions be utilized initially but that if the habituated behavior continues that the individual wolf be lethally removed, as soon as possible. Any wolf that demonstrates aggressive or threatening behavior toward humans should be immediately removed from the wild.

Thank you for your cooperation in wolf management and recovery. Please contact me if you require any clarification of these comments.

APPENDIX II

Case Incident # _____

Incident Offense Code

YELLOWSTONE NATIONAL PARK HABITUATED WOLF ENCOUNTER & AVERSIVE CONDITIONING - ACTION TAKEN DATA FORM

Data entered into database: _____ (initials)
Data in database double checked: _____

Date of Encounter: ____/____/_____
Reporting Person *(record full name)*: _____
Reported To *(record full name)*: _____

SITE DATA: **Location:** _____ (be specific)

Location Type *(circle all that apply)*: road developed area backcountry

UTM: _____/_____ **UTM Type** *(circle one)*: NAD 83 NAD 27

WOLF DATA: **Wolf Pack:** _____ **# of Wolves Involved:** _____
(if more than 2 wolves were involved, use comment section to record Wolf #, Color, Age, Sex and Collar data)

Wolf #1 Data *(circle one for each category)*: **Wolf #** (if known): _____
Color: black gray **Age:** pup yearling adult unknown
(0-12 months) (1-2 yrs) (Δ 2 yrs)
Sex: male female unknown **Collared?:** yes no unknown

Wolf #2 Data *(circle one for each category)*: **Wolf #** (if known): _____
Color: black gray **Age:** pup yearling adult unknown
(0-12 months) (1-2 yrs) (Δ 2 yrs)
Sex: male female unknown **Collared?:** yes no unknown

Shortest distance wolf/wolves were to human(s)/vehicle(s): _____ *(meters)*
Did wolf/wolves approach people? *(circle one)*: yes no unknown
Did wolves cross road close to people but without approaching? *(circle one)*: yes no unknown
Did wolves cross road then approach people? *(circle one)*: yes no unknown
Was incident near a carcass or wolf kill? *(circle one)*: yes no unknown
Was incident near a wolf den site? *(circle one)*: yes no unknown

HUMAN DATA: **# of People Wolf/Wolves Approached:** _____
Did wolves approach people or vehicle? *(circle one)*: people vehicle both unknown
What was the behavior of the people?: _____
Was there any action taken? *(if so, fill out aversive condition data on back of this form)*: yes no
Was the wolf fed? *(circle one)*: yes no unknown
Were photographers involved? *(circle one)*: yes no unknown
Was a wildlife/wolf class involved? *(circle one)*: yes no unknown
If so, indicate name of group, if known: _____

Additional Comments:

_____

_____

_____

_____

_____

(continued on back)
Created on 03/06/02

AVERSIVE CONDITIONING DATA:

Date of Aversive Conditioning: ____/____/_____
Reporting Person *(record full name)*: _____

SITE DATA: **Location:** _____ (be specific)
Location Type ***(circle all that apply)*****:** road developed area backcountry
den site kill site other *(specify)*: _____
UTM: _____/_____ **UTM Type** ***(circle one)*****:** NAD 83 NAD 27
Action Taken: cracker shells rubber bullets bean bags
other *(specify)*: _____
# of Shots Fired: _____ **Distance from wolf/wolves when fired:** _____*(meters)*
Was Wolf Hit?: yes no unknown
Where was wolf hit?: left hindquarters right hindquarters left mid-section
right mid-section left shoulder right shoulder other *(specify)*: _____
Was wolf injured? ***(circle one)*****:** yes no unknown

WOLF RESPONSE DATA:
What reaction did the wolf/wolves have? ***(circle all that apply)*****:** walk away lope away run away
stop bite hit area vocalize direct stare no reaction other *(specify)*: _____
Repeat offender(s)? ***(circle one)*****:** yes no unknown
(see WOLF DATA section as well)

WOLF DATA: **Wolf Pack:** _____ **# of Wolves Involved:** _____
(if more than 2 wolves were conditioned, use comment section to record Wolf #, Color, Age, Sex, Collar and Repeat Offender data)

Wolf #1 Data ***(circle one for each category)*****: Wolf #** **(if known):** _____
Color: black gray **Age:** pup yearling adult unknown
(0-12 months) *(1-2 yrs)* *(Δ 2 yrs)*
Sex: male female unknown **Collared?:** yes no unknown
Repeat offender? ***(circle one)*****:** yes no unknown

Wolf #2 Data ***(circle one for each category)*****: Wolf #** **(if known):** _____
Color: black gray **Age:** pup yearling adult unknown
(0-12 months) *(1-2 yrs)* *(Δ 2 yrs)*
Sex: male female unknown **Collared?:** yes no unknown
Repeat offender? ***(circle one)*****:** yes no unknown

HUMAN DATA:
Did any people see the action taken? ***(circle one)*****:** yes no
If so, how many people?: _____
What was their response?: _____
Did someone explain action taken to people? ***(circle one)*****:** yes no
Additional Comments:

_____

_____

_____

ACKNOWLEDGMENTS

This plan was prepared by Douglas W. Smith and Daniel E. Stahler. We would like to thank L. Adams, E.E. Bangs, N. Bishop, D. Boyd, M.E. McNay, R. McIntyre, L.D. Mech, W. Medwid, K. Murphy, P. Paquet, and J. Theberge for critical review of this management plan.

LITERATURE CITED

Carbyn, L.N. 1989. Coyote attacks on children in western North America. Wildlife Society Bulletin 17: 444–446.

Gunther, K. 1996. Yellowstone National Park Annual Bear Management Plan. Bear Management Office, Yellowstone Center for Resources, YNP. 55 pages.

Linnell, J., R. Andersen, Z. Andersone, L. Balciauskas, J.C. Blanco, L. Boitani, S. Brainard, U. Breitenmoser, I. Kojola, O. Liberg, J. Loe, H. Okarma, H. Pedersen, C. Promberger, H. Sand, E. Solberg, H. Valdmann, P. Wabakken. 2002. The fear of wolves: A review of wolf attacks on humans. NINA Oppdragsmelding: 731:1–65.

McNay, M.E. 2002a. Wolf–human interactions in Alaska and Canada: a review of the case history. Wildlife Society Bulletin 30:831–843.

McNay, M.E. 2002b. A case history of wolf–human encounters in Alaska and Canada. Alaska Department of Fish and Game Wildlife Technical Bulletin 13.

National Park Service. 1991. Natural resources management guideline: NPS-77. U.S. Department of the Interior. 77pp.

National Park Service. 2001. Management policies. U.S. Department of the Interior. 137pp.

Smith, D.W., K. Murphy, R. McIntyre, and T. Zieber. 2000. Managing wolves and humans in Lamar Valley: A report on the Druid road project 2000. YNP report. 5 pp.

Smith, D.W., R. McIntyre, E. Cleere, G. Plumb, B. Phillips, B. Chan, M. Ross, J. Knuth Folts, D. Chalfant, and B. Suderman. 2001. Managing wolves and humans in Lamar Valley: A final report on the Druid road project 2001. YNP report. 7 pp.

Smith, D.W., D.R. Stahler, R. McIntyre, D. Graf, E. West, G. Plumb, B. Phillips, B. Chan, M. Ross, J. Knuth Folts, D. Chalfant, and B. Suderman. 2002. Managing wolves and humans in Lamar Valley: A final report on the Druid road project 2002. YNP report. 9 pp.