MONTANA WOLF CONSERVATION AND MANAGEMENT PLANNING DOCUMENT

DRAFT

PREPARED IN RESPONSE TO THE WOLF MANAGEMENT ADVISORY COUNCIL RECOMMENDATIONS

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EXECUTIVE SUMMARY

The State of Montana recognizes the gray wolf as a native species and will integrate wolves as a valuable part of our wildlife heritage. Since 1973, the U.S. Fish and Wildlife Service (USFWS) has managed wolves as an endangered species in Montana, under the authority of the Endangered Species Act (ESA). Wolves are likely to be removed from the endangered species list within 3-5 years. Upon delisting, management authority for wolves will return to Montana Fish, Wildlife & Parks (MFWP). MFWP recognizes and accepts the challenges, responsibilities, and benefits of a restored wolf population. Managing gray wolves will not be easy, but wolf restoration is fundamentally consistent with Montana's history of wildlife conservation. Long-term persistence of wolves in Montana depends on carefully balancing the complex biological, social, economic, and political aspects of wolf management.

State laws and administrative rules become the primary regulatory and legal mechanisms guiding management. Upon delisting, the gray wolf will automatically be classified as a species "in need of management." MFWP and the MFWP Commission will establish the regulatory framework to manage the species thereafter. This Plan provides the foundation for wolf conservation and management upon delisting and describes a spectrum of management activities that maintain viable populations of wolves and their prey, resolve wolf-human and wolf-livestock conflicts, and gain the support of people with diverse interests. Much of it is based on the comments and recommendations of a diverse 12-member citizens group, the Montana Wolf Management Advisory Council, and an Interagency Technical Committee. MFWP intends to honor the diverse perspectives and interests of our citizens and the national public. The State will consider a spectrum of interests in designing and implementing a balanced, responsive program that recognizes the opportunities and addresses the challenges faced by people directly affected by wolves.

Wolves will be integrated and sustained in suitable habitats within complex management settings. The wolf program will be based on principles of adaptive management. Management strategies and conflict resolution tools will be more conservative as the number of packs decreases, approaching the legal minimum. In contrast, management strategies become more liberal as the number of packs increases. Ultimately, the status of the wolf population itself identifies the appropriate management strategies. Fifteen packs will be used as the trigger to change management, not as a minimum or maximum number of wolves "allowed" in Montana. MFWP does not administratively declare an upper limit or maximum number of individuals of any wildlife species in the state in the sense of a "cap." Instead, MFWP identifies population objectives that are based on landowner tolerance, habitat conditions, social factors, and biological considerations. Wildlife populations are then managed according to the objectives and current population status, using an of array management tools.

Wolf distribution in Montana, as for other species, will ultimately be defined by the interaction of the species ecological requirements and human tolerance, not through artificial delineations that are administratively determined. Social acceptance of wolves transcends the boundaries of geography, land ownership, or land use designations just like a wolf pack territory boundary physically transcends them, too. An adaptive approach will help MFWP implement its wolf program over the range of social acceptance values now and in the future. Sensitivity towards

and prompt resolution of conflict where and when it develops is an important condition of not administratively capping wolf numbers or defining distribution.

Ultimately, wolf distribution will probably encompass western Montana because of the predominance of public lands as compared to eastern Montana. Wolves will be encouraged on large contiguous blocks of public land, managed primarily as backcountry areas or national parks where there is the least potential for conflict, particularly with livestock. Wolf packs in areas of interspersed public and private lands will be managed in ways similar to other free-ranging wildlife in Montana and within the constraints of the biological and social characteristics, the physical attributes of the environment, land ownership, and land uses. Some agency discretion and flexibility will be exercised by necessity to accommodate the unique attributes of each pack, its history, the site-specific characteristics of its home range, landowner preferences, or other factors that cannot be reasonably predicted at this time. Management flexibility will be crucial in addressing all of the public interests that surround wolves.

On a broad scale, ungulate distribution and human settlement patterns largely define wolf habitat. MFWP ungulate programs link habitat and population management through sustained public hunting to achieve ungulate population objectives. In this way, MFWP takes an important habitat need of wolves into consideration. Our work, along with the amount of land held in public ownership and adequate legal protections, provides long-term habitat availability for wolves. Federal land management agencies are increasingly managing lands from an ecosystem-level perspective, considering all components and functional relationships. Yellowstone and Glacier national parks function as refuges at opposite ends of the geographic extent of wolf distribution in the northern Rockies. The network of public lands in western Montana, central Idaho, and northwest Wyoming facilitates connectivity between the sub-populations. The legal protections and public outreach described in this plan help ensure the integrity of wolf movement and occupancy of habitats between refuges.

Wolf population management will include the full range of tools from non-lethal to lethal and will incorporate public outreach, conservation education, law enforcement, and landowner relations. Wolves do not exist in isolation from their environment, nor should an effective management program isolate wolves from their environment. Management actions will be evaluated in light of prevailing conditions or extenuating circumstances. Wolf populations will fluctuate as a result of management actions, natural mortality, legal harvest, illegal take, wolf productivity, and ungulate population fluctuations. If there are fewer than 15 wolf packs in the state, management tools are primarily non-lethal, particularly in backcountry settings and for public lands near national parks. Examples of non-lethal techniques include monitoring wolf locations using radio telemetry, changes in livestock husbandry practices, harassment, relocation, or attempts to modify wolf behavior. A minimum of 15 packs is required to use more liberal management tools, including lethal methods to resolve wolf-livestock, wolf-human conflicts, or concern over a localized prey population in light of the combined effects of predation and environmental factors.

When the wolf population no longer fits the definition of a species “in need of management” or when wolf numbers have increased and population regulation is needed, the MFWP Commission may reclassify the wolf as a big game animal or a furbearer. Regulated public harvest of wolves

by hunting and trapping during designated seasons is one tool that may help MFWP manage wolf numbers. Through public input and MFWP Commission oversight, harvest regulations would describe legal means of take, license requirements, and reporting and tagging requirements. Total harvest would be strictly controlled through a permit or quota system, with season closures as soon as harvest objectives are reached. Regulated harvest of wolves would take place within the larger context of multi-species management programs. As wolf numbers increase and distribution expands, harvest opportunity would increase. Specific harvest objectives will depend on other losses to the wolf population, such as control actions for livestock depredation or loss of a pack because of intraspecific strife. Wolves could be promoted (on remote public lands) or discouraged (in areas with high livestock densities) depending on harvest objectives, district boundaries, and pack distribution. Hunting is not permitted in national parks. Harvest management would proceed adaptively, but all hunting and trapping is precluded if wolf packs totaled fewer than 15. Law enforcement by the MFWP Enforcement Division would also proceed similar to other legally classified wildlife species.

The primary wolf monitoring responsibilities will rest with MFWP. We will estimate wolf numbers and pack distribution, document reproduction, and tabulate mortality. Ecological understanding will also stem from documenting territory boundaries, the locations of wolf den and rendezvous sites, and identifying key prey species and foraging areas during winter and spring seasons. The monitoring program will balance scientific precision with cost effectiveness. We will use a combination of radio telemetry and non-invasive techniques.

Because of their long-term financial investments and willingness to restrict themselves when necessary, Montanans enjoy relatively liberal hunting seasons for more ungulate species than other western states. The financial investments and sacrifices made by the hunting public to restore ungulate populations are significant. Safeguarding those investments for present and future generations is an important priority for many of Montana's citizens and MFWP. MFWP seeks to maintain the public's opportunity to hunt a wide variety of species under a variety of circumstances, and to do so in a sustainable, responsible manner.

To proactively balance and integrate management of ungulate populations and the factors that influence them (including wolf predation), hunter harvest opportunity for ungulates may be adjusted. Hunter opportunity already changes in response to previous hunter success, hunter participation rates, access to private lands, or environmental events such as drought or severe winters. The presence of wolves within the yearlong range of a specific ungulate herd adds another factor for consideration among all environmental and human-related factors. MFWP acknowledges that changes in hunter opportunity may affect outfitters and non-resident hunters, in addition to resident hunters. If a local prey population is significantly impacted by wolf predation in conjunction with other environmental factors, MFWP would consider reducing wolf pack size. Wolf management actions would be paired with other corrective management actions to reduce ungulate mortality or enhance recruitment. Concurrent management efforts for wolves and ungulates would continue until the prey population rebounded, recognizing that by the time prey populations begin to respond they may be influenced by a new set of environmental factors.

MFWP regularly surveys ungulate populations across a spectrum of their habitats. Information gathered from live populations is also supplemented by harvest information gathered at hunter

check stations or through the telephone harvest survey. Ungulate monitoring efforts will be enhanced where wolf packs are established.

MFWP will share responsibility with Montana Department of Livestock(MDOL) in managing wolf-livestock conflicts because Montana statutes assign responsibility to both agencies to manage wildlife causing damage to livestock. Wolves can create problems for some livestock producers. Financial losses may result directly from wolf depredation. Indirect costs may accumulate because of increased management activities, changes in husbandry practices, or uncompensated losses. These financial hardships accrue to individual farmers and ranchers and may be significant to them. Addressing wolf-livestock conflicts will entail two separate, but parallel elements. One element is the wolf management activities carried out by Wildlife Services (WS) and MFWP to minimize the potential for wolf-livestock conflicts and to resolve the conflicts where and when they develop. Examples are providing technical assistance, investigating complaints, and taking actions that reduce the probability that the offending wolf or wolves will be involved in another depredation incident. The management programs will be funded, administered, and implemented by the cooperating agencies. The second element addresses the economic losses through a compensation program when livestock are killed or injured by wolves.

The two elements, management and compensation, are funded, administered, and implemented separately and independently of one another -- but parallel one another, united in the goal of maintaining a viable wolf population and addressing wolf-livestock conflicts. MFWP and MDOL will work together, along with WS, to address and resolve wolf-livestock conflicts through a Memorandum of Understanding (MOU). MFWP, in cooperation with MDOL, will contract WS to respond to landowner or livestock producer wolf depredation complaints, to conduct field investigations, and to carry out management actions. MFWP has the ultimate responsibility for determining the disposition of wolves.

Livestock producers should report any suspected wolf depredations (injuries or death) or the disruption of livestock or guarding animals to WS directly. If the investigating WS agent *confirms* that a wolf or wolves were responsible, subsequent management actions will be guided by the specific recommendations of the investigator, the provisions of this plan and by the multi-agency MOU. WS will be directed to take an incremental approach to address wolf depredations, guided by wolf numbers, depredation history, and the location of the incident. When wolf numbers are low and incidents take place on remote public lands, WS would use more conservative management tools. WS could apply progressively more liberal methods as wolf numbers increase and for incidents on private lands. Conflict history of the pack, attributes of the pack (e.g. size or reproductive status), or the physical setting will all be considered before a management response is selected. Management actions will be directed at individual problem wolves. Non-selective methods such as poison would not be used.

MFWP may also approve lethal removal of the offending animal by livestock owners or their agents. A special kill permit (issued by MFWP) is required for lethal control of any legally classified wildlife in Montana, outside the defense of life/property provision or MFWP Commission approved regulations. MFWP will not issue special kill permits to livestock producers to remove wolves on public lands when wolf numbers are low. If the number of wolf

packs was at 15 or greater, MFWP may issue a special kill permit to livestock producers that would be valid for public and private lands. MFWP will be more liberal in the number of special kill permits granted as wolf numbers increase and for depredations in mixed land ownership patterns.

In a proactive manner, WS and MFWP will also work cooperatively with livestock producers and non-governmental organizations to help minimize the potential of wolf-livestock conflicts developing in the first place. Beyond technical assistance fro WS or MFWP and other collaborative efforts, livestock producers (or their agents) may non-lethally harass wolves when they are close to livestock on public or private lands. Private citizens may also non-lethally harass wolves that come close to homes, domestic pets, or people. Upon delisting, private citizens could kill a wolf if it is threatening human life or domestic dogs. Livestock producers or their agents could also kill a wolf if it is attacking, killing, or threatening to kill livestock. This is consistent with Montana statutes that permit private citizens to defend life or property from imminent danger caused by wildlife.

Montana recognizes that wolf population recovery and persistence will result in the loss of personal property or income due to wolf activity and depredation. Compensation is critical to maintaining tolerance for wolves by livestock producers who are adversely affected by financial losses due to wolves. Montana would like to maintain and enhance the benefits of the compensation program. But compensation payments cannot be made from MFWP funds or matching federal funds intended for wildlife or habitat programs. The State of Montana intends to find or create an entity to administer a compensation program if Defenders of Wildlife rescinds eligibility of Montana ranchers upon delisting. The entity or non-governmental organization would be independent of MFWP and MDOL to retain impartiality and the terms and negotiations take place directly with the producer. Agency decision-making on the disposition of the problem animal is independent of the outcomes of the compensation negotiations. Producers would be compensated for *confirmed* and *probable* livestock losses at fair market value at the time of death and at fall value for young of the year. Eligible livestock include cattle, calves, hogs, pigs, horses, mules, sheep, lambs, goats, and guarding animals. Despite the present uncertainty of how a compensation program would be designed and administered, securing adequate funding for compensation is of equal priority as securing funding to implement the other state and federal agency management activities described in this plan.

Generally, wolves fear people and do not pose a significant threat to human safety. However, in extremely rare cases, individual wolves may gradually lose their fear of people and begin associating or interacting with people and/or loitering near buildings, livestock, or domestic dogs. While this behavior is extremely unusual for a wild wolf, it is more typical of a released captive wolf or wolf-dog hybrid. MFWP intends to reduce the potential for wolf-human conflicts and minimize the risks of human injury due to any large-sized canid. MFWP will utilize extensive outreach to inform the public, discourage habituation, and then respond to conflicts where and when they develop.

If a wolf (or similar large canid) loiters near ranch buildings or rural residences, MFWP will evaluate the potential risk to human safety, taking into account the setting, behavior of the

animal, and the sequence of events. Across the spectrum of wolf distribution and numbers, MFWP will take an incremental approach. Potential actions include: increasing contacts within the local community, closely monitoring the situation, marking the animal with a radio collar to track its movements, aversive or disruptive conditioning, harassment, relocation, or lethal removal. A wolf could move through these areas, but length of stay and behavior will be important criteria for determining the appropriate management response. MFWP will require some degree of flexibility to be most responsive to public safety concerns. Although the management responsibility related to wildlife and human safety rests with MFWP, local law enforcement or other state of federal agency personnel may respond to a wolf-human incident if MFWP personnel are not available in a timely manner. In the unlikely need for defense of human life during a wolf encounter, citizens may use any means, including lethal force, to address an imminent threat.

MFWP will provide information to the general public about appropriate responses during wolf encounters (do's and don'ts) and how to minimize the potential for problems near homes and rural schools. This material will also include information about wolf behavior, body posture, tail position, vocalizations, etc. to help the public evaluate the situation, correctly interpret wolf behavior, and communicate the details accurately to agency personnel. An educational effort will also help the public understand the differences between wolves, mountain lions, and bears in terms of animal behaviors, potential risk of injury, appropriate human responses when threatened, and how to live and recreate outdoors in the presence of these large carnivores.

A successful conservation and management program for wolves ultimately depends on people and their attitudes. The history of wolves in Montana has as much to do with the relationship between wolves and people as it does with the ecology of the species. The same will be true of the wolf's future. MFWP recognizes the importance, value, and need for a sustained educational public outreach program to parallel wolf management activities. The objective is to provide scientifically based, factual information. A collaborative approach will also be necessary, but MFWP will take the lead.

During the first five years after delisting, MFWP will document that the wolf population in Montana is secure. MFWP will informally consult with the USFWS and cooperating partners on a regular basis, including a periodic formal review by the USFWS. USFWS will point out any deficiencies or areas of concern and recommend corrective actions to MFWP. We would take the necessary corrective measures to avoid a relisting of the gray wolf under ESA. MFWP will undertake its own thorough, formal review after the first five years. Cooperating state and federal agencies will also participate. Findings of the review will be incorporated. The wolf management program will be subsequently reviewed at least every five years. A more frequent review is provided for within the adaptive management model. By definition, the model incorporates monitoring and evaluation components as an ongoing effort within the management program. Management is thus refined and improved through time as information and experience accumulate.

Equally important components of any wolf management program are the social factors that shape public tolerance for wolves and their satisfaction with how conflicts are resolved. MFWP anticipates that the public will readily identify real or perceived problems or shortcomings of the

program. The challenge for MFWP will be to discern between earnest differences of opinion in preferred management direction and substantive shortcomings. Wolf management in Montana will take place within a complex biological, social, economic, and political environment. Difficult decisions will have to be made and will sometimes be called into question by various interests. However, the ensuing public dialogue will also help evaluate the program and lead to revisions. The Wolf Management Advisory Council recommended that the State of Montana continue to engage a diverse advisory citizen's group to collaborate on the management of wolves.

We are committed to using MFWP funds and matching federal funds to conserve and manage this native species on equal standing with other carnivore species. We also acknowledge that existing financial resources are not adequate to fully implement all aspects of this plan. Some of the activities described in this plan fall within existing duties and responsibilities already carried out by MFWP or WS, but some activities clearly add to existing responsibilities and workloads. Additional funding will be required to implement wolf management (and related activities) and compensation. While the monies and administrative procedures to fulfill these parallel functions may or may not originate from the same source, adequate funds for each element are necessary. We will seek additional funding from a diversity of sources, including special state or federal appropriations, private foundations, or other private sources.

The personnel and financial resources necessary to fulfill the responsibilities of wildlife conservation and management, law enforcement, assurance of human safety, public outreach, resolution of wolf-livestock conflicts, compensation, and program administration is an estimated $765,296 annually. The budget truly reflects the comprehensive nature of designing and implementing a wolf program in the broadest sense of the word.

The Governors of Montana, Idaho, and Wyoming are pursuing a program called the Northern Rocky Mountain Grizzly Bear and Gray Wolf National Management Trust. The Trust identifies, supports, and funds initiatives which address grizzly and gray wolf management, monitoring, other conservation needs, habitat protection, scientific research, conflict resolution, compensation for damage, and education/public outreach activities. The Trust prospectus will be forwarded to the respective Congressional delegations. In light of local funding shortfalls, we hope that the tri-state Congressional delegation will recognize the need for secure, long term funding to address the unique challenges associated with the conservation and management of these species of significant national interest. Another potential source of long-term funding is the Conservation and Reinvestment Act (CARA). Title III would provide annual appropriations to the states specifically for fish and wildlife programs, outdoor recreation, and conservation education. These funds are intended to fulfill a need for funding of less traditional management programs for species that are typically not hunted or fished. MFWP could use these funds for most elements of the wolf program but not for compensation. Both potential funding mechanisms are stable, long-term sources of funding and engage the national interests that desire to see wild, free-roaming wolves in the northern Rockies. While MFWP also recognizes the value of having free-roaming wolves in the northern Rockies, we also seeking financial assistance to conserve and manage the species in a complex setting. Finding the balance without adequate funding will be challenging.

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INTRODUCTION

The State of Montana recognizes the gray wolf as a native species and we are committed to recovery of the species within our borders. We will ensure that wolf population is maintained at numbers sufficient to preclude reclassification as "threatened or endangered" under federal law in the three-state area of Montana, Idaho, and Wyoming. The state intends to implement positive management programs to make sure that recovery is complete and wolves are integrated as a valuable part of out wildlife heritage. Montana Fish, Wildlife & Parks is already engaged in activities which promote wolf recovery through its efforts on ungulate population monitoring, research, and management, through the acquisition and designation of Wildlife Management Areas, purchase of conservation easements, and other efforts to preserve and restore wildlife habitats.

Gray wolves (*Canis lupus*) are thriving and expanding in number and distribution in Montana. This is because of natural emigration from Canada and a successful federal effort that reintroduced wolves into Yellowstone National Park (YNP) and the wilderness areas of central Idaho. There are probably more wild wolves in Montana now than at any time in the last 70 years. Since 1973, the U.S. Fish and Wildlife Service (USFWS) has managed wolves as an endangered species in Montana, under the authority of the Endangered Species Act (ESA). Wolves are likely to be removed from the endangered species list within 3-5 years.

Upon delisting, management authority for wolves will return to the state governments where wolves reside. Montana Fish, Wildlife & Parks (MFWP) is the resource agency charged under state statute with the responsibility to manage resident wildlife, including wolves. Beyond the legal commitments, MFWP recognizes and accepts the challenges, responsibilities, and benefits of restoring wolves as an important part of Montana's wildlife heritage. Managing gray wolves will not be easy, but wolf restoration is fundamentally consistent with Montana's history of wildlife conservation. The State of Montana will make a long-term funding commitment to the conservation of wolves, commensurate with existing programs for other managed carnivores. MFWP will commit state wildlife funds, matching federal monies, and other agency resources, but existing financial resources will not be adequate. Supplemental funding will be sought from public/private foundations, other private sources, and special federal or state appropriations.

As a state, we are collectively walking down an untravelled and difficult path in resource management. This document is a critical step in the process of Montana regaining management responsibility for wolves after a 28-year period of federal management. This document must not only assure the long-term persistence of wolves, it must also address the challenges of having wolves in Montana after such a long absence. It is unlikely that the state could assume management authority if this wolf management plan falls short. Fortunately, Montanans have a long tradition of rising to challenges and expressing interest and support for wildlife in our state. In fact, much of this Plan is based on the comments and recommendations of a 12-member citizens group, the Montana Wolf Management Advisory Council. An Interagency Technical Committee assisted the Council during their deliberations.

We understand that the long-term persistence of wolves in Montana depends on carefully balancing the complex biological, social, economic, and political aspects of wolf management. No single interest can dominate management direction. As we have before, we will rely on the best available information, use good judgment, and listen closely to people who care about Montana's resources and our lifestyle, now and into the future. The long-term persistence of wolves will also depend on securing adequate funding from a diversity of sources to fully implement conservation and management strategies.

Purpose of This Document

Before the gray wolf can be removed from the endangered species list, the USFWS must evaluate all the potential threats to wolves when the protections of ESA are removed and management responsibility is returned to the states. Among the requirements for delisting, the USFWS determined that the states of Montana, Idaho, and Wyoming must have management plans and other adequate regulatory mechanisms in place to ensure that the recovered wolf population will remain secure.

State management plans are the primary mechanism by which the USFWS can assess future threats to wolves in the northern Rockies and determine whether a well-distributed, viable population will be sustained. The purpose of this document is to describe the regulatory framework for wolf conservation and management in Montana, under the direction of MFWP. This plan also describes the programmatic direction and a spectrum of management activities that maintain viable wildlife populations, resolve wolf-human and wolf-livestock conflicts, and gain the support of people with diverse interests.

Goal of the Plan

MFWP recognizes the gray wolf as a native species and is committed to maintaining a tri-state wolf population at numbers sufficient to preclude reclassification as threatened or endangered under federal law. Montana will support a proportionate number of wolf packs towards the northern Rockies recovery goal identified by the USFWS. An equitable distribution of packs among the three states is consistent with the biological intent of the recovery plan, will ensure a well-distributed and viable wolf population in the region, and will foster greater public acceptance of wolves in Montana. MFWP intends to honor the diverse perspectives and interests of our citizens and the national public. The State will consider the wide spectrum of interests in designing and implementing a balanced, responsive program that recognizes the opportunities and addresses the challenges faced by people directly affected by wolves.

Plan Development

As the State of Montana prepares to assume authority for wolves, it was recognized that the people of Montana have a significant stake in wolf-related issues, and they should be provided an opportunity to deliberate how wolves are managed. To fulfill this public trust, former Governor Marc Racicot signed an Executive Order creating the Montana Wolf Management Advisory Council (Council) in April 2000. The Council was composed of 12 volunteers from around the state who represented a variety of interests including tribal, agriculture, hunting, and wildlife

conservation. They served voluntarily, at the request of the Governor. The Council was asked to advise MFWP as it prepared to assume wolf management responsibilities and to consider input from Montana citizens and other interested parties. The Council adopted the following as its Mission Statement:

> "To assist MFWP in developing an implementable plan that will maintain viable wolf populations and is socially acceptable, biologically possible, and economically feasible."

Using an "interest-based" process, the Council identified and deliberated issues related to: defense of life and human safety, livestock depredation, compensation for livestock losses, management of prey populations, and wolf conservation and management. An Interagency Technical Committee advised the Council, providing scientifically based information about biological, technical, legal, or financial aspects of wolf management. The Council relied on the Technical Committee as their primary source of factual information. The Technical Committee also helped the Council identify and assess challenges associated with implementing overall management strategies or specific management actions. It was comprised of wolf experts and resource managers from the National Park Service (NPS), USFWS, U.S. Forest Service (USFS), Wildlife Services (WS), and MFWP.

With assistance from MFWP, the Council prepared a report of its findings, which originated from their personal experiences, interests represented by members, input from the public, and information provided by the Interagency Technical Committee. The Council arrived at their findings and recommendations by consensus. The Council's Chairman and the MFWP Director presented the report to former-Governor Racicot just before he left office. Upon taking office, newly elected Governor Martz was briefed of the Council's work. She directed MFWP to complete a state wolf management plan, using the Council's deliberations and written report as the foundation. The report consists of a Preamble, a Mission Statement, Guiding Principles, program goals, and general objectives. The Council specifically deferred to the expertise and discretion of MFWP in some areas. The *Montana Wolf Management Advisory Council, Report to the Governor* is included in this plan as Appendix 1.

HISTORY AND LEGAL STATUS OF WOLVES IN MONTANA

History

The gray wolf occupied most of the North American continent at the time of European settlement. Its range was reduced dramatically and wolves were extirpated from the east coast to the Ohio Valley by the 1880s. Gray wolves were still fairly common throughout most of the northwestern United States until the early 1900s (Young and Goldman 1944).

In Montana, wolves were widespread throughout the state at the time of European settlement. Early trappers and explorers, including Lewis and Clark, recorded wolf sightings and encounters in their diaries. The first statewide bounty law passed in 1884 and wolf eradication in Montana began. In that first year, 5,450 wolf hides were presented for payment. Only 3 Montana counties (as they existed in 1900) failed to report a bounty payment for wolves from 1900-1931

(Riley 1998). By 1936, wolves were probably extinct in Montana, although they were occasionally observed and killed in the 1950s and 1960s (Curnow 1969, Singer 1979, Day 1981, Ream and Mattson 1982). No breeding pairs were known in Montana in the 1970s, and the occasional wolves taken were probably dispersers from Canada. In the 1960s, the Canadian Province of Alberta reduced its widespread predator control efforts (Ream and Mattson 1982). This probably resulted in higher survivorship and dispersal of wolves from Canada to Montana. Wolves were not legally protected in the U.S. until 1973, with the passage of ESA.

Pursuant to ESA, the Northern Rocky Mountain Wolf Recovery Team completed a recovery plan in 1980, with amendments added in 1987. The Plan designated three recovery areas (Northwest Montana, Central Idaho, and the Greater Yellowstone Area), each of which include some portion of Montana (Fig. 1). The USFWS determined that a total of 30 breeding pairs, with an equitable distribution throughout the states of Idaho, Montana, and Wyoming would constitute a viable, recovered population in the northern Rockies (USFWS et al. 2001). The number of breeding pairs is the measure by which the USFWS evaluates progress towards recovery. A breeding pair is defined as at least two adult wolves with at least two pups that survive to December 31. When a total of 30 breeding pairs is documented for 3 successive years, the USFWS will initiate the delisting process, which removes the federal protections conferred by ESA.

Wolves started naturally recolonizing the Glacier National Park (GNP) area of northwestern Montana in 1979. Reproduction was documented just north of GNP in 1982 (Ream and Mattson 1982). In 1986, the first wolf den in the western United States in over 50 years was documented within GNP (Ream et al. 1989). The newly colonizing wolf population in the GNP area fell within the Northwest Montana Recovery Area. Since then, new packs have established throughout western Montana. They were started by founders from Canada, the GNP area, and their descendants. Northwest Montana has supported a minimum of 5-7 breeding pairs since 1995 (USFWS et al. 2001).

As wolves recolonized northwest Montana, the other two recovery areas, Central Idaho and the Greater Yellowstone Area (GYA) remained devoid of wolves except for occasional reports of single or lone wolves. No reproduction had been documented in either area since the 1930s. In 1995 and 1996, the USFWS reintroduced a total of 66 wolves from Alberta and British Columbia into the wilderness areas of central Idaho and Yellowstone National Park (YNP), Wyoming. These reintroductions were undertaken on an experimental basis and the populations were considered non-essential to the survival of the species. The "experimental, non-essential" status of these wolves granted additional management flexibility. In 2000, the USFWS et al. (2001) documented 13 breeding pairs in the Greater Yellowstone Recovery Area and 9 pairs in the Central Idaho Recovery Area.

While the USFWS presently tabulates the number of breeding pairs by recovery area as a subtotal of the 30 total pairs required, the recovery area boundaries dissolve into the individual state boundaries upon delisting. Using the same definition of breeding pair, Montana had eight breeding pairs whose territories lie entirely within its borders in 2000 (USFWS et al. 2001). Three additional breeding pairs had territories that straddle the Montana-Idaho or Montana-Wyoming borders in 2000. There are other wolf pairs or small packs within Montana for which

reproduction was not confirmed in 2000, but appear to have established a stable territory entirely within Montana. Several new packs appeared to form in 2001, but a final count of packs within

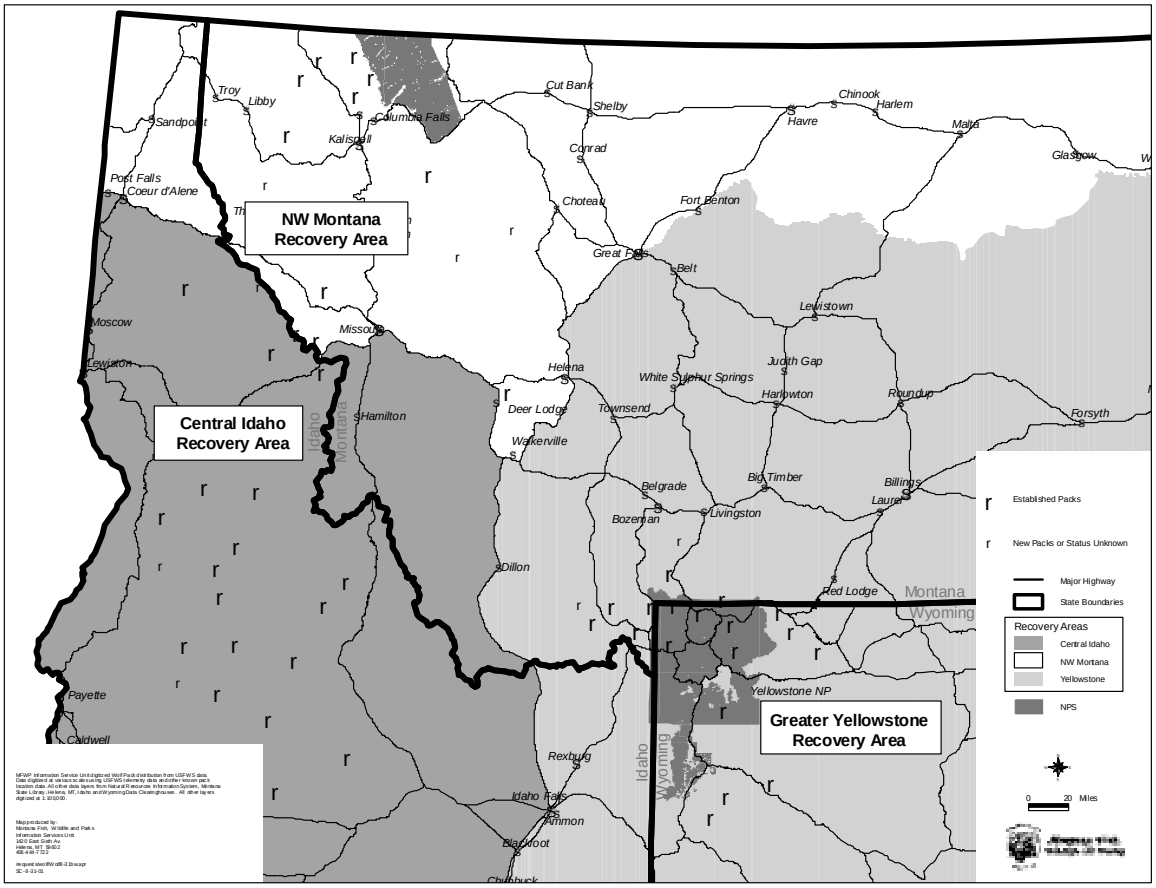


Figure 1. Wolf pack distribution in Montana, Idaho, and Wyoming and the recovery area boundaries. Large symbols represent established packs. Small symbols indicate newly-formed packs or packs whose status is unknown at the present time. (Source: USFWS et al. 2001 and USFWS unpubl. data as of September 2001).

Montana's borders will not be available from USFWS until early in 2002. In the interim, the USFWS updated its most recent annual report with unpublished data on wolf packs in Montana, as it was known in September 2001 (Fig. 2).

Ongoing efforts by the USFWS and its cooperating partners to monitor wolves in the tri-state area have led to the discovery of new wolf packs successfully raising at least two pups in 2000. Because yearling wolves were captured in 2001, the pack must have successfully reared pups to December 31 in the year 2000. Therefore, the calendar year 2000 is the first year of the three-year count down in which a total of 30 breeding pair were tabulated towards the recovery goal. It appears that 2001 will be the second year since there are about 45 breeding pair that could potentially raise pups to December 31, 2001. If 30 breeding pair are again documented in

December 2002, the USFWS could propose to delist wolves from ESA. The USFWS cannot delist wolves without the respective states first adopting conservation and management plans.

While the history of the gray wolf in Montana and its eventual return is a story in and of itself, the story is not complete without also acknowledging the history of prey populations over a similar time span and the role of Montana sportsmen and women.

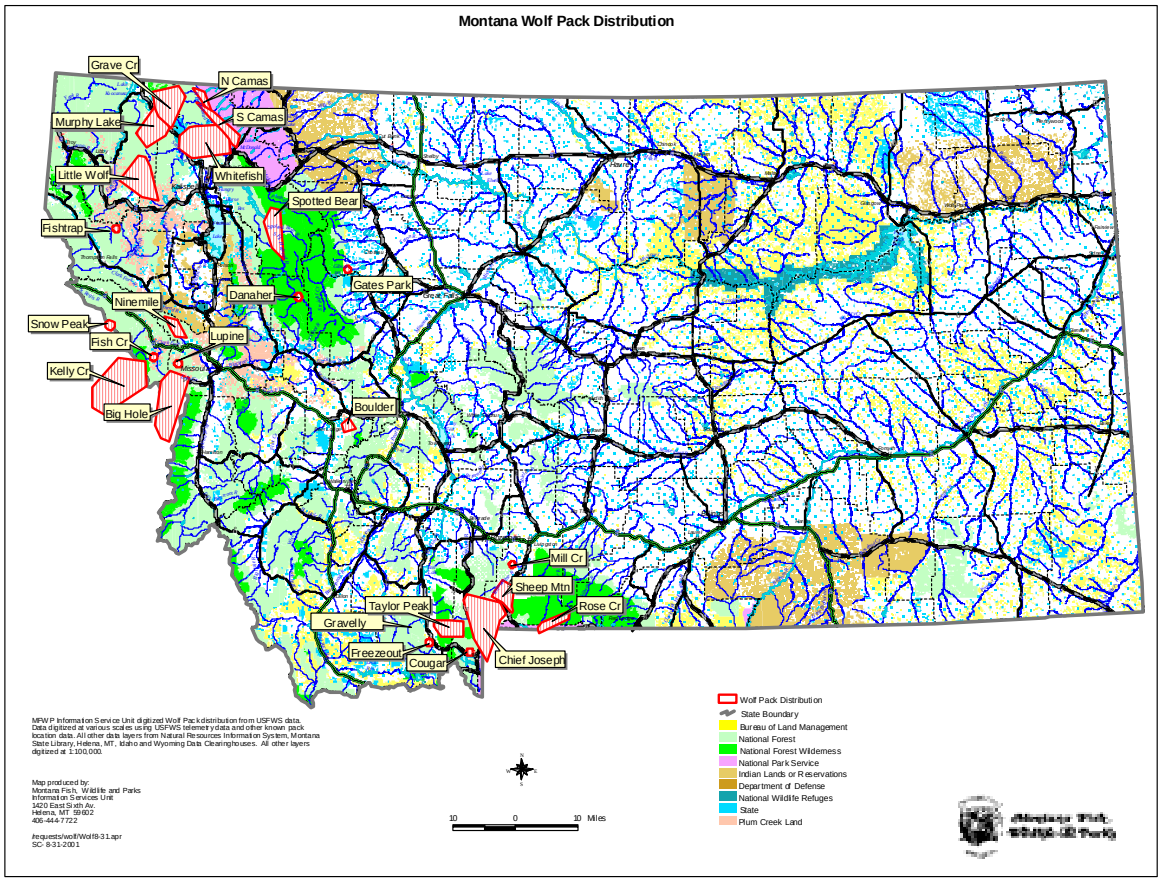
No one really knows how many deer and elk were present at the time of the Lewis and Clark Expedition or even for decades thereafter. But before the 19th century was over, big game populations were depleted over most of the landscape because of excessive commercial and subsistence hunting. In 1867, Granville Stuart, an early conservationist and territorial legislator in Montana, acknowledged that the territorial legislature "needed to enact some laws or there will not be, in a few years, so much as a minnow or deer left alive in all the territory" (Brownell 1987). Enforceable wildlife conservation would finally begin with the political and financial support of Montana hunters and anglers early in the 20th century. Early programs emphasized restoring game animals and aggressive predator control. Even still, the Montana Legislature classified the grizzly bear as a game animal in 1923 so it could be protected from predator control programs – 50 years before there was an Endangered Species Act. The mountain lion was classified as a game animal in 1971 -- 2 years before ESA. Lion restoration was assured, not by the legal protections of ESA, but by the regulation of human-caused mortality and the restoration of prey populations. These successful programs were then, and, are now sustained by a philosophy of public hunting and a funding base from participants. These were imbedded in Montana culture starting with the earliest territorial residents.

Present day populations of white-tailed deer and elk are at their highest levels recorded in recent history. Mule deer numbers fluctuated over the last 20 years, but the statewide population is still robust. The sportsmen and women of Montana shepherded the restoration of those populations from all time lows. Because of their long-term financial investments and willingness to restrict themselves when necessary, Montanans now enjoy relatively liberal hunting seasons for more ungulate species than other western states. The restoration of native ungulate populations to former (and new) habitats and in large numbers facilitated wolf restoration. It is a rich heritage of which Montanans can be proud.

Legal Status and Classification under Montana Statutes

At present, USFWS and WS are responsible for wolf restoration and management activities. Federal laws provide guidance. When wolves are delisted and management authority is transferred to the State of Montana, state laws become the primary regulatory and legal mechanisms guiding management. Two Titles within Montana statutes describe the legal status and management framework for wolves. Title 87 pertains to fish and wildlife species and oversight by MFWP. Title 81 pertains to the Montana Department of Livestock (MDOL) and their responsibilities related to predator control. Most recently, the 2001 Montana Legislature passed Senate Bill 163 (SB163), which amended several statutes in both Titles. Governor Martz signed SB163 on April 21, 2001. The text of SB163 is presented in Appendix 2.

Figure 2. Wolf pack distribution by name and land ownership pattern in Montana. Approximate wolf pack territories are designated with horizontal lines. Gray tones represent public lands and white indicates private lands. (Source: USFWS et al. 2001 and USFWS unpubl. data as of September 2001).



For now, the gray wolf remains listed as an endangered species under the Montana Nongame and Endangered Species Conservation Act of 1973 (87-5-101 MCA). The USFWS anticipates that wolf populations in the northern Rocky Mountains will meet the recovery goals in the near future. At that time, the USFWS will initiate the federal delisting process. Provisions in SB163 automatically remove the gray wolf from the state endangered species list, concurrent with federal action concluding that wolves are no longer endangered. Separate action by the Montana Legislature is not required, but MFWP would still need to update its Administrative Rule 12.5.201, which lists state threatened and endangered species.

Once removed from the state endangered species list, the gray wolf will automatically be classified as a species "in need of management." MFWP and the MFWP Commission will then establish the regulatory framework to manage the species (MCA 87-5-101 to 87-5-123). "Management" is defined in MCA 87-5-102 as:

> "the collection and application of biological information for the purposes of increasing the number of individuals within species and populations of wildlife, up to the optimum carrying capacity of their habitat, and maintaining such levels. The term includes the entire range of activities that constitute a modern scientific resource program including but not limited to research, census, law enforcement, habitat improvement, and education. Also included within the term, when and where appropriate, is the periodic or total protection of species or populations as well as regulated taking."

In Montana statute, "take" means to "harass, hunt, capture, or kill or attempt to harass, hunt, capture, or kill wildlife." Thus, MFWP and the MFWP Commission will establish the management parameters and regulations that limit taking, possession, transportation, exportation, processing, sale, offer for sale, or shipment of wolves. In addition, MFWP and the MFWP Commission will initiate the law enforcement, population monitoring, educational components, and other elements of a wolf program.

When MFWP and the MFWP Commission determine that the wolf population no longer fits the definition of a species "in need of management," the MFWP Commission may reclassify the wolf as a big game animal or a furbearer when wolf numbers have increased to the point where population regulation is needed. Regulated public harvest of wolves by hunting and trapping is one tool that may help MFWP manage wolf numbers. MFWP recommendations, public input, and MFWP Commission actions will establish the conditions and regulatory framework for the legal hunting and trapping of wolves in Montana. The Montana Legislature would establish the license fees and penalties for violations of Montana laws or MFWP Commission rules about the possession or harvest of wolves.

SB163 also amended Montana Statute 87-3-130, which is titled "Taking of Wildlife to Protect Persons or Livestock." This amendment becomes effective only when federal protections are removed. As amended, this Statute relieves a person from criminal liability for the taking of a wolf if the wolf is "attacking, killing, or threatening to kill a person or livestock." In addition, "a person may kill or attempt to kill a wolf or mountain lion that is in the act of attacking or killing a domestic dog." The definition of livestock includes ostriches, rheas, and emus. These changes are consistent with the concepts of protecting human life and private property (livestock and

pets) when it is in imminent danger. Citizens must report any solves killed or injured in defense of life/property to MFWP within 72 hours.

Most importantly, SB163 resolved an element in Montana statute that was a major impediment to establishing the adequate regulatory mechanisms to guarantee the security and perpetuation of a recovered wolf population. SB163 deleted the gray wolf from the list of species designated as "predatory in nature" which are to be systematically controlled by MDOL (MCA 81-7-101 to 81-7-104). In other words, MDOL will not be required to exterminate wolves upon delisting. Instead, MDOL will control wolves for the protection and safeguarding of livestock, as long as the control action is consistent with a wolf management plan approved by both MFWP and MDOL. MDOL and MFWP will cooperatively address and resolve wolf-livestock conflicts using the management strategies described in this plan.

WOLF ECOLOGY IN THE NORTHERN ROCKIES

Physical Characteristics

Male gray wolves in Montana weigh 90-110 pounds, and females weigh 80-90 pounds. Wolves in the GYA are slightly heavier. Smith et al. (2000) reported that in 1999, winter-captured adult females averaged 108 pounds, while female pups averaged 96 pounds. Male pups averaged 107 pounds. About half of the wolves in Montana are black and the remainder gray. Both color phases may be found in a pack or in one litter of pups. White wolves, usually old animals, are occasionally seen. Tracks are normally 4.5 to 5.5 inches long (Harris and Ream 1983).

Wolves may resemble coyotes, particularly when wolves are young. Wolves may also be confused with some large domestic dog breeds. Wolves are distinguished from dogs by their longer legs, larger feet, wider head and snout, narrow body, and straight tail. Other distinguishing characteristics require closer examination than is possible in field settings with live animals. In many instances, behavior distinguishes between wild wolves, wolf-dog hybrids, and domestic dogs (Boyd et al. 2001, Duman 2001).

Pack Size

The gray wolf is a highly social species that lives in packs. Packs are formed when male and female wolves develop a pair bond, breed and produce pups. The pack typically consists of a socially dominant breeding pair (alphas), their offspring from the previous year, and new pups. Other breeding-aged adults may be present, but they may or may not be related to the others. Cooperatively, the pack hunts, feeds, travels, and rests together. The pack also shares pup-rearing responsibilities, including hunting and tending pups at the den or at a series of rendezvous sites. Pack size is highly variable (USFWS et al. 2001). In northwest Montana, it ranges from 2 to 11, and averages 5-7. In the GYA, pack size ranges from 5 to 27 and averages 9.3. Average pack size is larger inside YNP (14.6 individuals) than outside (5.8 individuals) (Smith et al. 2000).

Reproduction

Wolves normally do not breed until at least 22 months of age (Mech 1970). Breeding usually occurs only between the dominant male and female in a pack. In the northern Rockies, the breeding season peaks in mid- to late February (Boyd et al. 1993). Wolves localize their movements around a den site and whelp in late April, following a 63-day gestation period. Wolves may be sensitive to human disturbance during the denning season. After the pups are about eight weeks old, they are moved to a series of rendezvous sites. In northwest Montana, maximum litter size averaged 5.3 (range 1-9) from 1982 to the mid 1990s. By December, average litter size declined to 4.5 (Pletscher et al.1997). In central Idaho, average litter size was 5.1 from 1996-1998 (Mack and Laudon 1998).

Pup survival is highly variable and influenced by several factors, including disease, predation, and nutrition (Mech and Goyal 1993, Johnson et al. 1994). In northwestern Montana from 1982-1995, 85% of pups survived until December, though survival varied year to year (Pletscher et al. 1997). Pup mortality in the first eight months of life was attributed to human causes (8 of 20 mortalities, 40%), unknown causes (2 of 20, 15%), and disappearance (9 of 20, 45%). In YNP, during the first four years, 133 pups were born in 29 litters and 71% were believed to still be alive in 1998 (Bangs et al. 1998). Pup survival varied between 73 and 81% from 1996-1998. However, canine parvovirus was strongly suspected as a contributing factor in the low pup survival (45%) in 1999. In 2000, pup survival rebounded to 77% (Smith et al. 2000). In central Idaho, 92-99 pups were produced between 1995 and 1998 (Mack and Laudon 1998).

Occasionally, more than one female in a pack may breed, resulting in more than one litter per pack (Ballard et al. 1987). This phenomenon has been documented in YNP (Smith et al. 2000, USFWS et al. 2000, USFWS et al. 2001). In 1999, one pack had two litters. In 2000, 13 wolf packs produced 16 litters. Occasionally this phenomenon leads to the formation of a new pack (Boyd et al. 1995).

Food Habits

The gray wolf is an opportunistic carnivore and is keenly adapted to hunt large prey species such as deer, elk, and moose. Wolves may scavenge carrion or even eat vegetation. In Montana, white-tailed deer, mule deer, elk and moose make up the majority of wolf diets. In northwestern Montana, white-tailed deer comprised 83% of wolf kills, whereas elk and moose comprised 14% and 3%, respectively (Kunkel et al. 1999). However, 87% of wolf kills in YNP during 1999 were elk (Smith et al. 2000). In central Idaho, elk (53%) and deer (42%) were the most frequently detected species in scat samples collected in summer 1997 (Mack and Laudon 1998). Ungulate species compose different proportions of wolf diets, depending on the relative abundance and distribution of available prey within the territory.

Wolves also prey on smaller species such as rabbits or beaver. Wolf scat collected in YNP in 1998 contained voles, ground squirrels, snowshoe hare, coyote, bear, insects, and vegetation (Smith 1998). Earlier work in northwestern Montana also documented non-ungulate prey species, such as: ruffed grouse, raven, striped skunk, beaver, coyote, porcupine, and golden eagle (Boyd et al. 1994).

Wolves also scavenge opportunistically on vehicle- or train-killed ungulates, winterkill, and on kills made by other carnivores, particularly mountain lions. Wolves in northwestern Montana scavenge the butchered remains of domestic livestock or big game animals at rural bone yards or carcass disposal sites. In most instances, private individuals discard these remains on nearby public land. Some northwestern Montana packs also scavenge ungulate carcasses cleared from local highways and left in a gravel pit by the Montana Department of Transportation. Wolves may also kill and feed upon domestic livestock such as cattle, sheep, llamas, horses, or goats. They may also kill domestic dogs but usually do not feed on the carcass.

Movements and Territories

A pack establishes an annual home range or territory and defends it from trespassing wolves. From late April until September, pack activity is centered at or near the den or rendezvous sites, as adults hunt and bring food back to the pups. One or more rendezvous sites are used after pups emerge from the den. These sites are in meadows or forest openings near the den, but sometimes are several miles away. Adults will carry small pups to a rendezvous site. Pups travel and hunt with the pack by September. The pack hunts throughout its territory until the following spring.

Pack boundaries and territory sizes may vary from year to year. Similarly, a wolf pack may travel in its territory differently from one year to the next because of changes in prey availability or distribution, intraspecific conflict with nearest neighbors, or the establishment of a new neighboring pack. Because the attributes of each pack's territory are so unique (elevations, land use, land ownership patterns, prey species present and relative abundance, etc.), it is difficult to generalize about wolf territories and movements.

After recolonizing the GNP area in the 1980s, individual wolves dispersed and established new packs and territories elsewhere in western Montana. Wolves demonstrated a greater tolerance of human presence and disturbance than previously thought characteristic of the species. It was previously believed that higher elevation public lands would comprise the primary occupied habitats (Fritts et al.1994). While some packs have established territories in backcountry areas, most preferred lower elevations and gentle terrain where prey is more abundant, particularly in winter (Boyd-Heger 1997). In some settings, geography dictates that wolf packs use or travel through private lands and co-exist in close proximity with people and livestock. Since the first pack established a territory outside the GNP area in the early 1990s, packs in northwestern Montana negotiated a wide spectrum of property owners and land uses. These colonizers also settled across an array of rural development.

With the exception of GNP packs, wolves in northwest Montana move through a complex matrix of public, private, and corporate-owned lands. Landowner acceptance of wolf presence and the use of private lands is highly variable in space and time. Given the mobility of the species and the extent to which these lands are intermingled, it would not be unusual for a wolf to traverse each of these ownerships in a single day. Land uses range from dispersed outdoor recreation, timber production, or livestock grazing to home sites within the rural-wildland interface, hobby farming/livestock, or full-scale resort developments with golf courses. For example, private lands make up 55% of the Little Wolf pack's territory west of Kalispell (USFWS unpubl. data).

The majority is owned by Plum Creek Timber Company and managed for commercial timber production. While technically private property, Plum Creek lands are generally open to public recreation. Livestock are present under a grazing lease between the company and a local grazing cooperative. The remaining 45% of the pack's territory is public land and managed for multiple uses. In contrast, individual citizens manage 53% of the private land in the Boulder pack's territory west of Helena for livestock production.

Private land may offer habitat features that are especially attractive to wolves so the pack may utilize those lands disproportionately more often than other parts of their territory. Land uses may predispose a pack to conflict with people or livestock, although the presence of livestock does not make it a forgone conclusion that a pack will routinely depredate. Domestic livestock are present year round within the territories of many Montana packs. For example, since the late 1980s, the Ninemile and Murphy Lake packs encountered livestock regularly, but caused conflict only sporadically.

The earliest colonizing wolves had large territories. Ream et al. (1991) reported an average of 460 square miles (mi^2). In recent years, average territory size decreased, probably as new territories filled in suitable, unoccupied habitat. In the Northwest Montana Recovery Area during 1999, the average territory size was 185 mi^2 (8 packs). Individual territories were highly variable in size, with a range of 24-614 mi^2 (USFWS et al. 2000).

Territories in the GYA were larger, averaging 344 mi^2 (11 packs). Individual pack territories ranged from 33 to 934 mi^2. Central Idaho wolf packs had the largest average territory size of 360 mi^2 (13 packs), with individual pack territories ranging from 141 – 703 mi^2 (USFWS et al. 2000).

Dispersal

When wolves reach sexual maturity, some remain with their natal pack while others leave, looking for a mate to start a new pack of their own. These individual wolves are called dispersers. Dispersal may be to nearby unoccupied habitat near their natal pack's territory or it may entail traveling several hundred miles before locating vacant habitat, a mate, or joining another pack. Animals may disperse preferentially to areas occupied by conspecifics (Ray et al. 1991). This appears true for the gray wolf, a species that utilizes scent marking and howling to locate other wolves (Ray et al. 1991). Boyd and Pletscher (1999) indicated that the dispersers in their study moved towards areas with higher wolf densities than found in their natal areas – in this case northward towards Canada. This has important implications for wolves in Montana, which now have conspecifics to the south and west in central Idaho and YNP. Dispersal has already resulted in the formation of several new packs in Montana (Fig. 2) (Boyd et al. 1995, USFWS et al. 2001). Wolves will probably continue dispersing from the core areas and slowly occupy landscapes between the Canadian border, central Idaho and northwestern Wyoming (USFWS et al. 2000). Ultimately, this will yield a meta-population, capable of genetic exchange across the northern Rocky Mountains (Forbes and Boyd 1996, 1997).

Boyd and Pletscher (1999) studied wolf recovery in northwestern Montana from 1979 to 1997. Male wolves dispersed at an average age of 28.7 months and traveled an average of 70 mi from

their natal territory before establishing a new territory or joining an existing pack. Females averaged 38.4 months old at dispersal and traveled an average of 48 mi. Males and females, combined, traveled an average of 60 mi (range 10 –158 mi). A captured sample of males and females dispersed at rates proportional to their occurrence. There were two peaks of dispersal: January-February (courtship and breeding season) and May-June.

The Yellowstone Wolf Project documented 36 dispersal events (18 females and 18 males) from 1995-1999 (Smith et al. 2000). Males dispersed an average of 54 mi and females dispersed an average of 40 mi. The longest recorded dispersal of a Yellowstone wolf to date was 221 mi. This Yellowstone-born male ultimately settled in central Idaho.

Increasingly, dispersal is being documented among and between all three recovery areas in the northern Rockies (Bangs et al. 1998, Mack and Laudon 1998, Smith et al. 2000). Combined, there were 21 known dispersal events in 2000 and 19 in 1999 (USFWS et al. 2000). Dispersal paths crossed international boundaries, state boundaries, public and private land boundaries, different land uses, and agency jurisdictions.

Mortality

Wolves die from a variety of causes, usually classified as either natural or human-caused. Naturally caused mortalities result from territorial conflicts between packs, injuries while hunting prey, old age, disease, starvation, or accidents. In an established Alaskan wolf population largely protected from human-caused mortality, most wolves were killed by other wolves – usually from neighboring packs (Mech et al. 1998). However, in the northern Rockies, natural mortality probably does not regulate populations (USFWS 2000). Humans are the largest cause of wolf mortality and the only cause that can significantly affect populations at recovery levels (USFWS 2000). Human caused mortality includes control actions to resolve conflicts, legal and illegal killings, as well as car/train collisions.

Pletscher et al. (1997) studied survival and mortality patterns of wolves in the GNP area. Total annual survival for this semi-protected population was a relatively high 80%. The survival rate for resident wolves was even higher (84%), but dispersers had a 64% chance for survival. Despite the high survival rates, humans accounted for the vast majority of wolf deaths. Of the 43 deaths investigated from 1982-1995, 88% were human-caused (56% legal, 32% illegal). Three wolves died of natural causes and two died of unknown causes.

More recent mortality data are available from the USFWS et al. (2001). In the Northwest Montana Recovery Area, there were at least 18 mortalities in 2000. Cause of death was known for 15. At least seven wolves were illegally killed, four died in agency control actions, and four wolves died from vehicle /train collisions. In the GYA, at least 20 wolves died in 2000, and the cause of death is known for 15. Nine wolves died due to human causes (six control actions, two vehicle collisions, one illegal) and six died from natural causes. Five additional mortalities were documented, but the causes were not readily apparent. These were either classified as unknown or unresolved pending further investigation. In the Central Idaho Recovery Area, 17 human-caused mortalities were documented in 2000. Control actions removed ten. One wolf died of natural causes and five more died from unknown causes.

Genetics

In recent years, the application of genetic techniques to the study of wildlife populations has permitted managers to address issues of genetic diversity and population viability with increased confidence. These techniques have yielded information relevant to wolf conservation and management in the northern Rockies. Wolf recovery in the northern Rockies advanced from the combination of recolonization of northwestern Montana by relatively few wolves from Canada and the reintroduction of wolves into YNP and central Idaho. In northwestern Montana, the founding population was small enough that inbreeding among closely related individuals was possible. Fortunately, the genetic variation among the first colonizers was high (Forbes and Boyd 1996). The combination of high genetic variation among colonizers and ongoing natural dispersal to and from Canadian populations was adequate to assure long-term population viability, provided that genetic exchange continued.

Similar concerns existed for the relatively small founding population reintroduced to YNP and central Idaho. But wolves were trapped from two distinct source populations in Canada. The genetic variation among reintroduced wolves (and the source populations from which they came) was also high (Forbes and Boyd 1997). Overall, heterozygosity was similar among samples of natural recolonizers, reintroduced individuals, and the Canadian source populations. Field studies of wolf dispersal and migration distances supported the genetic results (Ream et al. 1991, Boyd et al. 1995, Boyd and Pletscher 1999). Wolf populations in the northern Rockies should not suffer from inbreeding depression.

An underlying tenant of the wolf recovery and restoration program is that each state's wolf population is functionally connected so that genetic material can be exchanged among all three. In isolation, none of the three populations could maintain its genetic viability (USFWS 1994a, Fritts and Carbyn 1995).

Population Growth

Wolf populations increase or decrease through the combination and interaction of wolf densities and prey densities (Keith 1983, Fuller 1989). Actual rates of change depend on whether the wolf population is pioneering vacant habitat (as in YNP and central Idaho) or whether the population is well established (as in northwestern Montana). The degree and type of legal protection, agency control actions, and regulated harvest also influence population trends. Once established, wolf populations apparently can withstand human-caused mortality rates of up to 28-35% without declining (Keith 1983, Fuller 1989).

If protected, low density wolf populations can increase rapidly if prey is abundant. Keith (1983) speculated that a 30% annual increase could be the maximum rate of increase for any wild wolf population. Once densities were high enough, social interactions probably intensify. Intraspecific conflict and increased competition for food eventually cause the population to level off or decline (Keith 1983, Fuller 1989).

Wolf populations in the GNP area (northwestern Montana and southeastern Alberta) increased an average of 23% annually from 1986-1993 (Fritts et al. 1995). After 1993, the population leveled

off (Pletscher et al.1997). Those packs produced dispersers that eventually colonized vacant habitats in western Montana (USFWS unpubl. data). Some packs which formed in the Northwestern Montana Recovery Area since the early 1990s persisted, but others did not. Packs have been lost due to illegal mortality, control actions where livestock depredation was chronic, and for other unknown reasons.

The average annual rate of increase from 1992 to 2000 in northwestern Montana was 4.7% (USFWS et al. 2001). In 1992, the minimum mid-winter count (including pups) was 41 wolves. Sixty-two wolves were counted in 2000. The highest count was 70 wolves, at the end of 1996. The population grew in some years, but declined in others. Some of the variation probably reflects true changes wolf numbers, but some variation may be due to monitoring inaccuracy or decreased monitoring effort.

Prey populations influenced recent wolf population dynamics in northwestern Montana. White-tailed deer populations expanded from the late 1970s through the mid 1990s, in part precipitating and sustaining increases in wolf numbers and distribution. However, the winter of 1996/97 was exceptionally severe, and white-tailed deer populations declined significantly (Sime, unpubl. data). Other prey populations also declined and poor recruitment was attributed to winterkill. The USFWS believes that the significant decline in natural prey availability led to the record high number of livestock depredations and subsequent lethal control. Wolf depredations on livestock in 1997 alone accounted for 50% of all depredations in northwestern Montana between 1987 and 1999. Smaller prey populations likely translated to decreased wolf pup survival in 1997 and 1998, compared to 1996. Ungulate populations rebounded in recent years and the wolf population is also nearing its 1996 level.

Wolf populations in the GYA and central Idaho areas exceeded all expectations for reproduction and survival (Bangs et al. 1998). Populations became established in both areas within 2 years, rather than the predicted three to five years. Pup production and survival in the GYA has been high. The average annual growth rate for the GYA from 1996-2000 is 35%, based on the minimum count as of December 31 and including pups (USFWS et al. 2001). However, population growth in the GYA slowed in 1999 after the rapid increase in the first three years post-reintroduction (Smith et al. 2000). The average annual growth rate for this population is 36%, based on minimum counts on December 31 and including pups (USFWS et al. 2001).

It is likely that population growth rates will slow for both the core Yellowstone and central Idaho populations because of declining availability of suitable, vacant habitat. However, these populations will be a source of founders for new packs outside YNP, central Idaho, Wyoming, and Montana. While population growth slows or levels off in core areas, wolf numbers and distribution outside core areas are expected to increase rapidly in the next few years as wolves born in the initial pulse sexually mature and disperse to colonize vacant habitats elsewhere.

Pack membership typifies the predominant manner in which a wolf exists in the wild. The pack is the mechanism by which wolves reproduce and populations grow. However, in most wolf populations, some lone, nomadic individuals exist as dispersers -- looking for vacant habitat, waiting to be found by a member of the opposite sex within a new home range, or searching for an existing pack to join. Up to 10-15% of a wolf population may be comprised of lone animals.

This is a temporary transition. Wolves in northwestern Montana usually found other wolves in an average of 66 days (range 2-202 days) (Boyd and Pletscher 1999). Occasionally, lone wolves get into conflict with people and/or livestock, ultimately being lost to the population through legal or illegal means. For a wolf to make a contribution to the population, it must affiliate with other wolves. Until they affiliate with a pack, lone wolves are generally counted separately or omitted from population counts altogether because they do not contribute to population growth.

Interactions with Other Species

The relationships between carnivores and other species, and the ecosystems in which they live, could be the most poorly understood and controversial dimension of carnivore ecology (Estes 1996). The real question is not whether carnivores play important, unique roles in the natural functioning of ecosystems, but rather how they go about it, to what degree, and at what scale (Mech 1996).

Wolves could function as a "keystone species," which exists at relatively low abundance, whose effect on its community or ecosystem is relatively large and involves multiple trophic levels (Power et al. 1996, Estes 1996). Despite the volumes of published literature on gray wolves, there is remarkably limited evidence of the precise nature, degree, and mechanisms by which the species demonstrates ecosystem-level effects.

Wolves kill ungulates, but the effects on ungulate populations are varied. Scavenging species, such as coyotes, common ravens, and wolverines feed on wolf kills. A wide variety of scavengers and other carnivores benefit from carrion being readily available year round, rather than just a pulse in the early spring because of winterkill (Stahler et al. 2001). Wolves may directly or indirectly compete for food with other carnivores (e.g. mountain lion) by selecting similar prey, or by usurping kills (Kunkel et al. 1999). Wolves have even been observed harassing grizzly bears in an attempt to take over ungulate carcasses (D. Boyd pers. comm.). Wolves sometimes kill other carnivores, such as mountain lions, coyotes, or grizzly bear cubs (White and Boyd 1989, Boyd and Neale 1992, Arjo 1998, Crabtree and Sheldon 1999).

VALUES OF WOLVES IN MONTANA

Biological

Predatory mammals such as the gray wolf are probably vital to the integrity of many ecosystems (Estes 1996). Interactions between top-level carnivores and prey species through evolutionary time has shaped and fine-tuned each one morphologically and behaviorally into what they are today. In the absence of those functional relationships, ecological systems may not be balanced.

Top-level carnivores may speed up nutrient cycling, provide carrion for other species, cull sick or weak animals, and contribute to biological diversity. Broader habitat management and conservation purposes are also served by the presence of large carnivores such as the gray wolf (Fritts et al. 1994). Providing and sustaining an adequate prey base for wolves and other

carnivores, requires that ungulates be carefully managed and their habitats protected, which ultimately benefits entire plant and animal communities.

Because wolves and other large carnivores have large home ranges, attention should be focused on the habitat values of both public and private lands. Private lands, in particular have substantial value to wildlife because they frequently occur at low elevations which moderate extreme weather conditions such as deep snow. Voluntary habitat conservation efforts, such as land or vegetation management plans and conservation easements will ultimately benefit many wildlife species.

Social, Cultural, Aesthetic

The social, cultural, and aesthetic values of wolves today grow out of a long and colorful history of interactions between wolves and humans. Early Native American Indians shared the landscape with the gray wolf. The wolf ultimately attained a cultural significance to many Native American tribes in Montana. For the Blackfeet, the wolf is a powerful religious symbol and is known as a "medicine animal" (Vest 1988).

In the days of European settlement and for decades thereafter, wolves were viewed unfavorably because they killed livestock during a period of dramatic declines in native prey populations. Wolves were also perceived as a negative, controlling influence on prey populations. However, public opinion about predators and wolves, in particular, evolved through the 1960s and 1970s. The gray wolf came to symbolize changing attitudes about wildlife, the environment, and public lands. Finally with the passage of the ESA and similar laws in the states, changing attitudes were institutionalized. Increasingly, the national public embraced the wolf as a symbol of wilderness and the call to save imperiled species. The calls were simultaneously reinforced by the media, which promoted broad public interest in wolves and their ultimate restoration into former habitats in the northern Rockies. Today, 62% of respondents in a national survey indicated that they were satisfied just knowing that wolves would be present in YNP (Duffield et al. 1993).

For some, the gray wolf symbolizes the diversity of American thought, values, and opinions. From persecuted beast, to dogged survivor, to the top of the food chain in America's first national park, the gray wolf's lot and human attitudes have gone full circle. Yet, there remains a great diversity in the social, cultural, and aesthetic values that Montanans assign to gray wolves.

Economic

Montana is well known for its national parks, wilderness areas, vast expanses of public lands, and a high quality environment that sustains healthy populations of native fish and wildlife. Visitors and residents alike enjoy hunting, fishing, wildlife viewing, and other forms of outdoor recreation. In 1992, YNP area residents reported a 90% rate of participation in wildlife viewing activities. Similarly, 94% of visitors who spent more than one day in YNP reported that their activities included viewing wildlife (USFWS 1994a).

The presence of wolves in Montana has contributed to the interest and visitation to national parks, as well as to the perceptions of Montana having diverse and abundant natural resources. It is estimated that more than 30,000 visitors to YNP from 1995-1998 saw wolves (Bangs et al. 1998). As of August 2001, 85,000 people have seen wolves in YNP (D. Smith pers comm.). The majority of nonresident visitors to Montana surveyed in 1999 ranked Glacier and Yellowstone national parks as their primary attractions. Of all the types of attractions in Montana, mountains, Glacier and Yellowstone national parks, rivers, open space, and wildlife were the top six, respectively (Parrish et al. 1997, Dillion and Nickerson 2000). The net benefits of wolf recovery alone were estimated at $10 million per year (Duffield et al. 1993).

In 1999, these attributes attracted 9.4 million visitors to Montana who spent an estimated $1.6 billion on goods and services. Expenditures increased about 4% over 1998 amounts. Since 1991, expenditures increased 2-7% each year, except 1996. Tourism is directly responsible for 30,000 jobs in Montana (6% of all jobs in the state) and supports thousands more indirectly (Cheek and Black 1998). Nonresident travel is an important part of the state's economy, on par with agriculture in terms of employment, and the wood products industry for total income (Cheek and Black 1998).

In Minnesota, wolf-related ecotourism has grown significantly. Similar growth may be possible in Montana. Already in Montana, guiding and outfitting services for nature tours, wildlife observation, wildlife photography, and "outdoor adventures" have grown in popularity. In fact, the employment growth of Montana's amusement and recreation industry is outpacing all the other travel-related industries (Dillion and Nickerson 2000). The presence of wolves diversifies the opportunities associated with this type of economic activity.

CHALLENGES OF WOLF PRESENCE IN MONTANA

Biological

One of the most fundamental challenges of wolf recovery and restoration is the uncertainty of the outcome, as a large carnivore that has been missing for decades resumes its functional role in the ecosystem. Biologists could only predict the effects of restored wolf populations on prey populations or other wildlife based on what was known from other places. It appears that many of the original predictions about the reintroduction to the GYA and central Idaho were accurate, at least in the short term (Bangs et al. 1998). However, it remains to be seen whether those predictions will be accurate over the long term.

The uncertainty about the nature, cause, magnitude, and mechanisms of wildlife population fluctuations is further complicated by the presence of wolves. The last time wolves were present with high prey densities, bison still roamed the Great Plains. Today, wolf-prey relationships are influenced by many factors, including habitat modification by humans, land management activities, changes in prey species distribution and numbers, economics, and social and political factors -- all of which, in and of themselves, are highly dynamic. Predator-prey relationships have been studied extensively; yet the results of each study are unique to the study area, and the

conditions prevailing at the time the research was conducted (e.g. predator species present, predator density, prey species present, prey density, winter severity etc.).

How predator and prey populations respond to MFWP management activities is also uncertain. The history of wildlife management includes many examples of new approaches that grew out of experience and information gained along the way

Social, Cultural, Aesthetic

The challenge of the next decade will be how to manage the wolf, having been largely successful in saving the species from extinction in the lower 48 states (Mech 1995). The greatest challenges associated with wolf management often come from social and political issues rather than biological issues. Fritts et al. (1994) speculated that perhaps no other wildlife species is as affected by human perceptions and attitudes as the gray wolf.

Experience in Minnesota demonstrates that active management of wolf numbers and distribution is a necessity, given their reproductive potential and dispersal capabilities. It is unrealistic to expect that wolves could exist in 21st century settings as they did in at the time of Lewis and Clark. Management, including lethal removal, is necessary to address and reduce conflicts with livestock and humans, as well as to have a cost-efficient program (Mech 1995, Mech 2001). However, the same public sentiments that promoted wolf recovery and protection often oppose management and lethal removal of wolves (Mech 1995). This irony has led many wolf experts to emphasize the need for a balanced public outreach program that incorporates wolf control as a part of any wolf restoration program (Fritts et al. 1995).

In contrast, some livestock organizations and hunting advocates in the northern Rockies spoke out against wolf recovery and restoration efforts in the GYA and central Idaho, as well as against the legal protections afforded wolves by the ESA (USFWS 1994b). Opposition stemmed from concerns about wolf depredations on livestock and the associated economic losses, loss of management flexibility by federal land management agencies, land-use restrictions, impacts to big game populations, and reduced hunting opportunity. Despite many legal challenges, wolves were released. The USFWS worked to increase the tolerance and acceptance of wolves by those who expressed the greatest opposition or who would be affected the most by wolf presence. Resolution of conflicts in a safe, efficient manner was a priority. Upon delisting, Montana will face similar challenges.

Public opinions in Montana vary greatly. We have a dispersed rural population, an urban population concentrated in a few populous counties, an economy in which agriculture ranks among the top 3 industries, and expanses of public land that could support wolves. The spectrum of human values and attitudes about wolves ranges from total protection of the species to total elimination. These values are highlighted by urban and rural differences, by differences between residents of Montana, Idaho, and Wyoming and the national public, and by differences in the knowledge and understanding of wolf biology and the education of individual respondents (USFWS 1994a). These differences in values, attitudes, and opinions create a challenging environment in which to manage a controversial species.

Economic

One economic challenge of wolf presence in Montana stems from the real and perceived imbalance between the economic and social costs experienced by individuals, businesses, organizations, or agencies most directly affected by wolves and the economic and social benefits that accrue to those less directly affected. The costs and benefits do not accrue equitably to the same individuals, businesses, organizations, or agencies.

The USFWS predicted that some segments of the economy would be negatively affected and others would be positively affected by wolf restoration in the GYA and central Idaho (USFWS 1994a). Negative costs were predicted for livestock producers who experienced wolf-related livestock losses and for hunting-related businesses. Positive economic benefits were expected for businesses related to tourism, outdoor recreation, and national park visitation.

Individual producers may experience significant direct and/or indirect economic impacts due to wolf presence or depredation (Bangs et al. 1998). In the GYA and central Idaho recovery areas to date, confirmed wolf-caused livestock losses have been less than predicted (Bangs et al. 1998). Predictions were not made for the Northwestern Montana Recovery Area, although there has been at least one depredation event in every year except one, from 1987-2000. Producers could have other losses beyond what is confirmed and documented. Since 1987, a privately funded program paid a total of $150,000 for confirmed or highly probable wolf-caused livestock losses in Montana, Wyoming, and Idaho (Bangs and Shivik 2001). It is difficult to estimate the economic losses due to unconfirmed livestock losses or the indirect economic costs associated with wolf presence or depredation.

For hunting-related businesses such as outfitting, economic losses may be associated with decreased hunter opportunity or fewer recreational days afield, which ultimately may reduce hunter expenditures or participation rates. Ultimately hunter opportunity will probably fluctuate as predator and prey populations change through time. In northwestern Montana, prey populations declined in one hunting district on the western border of GNP after wolves established. This was due to the combination of predation by all carnivores in the area, intermittently low recruitment of fawns and calves, possible overharvest of antlerless elk, and natural mortality caused by severe winters (Kunkel et al. 1999, T. Thier pers. comm.). Similar decreases were observed in the elk population in the South Fork of the Flathead River, an area devoid of wolves during most of the same period (J. Vore pers. comm.). In that drainage, overharvest of antlerless elk was a contributing factor.

Although ecotourism is touted as a viable, sustainable way of generating economic activity through “low-impact” use of natural resources, ecotourism has potentially negative consequences. Risks to resources include increased infrastructure development, habitat degradation, wildlife disturbance, increased demands, and an erroneous perception that ecotourism leads to long-term protection of environmental assets (Isaacs 2000).

The State of Montana must also secure adequate financial and personnel resources to implement a wolf conservation and management program. While many aspects of this program fall within existing duties and activities already carried out by MFWP, some components clearly add to

existing responsibilities and workloads. Existing budget and personnel resources cannot absorb this expansion. Other state and federal agencies will be similarly affected. The responsibility to address the economic challenges of wolf conservation and management resides with all interests.

WOLF CONSERVATION AND MANAGEMENT

Introduction

Montana's wildlife legacy includes a rich diversity of species. Throughout its 100-year history, MFWP has actively restored, perpetuated, and managed the fish and wildlife resources of the state. Some activities promoted wolf recovery, such as careful ungulate population management, research, and monitoring, the acquisition of Wildlife Management Areas (WMAs), purchase of conservation easements, and other efforts to preserve and restore wildlife habitats.

In keeping with the stewardship principles extended to other species, MFWP will conserve and manage wolves in concert with the rest of our wildlife heritage. These stewardship principles embody the ideals of conservation, implying the long-term persistence of wolves. Active management will also be required to address conflicts between wolves, people, livestock, and other wildlife species. Conservation and management are not mutually exclusive concepts. When taken together, our direction is to integrate and sustain wolves in suitable habitats within the complex biological, social, and economic landscapes using a variety of management tools. MFWP is committed to achieving this balance. In conjunction with our neighbors, Idaho and Wyoming, we will sustain wolf populations at secure levels which prevent reclassification under ESA.

In taking a balanced approach between conservation and management, MFWP will bring the gray wolf into the existing management framework, programs, and policies for other carnivores, such as mountain lions and black or grizzly bears. Even though black and grizzly bears are omnivorous, for the purposes of this plan, they are functionally included in the carnivore group with lions and wolves because of their predatory capabilities. Although each of these species is biologically unique, there are common threads to how they are managed. Elements of the gray wolf program will also overlap other existing programs, such as ungulate management and research, habitat, public outreach, law enforcement, and private landowner relations. A successful conservation and management program for wolves ultimately depends on people and their attitudes. An information and education program is discussed in a separate chapter.

Adaptive Management

MFWP's wolf program will be based on principles of adaptive management. Adaptive resource management provides a framework and a process for decision-making, which aligns management objectives and constraints, even when the outcome is uncertain. Decisions are based on current and future status of the resources. Through time, experience and knowledge accumulate. Research and management are conducted simultaneously in a coordinated fashion that improves management (Lancia et al. 1996).

An adaptive management program has 4 components: objectives, management alternatives, predicted outcomes of management activities (models), and a monitoring program. Initially, objectives are established. Next, a management alternative is selected from a range of liberal to conservative strategies and implemented. The monitoring program measures the outcomes and detects any changes. Measured outcomes are compared to the predicted outcomes, and the model is refined to more closely match what actually happened. Then, another management alternative is selected and implemented. Management actions change through time based on current resource status and how that compares with the original objectives.

Wolf Population Objectives

Montana shares a legal requirement with the states of Idaho and Wyoming to maintain a minimum total of 30 breeding pairs in the region. If each state were to sustain an equal number or ten pairs each, the biological intent of the recovery plan would be met -- so long as wolves were well distributed across the region. Based on ten years of experience in northwest Montana, not all packs are successful each and every year, 14-17 packs would be needed to achieve the minimum number of 10 breeding pairs with at least two pups on December 31 (USFWS unpubl. data). Montana will maintain at least 14-17 packs statewide. Given an average pack size of 5-7 members, between 70 and 119 wolves would be present in Montana, at the minimum. Montana habitats have the potential to support more than 17 packs, and there will be no administrative limit imposed on total pack numbers. MFWP does not administratively declare an upper limit or maximum number of individuals of any wildlife species in the state in the context of a "cap." Instead, MFWP identifies population objectives that are based on landowner tolerance, habitat conditions, social factors, and biological considerations. Wildlife populations are managed according to the objectives and population status, using a range of management tools. A wolf MFWP will document, monitor, and manage all wolf packs within available habitats according to the adaptive management principles and conflict resolution tools described in this plan.

These population objectives identify a minimum number of packs that will meet the legal requirements. We assume that additional packs will become established and the actual number of packs in Montana when wolves are officially delisted will be above the minimum recovery criteria. As the number of packs varies through time, adaptive management principles come into play. Management strategies and conflict resolution tools will be more conservative as the number of packs decreases, approaching the legal minimum. In contrast, management strategies become more liberal as the number of packs increases. Ultimately, the wolf population itself identifies the appropriate management strategies. A wolf population of 15 packs is not considered a minimum or a maximum allowable number of packs. Rather, the value of 15 is used to signal a transition in management strategies from liberal to conservative, as the number of packs changes. The threshold of 15 packs was determined by examining the reproductive histories of the packs with the longest tenure. The Interagency Technical Committee also deliberated this value. It was ultimately recommended to the Council and formally endorsed.

Animals dispersing into Montana from YNP, central Idaho, and Canada will supplement the Montana wolf population. Similarly, Montana wolves will disperse out and supplement other populations. In the end, some or all packs are transitory. In order to maintain wolves at or above the recovery criteria, new packs must be able to replace those that die out or are eliminated. In

the long run, exchange of wolves between and among the three areas will help ensure that minimum population objectives are met. Wolf population trends in the three recovery areas from 1987 to 2000 are shown in Figure 3.

Wolf Distribution

Nationally and within Montana, people have demonstrated a strong interest in restoring the gray wolf to its former historic range. Yet there have been dramatic changes in the landscape since wolves roamed Montana at the turn of the 20th century. Human settlement, the introduction of livestock and agriculture, and the current abundance and distribution of native ungulates make for a dramatically different landscape for wolves in the 21st century.

Due to the magnitude of these changes, the federal gray wolf recovery team identified areas with large tracts of public lands and adequate native prey as suitable habitats for wolf restoration. These were remote federal lands, designated wilderness areas (e.g. the Bob Marshall complex), and national parks. The recovery plan emphasized these areas because of the lower potential for conflict with livestock and people (USFWS 1987).

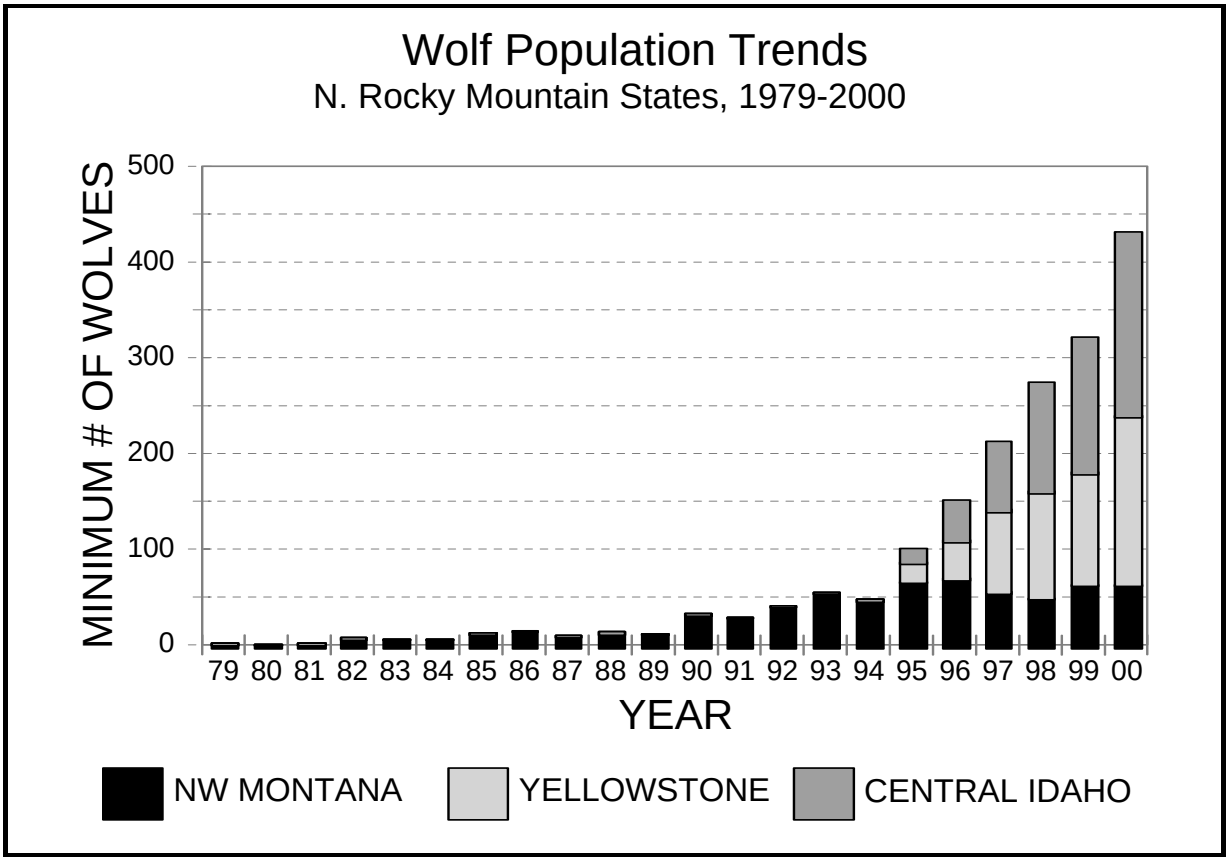


Figure 3. Grey wolf population trends in the Northwest Montana, Greater Yellowstone, and central Idaho recovery areas from 1979-2000. (Source: USFWS et al. 2001)

However, wolves in Montana readily use altered landscapes, even demonstrating preferences for low elevation agricultural or commercial timberlands. Federal lands at low elevations are typically managed for multiple uses and are intermingled with privately owned lands, resulting in a checkerboard pattern of mixed land ownership. When combined with the geography in Montana, approximately the western half of Montana provides suitable wolf habitat in the 21st century. Wolves exist within a full array of backcountry wilderness areas, multiple use lands, intermingled public and private lands, and wholly private lands.

Wolves can exist in many different habitats. However, wolf distribution in Montana will ultimately be defined by the interplay between ecological needs and social tolerance, as is the case for many other wildlife species such as deer, elk, bears, and mountain lions (Decker and Purdy 1988, Fritts and Carbyn 1995, Bangs et al. 1998, Riley and Decker 2000). People have different tolerance levels, values, and attitudes about wildlife and large carnivores in particular. Furthermore, tolerance varies in space and time and at different scales.

Social acceptance of wolves transcends the boundaries of geography, land ownership, or land use designations just like a pack territory boundary transcends those same delineations. An adaptive approach will help MFWP implement its wolf program over the range of social acceptance values now and in the future as values change.

Present wolf distribution in Montana is presented in Figure 2. MFWP anticipates that wolf distribution will evolve through time due to the interplay of ecological needs and social tolerance. It will most likely comprise western Montana. Even in western Montana, wolf distribution will be discontinuous compared to the more homogeneous habitats and continuous wolf distribution typical of the upper Midwest. The distribution of deer and elk populations in high enough densities to support wolves is discontinuous because of marginal habitat conditions for ungulates or concentrated human settlements in intermountain valleys. Although there is an adequate natural prey base to support wolf presence in eastern Montana, most of the land base is privately owned. Most of the public lands in eastern Montana are grazed by domestic livestock during some part of the growing season. The higher frequency with which wolves conflict with livestock on public and private land makes it unlikely that a wolf pack could be sustained over the long term. However, wolf distribution would not be artificially restricted if social tolerance permits wolf presence. Indeed, the general distribution of all wildlife species in Montana is determined through the interaction of species' ecological requirements and human tolerance, not through artificial restrictions. In the case of wolves, the existence of a privately funded compensation program has helped to increase social tolerance for wolves. This subject is discussed in a later chapter.

By not establishing administrative limits to wolf distribution, wolves could disperse and move freely between northwestern Wyoming, central Idaho, and Canada. The capability to exchange genetic material among the sub-populations in the region is an important underpinning of wolf recovery and is required for long-term population viability. The absence of any presupposed boundaries of wolf distribution provides maximum flexibility to MFWP to accommodate wolf presence, address public concerns, and meet public expectations.

Montana's wolf program will emphasize large contiguous blocks of public land, managed primarily as backcountry areas or national parks where there is the least potential for conflict, particularly with livestock. Wolf presence will be encouraged on these lands. The national public identifies very strongly with public lands in western states, and it desires that these lands be managed according to the broadest interpretation of "public benefits." The national public strongly supported wolf restoration in the GYA and central Idaho (Duffield et al. 1993, USFWS 1994b). However, Montanans' opinions were less supportive (Tucker and Pletscher 1989). Nonetheless, the Montana public may be more willing to accept wolves on these remote public lands, particularly if conflicts are minimal and problem wolves are managed. Management strategies employed in these habitats will be more conservative, favoring wolf presence.

Outside backcountry areas, Montana is extremely diverse. With the complex mix of differing prey bases, land ownership, land uses, social tolerance levels, and potential for conflict, all possible combinations exist. Each unique combination could be termed a management setting, which is the suite of characteristics for a particular area with regard to the biological and social characteristics, the physical attributes of the environment, land ownership, and land uses. Wolf packs in areas of interspersed public and private lands will be managed in ways similar to other free-ranging wildlife in Montana. The management strategies outlined in this plan will protect human safety, integrate the wolf program with other MFWP program areas, and minimize conflict with livestock. Management strategies employed outside of backcountry areas depend on wolf population status, type and severity of conflict, land ownership, and social tolerance. While this plan will guide MFWP, some agency discretion and flexibility will be exercised to accommodate the unique attributes of each pack, its history, the site-specific characteristics of its home range, landowner preferences, or other factors that cannot be reasonably predicted at this time. Management flexibility will be crucial in addressing all of the public interests that surround wolves.

Population Management

The high reproductive potential and capability of wolves to disperse long distances make population management a necessity in many situations (Boyd and Pletscher 1999). Indeed, managing large carnivore populations is the next significant challenge beyond restoration (Mech 1995, Mech 1996, Mech 2001).

In Montana, the goal of wolf management is to balance wolf numbers and distribution within the constraints of the biological, social, and political landscapes. "Management" implies that cooperating agencies are actively engaged in activities which assure long-term population welfare and minimize the potential for conflict or resolve conflict where and when it develops. Agency actions are selected from a spectrum of possibilities and are aimed at matching the appropriate management tools to the situation. "Management" is not synonymous with lethal control. On the contrary, wolf population management will include the full range of tools from non-lethal to lethal and will incorporate other agency functions such as public outreach, conservation education, law enforcement, and landowner relations. Wolves do not exist in isolation from their environment, nor should an effective management program isolate wolves from their environment.

Management actions will be evaluated in light of prevailing conditions or extenuating circumstances. Wolf populations will fluctuate as a result of management actions, natural mortality, legal harvest, illegal take, wolf productivity, and ungulate population fluctuations. Taking all of this into consideration, specific management actions are guided by wolf population status, with a minimum of 15 packs required to use more liberal management tools. Liberal management tools include possibilities for lethal removal of wolves. If there are fewer than 15 wolf packs in the state, management tools are primarily non-lethal. Ultimately, under the statutory classification of "species in need of management" and in conjunction with the rules and regulations adopted by the MFWP Commission, wolves will be treated and managed like other wildlife species in Montana (e.g. big game, furbearers, or game birds).

Non-Lethal Methods

The intent of non-lethal methods is to avert or resolve a wolf conflict without killing the wolf or wolves in question. In many instances, non-lethal management tools effectively address the public or agency concern and are the most cost effective, least intrusive method. If successful, non-lethal methods may also alleviate the need for more intensive management actions in the future. Examples of non-lethal techniques include monitoring wolf locations using radio telemetry, changes in livestock husbandry practices, harassment of wolves, wolf relocation, or attempts to modify wolf behavior. Non-lethal techniques specifically intended to modify wolf behaviors can be aversive or disruptive (Bangs and Shivik 2001). Aversive stimuli cause discomfort or pain to the animal after a wolf demonstrates certain behaviors. The repeated negative experience associated with certain behaviors may condition the animal to not repeat that behavior. Examples are taste aversion or electric shock collars. Disruptive stimuli attempt to prevent or alter behaviors by disrupting the animal when it behaves in undesirable ways. When disrupted by the stimuli, the animal is supposed to retreat. Examples are noise makers or siren devices triggered when a wolf approaches livestock too closely. The research arm of WS is actively investigating the utility and effectiveness of these techniques to avert wolf conflicts with livestock (Bangs and Shivik 2001). At present, these protocols are experimental and their efficacy is being evaluated.

MFWP will emphasize non-lethal management techniques if there are fewer than 15 wolf packs. Furthermore, in backcountry settings and for public lands near national parks, non-lethal methods will be preferred over lethal methods. In mixed land ownership patterns, non-lethal methods could also be used.

Livestock producers (or their agents) may non-lethally harass wolves when they are close to livestock on public or private lands. Private citizens may also non-lethally harass wolves that come close to homes, domestic pets, or people. The intent in allowing private citizens and livestock producers to non-lethally harass wolves is to avert a potential conflict by discouraging wolves from habituating to people or frequently visiting areas near livestock.

Sterilization procedures have some application for reducing wolf population increases under certain conditions (Haight and Mech 1997). Field-testing is currently underway in Alaska.

Lethal Methods

Wolf populations are strongly influenced by human-caused mortality. Wolves became extinct in Montana because of intensive human exploitation, and they ultimately recolonized after legal protections were instituted. Human-caused mortality still influences wolf populations today (Pletscher et al. 1997, Bangs et al. 1998).

Managing human-caused mortality will be an important component of wolf population management. However, MFWP management actions must also take into account other sources of wolf mortality that are beyond our ability to manage, such as car/train strikes. MFWP also recognizes that wolves may die because of illegal activities. The total of legal and illegal mortality, natural mortality, and random events will be the primary mechanism by which wolf numbers will change. Population monitoring will provide the necessary data on which decisions will be based, so that management can be adjusted accordingly without jeopardizing population welfare.

Legal Wolf Mortality -- Wolves could die in Montana for a variety of legal reasons. Recent revisions to Montana statutes, which go into effect upon delisting, allow private citizens to kill a wolf if it is threatening human life or domestic dogs. Livestock producers or their agents could also kill a wolf if it is attacking, killing, or threatening to kill livestock – regardless of whether the incident takes place on public or private land. Any incident in which a wolf is injured or killed in defense of life or property must be reported to MFWP as soon as possible, but within 72 hours. The entire carcass must be returned to MFWP.

Upon confirming wolf depredation on livestock, WS may initiate lethal control actions subject to a Memorandum of Understanding between WS, MDOL, and MFWP. MFWP may also approve lethal control of the offending animal by livestock owners or their agents. A special kill permit (issued by MFWP) is required for any lethal control of any legally classified wildlife in Montana, unless there is an imminent threat to a person, dog, or livestock. If a wolf is killed on a special permit, the incident must be reported to MFWP as soon as possible, but within 72 hours. The entire carcasses must be returned.

MFWP intends to provide opportunities for regulated public harvest of wolves through hunting and trapping as the wolf population increases and it becomes appropriate to do so. Harvest management would proceed adaptively, but all hunting and trapping would be cease if wolf packs totaled fewer than 15. As the number of packs increases beyond 15, MFWP will assess population status and analyze potential management alternatives. A harvest-oriented alternative could be selected and the formal recommendations drafted. Then, MFWP solicits public comment on the proposal. A final recommendation is forwarded to the MFWP Commission for their consideration. This process would be similar to what is currently done for all other game or forbearing species. Through public input and MFWP Commission oversight, harvest regulations would be established. Regulated hunting and trapping of wolves would take place within the larger context of multi-species management programs, rather than the context of single species management. As wolf numbers increase and distribution expands, harvest opportunity would increase. Specific harvest objectives will depend on other losses to the wolf population, such as control actions for livestock depredation or loss of a pack because of intraspecific strife.

Through annual MFWP Commission oversight and public input, hunting and trapping would take place under designated seasons and regulations which describe legal means of take, license requirements, and reporting and tagging requirements. Total harvest would be strictly controlled through a permit or quota system, with season closures as soon as harvest objectives are reached. Law enforcement by the MFWP Enforcement Division would also proceed similar to other managed wildlife species such as deer, with penalties for violations and restitution values established in Montana statute.

Fine scale population management would be achieved by the delineation of specific harvest districts with individualized harvest objectives. Wolves could be promoted (on remote public lands) or discouraged (in areas with high livestock densities) depending on harvest objectives, district boundaries, and pack distribution. Hunting is not permitted in national parks. Public harvest options would also considered in circumstances where a livestock producer has had problems with wolves harassing or killing livestock. In these circumstances, public harvest would be in lieu of a government control action.

There is a significant amount of published literature to assist MFWP as it initiates a public harvest program for wolves. Our Canadian neighbors manage wolf populations and address wolf conflicts using a diversity of management tools, one of which is a sustainable public hunting and trapping program – all in an environment very similar to Montana (Carbyn 1983, Bjorge and Gunson 1985, and Gunson 1992). All available information will be considered during the decision-making process.

Illegal Wolf Mortality -- Illegal wolf mortality occurs in Montana, despite the current protection of ESA. Some mortality was attributed to negative public opinions about the federal government's efforts to recover wolves, wolf activity in a new area, and public land management policies (Bangs et al. 1998). It remains to be seen whether illegal mortality will be a problem for future wolf populations managed by the state. Illegal mortality would result from public taking outside of the framework established by Montana statutes and MFWP Commission rules and regulations. Poaching, malicious killings, and mistaken identity losses would all be considered illegal. MFWP Enforcement Division will pursue cases of illegal wolf mortality, similar to other wildlife species.

Other Considerations

Trappers may incidentally catch a gray wolf in a trap or snare intended for other species. Trappers will be required to release the animal, if possible, and report the incident to MFWP. If the animal has debilitating injuries, the trapper must call MFWP for assistance and reporting.

Even though MFWP has a legal requirement to maintain at least ten packs, the wolf population could decrease to below or near recovery goal targets through an unpredictable combination of natural events and management actions. Within national parks, wolves will always be legally protected from intentional human-caused mortality beyond the context of a management removal. As long as wolf populations remain secure and viable, Yellowstone and Glacier national parks will be a source of dispersing wolves to reoccupy vacant habitats outside park

boundaries if the Montana population decreased to levels near or below recovery goals. If population trends could not be reversed by conservative management strategies, MFWP would consider transplanting wolves into Montana from other secure populations. In reverse, a secure wolf population in Montana could serve as a source of animals for future restoration efforts elsewhere such as Colorado, where preliminary work documented that wolves could be sustained biologically (USFWS 2000). Transplanting wildlife to augment populations is a management tool that MFWP used to restore ungulate populations in the 1940s and 1950s and uses now for bighorn sheep.

Population Monitoring

For the first five years after the gray wolf is delisted, MFWP is required to document that the wolf population is at or above the relisting criteria. Beyond the legal requirement, MFWP will want to include wolves in the long history of collecting survey and inventory data on fish and wildlife populations. These data create the foundation upon which all wildlife populations are managed. MFWP recognizes that beyond its legal requirement for population monitoring, its own interests are well served by collecting scientifically credible data. A thorough database will lead to the successful integration of the wolf program with other wildlife programs so that all may be managed in an ecological context.

The wolf monitoring program should document population status and trend through time. Specific objectives will be to estimate wolf numbers, document reproduction, and tabulate mortality. These data will yield a general demographic picture of the Montana wolf population. Additionally, information about wolf pack distribution, individual territory boundaries, how a pack moves through and uses its territory, locations of wolf den and rendezvous sites, and interactions between packs would be generated. Dispersal information could also be gathered. Special management needs, opportunities, and constraints could also be identified. Periodic review of these data by MFWP and its sister agencies in Idaho, Wyoming, or other cooperators will ensure that corrective measures are taken in a timely fashion if the regional population is in jeopardy.

Although the primary wolf monitoring responsibilities will rest with MFWP upon delisting, we benefit from the knowledge generated by the efforts and experiences of the wolf recovery program cooperators (NPS, WS, Nez Perce Tribe, USFWS, US Forest Service, universities, and private organizations). MFWP activities will be integrated into the regular program of work. A detailed database will assist MFWP in coordinating various wildlife program efforts. Although MFWP personnel will carry out the primary monitoring duties, opportunities for collaboration with other agencies, universities, non-profit organizations, volunteers, and tribal wildlife authorities will be pursued. Collaborative efforts could be necessary in the future as wolf numbers increase and distribution expands geographically across land management agency jurisdictions and Indian reservations. Partnerships will also improve the cost effectiveness of fulfilling Montana's responsibilities.

The monitoring program will balance scientific precision with cost effectiveness. Costs of data collection typically go up in proportion to their precision and the rigor required from the data. Financial and personnel limitations may sometimes preclude the most precise, reliable

techniques. MFWP will rely on a combination of radio-telemetry and non-invasive techniques. The monitoring program will require greater accuracy and precision when there are 15 or fewer wolf packs. As the number of wolf packs increases, the need for precision decreases proportionally.

Some radio collars deployed by the USFWS will still be functioning when the state assumes management authority. MFWP will continue to monitor these existing collars and selectively deploy additional radio collars during the first five years after delisting. We will focus on newly formed packs about which little is known. We may also radio collar wolves which become available opportunistically. It will be important for MFWP personnel to gain knowledge and experience with wolves and for these skills to accumulate as rapidly as possible. Telemetry techniques will generate baseline information efficiently and help biologists learn about wolves. As knowledge and experience increase, MFWP will decrease reliance on telemetry and incorporate more non-invasive methods for basic survey and inventory data collection. Wolves captured while addressing conflicts will be radio collared prior to release.

The term "non-invasive" monitoring implies that information can be gathered without actually live-capturing and handling animals. Examples of non-invasive methods are track counts, howling surveys, observation report summaries, remote photography, and profiling of genetic material obtained passively from hair or scat samples. These methods can yield valuable information; however, for some monitoring objectives, validation using a radio-collared wolf pack is required for accuracy.

Track counts are most efficiently conducted during periods of snow cover. Track surveys could confirm presence or absence of wolves. If they are intended to estimate pack size, they must be done repeatedly to yield accurate information because wolves will literally step in each other's footprints while traveling in groups. MFWP presently conducts winter ground tracking surveys in a systematic fashion for furbearers using snowmobiles (MFWP 1995). US Forest Service (USFS) personnel also assist with these surveys. Wolf tracks are periodically encountered (B.Giddings pers. comm.). Existing routes may be adjusted to include the lower elevations frequently used by wolves in association with ungulate winter ranges. Separate routes, specifically intended for wolves, may also be established within pack territories, as they become known.

Wisconsin created a volunteer carnivore survey program in which interested members of the public do snow track surveys (Wisconsin Department of Natural Resources 1999). Participants, trained by the Wisconsin Department of Natural Resources, survey an assigned area several times a winter and forward their data in the spring. Volunteers did the surveys reliably and logged several thousand miles each winter. The method and program are still being validated with more intensive telemetry data, but it appears promising as a monitoring tool and it facilitates public involvement with wolf management issues (Wisconsin Department of Natural Resources 1999). Alaska conducts winter track surveys using aircraft. This method may be appropriate for some Montana packs.

In the late spring and summer months, howling surveys at rendezvous sites can help biologists determine whether a pack is raising pups. Pup vocalizations can easily be discriminated from

adults. Although a precise count is usually not possible, wolf responses can indicate relative pack size. Since different packs react to artificial howls differently, howling surveys may not work in all cases.

Observational reports were useful to the federal wolf recovery program. Repeated observations of animals and/or sign in an area led to the discovery of new packs. Observational reports may also confirm pack persistence. Since it proved so valuable to the federal program, MFWP will add the gray wolf to its own Occurrence/Distribution Report and Track Observation Report forms (MFWP 1995). Similar information could also be gathered using hunter/trapper contacts (e.g. check stations or log books), the MFWP web site, Regional Headquarters offices, and the telephone harvest survey program.

MFWP biologists use remote photography to sample a variety of species. This technique could also be used to survey wolves on known travel routes to or from den or rendezvous sites or in conjunction with bait or scent stations.

Genetic profiling is the identification of unique individual wolves by analyzing genetic material isolated from cells extracted from hair, blood, or muscle tissue. Samples are obtained from wolves – either passively or from live-captured animals, yielding a unique genetic pattern similar to human fingerprints. Other information, such as maternity, paternity, dispersal, or overall genetic diversity can also be analyzed. A reservoir of genetic samples obtained from wolves in Montana, central Idaho, the GYA, and adjacent Canadian source populations already exists. MFWP will supplement the genetic database as samples become available.

Anecdotal information will supplement formalized monitoring protocols. Depredation investigations by WS yield important information, such as documenting wolf activity in a new area or the number of wolves involved in an incident.

Each monitoring protocol has its own advantages and disadvantages. No single method will be suited to all packs, either. MFWP will consider any and all methods, including new methods as they are developed. Corroborating evidence will be gathered using multiple methods, but specific protocols will be tailored to the pack, setting, and appropriate season for collecting that type of data. This will facilitate a balance between monitoring responsibilities, information needs, cost effectiveness, and scientific rigor.

Wolf Health and Disease Surveillance

Several diseases and parasites have been reported for gray wolves in the lower 48 states. Some had significant impacts on population recovery, especially for wolves in Minnesota, Michigan, and Wisconsin (USFWS 2000). However, in the northern Rockies, diseases and parasites were less influential and have not significantly impacted wolf populations to date (USFWS 2000). Nonetheless, adult wolves die from a wide variety of canid diseases or parasites. Pups may be especially vulnerable to death from exposure to canine parvovirus or canine distemper (Mech and Goyal 1993, Johnson et al. 1994). Monitoring and surveillance of wolf health will provide baseline information. Even though monitoring and surveillance would not stop a disease or parasite related decline, it could demonstrate a possible reason for the decline.

Wolf health is monitored by analyzing biological samples collected from dead and live-captured animals. During live capture operations, overall wolf health will be assessed, including presence of external parasites. Blood will also be collected. Blood tests can indicate exposure to canine parvovirus, distemper, and other potentially detrimental diseases. Necropsies will be performed on wolf carcasses to determine cause of death, condition, age, reproductive status, and food habits. General protocols will be followed to collect reproductive tracts, stomach and colon contents, muscle tissue for genetic purposes, and any potentially diseased or parasitized tissues. Other sampling or testing may be conducted, depending on the request or concerns of the submitting party and the condition of wolf remains.

Carcasses and biological samples will be submitted to the MFWP Wildlife Laboratory in Bozeman. If warranted, tissues may be collected and forwarded to other laboratories for any specialized testing or forensic investigations. The Wildlife Laboratory will be the primary repository for stored samples and necropsy data, as is the case for some other species. Through time, baseline data will be compiled, which prove invaluable in the long run. As baseline data accumulate, the value of doing routine necropsies may diminish with time, and the submission of carcasses will be reduced to special forensics or disease-related cases. Increasingly, these functions are shared with the Regional Wildlife staff. Today's computer technologies enable locally collected data to be systematically collected and made available to MFWP personnel statewide. As these applications are further developed and refined, less responsibility will be borne by the Wildlife Lab and more will be borne in the Regions. MFWP will continue informal consultation and cooperation with the Wolf Project in YNP or other wolf researchers and managers.

In the unlikely event of human injury or death during a wolf-human encounter, the wolf or wolves will be lethally controlled and the carcasses forwarded to the MFWP Wildlife Laboratory. Carcasses will be tested for rabies or other pre-disposing health factors. If a wolf bites a person during a capture and handling incident, a blood sample will be drawn so it can be tested for rabies.

Wolf Specimen Disposition

Montana statutes permit citizens to possess the parts (antler, bone, skull, hide etc.) of lawfully taken big game, game birds, furbearers, and fish or the parts of animals that died of natural causes. Possessing parts of animals that died illegally or of unnatural causes is not permitted. For example, a citizen could pick up the antlers of an elk that died from starvation but could not cut off the antlers of a deer recently hit by a car. Wolf carcasses and parts will be discovered by or otherwise become available to the general public for a variety of reasons, including natural mortality, accidental death, agency control actions, defense of life or property, and regulated public harvest. Rules and regulations adopted by the MFWP Commission will govern possession of wolf parts. The general rule of thumb is that it is not legal to possess parts of legally classified wildlife unless there are provisions for a regulated public take – i.e. hunting regulations in the case of big game, trapping regulations for furbearers, or special regulations written for species in need of management. Possession and transport of gray wolf parts is also subject to the Convention on the International Trade in Endangered Species (CITES), similar to

the bobcat and river otter (*Lutra canadensis*). The hides of bobcats, river otters, and wolves must be marked with a special tag. Tags are obtained from MFWP and are only affixed to animal hides taken by legal means. It would be illegal to possess a wolf, bobcat, or river otter hide without the CITES tag.

Any wolf carcass found in the field should be left alone and reported to MFWP. In the short term, MFWP or WS will conduct a field investigation and retrieve the carcass as a precautionary measure for public safety. In Idaho, nine wolf carcasses in the last two years were discovered on national forest land. The USFWS National Forensics Laboratory confirmed that these wolves were poisoned with Compound 1080, banned by the Environmental Protection Agency in 1972. This poison is extremely dangerous to human health, and no antidote exists. All carcasses, including those resulting from WS control actions or private actions through defense of life or property, will be transferred to the MFWP Wildlife Laboratory. A wolf database will be created and maintained. Eventually, the public will be able to keep wolf parts, consistent with the laws governing possession of other classes of wildlife species, such as big game or furbearer.

The entire carcass of wolves killed by private individuals in defense of life or property will be returned to MFWP and remain state property, regardless of whether the incident occurred on public or private lands. Upon confiscation, carcasses resulting from illegal killings also remain the property of MFWP.

If the hide, bones, and/or skull are in good condition, they can be salvaged and used for educational purposes. Priorities will be for research purposes, tribal cultural use, and general wolf education. These specimens may be transferred to other government agencies, non-profit organizations, tribal authorities, or educational institutions for general public benefit. Parts unsuitable for educational uses will be destroyed.

Research

Wildlife research in Montana is conducted by MFWP and through its cooperative partnerships with universities, non-profit organizations, tribes, and federal agencies. Permits to conduct research, particularly if live capture is required, are issued by MFWP to ensure that the work is scientifically justified and conducted in an ethical, responsible manner.

Research by MFWP and its partners will be an important component of the wolf program. Previous work on wolves in Minnesota, Alaska, or Wisconsin took place in settings and environments that are different from Montana. Although previous research findings will be applicable to some degree, wolves in the northern Rockies likely interact with their environments and their prey populations differently. This information will be important for sound policy formation and decision-making.

The Council identified a need for improved understanding of predator-prey relationships in Montana. Montana is home to a full spectrum of large carnivores that prey on ungulates. These same ungulate populations are also managed to sustain regulated public hunting and wildlife viewing. The dynamics of predator-prey systems are highly fluid and vary by the type of carnivores and ungulates present. Other environmental factors also influence the dynamics.

MFWP has been involved in cooperative research efforts with the University of Montana, Montana State University, USFWS, USFS, National Park Service, private landowners, and others. Ongoing investigations into the dynamics of wolf – elk interactions in the GYA are comprehensive. The broad scale approach will allow comparison of wolf predation and elk distribution for elk herds subjected to wolf predation only, elk herds subjected to human hunting only, and elk herds subjected to both wolf predation and human hunting. Research into other aspects of wolf ecology in YNP and central Idaho is ongoing. Investigations of the interactions between wolves, mountain lions, and grizzly bears are also underway. These efforts will result in an increased ecological understanding of wolf-ungulate interactions.

MFWP is also interested in evaluating specific management actions as to their efficacy and projected outcomes. This will be accomplished through a combination of the monitoring program within the adaptive management model and research efforts to evaluate management strategies or specific actions across all numbers of wolf packs and management settings.

Because the attention people pay to wolves is not balanced with the relatively minor impact wolves have on the lives of most people, wolf management will probably remain complicated, expensive, political, and controversial (Bangs et al.1998). Nonetheless, human attitudes are an important indicator of public support for wolves. Ultimately, positive human attitudes must be maintained in order to sustain a viable wolf population. Finally, human dimensions research could yield information about the attitudes and opinions of Montanans about wolves. This insight will help MFWP identify problems or areas of public concern so that we can target our work more effectively. There may be supplemental or alternative approaches to the coexistence of wolves and humans that do not require the direct manipulation or removal of wolves, as was identified for cougars (Riley and Decker 2000). New research needs may develop in the future.

Habitat Management

General

Ungulate distribution and human settlement patterns largely define wolf habitat. MFWP ungulate programs link habitat and population management through hunting to achieve ungulate population objectives. One keystone of MFWP's habitat program is Habitat Montana, which focuses on land conservation initiatives to benefit wildlife and maintain other natural resource values of private lands. The Forest Legacy Program is another habitat program for private forested lands. MFWP owns and manages a network of WMAs across the state to benefit wildlife (wintering ungulates in particular) and public recreation. By incorporating habitat elements within its ungulate program, MFWP is already taking the habitat needs of wolves into consideration. Our work, along with the amount of land held in public ownership, provides long-term habitat availability for wolves. Federal land management agencies are increasingly managing lands from an ecosystem-level perspective, considering all components and functional relationships.

MFWP manages ungulate populations by balancing natural population fluctuations with public hunting. By definition, MFWP manages ungulate populations with the long-term welfare of the

resource as the foundation. By maintaining healthy ungulate populations, MFWP assures that adequate prey will be available to sustain a wolf population.

In its downlisting proposal, the USFWS (2000) concluded that there were no foreseeable habitat-related threats or reasons to suspect a significant decline in native ungulate populations that could jeopardize a recovered wolf population. MFWP agrees with this conclusion and believes that its comprehensive ungulate program substantiates that finding.

Travel/Access Management

The responsibility for managing human access and travel on public lands resides with the administering land management agency, whether state or federal. Human access can be managed by time period (e.g. seasonal closures) or by localized area restrictions. Outside of Yellowstone and Glacier national parks, most federal lands utilized by wolves are administered by the USFS. The USFS manages access and motorized travel to meet management objectives or legal requirements. NPS restricts motorized travel to paved routes only, while foot/horse travel is permitted most places. In some circumstances, even foot travel is restricted due to seasonally imposed closures in areas of concentrated wildlife activity. MFWP closes most of its WMAs to human access during the winter period to prevent disturbance to wintering ungulates.

Wolves do not demonstrate any particular behavioral aversion to roads. In fact, they readily travel on roads, frequently leaving visible tracks and scat (Singleton 1995). New wolf activity is often confirmed in an area by searching roads for wolf sign. Research in the upper Great Lakes states examined road densities and wolf activity. In those flatter, more homogeneous habitats, wolves existed in higher densities in areas with lower road densities (Mech et al. 1988, Wisconsin Department of Natural Resources 1999). It would be difficult to extrapolate those results to our region because of differences in human population densities, habitat characteristics, and land physiography. The underlying concern about road density in the northern Rockies stems from the potential for illegal killing (Boyd-Heger 1997, Pletscher et al. 1997). Most researchers agreed that increased road densities reduced wolf survival (see summary in Boyd-Heger 1997). In the mountainous landscapes of the northern Rockies, wolves selected areas that were lower elevation, flatter, and closer to roads (Boyd-Heger 1997). However, an increased probability of human-caused mortality was associated with increased road use by wolves (Boyd-Heger 1997).

Whereas MFWP has and will continue to consult with land management agencies about access and travel management, MFWP has no legal authority to implement access or travel restrictions on land it does not own. Presently, there are no restrictions on road use or road-density on USFS or U.S. Bureau of Land Management lands due solely to the presence of wolves. Upon delisting, MFWP does not anticipate a need to suggest amendments to federal or state travel plans because of wolf activity. MFWP would encourage land management agencies to continue their assessments of habitat security for all wildlife species. Changes in this policy do not appear necessary. Some wolf packs outside national parks have private lands within their home ranges. Land-use or travel restrictions are not necessary for private lands, either.

Connectivity

Connectivity implies that wolves in each of the three states are functionally connected through emigration and immigration events, resulting in the exchange of genetic material between sub-populations. This functional relationship is consistent with the biological intent of the recovery plan and is an underlying prerequisite for successful wolf recovery in the northern Rockies. MFWP supports the continued recognition of functional ecological relationships by land and wildlife management agencies, private landowners, and conservation organizations.

Designation of actual habitat linkage zones or migration corridors is impractical for a habitat generalist and highly mobile species like the gray wolf. Between the mid 1980s and the late 1990s, about half of the packs recolonizing northwestern Montana did so outside of the anticipated recovery area and linkage corridors suggested in the recovery plan (Forbes and Boyd 1997, USFWS 1999). It appears that overall management for wolf survival across broad landscapes already used by wolves is more important than discrete corridors because of the dispersal rates and distance capabilities (Fritts and Carbyn 1995). Outside refuges such as national parks, legal protection and public education across broad landscapes will facilitate those functional connections across the region (Forbes and Boyd 1997). Yellowstone and Glacier national parks function as refuges at opposite ends of the geographic extent of wolf distribution in the northern Rockies. The network of public lands in western Montana, central Idaho, and northwest Wyoming facilitates connectivity between the sub-populations. The legal protections and public outreach described in this plan help ensure the integrity of wolf movement between refuges. No specific linkage corridors are proposed in this plan.

Sufficient dispersal and exchange of wolves between the three sub-populations will be necessary to maintain the high degree of genetic variation of a regional wolf population. In isolation, none of the three recovered populations could maintain its genetic viability over the long term (USFWS 1994a). Isolation is unlikely if populations remain at or above recovery levels and regulatory mechanisms prevent chronically low wolf numbers or minimal dispersal (Forbes and Boyd 1997).

Human settlement patterns, disjunct concentrations of wild ungulates, and diverse geography make it unlikely that wolves will ever be continuously distributed throughout the tri-state region. MFWP recognizes the imperative that wolves move within and between islands of occupied habitats. By default, dispersing wolves will travel through some habitats that are unsuitable for long-term occupancy because of the potential for conflict. Wolves will be permitted to move through these areas as long as they do not threaten public safety. Particular deference will be granted if the number of wolf packs is 15 or less. Relocation would be a potential management tool if continued presence is undesirable.

Wolf Den and Rendezvous Sites

Wolves respond differently to human disturbance (Claar et al. 1999). Differing responses were due to a variety of factors, including the individuality of wolves, the particular setting, and whether the population is exploited or protected (Ballard et al. 1987, Mech et al. 1998, Thiel et al. 1998). In some instances, wolves moved pups after human disturbance, but pup survival was

not affected (Ballard et al. 1987). It also appears that pups are not moved over long distances (Thiel et al. 1998).

National Forest land managers in Montana have not instituted area closures or travel restrictions specifically because of localized wolf activity. Human recreational use of these lands is often of a dispersed, sporadic nature. Area closures around den or rendezvous sites in national parks are sometimes instituted because of high visitation numbers and the strong public desire to view wolves. The areas around dens in YNP are closed until June 30. Currently, there are no local area closures in GNP.

MFWP is not recommending any localized closures near wolf den or rendezvous sites on public lands outside national parks. In fact, an early survey in northwestern Montana indicated that public support to recover wolves would dwindle if recreational or commercial uses of public lands were restricted to promote recovery (Tucker and Pletscher 1989). The researchers did not quantify how rapidly public support would erode if changes in recreational or commercial uses were implemented. To date, they have not appeared necessary and they probably will not be in the future as wolves expand their distribution and increase in number. However, MFWP encourages land management agencies to consider the locations of wolf den and rendezvous sites and habitat security in their future planning activities in the same context as considering the locations of ungulate winter range or bald eagle nests. Ultimately, land management agencies may adopt seasonal or area restrictions independently from MFWP.

Captive Wolves and Wolf-dog Hybrids

The number of captive-reared wolves and wolf-dog hybrids in the U.S. could be as high as 400,000 (Hope 1994). Hybrids result from the breeding of *Canis lupus* with domestic dogs (*C. familiaris*), resulting in variable combinations of physical traits and behaviors. Much of the normal predatory behaviors of wild wolves disappeared in domestic dogs. But the predatory instincts are still present to an unknown and unpredictable degree in wolf-dog hybrids. Although hybrids commonly lack a fear of humans, the animals are generally poorly adapted as domestic pets because their behavior is unpredictable and their response to general obedience training is poor. While the keeping of captive wolves and hybrids as pets is rewarding to some individuals, others find it unmanageable and try to find new homes for their pets. Hybrids have been released into the wild, presumably by frustrated owners. In Wisconsin, the frequency of wolf-dog hybrid encounters with humans or pets increased concurrent with increases in wild wolf numbers. From 1989 to 1998, there were 21 incidents involving 44 different released captives or hybrids, 33% of which were in 1998 alone (Wisconsin Department of Natural Resources 1999). The potential for genetic pollution of wild populations, human safety, and erosion of public acceptance for wild wolves are commonly cited problems with private ownership of captives or hybrids or release in the wild.

In the northern Rockies, the concern about genetic pollution is overstated. At present, there is no genetic or other evidence that captive wolves, wolf-dog hybrids, domestic dogs, and coyotes interbred with native Rocky Mountain wolves in the wild (Boyd et al. 2001). Wolves and coyotes can be easily differentiated genetically. However, genetic tests currently cannot distinguish between wild wolves, domestic dogs, and wolf-dog hybrids. Because domestic dogs

evolved from wild wolves, they have similar genetic characteristics. It is unlikely that a released captive or wolf-dog hybrid would survive long enough to reproduce with wild wolves (Bangs et al.1998).

There are behavioral differences between wild wolves, wolf-dog hybrids, and captive wolves. Released captives and hybrids will typically associate with humans and loiter near human settlements. They may even be more likely to depredate domestic animals than wild wolves (Bangs et al. 1998). In the tri-state area, wolf-dog hybrids have been found in the wild sporadically since at least 1986 (Bangs et al. 1998). Two cases in 1997 were south of YNP. In each case the animal loitered on private property, scavenged, and one killed domestic sheep. Both animals were euthanized. Methods to distinguish non-native wolf-like canids from native wild wolves include a combination of genetic analyses, morphology, and behavior. Basic morphological differences between wild wolves and wolf-dog hybrids in the Great Lakes region are described by Duman (2001).

MFWP is concerned about the potential for captive wolves or wolf-dog hybrids to compromise human safety if they are released or escape from their owners. Wolf-dog hybrids have been responsible for human attacks, maulings, dismemberments, and deaths. Many incidents involved children. The animal's large size, lack of fear, and unpredictable behavior make it especially problematic. As of 1997, the Food and Drug Administration had not approved rabies or other vaccines for use with captives or hybrids. Despite lack of approved vaccines, many captive wolf or hybrid owners use the standard dog rabies vaccine. Nonetheless, there is still concern for public safety because vaccination status may not be known.

Wildlife professionals sometimes have trouble distinguishing a captive-reared wolf or a wolf-dog hybrid from a wild wolf. It is even more difficult for the general public. Negative experiences with rogue captives or hybrids can taint future public opinions about wild wolves and undermine tolerance for wild, free roaming wolves that normally fear humans.

It is legal to possess captive wolves and wolf-dog hybrids in Montana. Citizens may keep them as personal, private pets without a permit. Citizens wishing to publicly display captives or wolf-dog hybrids or to attract trade must have a permit from MFWP. Montana statutes (87-1-231) and administrative rules require the permanent tattooing of <u>any</u> wolf held in captivity, where "wolf" means a member of the species *Canis lupus*, including any canine hybrid which is one-half or more (<u>≥</u> 50%) wolf. Owners are also responsible for compensation and damages to personal property caused by any wolf that is held in captivity or that escapes from captivity. MFWP Enforcement Division maintains the database of tattooed captive wolves and wolf-dog hybrids.

At this time, MFWP does not seek to further regulate the ownership of captive wolves or wolf-dog hybrids. However, the State of Montana may seek statutory authority to do so in the future in the interest of public safety. There is a federal court ruling from a 1998 case in Mississippi upholding that state's ability to exercise legislative powers to determine and act on behalf of the safety interests of its citizens.

Upon delisting, MFWP will respond to incidents of free-ranging captive wolves or wolf-dog hybrids. WS, local animal control officers, or other law enforcement officers may also respond.

If these animals loiter near people, their homes, or compromise public safety, they will be lethally removed. Incidents involving human injury will be treated as if the animal were wild and non-vaccinated. MFWP assumes that at the time of delisting, wild wolf populations could sustain the removal of an occasional wild wolf mistaken for a released captive or wolf-dog hybrid. Free-roaming captives or hybrids captured at livestock depredation sites will be euthanized if attempts to locate the owner are unsuccessful. If the owner can be located, the animal will be returned, but its owner is financially responsible for compensation for damages or losses.

The MFWP Commission may consider adopting rules and regulations that prohibit the general public from removing wolves or wolf pups from the wild.

Ecotourism

With enhanced marketing, ecotourism associated with the gray wolf is a potential area for economic growth in Montana. In Ely, Minnesota, visits to the International Wolf Center generate approximately three million dollars in economic benefits to the local economy (Mech 1996). Now that the Discovery Center in West Yellowstone exhibits captive wolves, similar outcomes could be predicted for that community and the GYA. Over 9.4 million nonresidents visited Montana in 1999, up from 9.2 million in 1998. Glacier and Yellowstone national parks attract the most visitors to Montana and wildlife viewing is the most popular recreational activity (Dillion and Nickerson 2000).

YNP will probably continue as the primary destination for wolf-related ecotourism. While NPS strictly regulates commercial activity within parks, the surrounding public lands or other public lands in Montana could be alternative destinations for commercial guiding services for wolf viewing. Commercial activities on USFS lands are regulated through an internal permitting process. MFWP generally does not permit commercial use of its WMAs or State Parks. However, MFWP does welcome the general public to view wildlife on these lands.

While the ecotourism potential of wolf-related activities is significant, there could also be adverse effects, too. Increased human knowledge of wolf den and rendezvous site locations or increased visitation may lead to problems with chronic disturbance, premature home site abandonment, habituation, or even increased illegal mortality. The biological impacts of recreational or ecotourism-induced disturbance (e.g. howling) are difficult to predict for wolves because of the behavioral plasticity demonstrated by the species. General considerations are presented by Claar et al. (1999).

The Montana Department of Commerce's Board of Outfitters and the federal land management agencies are the licensing and oversight authority for commercial outfitting and guiding services in Montana. However, MFWP will promote ethical approaches to ecotourism through educational materials and through its partnerships with federal agencies and private non-profit organizations. Non-profit groups, such as the Timber Wolf Alliance, developed guidelines for ethical approaches to wolf watching and howling sessions in the Great Lakes states (Wisconsin Department of Natural Resources 1999). These materials could be readily adapted for use in Montana.

Law Enforcement

Since wolves will be classified as a "species in need of management" upon delisting, the MFWP Commission will establish rules and regulations pertaining to wolves, including the conditions and circumstances under which a private citizen may harass, kill, or possess a wolf. The MFWP Law Enforcement Division enforces those rules, along with other Montana statutes related to wildlife and human safety. MFWP enforcement personnel will coordinate with federal, local, and or tribal authorities as necessary.

The enforcement of new rules and regulations for wolves in Montana will be a high priority. Law enforcement authority for wolves as a "species in need of management" will be similar to other legally classified game or fur bearing species. Game wardens will go about their routine duties much as before, only there will be additional rules and regulations, specifically pertaining to wolves. These will be adopted by the MFWP Commission. Warden patrol duties and call-out response will be adjusted to include wolf responsibilities and duties. MFWP has a 1-800-telephone hotline (TIP-MONT) so that people could anonymously report observed or suspected violations of fish and wildlife or parks laws. This is an important tool for game wardens to receive information and respond to public requests. We anticipate that the public may also use the hot line to report possible illegal activity concerning wolves.

After an investigation, violations of the statutes, rules, or regulations will be prosecuted in cooperation with the county or district attorney for state or federal cases, respectively. In cooperation with the Courts of Limited Jurisdiction, penalties and restitution will be established for unlawful takings and rule violations. While Montana's penalties may not be as substantial as the penalties for violating ESA, they will be commensurate with other wildlife species to discourage criminal activity, particularly repeat offenses.

MFWP field wardens, biologists, or wildlife conflict specialists may respond to and resolve wolf-human conflicts. This is consistent with statutory responsibilities conferred upon MFWP for resource protection and public safety.

Generally, MFWP wardens will not investigate wolf-livestock conflicts, unless WS agents request field assistance. But wardens may assist landowners in contacting WS in cases of suspected depredation. When WS closes an investigation, MFWP wardens may help process field reports on suspected wolf depredation or transport carcasses similar to the current procedures for mountain lion, black or grizzly bear investigations. Montana statutes assign authority to MFWP and the MFWP Commission to issue special kill permits to landowners that enable a person to kill a wolf under specified conditions. Game wardens (or biologists) will have the primary responsibility for the field aspects of administration, implementation, and closing these cases.

Public education is a critical component of a successful law enforcement program. Significant public outreach is required to inform the public about the rules and regulations pertaining to wolves during the transition from federal to state management. The public will need to develop an awareness of the transition in management authority and the new rules and regulations. MFWP has many outlets to convey information, all of which will be utilized. See Appendix 8.

Implementation

Table 1 summarizes a spectrum of MFWP and WS strategies to manage and conserve wolves in Montana. Many activities fall within existing duties and responsibilities already carried out by MFWP or WS, but some activities clearly add to existing responsibilities and workloads. Some wildlife biologists, for example, will have new wolf monitoring responsibilities. Some segments of the public will expect the same intense level of monitoring and wolf control currently carried out by the USFWS and WS. MFWP field wardens will now investigate potentially illegal wolf mortalities. Other changes for wardens and/or biologists may include; working with landowners to address their concerns, handling/referring livestock damage calls, responding to wolf sightings and perceived threats to public safety, addressing hunter concerns and complaints associated with wolves, and responding to reports of injured or road-killed wolves. The MFWP Wildlife Laboratory will experience an increased workload associated with processing wolf carcasses, fulfilling wolf health and disease surveillance responsibilities, and filling educational requests. Other state and federal agencies could also be affected similar.

Additional resources will be required to implement these new responsibilities. Existing budget and personnel resources cannot absorb this expansion. Additional funds will be necessary for field-level and administrative personnel, technical training, public outreach efforts and materials, new equipment, and for daily operations to monitor wildlife populations or deliver an adequate public response to concerns about public safety. All interests share the responsibility of addressing the economic challenges of wolf conservation and management.

A draft budget is presented as Appendix 3. The budget outlines the personnel and financial resources necessary to fulfill the wolf monitoring responsibilities, disease surveillance functions, law enforcement, information and education initiatives, program administration, and WS activities carried out under the terms of the MOU. The budget truly reflects the comprehensive nature of designing and implementing a wolf management program. While this budget represents our best projection of the resources required, we cannot assess its accuracy until MFWP actually assumes management authority and begins implementation . Some components of the wolf program may not be captured fully by this draft budget. There may also be costs that could not be predicted at this time or were unforeseen. This budget will be refined in the future as MFWP gains more experience with wolf management. MFWP will pursue all possible funding sources including, but not limited to public/private foundations, federal or state appropriations, and other private sources. Adequate funding will be necessary to fully implement the wolf conservation and management provisions of this Chapter.

Interagency, Interstate, and Tribal Coordination

In the North American model of wildlife conservation, the states have almost sole authority over wildlife management, except for federal trust species (e.g. migratory birds or ESA listings), reserved federal lands (e.g. national parks), or Native American treaty rights. On tribally owned lands, the tribes maintain wildlife management authority. Because of the unique history and relationships between federal and state governments, tribes, the public, and wolves, restoration in the northern Rockies required the participation of all parties. It will take a high degree of cooperation and commitment among all parties to sustain the population.

Table 1. The spectrum of management activities to manage and conserve wolves in Montana. The adaptive management model calls for selection of different management strategies as the number of wolf packs changes from less than 15 to 15 or greater. The different management settings (Public Lands and Mixed Land Ownerships) call for different strategies, depending on landownership patterns, social factors, land use patterns, biological constraints, and the physical attributes of the environment. Some management strategies may apply across all numbers of wolf packs or management settings, as indicated by the right arrows.

	WOLF PACK NUMBER			
	Less Than 15 Packs* ← | → **15 Packs or Greater**			
	Public Lands *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*	**Public Lands** *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*
Montana Fish, Wildlife & Parks **Wolf Conservation and Management Strategies**	Adaptive management	→	→	→
	Integrate with ungulate management	→	→	→
	Health and disease surveillance	→	→	→
	Population monitoring	Enhanced population monitoring	Limited monitoring to determine pack status	Enhanced monitoring in selected areas
	Research to improve ecological understanding of wolf-ungulate interactions	→	→	→
	Research to evaluate specific management actions	→	→	→
	Law enforcement, high priority	→	Law enforcement	→
	Public outreach to inform and address specific needs	→	→	→
	Interagency, tri-state coordination	→	→	→

Table 1. Continued.

	WOLF PACK NUMBER Less Than 15 Packs* ← | → 15 Packs or Greater			
	Public Lands *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*	**Public Lands** *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*
Montana Fish, Wildlife & Parks	Summarize annual mortality; track pack numbers using USFWS definition	→	Summarize annual mortality; track pack numbers using combination USFWS definition and other techniques	→
	Ensure human safety; discourage wolf habituation	→	Discourage wolf habituation; more proactive removal of potential problem wolves	→
	No regulated hunting and trapping	No regulated hunting and trapping; licensed sportsperson may be used to resolve conflict w/ livestock in lieu of government response	Regulated hunting and trapping w/ MFWP Commission oversight; conservative harvest on quota or permit system w/ mandatory reporting	Regulated hunting and trapping w/ MFWP Commission oversight; harvest on quota or permit system w/ mandatory reporting; harvest quota more liberal as pack #s increase
Wildlife Services Management Strategies	Incremental approach, conservative	→	Incremental approach; lethal removal of problem wolves more liberal	Incremental approach; lethal removal may be 1st, especially on private land
Private Citizens	Non –lethal harassment	→	→	→
	Lethal take in defense of life/property	→	→	→

***** Montana shares a legal requirement with the states of Idaho and Wyoming to maintain a minimum total of 30 breeding pairs in the region. Since not all packs successfully breed and have pups every year, Montana will maintain at least 14-17 packs statewide to insure achievement of a minimum number of 10 breeding pairs with at least two pups on December 31.

Individually, the states of Idaho, Montana, and Wyoming will be responsible for wolf conservation and management within its own borders. But collectively, it is in the best interests of all three states for wolf populations to remain secure within the region. If the regional wolf population falls below the relisting criteria, legal protections and management could revert back to the federal government. The State of Montana also recognizes the ecological and cultural significance of wolves to Native Americans and encourages their participation within the tri-state region.

To meet the goals of the wolf program, interstate coordination will require that field personnel exchange biological data. Important issues will include the population status and trend within each state, the disposition of cross-boundary packs, and whether there are foreseeable problems with achieving the goals and objectives. Information will also help states improve techniques and monitoring protocols. Collaborative research projects at regional scales may also be developed, coordinated, and implemented. Periodic administrative coordination will also be required. Collectively, this will facilitate a problem-solving atmosphere for issues that are common to all parties.

Within Montana, interagency coordination between MFWP, WS, and MDOL at the programmatic and field levels will be necessary to successfully implement the plan. At the field level, biologists and game wardens will need to work closely with the WS agent in their area to achieve a timely and appropriate management response, as well as ensure accurate record keeping. Moreover, collaboration at the field level can be beneficial to achieve management or research objectives with greater efficiency on a variety of topics, such as remotely triggered deterrent devices or trapping methods. At the programmatic level, coordination is required to develop a Memorandum of Understanding between MFWP, MDOL, and WS which will outline the responsibilities and activities of each agency, as well as how the agencies will coordinate decision-making.

PREY POPULATIONS: CONSERVATION AND MANAGEMENT

Introduction

Wolves return to a highly modified environment and a managed system. The success of major predators like mountain lions or wolves and human hunters rests on the same foundation: the productivity and perpetuation of deer, elk, and moose populations. As a result, the effects of predators on prey populations were some of the greatest concerns expressed by the public about wolf recovery in the northern Rockies (USFWS 1987, 1994a,b). The financial investments and sacrifices made by the hunting public to restore ungulate populations are significant. Safeguarding those investments for present and future generations is an important priority for many of Montana's citizens and MFWP. MFWP seeks to maintain the public's opportunity to hunt a wide variety of species under a variety of circumstances, and to do so in a sustainable, responsible manner.

Predator – Prey Interactions

All wildlife populations are inherently variable through time and across a diversity of habitats. The idea of population stability is a misnomer. Rather, populations fluctuate through time and are influenced by a variety of environmental factors that also change through time. Management may affect some factors but not others, and at best only moderates the fluctuations. Regardless, management programs should recognize that predator-prey interactions are another natural factor affecting ungulates and one that will also change through time.

Published literature on predator-prey interactions is highly varied in its conclusions about the ability of predators to influence prey populations or *vice versa*. There have been almost as many different interpretations of predator-prey interactions as there have been studies reported. This is to be expected because of the variety of different ecosystems studied, the assortment of predator and prey species under study, and the different management actions carried out. Additional difficulties arise out of the short-term duration of many studies compared to longer-term habitat changes, measurement of insensitive variables, poorly designed monitoring protocols, or too many simultaneous activities confounding data measurements and interpretation. Correlation between two variables does not necessarily imply a cause and effect relationship (National Research Council 1997). Results may not be appropriately applied in a different setting. Predators and prey interact with one another within the context of a particular environment, given unique habitats, weather patterns, species diversity, animal densities, and management framework. Each published report must be interpreted within the context of the conditions prevailing at that time.

Some research has shown that predation may influence prey populations through changes in recruitment, adult mortality, or a combination of both (Gasaway et al. 1992, Ballard et al. 1997, Kunkel and Pletscher 1999, National Research Council 1997, Mackie et al. 1998, Ballard et al. 2001). Increased adult female mortality from other sources, such as hunter harvest or elevated overwinter mortality, may create conditions in which predation can limit ungulate populations or slow population growth (Kunkel and Pletscher 1999). However, some biologists reported that habitat and climate influenced deer populations more strongly than wolf predation (Wisconsin Department of Natural Resources 1999). In Minnesota, wolves do not appear to impact white-tailed deer populations, although there may be more localized effects (Mech and Nelson 2000, Minnesota Department of Natural Resources 2001). Recent findings in Yellowstone National Park indicate that winter severity has a dominating influence on wolf predation patterns on elk (Mech et al. 2001)

Generating an understanding of population dynamics and the interactions of predator and prey populations may seem straightforward. In reality, however, it is extremely difficult. Theoretical models describe potential interactions, but most have underlying assumptions, which may or may not be true. Considerable technical challenges must be overcome to accurately assess how or to what extent any single factor influences populations. Trying to accurately assess how two or more factors might be interacting with each other is even more challenging. Documenting predation as a major limiting factor of ungulate populations requires intensive radio telemetry, manipulation of both predator and prey populations, measurement of environmental conditions, a well designed monitoring program, and a sustained long-term effort. Interactions between

populations and with their physical environments are also difficult to measure and interpret. Systems with multiple large carnivores, including wolves, are even more challenging.

This plan is not meant to provide a comprehensive summary of predator-prey interactions or wolf predation on ungulates. However, some of published scientific literature reviewed for this document, is listed as a partial bibliography in Appendix 4. Our understanding of how ungulates, wolves, other carnivores, and their physical environments interact in Montana will develop through time.

Adaptive Management

Ungulate management in Montana balances many factors, including population welfare, habitat condition, landowner tolerance, hunter opportunity, and the environmental factors influencing populations. Ungulate populations are managed in a comprehensive, ecological way. The precision with which MFWP manages ungulate populations is not intended to mitigate the impacts of single limiting factor such as wolf predation, lion predation, or other mortality sources in and of themselves. Instead, ungulate populations are managed by taking into consideration a variety of factors. Since elk, white-tailed deer, mule deer, and moose are the primary prey species of wolves in Montana, MFWP will consider wolf predation, along with the other factors, so that ungulate populations are managed in a comprehensive, ecological way.

MFWP adopted an adaptive management program for mule deer and informally applies adaptive management strategies to elk, white-tailed deer, and moose management. The goal of the MFWP deer program is to manage for the long-term welfare of Montana's deer resource and provide recreational opportunities that reflect the dynamic nature of deer populations (MFWP 2001). Management decisions are based on the welfare of the deer resource first and recreational opportunities are provided consistent with the dynamic nature of deer populations. The goal of the elk program is to maintain elk populations in a healthy and productive condition and to cooperate with public and private land managers in the management of elk habitat. MFWP strives to provide diverse recreational hunting opportunity, diverse viewing opportunities, and for general public enjoyment (MFWP 1992). Moose are managed by similar philosophies.

To proactively balance and integrate management of ungulate populations and the factors that influence them (including wolf predation), hunter harvest opportunity for ungulates may be adjusted. Hunter opportunity already changes in response to previous hunter success, hunter participation rates, or even access to private lands. Hunter opportunity also changes in response to environmental events that affect ungulate populations such as drought, severe winters, or poor recruitment. The presence of wolves within the yearlong range of a specific ungulate herd adds another factor for consideration among all environmental and human-related factors. MFWP acknowledges that changes in hunter opportunity may affect outfitters and non-resident hunters, in addition to resident hunters.

If a local prey population is significantly impacted by wolf predation in conjunction with other environmental factors, MFWP would consider reducing wolf pack size. If there are fewer than 15 wolf packs in the state, relocation to backcountry areas would be preferred. Suitable habitats within mixed land ownerships could also be sought out to fill in habitats between YNP and GNP,

as socially acceptable. If there are more than 15 packs in the state, MFWP will reduce wolf pack size by regulated hunting or trapping. Wolf management actions would be paired with other corrective management actions to reduce ungulate mortality or enhance recruitment, such as reducing human hunter opportunity for ungulates. Concurrent management efforts for wolves and ungulates would continue until the prey population rebounded, recognizing that by the time prey populations begin to respond they may be influenced by a new set of environmental factors.

MFWP hosts meetings to gather input and comments from the public about proposed hunting regulations for ungulates and other managed species. MFWP will need to enhance the amount and type of information it provides regarding ungulate and carnivore population status and trends, as well as the possible implications of various management options. It will be important to allow the public to properly weigh the alternatives and provide meaningful feedback to MFWP about their preferences.

Monitoring

MFWP regularly surveys ungulate populations across a spectrum of their habitats, using a variety of techniques. Precise survey objectives vary by species, location, and season. Information gathered from live populations is also supplemented by harvest information gathered at hunter check stations or through the telephone harvest survey. Ungulate monitoring efforts will be enhanced where wolf packs are established.

Habitat

MFWP recognizes that ungulates and carnivores depend on a sustained, productive land base – both public and private lands. Habitat management prescriptions that enhance habitat for ungulates will ultimately benefit human hunters and wolves. Subject to landowner tolerance, MFWP will continue its efforts to enhance wildlife habitats on private lands. MFWP will also coordinate with public land grazing permittees and federal or state land management agencies to address conflicts between ungulates and domestic livestock.

Research

Predator - prey population dynamics are complex and knowledge about those relationships is incomplete. Long-term research will enhance understanding of those relationships and lead to more effective management. MFWP does not have the financial resources to initiate a long-term comprehensive ecological study of wolf-prey interactions independently. MFWP will participate and support research efforts by other collaborative partners, including universities, NPS, USFS, USFWS, WS, Idaho, Wyoming, and neighboring Canadian provinces. For example, the NPS began studying predator and prey populations in YNP before wolves were reintroduced. After reintroduction, ongoing research expanded to include wolves within YNP and now, outside YNP. MFWP is a partner in ongoing research into elk-wolf relationships in the Gallatin and Madison mountain ranges. These efforts will result in an increased ecological understanding of wolf-ungulate interactions. We will apply research findings from other areas as appropriate and address information needs specific to MFWP ungulate management programs as resources allow.

MFWP is also interested in evaluating specific management actions as to their efficacy and projected outcomes. This will be accomplished through a combination of the monitoring program within the adaptive management model and research efforts to evaluate management strategies or specific actions across all numbers of wolf packs and management settings.

Implementation

Table 2 summarizes a spectrum of MFWP management activities to maintain viable prey populations. Many activities fall within existing duties and responsibilities already carried out by MFWP, but some activities clearly add to existing responsibilities and workloads. For example, some wildlife biologists may have increased ungulate monitoring responsibilities or more frequent coordination with landowners. Most importantly, biologists and game wardens will have increased public outreach responsibilities where wolves are established. Additional resources will be required to implement these new responsibilities because existing budget and personnel resources cannot absorb this expansion.

A draft budget is presented in Appendix 3. The budget outlines the personnel and financial resources necessary to fulfill the need for enhanced ungulate monitoring where wolf packs become established, for the programmatic integration of ungulate-carnivore management, and for the associated public outreach. It also reflects the comprehensive nature of designing and implementing a wolf management program. While this budget represents our best projection of the resources required, we cannot assess its accuracy until MFWP actually assumes management authority and begins implementation. Some components of managing prey populations to sustain a regulated hunting season for a wide variety of ungulates in a wide variety of circumstances and predation by wolves may not be fully captured by this draft budget. There may also be costs that could not be predicted at this time or were unforeseen. This budget will be refined in the future as MFWP gains more experience. MFWP will pursue all possible funding sources including, but not limited to public/private foundations, federal or state appropriations, and other private sources. Adequate funding will be necessary to fully implement the provisions of this Chapter.

WOLF – LIVESTOCK CONFLICTS

Introduction

Agricultural roots in Montana run deep. The earliest European settlers brought farming traditions and livestock with them. Montanans have been raising livestock for at least four generations. Agricultural heritage is woven through Montana's cultural fabric, just like our wildlife heritage. The rural characteristics of one affirm the other.

Farming and ranching in Montana maintains open space and helps people experience a "Big Sky" feeling. That open space is also habitat for a diversity of wildlife species. Maintaining the land base for agriculture and wildlife habitat is an increasing challenge, given broader trends in

Table 2. The spectrum of potential management activities to maintain viable populations of prey species Montana. The adaptive management model calls for selection of different management strategies as the number of wolf packs changes from less than 15 to 15 or greater. The different management settings (Public Lands and Mixed Land Ownerships) call for different strategies, depending on landownership patterns, social factors, land use patterns, biological constraints, and the physical attributes of the environment. Some management strategies may apply across all numbers of wolf packs or management settings, as indicated by the right arrows.

	WOLF PACK NUMBER			
	Less Than 15 Packs* ← | → **15 Packs or Greater**			
	Public Lands *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*	**Public Lands** *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*
Montana Fish, Wildlife & Parks Conservation and Management Strategies for Prey Species	Adaptive management	→	→	→
	Enhanced ungulate monitoring where wolves are present	→	Enhanced monitoring in selected areas	→
	Research to improve ecological understanding of wolf-ungulate interactions	→	Research to evaluate specific management actions	→
	Habitat enhancement projects	Habitat enhancement projects with cooperating landowners	Habitat enhancement projects	Habitat enhancement projects with cooperating landowners
	Adjust hunter opportunity to enhance prey populations	Adjust hunter opportunity to enhance prey subject to landowner tolerance	Adjust hunter opportunity to meet prey population objectives	Adjust hunter opportunity subject to landowner tolerance
	Integrate ungulate and carnivore management	→	→	→
	Public outreach to inform and to address specific needs; Emphasize landowner relations	→	→	→

Table 2. Continued.

* Montana shares a legal requirement with the states of Idaho and Wyoming to maintain a minimum total of 30 breeding pairs in the region. Since not all packs successfully breed and have pups every year, Montana will maintain at least 14-17 packs statewide to insure achievement of a minimum number of 10 breeding pairs with at least two pups on December 31.

resource and agricultural economics, human population demographics, and development of the "New West" (Riebsame 1997). Sixty-nine percent of the human population growth in Montana from 1990 to 1997 was attributed to immigration (MFWP 1999). There are secondary benefits to a vigorous agricultural industry in Montana, including sustained economic activity in small rural communities, decreased rates of land conversion for subdivision and development, and maintenance of rural lifestyles.

Agricultural producers are usually interested in, proud of, and enjoy the wildlife associated with their properties, despite the occasional conflicts. The State of Montana acknowledges that wolves can create problems for some livestock producers. Financial losses may result directly from wolf depredation. Indirect costs may accumulate because of increased management activities or changes to agricultural operations. These financial hardships accrue to individual farmers and ranchers and may be significant to them. What makes wolf-livestock conflicts unique from other wildlife-livestock conflicts are the changes in the legal status of wolves. Historically, farmers and ranchers had the latitude to take care of problem wolves themselves. Since 1973, wolves have been legally protected. Regardless of historical events and how present circumstances came to be, the State of Montana acknowledges that tolerance for wolves on private property is fundamental to wolf recovery and maintenance. This is highlighted by the mixed land ownership patterns, geography, and wolf ecology.

Addressing wolf-livestock conflicts will entail two separate, but parallel elements. One element is the wolf management activities to minimize the potential for wolf-livestock conflicts and to resolve the conflicts where and when they develop. The management element primarily concerns the actions of state and federal agencies. Examples are providing technical assistance to producers, investigating complaints, and taking actions that reduce the probability that the offending wolf or wolves will be involved in another depredation incident. The management programs will be funded, administered, and implemented by the cooperating agencies. The second element addresses the economic losses when livestock are killed or injured by wolves or the proactive changes to husbandry practices that could be made if financial resources are available to help underwrite the changes. This element will be funded, administered, and implemented by a private party or otherwise independently of state and federal agencies.

The two elements, management and compensation, are funded, administered, and implemented separately and independently of one another -- but parallel one another, united in the goal of maintaining a viable wolf population and addressing wolf-livestock conflicts. The common goal links the two elements together and will foster collaboration among all parties. However, the decision-making process for each element could be independent from the other. For example, decisions about compensation could be made independently from how the cooperating agencies

address problem wolves. Both elements are ultimately required, but the details and specifics about the nature of the relationship between agency management actions and compensation and how a compensation program could be designed and administered will be discussed later in this chapter.

It is Montana's intent to minimize the potential for wolf-livestock conflicts by proactively working with individual producers who could be disproportionately affected by wolf depredation. Upon delisting, MFWP will share responsibility with MDOL in managing wolf-livestock conflicts because Montana statutes assign responsibility to both agencies to manage wildlife causing damage to livestock. Even though Montana statutes will designate the gray wolf "in need of management" as a resident, native species overseen by MFWP, the wolf's ability to depredate on livestock and its unique historical relationship to agriculture also warrant the shared responsibility. MDOL and MFWP will work together, along with WS, to address and resolve wolf-livestock conflicts through a Memorandum of Understanding (MOU). Oversight is by the MFWP Commission and the Montana Board of Livestock. As conflicts arise under the state management program, resolution will be no less important or forthcoming. The framework for addressing wolf-livestock conflicts by the various agencies, livestock producers, and other citizens is described below.

Livestock Depredation

WS is a cooperating partner in the federal wolf recovery program with USFWS and has worked alongside the USFWS in investigating, documenting, and resolving wolf-livestock conflicts. WS agents gained significant experience with wolves in Montana and developed positive working relationships within the agricultural community. WS agents have investigated depredation complaints, captured wolves for research and monitoring purposes, provided technical assistance to producers, developed and tested non-lethal methods of depredation control, and removed problem wolves.

To date, almost all depredation incidents investigated by WS within Montana occurred on private land, whereas over 80% of depredations in Idaho and about 50% of depredations in Wyoming were on public grazing allotments (Meier in press). As wolf numbers and distribution increase in Montana, depredations may also occur on public grazing allotments or in remote backcountry settings. Between 300,000 and 400,000 sheep and cattle graze summer pasture on public lands in Montana (Bangs and Shivik 2001). It is not necessarily a foregone conclusion that wolves will automatically depredate on livestock, but wolf packs that regularly encounter livestock will depredate sporadically (Bangs and Shivik 2001). For example, the Ninemile pack in northwestern Montana regularly encounters livestock, but only depredated in three out of 11 years. But other packs attacked livestock not long after establishing a territory. Overall, livestock losses appear related to the availability of wild prey, increasing pack size, and the learned behavior of individual wolves. Research in a remote, mountainous allotment in central Idaho suggested that wolves tested and hunted cattle like wild prey, attacking the most vulnerable animals. Wolves killed calves that were the lowest weight, less guarded by people, nearest to an active wolf den, and in the heaviest forest cover (Oakleaf *in* Bangs and Shivik 2001).

In the northern Rockies, wolf depredation problems are more significant for sheep than cattle, which was also true historically. From 1987 to 2000, wolves accounted for the known loss of 148 cattle, 356 sheep, and 37 dogs in the states of Idaho, Montana, and Wyoming combined (USFWS et al. 2001). Between 1995 (the first year wolves were released into YNP and central ID) and 2000, an average of 21 cattle, 57 sheep, and 6 dogs were confirmed as wolf depredation per year within the three states combined (USFWS et al. 2001). Additional livestock losses may have been due to wolves, but these were not confirmed. Lack of evidence or the presence of conflicting or inconclusive evidence is problematic. Total carcass consumption by wolves is more likely than for other predators. Once abandoned, wolf kills are readily scavenged by other species. Appendix 5 summarizes confirmed wolf depredation data for the three recovery areas from 1987-2000. No estimate is available for unverified livestock losses that may have been due to wolves.

Wolves cause a small number of the total livestock losses in Montana compared to other sources of livestock mortality. Most sheep losses in Montana during 1999 were due to depredation by coyotes, disease, weather, and lambing problems. Most cattle losses in 1995 (most recent data available) were due to disease, calving, and, weather (Meier in press). Appendix 6 itemizes sheep and cattle losses by cause in Montana, as reported by the USDA Agricultural Statistics Service, Montana Field Office.

Nevertheless, wolf losses may be disproportionate to one or a few livestock producers because of where a wolf pack territory is established relative to livestock distribution, type of stock, and/or grazing practices such as turnout dates. Producers sometimes report missing livestock as suspected wolf depredation, but the loss cannot be confirmed. Sometimes a carcass is not found. In other instances, scavengers may have destroyed the evidence. Or, the evidence may be inconclusive because two or more carnivore species capable of killing livestock visited the site. In some circumstances, confirmed livestock losses may be a fraction of the total losses (Oakleaf *in* Bangs and Shivik 2001). In addition to livestock mortalities, producers have reported injured and stressed livestock, reduced weight gains, decreased pregnancy rates, and other complications when wolves are present. Issues such as unconfirmed losses, best management practices, or indirect effects on livestock productivity because of wolves warrant additional research. While MFWP is interested in this issue and would participate as a collaborative partner, it is unlikely that MFWP will be a major source of funding for such research.

Wildlife Services

WS, while not a resource management agency per se, is the federal entity routinely called upon by state and federal agencies as well as the private sector to provide operational and technical assistance to control damage caused by wildlife (Animal Damage Control 1994). WS is a work unit of the Animal and Plant Health Inspection Service of the U.S. Department of Agriculture. Through a partnership between the USDA and state agencies or the private sector, WS engages in a wide range of damage management activities, including research, consultation, control of problem animals, technical assistance, and public outreach. Respondents in a recent national survey affirmed that society has a need and a right to control the damage caused by wildlife and that state and federal governments should play a role in meeting that need (Reiter et al. 1999).

Within Montana, WS is currently a signatory to an MOU with MDOL and MFWP to investigate depredations and conduct predator control for damage caused by wildlife other than wolves. Upon delisting, an MOU between MFWP and WS will be developed under which WS would also assist with wolf-livestock conflicts. The MOU will guide coordination and management activities among the three entities. MFWP, in cooperation with MDOL, will contract WS to respond to landowner or livestock producer wolf depredation complaints, to conduct field investigations, and to carry out management actions. WS will bring their expertise to the situation and resolve the conflict. WS will also make recommendations about the resolution of specific conflicts as well as ways of improving agency effectiveness and overall conflict resolution procedures. MFWP has the responsibility to provide guidelines to WS for capture operations and procedures and to identify the appropriate management actions – given the situation details and wolf population status. MFWP will also provide guidelines for reporting of investigative findings, management activities, and outcomes. MFWP has the ultimate responsibility for determining the disposition of wolves and will be guided by the strategies outlined in this plan. MFWP will also coordinate with other state or federal agencies as appropriate.

The MOU will also be a formal recognition and extension of the ongoing cooperation already taking place at the field level between WS agents and MFWP personnel in resolving wildlife damage caused by species other than wolves. In many cases, that cooperation proactively addresses conflicts through public outreach and technical assistance. The result is less damage to private property and the lethal removal of fewer problem animals. Examples include the MFWP conflict management specialists working on the East Front of the Rockies, the Greater Yellowstone Area, and northwest Montana. This cooperative spirit is already established and will be expanded upon for resolution of wolf conflicts.

Livestock producers should report any suspected wolf depredations (injuries or death) or the disruption of livestock or guarding animals to WS directly, as is the case for other wildlife species such as mountain lions. Any evidence at the scene should be protected from disturbance. WS will also investigate incidents involving domestic pets or dogs, guarding animals such as llamas, and alternative livestock. A rapid agency field response is imperative so that evidence may be examined as soon as possible after the incident. WS agents complete an investigative report form summarizing the type and extent of damage, physical evidence, and a description of the site. This report is ultimately filed with MFWP. MFWP will establish a database to tabulate, summarize, and assess trends in wolf-livestock conflicts.

Based on the results of a field investigation, WS will determine if a wolf (or wolves) was involved in the incident and whether any livestock deaths or injuries could be confirmed as wolf-caused. If the investigating WS agent *confirms* that a wolf or wolves were responsible, subsequent management actions will be guided by the specific recommendations of the investigator, the provisions of this plan and by the multi-agency MOU. WS will be directed to take an incremental approach to address wolf depredations, guided by wolf numbers, depredation history, and the location of the incident. When wolf numbers are low and incidents take place on remote public lands, WS would use more conservative management tools. WS could select progressively more liberal methods as wolf numbers increase and for incidents on private lands. Conflict history of the pack, attributes of the pack (e.g. size or reproductive status), or the

physical setting will all be considered before a management response is selected. Specific actions range from catch and release on site, to harassment on site, to relocation or lethal removal. Management actions will be directed at individual problem wolves to the extent that they can be identified and clearly implicated. Non-selective methods such as poison would not be used. If relocation is the preferred management action, backcountry areas or remote public lands are intended release sites, with concurrence from the land management agency. Mixed land ownerships may be selected, as socially acceptable. When wolves are killed by WS, their carcasses will be processed as described in the Wolf Conservation and Management Chapter.

In a proactive manner, WS and MFWP will also work cooperatively with livestock producers and non-governmental organizations to help minimize the potential of wolf-livestock conflicts developing in the first place. Technical assistance may take the form of guidance on carcass disposal, extra fencing, deploying scare devices, testing of developmental non-lethal control methods, or loaning of radio telemetry receivers so that landowners can monitor wolves in the vicinity of their livestock. In fact, two thirds of respondents in a recent national survey indicated that a combination of government agencies along with either the private sector and/or the injured party should share the responsibility in managing wildlife damage (Reiter et al. 1999). This type of collaboration is called for in this plan, with the parallel elements of management and compensation.

Livestock Producers

MFWP commends the patience of livestock producers and their willingness to provide access to their properties for representatives of WS, USFWS, and non-governmental organizations to address wolf-livestock conflicts while the wolves are federally protected. Indeed, this type of public-private cooperation provides a solid foundation from which the State of Montana will assume management responsibilities.

Livestock producers acknowledge a sense of responsibility for the welfare of the animals under their care. As a result, producers take many initiatives to help safeguard their livestock from depredation by carnivores, as an everyday practice. Examples include the use of guarding animals, fencing or otherwise securing animals at night, or hiring extra people to check on remote livestock. Government and private organizations should be encouraged to assist livestock producers and landowners in designing, implementing, or cost-sharing these proactive husbandry practices.

With technical assistance from WS, a producer may alter husbandry or management practices such as carcass disposal or otherwise secure livestock or sources of conflict. A recent evaluation of wolf depredations in Minnesota did not isolate any clear-cut attributes or management practices predisposing certain cattle operations to wolf depredation (Mech et al. 2000). But research in Kansas (coyotes and sheep) and Italy (wolves and sheep) did identify husbandry practices as a contributing factor in canid-sheep depredations (Robel et al. 1981, Ciucci and Boitani 1998). In the northern Rockies, field experiences of WS and USFWS personnel have shown that exposed carrion can attract wolves to areas where livestock are present, thereby increasing the encounter rate between wolves and livestock, which may ultimately lead to a depredation incident (Bangs and Shivik 2001). Additionally, sick, wounded, or small livestock

(calves or sheep), seemed particularly vulnerable, especially in remote areas away from buildings and people. The abundance of natural prey, relative vulnerability of livestock, and nutritional demands of the wolf pack also appeared to affect how often wolves attempted to attack livestock (Bangs and Shivik 2001).

Individual livestock producers should be rewarded for taking voluntary measures to reduce the potential for wolf-livestock conflict. Examples include reducing conflict availability by altering turnout dates, type of livestock, or the timing of breeding/calving cycles. If problems are chronic, a livestock producer would have the option to move or receive payment from a private organization for retiring a public grazing allotment, with concurrence from the land management agency. Federal land management agencies do not have administrative or budgetary procedures to pay a producer to retire an allotment. Such funds must be secured from other sources. However, the federal land management agencies do have administrative flexibility to address chronic wolf-livestock conflicts by working with individual producers or grazing cooperatives to modify grazing practices to the mutual agreement and benefit of all interests.

Producers should also be rewarded for their willingness to cooperate in experimental protocols testing non-lethal management tools, such as scaring devices or noise-makers. Because wolves learn quickly and may habituate to certain management tools, no single non-lethal technique will work in all situations or for extended periods of time. The National Wildlife Research Center (the research arm of WS), in conjunction with other partners, has been actively developing and field-testing methods to discourage wolves from approaching livestock (Bangs and Shivik 2001). This work will continue in the future.

Despite our collective attempts to minimize the potential for depredation, livestock depredation will still occur. Livestock producers should have a quick and efficient means available to address wolf depredation problems, particularly if the incident occurs on private property. There will be a positive relationship between wolf numbers and landowner flexibility to address wolf depredations. As wolf numbers increase, landowner flexibility will increase proportionately.

Less than 15 Wolf Packs -- Landowners or their agents may non-lethally harass a wolf or wolves without a permit if wolves are disrupting livestock on public or private land. The intent is to discourage wolf activity in close proximity to livestock, before a depredation actually takes place and more intensive management actions become necessary. If repeated and persistent non-lethal harassment does not discourage wolves from chasing, testing, or otherwise disrupting livestock, the producer may contact MFWP to receive a special permit that grants permission to kill wildlife under certain circumstances and according to certain provisions. These are also called “kill permits.” Montana statutes assign authority to MFWP for providing special kill permits to landowners. Administration and follow up is also a responsibility of MFWP. Permit holders will be held accountable for adhering to the terms of the permit. Existing statutes prohibit all citizens (including livestock producers) from taking legally classified wildlife outside a MFWP Commission-approved season, the provisions of a special kill permit, or in defense of life/property. Examples of some legally classified wildlife include deer, elk, mountain lions, upland birds, or wolves. Special kill permits would only be valid on private land and would be subject to other restrictions mutually agreed on by both parties. MFWP will issue fewer kill permits when wolf numbers are low, out of concern for overall wolf population status. If a

livestock producer kills a wolf under the special kill permit, he/she should not move or otherwise disturb the carcass. After securing the scene, producers should then report the incident to MFWP, as soon as possible, but within 72 hours. Upon investigation, the entire carcass must be turned in to MFWP. Livestock producers will be held accountable for wolves in the same manner as for other legally classified species killed under a special permit.

Producers or their agents may also non-lethally harass wolves that disrupt livestock on public lands. MFWP will not issue special kill permits to livestock producers to remove wolves on public lands when wolf numbers are low. If non-lethal harassment does not discourage wolf activity around livestock on public lands, the producer or agent should contact WS for guidance and appropriate agency action.

If a depredation does occur on public or private lands, the producer should secure the scene and report the incident to WS, as they presently do for other predator-related livestock losses. Upon a field investigation, WS may consult with MFWP or initiate non-lethal or lethal control actions, as appropriate and according to an MOU between MFWP, MDOL, and WS.

Upon delisting, provisions of SB163 take effect. Producers (or their agents) can kill a wolf (without a special kill permit from MFWP) if the wolf is "attacking, killing, or threatening to kill" livestock, regardless of whether the incident takes place on public or private lands. This is consistent with the intent of allowing private citizens to protect persons or livestock from imminent danger caused by wildlife (Montana Statute 87-3-130). If a livestock producer kills a wolf under the defense of property provisions of SB163, he/she should not move or otherwise disturb the carcass. After securing the scene, livestock producers should then report the incident to MFWP soon as possible, but within 72 hours. Upon investigation, the entire carcass must be returned to MFWP. Montana statutes assign MFWP the authority and responsibilities related to the protection of life and property in the face of imminent danger or harm from wildlife.

15 Wolf Packs or Greater -- Landowners or their agents may non-lethally harass a wolf or wolves without a permit if wolves are disrupting livestock on public or private land. The intent is to discourage wolf activity in close proximity to livestock, before a depredation actually takes place and more intensive management actions become necessary. If non-lethal harassment does not discourage wolves from chasing, testing, or otherwise disrupting livestock, the producer may contact MFWP to receive a special kill permit, valid for public and private lands, in accordance with other terms mutually agreed to by both parties. Concurrence by the administering land management agency may be required prior to lethal control activities. MFWP will be more liberal in the number of special kill permits granted as wolf numbers increase and for depredations in mixed land ownership patterns.

If a livestock producer kills a wolf under a special kill permit, he/she should not move or otherwise disturb the carcass. After securing the scene, producers should then report the incident to MFWP as soon as possible, but within 72 hours. Upon investigation, the entire carcass must be returned to MFWP. Livestock producers will be held accountable for wolves in the same manner as for other legally classified animals killed under permit.

If a depredation does occur on public or private lands, the producer should secure the scene and report the incident to WS, as they presently do for other predator-related livestock losses. Upon a field investigation, WS may consult with MFWP or initiate non-lethal or lethal control, as appropriate and according to a MOU between MFWP, MDOL, and WS.

In lieu of a federal or state response, a designated trapper or a licensed sportsperson may be authorized to lethally remove problem wolves on public or private lands when the number of packs is 15 or greater. Taking of problem wolves by the public would be subject to licensing requirements and other regulations approved by the MFWP Commission that govern the regulated hunting or trapping of wolves. A licensed landowner, livestock producer, or their agent may also kill a wolf, without a special kill permit, by adhering to the regulations for public harvest approved by the MFWP Commission.

Upon delisting, provisions of SB163 take effect. Producers (or their agents) will be able to kill a wolf (without a special kill permit) if the wolf is "attacking, killing, or threatening to kill" livestock, regardless of whether the incident takes place on public or private lands. This is consistent with the intent of allowing private citizens to take wildlife to protect persons or livestock (Montana Statute 87-3-130). If a livestock producer kills a wolf under the defense of property provisions of SB163, he/she should not move or otherwise disturb the carcass. After securing the scene, livestock producers should then report the incident to MFWP as soon as possible, but within 72 hours. Upon investigation, the entire carcass must be turned in. Montana statutes assign MFWP the authority and responsibilities related to the protection of life and property in the face of imminent danger or harm from wildlife.

Recreationists, Hunters, Outfitters etc.

Citizens in backcountry areas should rely on non-lethal harassment unless wolves directly threaten a person, pet, or livestock. If a wolf is killed in defense of life or property, citizens should protect the scene from disturbance and report it to MFWP as soon as possible, but within 72 hours. MFWP or WS will conduct a field investigation. If an incident takes place in mixed land ownerships, recreationists should also rely on non-lethal techniques. The incident should be reported to MFWP. If a wolf is killed in defense of life or property, citizens should not disturb the carcass, but protect the scene and report the incident to MFWP as soon as possible, but within 72 hours. Anytime a wolf is killed in defense of life or property, the entire carcass must be returned to MFWP.

Compensation

Montana recognizes that wolf population recovery and persistence will result in the loss of personal property or income due to wolf activity and depredation. Some producers are exposed to potential financial liabilities that did not exist prior to wolves. Many livestock producers operate on a narrow financial margin and even a single depredation event could have significant economic consequences. There are additional costs associated with safeguarding livestock against wolf depredation, such as extra people to supervise livestock, extra guarding animals, increased travel to check livestock more frequently, and veterinary expenses if livestock are injured. Some producers report decreased pregnancy rates in cows harassed by wolves.

Sometimes producers report retrieving fewer head of livestock at the end of the grazing season, but cannot find evidence of a carcass. Even with a carcass, cause of death may still be unknown. Nonetheless, what remains clear is that livestock producers must reconsider certain management practices in the presence of wolves to proactively minimize the potential for wolf-livestock conflict.

Compensation programs typically are established for problems that developed recently, were exacerbated by governmental actions, or were caused by highly valued species (Wagner et al. 1997). Wolf presence in the northern Rockies touches on all three scenarios. Defenders of Wildlife, a non-profit wildlife advocacy organization, recognized the disparity of the costs and benefits for wolf restoration between the ranching community and those advocating wolf recovery. Their goal was to shift the economic liability away from ranchers and towards wolf advocates through a compensation program that reimbursed ranchers for losses from wolf depredation (Fischer 1989). The Wolf Compensation Fund was established in 1987 and paid a total of $150,590 to ranchers in the tri-state area between 1987 and February 2001 (Defenders of Wildlife 2001). In some cases, veterinary bills for livestock injured by wolves were reimbursed. Funds from the Wolf Compensation Fund have also been used to purchase livestock feed, lease supplemental pasture, purchase additional guarding animals or fencing materials, and to cost-share other modifications to husbandry practices to proactively minimize the potential for future depredations. Compensation addresses one of the major concerns about wolf restoration and has helped to increase the tolerance for wolves. See Appendix 7 for additional data on compensation payments made by Defenders of Wildlife between 1987 and April 2001.

The State of Montana believes that compensation is critical to maintaining tolerance for wolves by livestock producers who are adversely affected by financial losses due to wolves. At this time, it is unclear whether Defenders of Wildlife will continue to offer compensation for losses when wolves transfer to state management jurisdiction. The State of Montana intends to find or create an entity to administer a compensation program if Defenders of Wildlife rescinds eligibility for Montana ranchers upon delisting. The entity or non-governmental organization would be independent of MFWP and MDOL to retain impartiality. Negotiations would take place directly with the producer. This approach is modeled after the existing arrangement with wolves under federal management. Presently, the Defenders of Wildlife compensation program representative negotiates directly and confidentially with the individual producer to determine compensation. This is independent from the USFWS management programs and decision-making about what happens to the offending animals. The USFWS supports the concept of compensation and believes that the existence of a private program has benefited wolf recovery (Bangs per. comm.)

The existing model has emerged somewhat through trial and error and the circumstances of individual wolf-livestock conflicts in the northern Rockies. It has also evolved since its inception. Wildlife damage compensation programs have great intuitive and theoretical appeal, and may be important tools in promoting wildlife conservation. Compensation programs may also have unintended consequences with long range implications. They are also costly, but there may be less costly ways of achieving the same ends.

A scientific evaluation of state government predator compensation programs in Idaho and Wyoming and of the Defenders of Wildlife programs in Montana, Idaho, and Wyoming for grizzly bears and wolves has recently gotten underway. A partnership among private citizens, non-governmental organizations, state and federal agencies, and academic institutions has formed. The objectives are to evaluate the effectiveness of these compensation programs, examine the role compensation programs play in predator conservation efforts within agricultural settings, determine how compensation programs can be structured and administered to meet the needs of livestock producers, and assess the impact that compensation programs have on public opinions and attitudes towards predator conservation and management. This effort is known as the Predator Compensation Research Study. A diversity of interests is represented on the advisory committee, including representatives of the funding organizations and livestock producers. The findings of this research effort will have important implications for the future wolf compensation program in Montana. A final report is anticipated in spring, 2003. With new information in hand, MFWP will be in a better position to work with Defenders of Wildlife or some other entity to help design a compensation program based on the cooperative input from livestock producers, non-governmental organizations, and other interested parties.

Funding

Compensation has been an important companion to federal agency wolf management activities with respect to wolf-livestock conflicts. Under state management authority, similar needs will exist. Montana would like to maintain and enhance the benefits of the compensation program. But the state is prohibited from financially compensating citizens for damages caused by wildlife. We do not foresee any changes in this regard. Instead, MFWP and MDOL offer technical assistance, consult with WS, or use other management tools to address damage caused by wildlife. Since compensation payments cannot be made from MFWP funds or matching federal monies intended for wildlife or habitat programs, securing alternative funding is crucial to program success. Nonetheless, MFWP is exploring alternative funding sources, including: a surcharge to national parks entrance fees to be earmarked for wolf conservation and management activities in the tri-state area, a livestock insurance program through USDA, a national wolf management trust fund, and private donations or non-governmental organizational support.

MFWP is also looking into the feasibility of a livestock insurance program for producers, which is modeled after the crop insurance program. Producers would pay a subsidized premium to insure livestock for losses due to wolves. Loss payments would come from premiums collected over all producers and from private donations. WS would verify losses.

Despite the present uncertainty of how a compensation program would be designed and administered, funding this element of the overall wolf management program is essential to its successful implementation. The State of Montana will pursue all possible funding sources including, but not limited to public/private foundations, federal or state appropriations, and other private sources. Securing adequate funding for compensation is of equal priority as securing funding to implement the state and federal agency management activities. A later chapter also discusses funding possibilities for a compensation program.

Procedures

Although many of the details about funding, administration, or relationship to management actions by agencies or livestock producers are still unknown at this time, WS will investigate cases of suspected wolf depredation, just as they do for other wildlife species causing damage to livestock. If WS *confirms* that a wolf was responsible, the producer would be eligible for compensation, regardless of whether the incident occurred on public or private lands. If the field investigation concludes that wolf depredation was *probable,* the producer would also be eligible for compensation. Additional research is required to examine the question of undocumented livestock losses.

Producers would be compensated for livestock losses at fair market value at the time of death and at fall value for young of the year. Eligible livestock include cattle, calves, hogs, pigs, horses, mules, sheep, lambs, goats, and guarding animals. The Council recommended that losses of household domestic pets should not be compensated, but acknowledged the significant emotional loss. The Council also recommended that losses at alternative livestock (game farm) facilities should not be compensated. Wolf ingress into a poorly secured facility is the responsibility of the operator. The fact that many alternative livestock facilities confine native prey species, which may naturally attract wolf activity, further precludes payments for these losses. In the same vein, recreationists take responsibility for their pets when recreating in occupied wolf habitat.

Implementation

Table 3 summarizes a spectrum of state, federal, or private management strategies to minimize the potential for wolf-livestock conflicts and to resolve conflicts where and when they develop. Many activities fall within existing duties and responsibilities already carried out by WS or MFWP, but some activities clearly add to existing responsibilities and/or workloads. For example, WS may respond to increasing numbers of wolf-livestock complaints as wolf numbers and distribution expand. WS has been actively involved during the federal wolf recovery phase. From 1995-2000, WS spent an average of $90,086 per year for wolf-related work, including half of the yearly expenses of a Wolf Management Specialist position (L. Handegard, pers. comm.). Montana will also contract with WS for assistance with wolf depredation activities. WS will assist with wolf capture, control actions, research and development of non-lethal methods, and also technical assistance to producers. Expenditures for wolf management by WS could increase in the future as wolves increase in number and distribution. Experience in Minnesota indicates that as wolf numbers and distribution increase into agricultural areas, wolf-livestock conflict may increase (Mech 1998b). MFWP will seek additional funding and will also support WS in their effort to obtain additional funding.

MFWP will also experience increased responsibilities and workloads associated with wolf-livestock conflicts. The MFWP Enforcement Division will now provide technical assistance to landowners and/or assist WS in resolving wolf-livestock complaints. MFWP may also experience increased workloads associated with administration of any special kill permits issued directly to livestock producers or investigations of wolves killed while attacking livestock. The MFWP Wildlife Laboratory will experience an increased workload associated with processing

Table 3. The spectrum of potential management activities to minimize the potential for wolf-livestock conflicts and the management activities to resolve conflicts where and when they develop. The adaptive management model calls for selection of different management strategies as the number of wolf packs changes from less than 15 to 15 or greater. The different management settings (Public Lands and Mixed Land Ownerships) call for different strategies, depending on landownership patterns, social factors, land use patterns, biological constraints, and the physical attributes of the environment. Some management strategies may apply across all numbers of wolf packs or management settings, as indicated by the right arrows.

	WOLF PACK NUMBER			
	Less Than 15 Packs* ←		→ **15 Packs or Greater**	
	Public Lands *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*	**Public Lands** *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*
Livestock Producers	Lethal take in defense of life/property	→	→	→
	Non-lethal harassment	→	→	→
	WS response; technical assistance from WS & MFWP	→	→	→
	No MFWP special kill permit for public lands	MFWP kill permit for private lands only; conservative number issued	Limited number of MFWP kill permits for public lands	MFWP kill permits for private or public lands; number issued more liberal
	No open season for designated trapper	→	Designated trapper or licensed hunter/trapper during open season	Designated trapper or licensed hunter/trapper during open season
Citizens (outfitters, hunters, recreationists)	Lethal take in defense of life/property	→	→	→
	Non-lethal harassment	→	→	→

Table 3. Continued.

	WOLF PACK NUMBER			
	Less Than 15 Packs* ←		→ 15 Packs or Greater	
	Public Lands *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*	**Public Lands** *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*
Wildlife Services	Technical assistance to producers, cooperation with MFW	→	→	→
	Activities directed by Memorandum of Understanding with Montana Fish, Wildlife & Parks and Montana Department of Livestock	→	→	→
	Incremental approach, conservative	→	Incremental approach	Incremental approach, more liberal
Montana Fish, Wildlife & Parks	Technical assistance to producers, cooperation with Wildlife Services	→	→	→
	No special kill permits issued	Special kill permit administration and oversight; carcass retrieval	→	→
	Responsible for disposition of wolves involved in livestock conflicts	→	→	→
	Public outreach to inform and address specific needs	→	→	→
	No open hunt/trap season	→	Conservative hunt/trap season where depredation is chronic	Hunt/trap season which maintains wolf packs and minimizes potential for wolf-livestock conflict

Table 3. Continued.

* Montana shares a legal requirement with the states of Idaho and Wyoming to maintain a minimum total of 30 breeding pairs in the region. Since not all packs successfully breed and have pups every year, Montana will maintain at least 14-17 packs statewide to insure achievement of a minimum number of 10 breeding pairs with at least two pups on December 31.

wolf carcasses or filling educational requests. Additional resources will be required to implement these new responsibilities. Existing budget and personnel resources cannot absorb this expansion.

Table 4 summarizes the direction and guidelines for compensation of livestock losses due to wolf depredation. There are additional responsibilities and workloads associated with providing compensation to livestock producers, although it is not clear who or how a compensation program or livestock insurance program will be administered at this time. Results from the Compensation Research Study will help identify the best, most efficient and responsive ways to fulfill this aspect of the overall wolf management program.

The Compensation Research Study will address how well livestock producers think the Defenders of Wildlife compensation program meets their needs and ways in which the program could be improved. Livestock interests on the Montana Wolf Advisory Council identified the challenges associated with the issue of *unconfirmed* livestock losses – losses for which wolf predation could not be *confirmed* definitively because of decomposed remains, scavenging by other species, or near complete consumption. Presently, these are recorded as *unconfirmed* by WS agents, with additional information about the evidence and the circumstances noted on their report forms. Defenders of Wildlife uses this additional information along with other supplemental information to make a determination of *probable* loss due to wolves, strictly for the purposes of compensation. If information indicates a strong likelihood, Defenders of Wildlife, has reimbursed producers for *probable* losses due to wolves. Federal agency management actions have still been based on the WS determination of *confirmed/unconfirmed*. Whether Defenders of Wildlife would continue to reimburse producers for *probable* losses in the future, according to their own criteria and information provided from WS, is unknown at this time. Long-term solvency of any compensation fund could be in jeopardy if fund-raising does not keep pace with the amount paid out in claims.

If Defenders of Wildlife is not the primary source for compensation in the future under state management jurisdiction, the state would need to find or create an entity to administer a compensation program and provide guidelines for payment. Implementation of the Council's recommendation to compensate for *probable* losses could be somewhat problematic. Guidelines would need to clarify the circumstances and evidence required for payment of *probable* claims in the absence of a *probable* designation by WS. Addition of the *probable* category represents a new type of loss for the Montana-based WS investigative procedures and would need to be approved by WS. It would be challenging for both investigating WS agents and administrators of a compensation program to apply a consistent set of criteria for this determination because the circumstances and available evidence vary from one incident to another. Time elapsed since

Table 4. Direction and guidelines for compensation of livestock losses due to wolf depredation in Montana. The adaptive management model calls for selection of different management strategies as the number of wolf packs changes from less than 15 to 15 or greater. The different management settings (Public Lands and Mixed Land Ownerships) call for different strategies, depending on landownership patterns, social factors, land use patterns, biological constraints, and the physical attributes of the environment. Some management strategies may apply across all numbers of wolf packs or management settings, as indicated by the right arrows.

	WOLF PACK NUMBER			
	Less Than 15 Packs* ←		→ **15 Packs or Greater**	
	Public Lands *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*	**Public Lands** *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*
Livestock Producers (cattle, calves, hogs, pigs, horses, mules, sheep, lambs, goats, guarding animals)	Incentives to reduce potential for conflict →	→	→	→
	Compensation and/or livestock insurance program for *confirmed* and *probable* wolf losses at fair market value →	→	→	→
	No compensation for pets, alternative livestock →	→	→	→
Funding	Private donations and/or special state or federal appropriations (no MFWP funds) →	→	→	→
Adminis-tration	Pending results of Compensation Research Study; Non-governmental organization independent of MFWP; Defenders of Wildlife uncertain; →	→	→	→

***** Montana shares a legal requirement with the states of Idaho and Wyoming to maintain a minimum total of 30 breeding pairs in the region. Since not all packs successfully breed and have pups every year, Montana will maintain at least 14-17 packs statewide to insure achievement of a minimum number of 10 breeding pairs with at least two pups on December 31.

death, weather, or other factors unique to that incident all affect the evidence available and its interpretation. Selection of the *probable* category has to do with the degree of certainty on the part of the WS agent, based on less than conclusive evidence to confirm or not confirm a wolf or wolves as the cause of loss. While all investigators look for the same evidence, the interpretation may be less consistent when investigators must use their own professional judgment in the absence of clear evidence. MFWP would also find the decision-making process on the disposition of the wolf or wolves more difficult if there is less certainty about the cause of death or injury, especially in light of all the other means by which livestock die or are injured. Nonetheless, MFWP will explore the concept and utilize the findings of the Compensation Research Study to help guide the compensation elements of the wolf management program.

All parties share the responsibility of addressing the economic challenges of minimizing the potential for wolf-livestock conflicts and resolving conflicts where and when they develop. A draft budget is presented as Appendix 3.

The budget outlines the personnel and financial resources necessary to proactively minimize the potential for wolf-livestock conflict and resolve conflicts where and when they develop. MFWP and WS cooperatively fulfill these responsibilities, as described in this Chapter.

The budget truly reflects the comprehensive nature of designing and implementing a wolf management program that addresses wolf-livestock conflicts. While this budget represents our best projection of the resources required, we cannot assess its accuracy until MFWP actually assumes management authority and begins implementation . Some components of the wolf program may not be captured fully by this draft budget. There may also be costs that could not be predicted at this time or were unforeseen. This budget will be refined in the future as MFWP gains more experience. It may also be refined to reflect changes in costs associated with depredation management by WS. This budget also estimates annual compensation payments. The estimate was derived from the 1997 payments by Defenders of Wildlife for losses within the State of Montana, extrapolated over a projected 20 packs. Actual payments in any given year may be higher or lower than the budgeted amount shown. It is important to capture what may represent the upper limit of claims paid for *confirmed* and *probable* losses in any single year. There may also be administrative costs associated with implementing a compensation program.

In summary, implementation of the management strategies and compensation program outlined in this Chapter will require enhanced or new sources of funding. Without adequate financial resources for both elements (management and compensation), implementation is not possible. All possible sources of funding including public/private foundations, federal or state appropriations, and other private sources will be sought.

WOLF – HUMAN CONFLICTS

Introduction

In recent years, MFWP has taken a proactive approach in helping people learn how to live and recreate in wildlife habitats. Other state and federal agencies have done the same. Increasing

numbers of people are living within the urban-wildland interface where a potential for conflict with a wide variety of wildlife species exists. Outdoor recreation trends also place increasing numbers of people in wildlife habitats (Youmans 1999). Living and recreating in wildlife habitats has inherent risks. Through policy development, public outreach, and technical assistance to landowners and recreationists, MFWP is working towards mitigating those risks to the extent possible.

In accordance with Montana statutes, MFWP and the MFWP Commission are authorized and charged with the duties of protecting people and personal property from damage and depredation caused by wildlife. MFWP defines a public safety problem related to carnivores as: any situation where an MFWP employee reasonably determines that the continued presence poses a threat to human safety, an attack has resulted in the loss of livestock or personal pets, or that a human has been physically injured or killed.

Wolf-Human Encounters

Public safety is an important consideration because species such as the gray wolf, mountain lion, black or grizzly bear are capable of injuring or potentially killing a person. Even though wolves generally fear humans, there are instances where individual wolves lost their wariness of people (Mech 1998a, Route 1999). In Canada's Algonquin Provincial Park, four different wolves progressively lost their fear of humans, resulting in five separate incidents over the last 11 years. These four wolves, though previously non-aggressive, eventually bit humans. Two incidents of wolf aggression towards people were serious and required stitches. Each of the wolves was accustomed to humans and had been frequenting campgrounds, running off with backpacks, human food, and other camping items over a period of months. People interacted with these wolves at very close range until the wolf became too bold (Route 1999). Park managers removed the four wolves. Some wolves in Denali National Park in Alaska have grown increasingly tolerant of close proximity to humans in and around campsites, although no injuries have been reported (Boyd in press). One incident on Vargas Island, British Columbia in which a wolf bit a camper paralleled the incidents in Algonquin Provincial Park. Park managers removed two wolves that had been loitering near camping areas. One recent incident in Icy Bay near Anchorage, Alaska left a young boy with several stitches after a wolf bite. This wolf was also removed.

It appears that most wolf-human encounters were not precipitated by the wolf perceiving the human as prey because of how the wolves behaved, the presence of domestic dogs, or the sequence of events (Mech 1998a). This is in stark contrast to the case histories of mountain lion-human incidents in which it appears that mountain lions sometimes do perceive humans as prey (Deurbrouck and Miller 2001). Case studies of injurious bear-human incidents highlight surprise encounters, defense of cubs or food, and/or the bear perceiving the human as a threat to be neutralized. For wolves, a loss of fear seems to be a common thread running through all North American wolf incidents resulting in human injury (Mech 1998a). It appears that wolves can habituate to humans or human activities as readily as bears or mountain lions (Aune 1991, Boyd in press). Whether or not this degree of familiarity translates to a threat to human safety may hinge on prompt management response by the appropriate authorities. It appears that habituation in wolves may not require a consistent pattern of food conditioning as seems the case for bears.

Wolves may increase their tolerance for the close proximity of people through repeated, long-term social interaction with people and "being rewarded" in some fashion, whether food or otherwise. It seems that some period of time is required for a wolf to habituate to human proximity, although precisely how long may be a function of setting and vary from one individual wolf to another. MFWP would be as concerned about habituated wolves as we are about habituated bears and will attempt to discourage habituation for all wildlife species and carnivores in particular.

No wolf-caused human fatality has been documented in North America. All cases in which a human was injured occurred where wolves have shared the landscape with people for a long time. Most incidents occurred in park or preserve settings where wolves were legally protected, but individual wolves had become habituated. On the contrary, there are no reported incidents from areas where wolves have recently recolonized or been reintroduced in the northern Rockies or the upper Midwest. In contrast, mountain lions are responsible for ten human deaths and 48 nonfatal injuries in the U.S. and Canada from 1890-1990 (Beier 1991).

In Montana, hikers have unknowingly encountered an occupied den site and wolves barked. Other encounters occurred away from wolf den sites and ended when the wolf retreated, without injury to human or pet. One incident involved a hiker with two dogs and multiple wolves. Since the mid-1980's, the only two injuries to humans by wolves in Montana occurred when wolf researchers and managers handled unrestrained animals during live-capture operations. However, there have been 8 mountain lion-human incidents in Montana from 1990-1999 in which seven people were injured and a young boy was killed (MFWP unpubl. data). These were all encounters in which the human was not aware of the lion.

In Montana, wolves have injured and killed domestic pets, primarily dogs. Most incidents involved herding dogs associated with livestock operations. Other cases of dog depredations were hounds trailing mountain lion or bobcat scent. Hounds typically do not switch scent trails from felids to canids, but may encounter wolves while pursuing wild cats or at lion kills assumed by wolves. More hound dogs have been lost to mountain lions than wolves thus far in Montana. Claar et al. (1999) summarized current understanding and knowledge of hound dog-wolf interactions. Bangs and Shivik (2001) also noted wolves probably perceived hunting hounds and guarding/herding dogs as "trespassing" competitors rather than as prey because wolves did not feed on the domestic dogs.

Despite their wariness of people, wolves will still use natural habitats in close proximity to humans. This is particularly true in northwestern Montana where people build their homes in thick, forested habitats. Members of the Murphy Lake pack are occasionally seen within 100 yards of homes and in rare instances closer. While this pack is clearly accustomed to human activity within its home range, its members have shared the landscape with people without incident for 10 years. One pack just outside of YNP is often seen in open grassland terrain.

Because wolves live in social groups, people may see them more frequently than other large carnivores, although wolves are not necessarily any more dangerous. Mountain lions and bears are solitary, except for mothers with dependent young or during the breeding season. Wolves are much less secretive than mountain lions. Wolves feed and rest in open areas with good visibility,

whereas lions tend to hide their kills and feed or rest in dense vegetative cover. Wolves will also travel across openings in forest cover or natural meadows in ways that mountain lions or bears do not. In addition, wolves use linear corridors such as roads, utility lines or railroad rights-of-way for traveling and scent marking. Because of the differences between the secretive stalking behavior of mountain lions and the broad, open searching behavior of wolves, people probably have a greater chance of a close encounter with a mountain lion than a wolf.

Another important consideration also stems from the fact that the natural order of existence for wolves in the wild is to belong to a pack. Pack membership has attendant functions such as establishment and maintenance of social hierarchies, patrolling and marking territory boundaries, pup-tending, hunting, bringing food back to pups, resting, or interacting with other wolves or other wildlife species. Wolves affiliated with a pack are usually actively engaged in one of these "purposes" and do not spend extended periods of time loitering in any one location – activity at den or rendezvous sites notwithstanding. Pack-affiliated wolves, when seen alone, will usually be seen sporadically because they are en route to someplace else for some particular reason. Even dispersing wolves will generally not loiter and will move through an area near people. This is in contrast to a situation in which a single wolf is seen repeatedly loitering in an area near people and does not appear to be affiliated with a pack. These individual wolves could gradually loose their fear of people, become food conditioned, or otherwise interact with people at decreasingly safe distances. If this pattern is allowed to continue through time, the wolf may become a safety concern. This will become especially evident if the animal does not respond to hazing or harassment.

Management

MFWP intends to reduce the potential for wolf-human conflicts and minimize the risks of human injury due to wolf presence in the state. MFWP's approach to wolf-human interactions will model the policies for addressing mountain lion-human or bear-human conflicts. First and foremost is to discourage habituation and then respond to conflicts where and when they develop. MFWP, through its educational efforts and enforcement of existing statutes, discourages the public from artificially feeding wildlife or allowing wild animals access to human foods, garbage, pet food, livestock feed, or birdseed. Any artificial concentration of wild animals caused by supplemental feeding (e.g. deer or turkeys) may constitute a threat to public safety if carnivores are attracted to the supplemental food itself or the animals using the supplemental food. In addition, MFWP reminds people to keep a safe distance and that wild animals should be kept wild. While MFWP emphasizes the educational approach in working with the public to prevent wildlife habituation and maintain human safety, Montana statutes prohibit citizens from "purposely" providing supplemental feed in a manner that results in an artificial concentration of game animals that may potentially contribute to the transmission of disease or that constitutes a threat to public safety (MCA 87-3-130).

MFWP developed specific guidelines for addressing situations in which mountain lions or black or grizzly bears are a nuisance or threaten public safety. Management actions are carried out by various MFWP personnel, including biologists, game wardens, and conflict management specialists. Similar guidelines will be developed for wolves. If a wolf loiters near ranch buildings or rural residences, the potential threat to human safety will be evaluated, taking into

account the setting, behavior of the animal, and the sequence of events. MFWP will require some degree of flexibility to be most responsive to public safety concerns. A wolf will be permitted to move through these areas, but length of stay and behavior will be important criteria for determining the appropriate management response. Less deference will be granted to a single loitering wolf found to have ongoing exposure to and association near people. Across the spectrum of wolf distribution and numbers, MFWP will take an incremental approach so that the management response matches the infraction. Potential actions include: increase local public outreach and education, closely monitoring the situation, marking the animal with a radio collar to track its movements, aversive or disruptive conditioning, harassment, relocation, or lethal removal. If relocation is selected, remote public lands would be preferred release sites. MFWP will also cooperate with other agencies and landowners in researching new techniques to resolve wolf-human conflicts. Suspicious, large-sized canids in these situations could be released captive wolves or wolf-dog hybrids. Large canids that appear wolf-like and demonstrate habituated behavior potentially threatening human safety will be lethally removed.

Montana citizens have the right to protect or defend themselves if threatened by wildlife. Mountain lions, black bears, and grizzly bears have all been legally killed for this reason. In the unlikely need for defense of human life during a wolf encounter, citizens may use any means, including lethal force, to address an imminent threat, regardless of wolf population status or whether the incident takes place on public or private land. Guarding and domestic dogs can also be defended using lethal means. Any wolves killed under these circumstances must be reported to MFWP as soon as possible, but within 72 hours. Citizens must also turn in the entire carcass. In the absence of a direct threat to life or property, citizens are encouraged to rely on non-lethal harassment to discourage wolf presence near their homes or person when recreating outdoors.

As wolf numbers and distribution increase in Montana, the public's concern about human safety could increase. Humans and wolves may encounter one another at close range in a variety of settings. MFWP will provide information to the general public about appropriate responses during wolf encounters (do's and don'ts) and how to minimize the potential for problems near homes and rural schools. This material will also include information about wolf behavior, body posture, tail position, vocalizations, etc. to help the public evaluate the situation, correctly interpret wolf behavior, and communicate the details accurately to agency personnel. An educational effort will also help the public understand the differences between wolves, mountain lions, and bears in terms of animal behaviors, appropriate human responses when threatened, and how to live and recreate outdoors in the presence of these large carnivores. See Appendix 8, Draft Public Information Plan for additional information on the public outreach efforts.

Although the primary management responsibility related to wildlife and human safety rests with MFWP, local law enforcement or other state of federal agency personnel may respond to a wolf-human incident if MFWP personnel are not available in a timely manner. This cooperation already takes place for other wildlife species. Regardless of the responding party, the public can be confident that response will be rapid and the conflict will be resolved in favor of public safety. Providing the public an effective and prompt response to wolf-human conflicts, whether through their own or agency management actions, will foster public support for wolves in Montana.

Implementation

Table 5 summarizes a spectrum of management activities to ensure public safety. While MFWP has always been charged with this responsibility, wolves represent a new category of wildlife for which the state assumes responsibility, upon delisting. Game wardens, conflict specialists, and some wildlife biologists will now respond to wolf-human incidents and any threats to public safety. Information specialists will now incorporate new materials into their public outreach efforts. Wolves have engaged the spirit, imagination, and emotions of people for a long time – whether fear or awe. Public outreach materials must address the public's perception of risk and fear of injury or death due to wolves and how to protect oneself during a close encounter. Public outreach materials must also guide the public towards maintaining a healthy respect for wildlife and keeping it wild, an ethical approach to viewing wolves, and the hazards of habituation. Table 5 also summarizes actions that citizens may take during a threatening encounter with wolves.

Many activities fall within existing duties and responsibilities already carried out by MFWP, but some activities clearly add to existing responsibilities and workloads. Additional resources will be required to implement these new responsibilities because existing budget and personnel resources cannot absorb the expansion. A draft budget is presented as Appendix 3. The budget outlines the personnel and financial resources necessary to prevent wolf-human conflicts and minimize the risks of human injury due to wolf presence. Public safety is a responsibility that MFWP takes very seriously and it is an agency function that crosses many Divisions. The Conservation Education Division, the Wildlife Division, and the Enforcement Division all have a role to play, as is outlined in this Chapter. As such, the budget truly reflects the comprehensive nature of designing and implementing a wolf management program that also assures human safety. While this budget represents our best projection of the resources required, we cannot assess its accuracy until MFWP actually assumes management authority and begins implementation. Some components of the wolf program may not be captured fully by this draft budget. There may also be costs that could not be predicted at this time or were unforeseen. This budget will be refined in the future as MFWP gains more experience. MFWP will pursue all possible funding sources including, but not limited to public/private foundations, federal or state appropriations, and other private sources. Adequate funding will be necessary to fully implement the provisions to assure human safety outlined in this Chapter.

INFORMATION AND EDUCATION PROGRAM

The primary determinant of the long-term status of gray wolf populations will be human attitudes towards wolves (USFWS 2000). But attitudes, beliefs, and concerns about wolves are highly variable. Underlying various attitudes are human safety concerns, perceptions of risk, the symbolic significance of wolves, economic impacts on livestock producers, convictions that wolves should not be killed, Native American traditions, perceptions that wolves compete with human hunters for ungulates, beliefs that wolves do not have a place in the 21st century – and many others. Attitudes have changed over time and acceptance for wolves has increased among some segments of the public. Attitudes will continue to evolve.

Table 5. Spectrum of management and public outreach activities to ensure public safety in Montana. The adaptive management model calls for selection of different management strategies as the number of wolf packs changes from less than 15 to 15 or greater. The different management settings (Public Lands and Mixed Land Ownerships) call for different strategies, depending on landownership patterns, social factors, land use patterns, biological constraints, and the physical attributes of the environment. Some management strategies may apply across all numbers of wolf packs or management settings, as indicated by the right arrows.

	WOLF PACK NUMBER			
	Less Than 15 Packs* ←		→ **15 Packs or Greater**	
	Public Lands *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*	**Public Lands** *(backcountry areas & near National Parks)*	**Mixed Land Ownerships** *(interspersed public and private lands; interspersed agriculture)*
Citizens	Non –lethal harassment →	→	→	→
	Lethal take in defense of life/property →	→	→	→
Agency personnel	MFWP Guidelines for Nuisance Wolves →	→	→	→
or	Non-lethal harassment →	→	→	→
Local Law Enforcement	Lethal removal if threat to public safety →	→	→	→
Montana Fish, Wildlife & Parks	Public outreach to inform & address specific needs →	→	→	→
	Discourage wolf habituation →	→	→	→

***** Montana shares a legal requirement with the states of Idaho and Wyoming to maintain a minimum total of 30 breeding pairs in the region. Since not all packs successfully breed and have pups every year, Montana will maintain at least 14-17 packs statewide to insure achievement of a minimum number of 10 breeding pairs with at least two pups on December 31.

Regardless of personal beliefs and attitudes, an active, informed public is critical to the protection of Montana's wildlife resources. This is particularly true for the gray wolf. The history of wolves in Montana has as much to do with the relationship between wolves and people as it does with the ecology of the species. The same will be true of the wolf's future.

A wolf management plan for any state will be controversial. Personal opinions, anecdotal experiences, and personal biases lead to emotional and sometimes irrational viewpoints, creating

a challenging environment in which to manage the species. MFWP recognizes the importance, value, and need for an educational program to parallel wolf management activities. The objective is to provide scientifically based, factual information regarding the gray wolf and its management in Montana, in hopes that the public will become more knowledgeable, more objective, and less emotional about this species and its management. Strong outreach programs may also help decrease the level of illegal mortality.

MFWP will acquire any and all information utilized in the education program from all available sources, including other state and federal agencies and non-governmental sources. MFWP will take a leadership role in formulating and disseminating educational materials. However, the information sources will be wide-ranging and include other state and federal agencies, non-governmental organizations with a variety of interests, and Native American tribes. All material provided to MFWP and included in the program must be factual and have a foundation of scientific scrutiny. MFWP will be ultimately responsible for content. A collaborative approach will also be necessary to ensure that different groups do not put out conflicting information that could erode public understanding and acceptance of the wolf management program.

The audience of the education program will include (but not be limited to) the general public, students, visitors to the state, sportspersons and outdoor recreationists, the agricultural community, and agency personnel. While the specific emphasis may differ by audience, it is important to convey some basic information to everyone, such as wolf numbers and distribution in Montana, identification and ecology of the species, and guidelines for ethical viewing. The values and challenges of wolf conservation and management will also be conveyed. Delivery of educational information will also target specific audiences. For example, hunting and trapping regulations may emphasize wolf vs. coyote identification more strongly than educational materials intended for elementary school students.

The MFWP Conservation Education Division has the primary responsibility to develop a public outreach/educational plan for Montana (Appendix 8). Informally, personnel from all MFWP Divisions will disseminate information to the public on a routine basis, much as they already do for all fish and wildlife species in Montana. However, the tremendous need for public outreach on such a controversial species requires that MFWP create partnerships with the private sector to help us meet those needs.

It will be important to identify the most efficient ways to reach various audiences, which means gaining an improved understanding of where they get their information. For example, in the mid 1980's, rural residents along the west boundary of GNP and the general hunting population of Flathead County got their information about wolves from different sources (Tucker and Pletscher 1989). Dispersed rural residents relied on people (neighbors or biologists) more than on printed media. In contrast, the hunting population used newspapers, books, and magazines as their primary information sources. Furthermore, the hunter sample did not regularly attend public meetings and already had strong opinions about wolves. For mountain lions, a combination of mass media and agency communications is required for developing general public knowledge and acceptance (Riley and Decker 2000). Given the broad spectrum of interests with a stake in wolf conservation and management, the education program will utilize a broad spectrum of methods and outlets to adequately fulfill this fundamental component of Montana's wolf plan.

Implementation

Appendix 8 describes the Public Information Plan. Some of the activities fall within existing duties and responsibilities already carried out by MFWP but some activities clearly add to existing responsibilities and workloads. Additional resources will be required to implement these new responsibilities. A draft budget is presented as Appendix 3. The budget outlines the personnel and financial resources necessary to fulfill the public outreach and educational needs outlined in this Chapter. Getting information out to the public is an important function that is inherent in many of the management activities described in this plan. The budget truly reflects the comprehensive nature of designing and implementing a wolf conservation and management program. While this budget represents our best projection of the resources required, we cannot assess its accuracy until MFWP actually assumes management authority and begins implementation. Some components of the wolf program may not be captured fully by this draft budget. There may also be costs that could not be predicted at this time or were unforeseen. This budget will be refined in the future as MFWP gains more experience with wolf management. MFWP will pursue all possible funding sources including, but not limited to public/private foundations, federal or state appropriations, and other private sources. Adequate funding will be necessary to fully implement the wolf conservation and management provisions of this Chapter.

PLAN MONITORING AND EVALUATION

Upon delisting and with adequate funding secured, MFWP will implement the Wolf Conservation and Management Plan. This plan will guide MFWP managers and others responsible for the planning and policy decisions that affect wolf management in Montana. It will also guide decision-making at the field level. MFWP personnel will use this plan to prioritize field activities, manage time/budgets, formulate wolf management recommendations, and coordinate with personnel of other state and federal agencies. Personnel of other state or federal agencies will also use this plan as a source of information and guidance.

During the first five years after delisting, MFWP will be required to document that the wolf population in Montana is secure and exceeds the relisting criteria identified when wolves are delisted. MFWP will consult with USFWS on a regular basis, including a periodic formal review by the USFWS. USFWS will point out any deficiencies or areas of concern and recommend corrective actions to MFWP. The State of Montana recognizes that the interests of its citizens are best served by maintaining a secure, viable population that is managed by MFWP and its cooperating partners and not the federal government. We would take the necessary corrective measures to avoid a relisting of the gray wolf under ESA.

During the first five years, MFWP will also confer with other state and federal agencies in Montana. Ongoing consultation will evaluate aspects of the management program as they intersect with the responsibilities and jurisdictions of the other agencies. Conferring with cooperating partners such as WS will also help identify any necessary modifications stemming from unanticipated or unforeseen events. MFWP will also confer with the states of Idaho and Wyoming. These consultations will assess the collective adequacy of the three state plans to

maintain a viable wolf population in the northern Rockies. These elements are discussed in more detail in the Interagency, Interstate, and Tribal Coordination section of the Wolf Conservation and Management Chapter.

The Wolf Conservation and Management Plan will also serve as a source of information and provide guidance to the MFWP Commission. However, the plan does not preempt MFWP Commission authority to formulate annual rules, set hunting and trapping season regulations, or implement emergency actions in response to unexpected events or circumstances. Whereas the MFWP Commission cannot modify the plan per se, it does have statutory authority to evaluate and modify how certain elements are implemented.

As with any wildlife management program, MFWP anticipates that the wolf program will evolve through time. MFWP will undertake a thorough, formal review of the wolf management program following the five-year USFWS oversight period required by ESA. Cooperating state and federal agencies will also participate. Findings of the review will be incorporated. The wolf management program will be subsequently reviewed at least every five years and modified to insure that the document will be as current as is practical and that the management activities originating from it are effective and appropriate.

This plan describes an adaptive management model for wolves in Montana. MFWP views the adaptive management approach as an important underpinning of the monitoring and evaluation of the Wolf Conservation and Management Plan. By definition, an adaptive model incorporates monitoring and evaluation components as an ongoing effort within the management program. Management is thus refined and improved through time as information and experience accumulate. MFWP will evaluate new information annually and incorporate it into wolf management.

An adaptive model will help address and evaluate the wolf-specific components of this plan. For example, are viable populations of wolves being maintained? Are the monitoring protocols adequate to assess wolf population trends or other biological parameters of interest? Adaptive management principles already incorporated into ungulate management programs serve the same purpose. For example, are adequate populations of prey species being maintained to sustain a wolf population and provide citizens with the opportunity to hunt a wide variety of species under a wide variety of circumstances in a sustainable manner? The advantage of managing adaptively is that, by definition, it provides a framework and a process for decision-making, as well as the mechanism to monitor and evaluate the outcomes.

Equally important components of any wolf management program are the social factors that shape public tolerance for wolves and their satisfaction with how conflicts are resolved. For example, is the management program adequately and efficiently addressing wolf-livestock conflicts? Is public safety assured? These are important management program components for which ongoing evaluation is critical. MFWP anticipates that Montana citizens will readily identify real or perceived problems or shortcomings of the wolf management program – on these topics and others.

The challenge for MFWP will be to discern between earnest differences of opinion in preferred management direction and substantive shortcomings of the program. Wolf management in Montana will take place within a complex biological, social, economic, and political environment. Difficult decisions will have to be made and will sometimes be called into question by various interests. However, the ensuing public dialogue will also help evaluate the management program and may lead to revisions. The Wolf Management Advisory Council recommended that the State of Montana continue to engage a diverse advisory citizen's group to collaborate on the management of wolves. The Department, after reviewing input from the public, wildlife professionals, coordinating states, other state and federal agencies, etc., will modify and adapt the wolf management program in the future to maintain a viable wolf population within a complex environment.

FUNDING

Throughout its 100-year history, MFWP has actively restored, perpetuated, and managed the fish and wildlife resources of the state. Fees generated through the sale of hunting and fishing licenses and matching federal monies have funded these activities. As MFWP moves towards assuming the management responsibility for the gray wolf, we acknowledge our commitment to use MFWP and matching federal funds to conserve and manage this native species on equal standing with other carnivore species such as mountain lions and black bears. We also acknowledge that existing financial resources are not adequate to fully implement all aspects of this plan. Additional funding will be required to implement the wolf management element (and related activities) and the compensation program element. While the monies and administrative procedures for these parallel elements may or may not originate from the same source, adequate funds for each element are necessary to implement the plan. We will seek additional funding from a diversity of sources, including special state or federal appropriations, private foundations, or other private sources.

A program being pursued by the Governors of Montana, Idaho, and Wyoming is called the Northern Rocky Mountain Grizzly Bear and Gray Wolf National Management Trust. The purpose of the Trust is to generate sustainable funding for the long-term conservation of grizzly bear and gray wolf populations in the northern Rockies. The National Fish and Wildlife Foundation, a charitable non-profit corporation dedicated to the conservation of fish, wildlife, and plants and the habitats on which they depend, would financially administer the Trust. An endowment would be established, the annual interest earnings of which would fund actions necessary for species recovery or the implementation of state conservation and management plans.

More specifically, the Trust would identify, support, and fund initiatives which address grizzly and gray wolf management, monitoring, and other conservation needs, including habitat protection, species protection, scientific research, conflict resolution, compensation for damage, and education and outreach activities. The establishment of the Trust will be made with the understanding that state agencies will continue to seek necessary state appropriations and spending authority for the management and recovery of the species, consistent with their statutory mandates. The Trust will build coalitions among local, state, regional, federal, and

international entities to leverage support and guide policies for grizzly bear and gray wolf conservation.

When the Trust prospectus is finalized, it will be forwarded to the respective Congressional delegations of the three states for their consideration. It is hoped that the tri-state Congressional delegation will recognize the need for secure, long term funding to address the unique challenges associated with the conservation and management of these species of significant national interest. The timing of any special federal appropriation to establish the Trust is uncertain, given other national priorities before Congress. However, the Governors hope that the fund could be developed and appropriated by the year 2003, with an initial balance of at least $40 million.

Another potential source of long-term funding for the Montana wolf conservation and management program is the Conservation and Reinvestment Act (CARA), a piece of conservation legislation introduced in February 2001 before the 107th Congress. CARA directs appropriations from the income generated by federal offshore oil and natural gas leases to state, federal and local conservation programs. Examples include fish and wildlife restoration, parks and outdoor recreation, coastal conservation, and historic preservation. The underlying premise is that revenues derived from the exploitation of the nation's non-renewable oil and gas resources should be reinvested in the protection and restoration of renewable natural resources such as fish and wildlife, public lands, and coastlines. Title III would provide annual appropriations to the states specifically for fish and wildlife programs, outdoor recreation, and conservation education. These funds are intended to fulfill a need for funding of less traditional management programs for species that are typically not hunted or fished. MFWP could use these funds for the wolf management element (and related activities), but not for the compensation program element. Those funds would still need to be secured elsewhere. CARA has garnered broad bi-partisan support. The National Governors' Association and the Western Governors' Association have both publicly endorsed the concepts of CARA. However, the timing of any Congressional action on this legislation is also uncertain give other national priorities.

The National Management Trust and CARA have the greatest potential to provide the necessary supplemental funding. Both are stable, long-term sources of funding and engage the national interests that desire to see wild, free-roaming wolves in the northern Rockies. While MFWP also recognizes the value of having free-roaming wolves in the northern Rockies, we also seeking financial assistance to conserve and manage the species within a complex biological, social, economic, and political environment. Finding the balance without adequate funding will be very difficult.

A draft budget is presented as Appendix 3. The budget outlines the personnel and financial resources necessary to fulfill the responsibilities of wildlife conservation and management, law enforcement, assurance of human safety, public outreach, resolution of wolf-livestock conflicts, compensation, and program administration. The budget truly reflects the comprehensive nature of designing and implementing a wolf conservation and management program and its related elements such as compensation.

While this budget represents our best projection of the resources required, we cannot assess its accuracy until MFWP actually assumes management authority and begins implementation.

Some components of the wolf program may not be captured fully by this draft budget. There may also be costs that could not be predicted at this time or were unforeseen. We also anticipate that the actual costs of implementation will vary from year to year. Some components of the program will come in under budget in some years, but in other years these same components may be in over budget. This budget will be refined in the future as MFWP gains more experience with wolf management. MFWP will pursue all possible funding sources including, but not limited to public/private foundations, federal or state appropriations, and other private sources.

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MFWP PREPARERS and CONTRIBUTORS

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GLOSSARY OF TERMS AND ABBREVIATIONS

adaptive management: a model for wolf conservation and management in which the number of wolf packs determines the appropriate management strategies; changes in the number of packs determined through a monitoring program directs selection of more conservative or liberal management strategies; model incorporates resource objectives, monitoring protocols, evaluation of predicted outcomes, and a decision process

aggression: dominance behavior typical of canid species demonstrated towards humans

BLM: U.S. Bureau of Land Management

CITES: Convention on International Trade in Endangered Species

compensation: monetary payment to offset or replace the economic loss for a death or injury to livestock or guarding animals due to wolf activity; may also entail financial assistance to livestock producers to offset costs associated with modification to husbandry practices to minimize the potential for wolf-livestock conflicts

confirmed depredation: incident where Wildlife Services conducts a field investigation of dead or injured livestock, at the request of the producer; depredation is *confirmed* in cases where there is reasonable physical evidence that an animal was actually attacked and/or killed by a wolf. The primary confirmation would ordinarily be the presence of bite marks and associated subcutaneous hemorrhaging and tissue damage, indicating that the attack occurred while the victim was alive, as opposed to simply feeding on an already dead animal. Spacing between canine tooth punctures, feeding pattern on the carcass, fresh tracks, scat, hairs rubbed off on fences or brush, and/or eye witness accounts of the attack may help identify the specific species or individual responsible for the depredation. Predation might also be confirmed in the absence of bite marks and associated hemorrhaging (i.e. if much of the carcass has already been consumed by the predator or scavengers) **if** there is other physical evidence to confirm predation on the live animal. This might include blood spilled or sprayed at a nearby attack site or other evidence of an attack or struggle. There may also be nearby remains of other victims for which there is still sufficient evidence to confirm predation, allowing reasonable inference of confirmed predation on the animal that has been largely consumed

Council: Montana Wolf Management Advisory Council

defense of life/property: release from criminal liability for killing or injuring a wolf if the wolf is attacking, killing, or threatening to kill a person, livestock, or a domestic dog (MCA 87-3-130)

delisting: removal of the gray wolf from the list of "threatened or endangered" species that are managed by the U.S. Fish and Wildlife Service under the Endangered Species Act; delisting requires evaluation of current status of species compared to the delisting criteria with regard to habitat, over utilization, disease/predation, existing regulatory mechanisms, and other factors affecting the continued existence of the species; if the current status is secure in each of the 5

categories and the recovery criteria are met, a species is delisted and managed by the state or tribal fish and wildlife management authority

depredation: incident where livestock or guarding animals are injured or killed

ESA: Endangered Species Act

GNP: Glacier National Park

GYA: Greater Yellowstone Area

habituation: readily visible in close proximity to people or structures on a regular basis; not threatened by close proximity and may even be attracted to human presence or human food sources; extremely rare behavior in wild wolves, but typical behavior for released captive wolf or wolf-dog hybrid; for wolves, may or may not involve food conditioning

illegal mortality: wolf mortality outside the provisions of a special kill permit, defense of life or property, agency management actions, a MFWP Commission approved season, or outside other regulations established for the gray wolf as a legally classified "species in need of management"

guarding animals: domestic animals (dogs, llamas etc.) that escort livestock to decrease likelihood of a depredation incident by aggressively defending livestock in the presence of wolves or other predators

legal mortality: lethal control or mortality of a wolf within the provisions of a special kill permit, defense of life or property, agency management actions, a MFWP Commission-approved season, or the regulations established for the gray wolf as a legally classified "species in need of management"

lethal control: management actions that result in the death of a wolf

livestock: cattle, calves, hogs, pigs, horses, mules, sheep, lambs, goats, and guarding animals

management setting: the combination of landownership patterns, land use, social factors, biological constraints, and physical attributes of the environment that describe a particular area or management situation

management: the collection and application of biological information for the purposes of increasing the number of individuals within species and populations of wildlife, up to the optimum carrying capacity of their habitat, and maintaining such levels. The term includes the entire range of activities that constitute a modern scientific resource program including but not limited to research, census, law enforcement, habitat improvement, and education. Also included within the term, when and where appropriate, is the periodic or total protection of species or populations as well as regulated taking (MCA 87-5-102)

MDOL: Montana Department of Livestock

MFWP: Montana Fish, Wildlife & Parks

mixed landownership: patterns of land ownership where privately owned lands are intermingled with public lands and/or corporate-owned lands; sometimes called a "checkerboard pattern"

NPS: U.S. National Park Service

non-lethal control: a variety of management activities intended to avert or resolve a conflict situation without killing the wolf or wolves in question; examples include non lethal harassment to disrupt or interrupt wolf behaviors, frightening a wolf, monitoring of wolf location using radio telemetry, or relocation

non-lethal harassment: an example of non-lethal control where a wolf is frightened or threatened, but is not mortally wounded or killed; purpose is to discourage wolf activity near people or livestock; examples yelling, radio-activated noise-makers, or firearms which discharge cracker shells

NPS: National Park Service

probable depredation: incident where Wildlife Services conducts a field investigation of dead or injured livestock, at the request of the producer; having some evidence to suggest possible predation, but lacking sufficient evidence to **clearly** confirm predation by a particular species, a kill may be classified as *probable* depending on a number of other factors such as (1) has there been any recently confirmed predation by the suspected depredating species in the same or nearby area? (2) How recently had the livestock owner or his employees observed the livestock? (3) Is there evidence (telemetry monitoring data, sightings, howling, fresh tracks etc.) to suggest that the suspected depredating species may have been in the area when the depredation occurred? All of these factors, and possibly others, should be considered in the investigator's best professional judgment.

problem wolf: wolf that has attacked livestock, or is a nuisance animal that could potentially compromise human safety

public safety problem or threat: any situation where the continued presence of a carnivore poses a threat to human safety; or, an attack has resulted in the loss of livestock or personal pets; or a human has been physically injured or killed

regulated public harvest: category of legal of wolf mortality where wolves are killed under MFWP Commission-approved seasons and regulations by licensed hunters or trappers; total harvest strictly controlled through permit or quota system; law enforcement as for other managed species

recovery goal: a total of 30 breeding pairs with equitable distribution throughout Montana, Idaho, and Wyoming for three successive years; breeding pair is defined as at least two adult wolves with at least two pups that survive to December; when the *recovery goal* is met, the U.S. Fish and Wildlife Service could initiate the process to remove the gray wolf from the list of threatened and endangered species protected by the Endangered Species Act

relisting: placing the a species back on the federal list of threatened or endangered species protected by the Endangered Species Act; relisting criteria may or may not be similar to delisting criteria; relisting requires evaluation of current status of species compared to criteria with regard to habitat, over utilization, disease/predation, existing regulatory mechanisms, and other factors affecting the continued existence of the species; if current status is not secure with regard to the 5 areas, a species may be relisted.

remove: to place in captivity or to kill under controlled conditions or in a controlled setting determined by management authorities

SB163: Senate Bill 163, Reclassify Certain Species for Management Purposes, passed during the 2001 session of the Montana Legislature and signed into law by Governor Martz

special kill permit: written authorization granted to a property owner by Montana Fish, Wildlife & Parks to kill or destroy a specified number of animals causing damage to private property; permits are only valid under a specific set of conditions or criteria

species in need of management: legal classification of nongame species that are designated by Montana Fish, Wildlife & Parks as needing special management regulations; Montana Fish, Wildlife & Parks, by regulation, establishes the limitations relating to taking, possession, transportation, exportation, processing, sale or offer for sale, or shipment considered necessary to manage nongame wildlife; Except as provided in regulations issued by the Department, it is unlawful for any person to take, possess, transport, export, sell, or offer for sale species designated by Montana Fish, Wildlife & Parks as "in need of management" (MCA 87-5-104 to 87-5-106)

take: to harass, hunt, capture, or kill or attempt to harass, hunt, capture, or kill wildlife

tri-state area: states of Montana, Idaho, and Wyoming, making up the northern Rockies wolf recovery area

unconfirmed: incident where Wildlife Services conducts a field investigation of dead or injured livestock, at the request of the producer; lacking sufficient evidence to classify an incident as depredation in contrast to other possible causes of death, it is classified as *unconfirmed*; it is unclear what the cause of death may have been. The investigator may or may not have much of a carcass remaining for inspection, or the carcass may have deteriorated so as to be of no use; in the context of wolf management, cause of death is attributed to a cause other than wolf predation

undocumented loss: livestock losses for which there is no apparent explanation for the loss; usually in the context of a numerical discrepancy between the number of livestock head at the beginning of the grazing season and what is retrieved at the end of the grazing season; evidence documenting a death is usually not found

USFS: U.S. Forest Service

USFWS: U.S. Fish and Wildlife Service

WMA: Montana Fish, Wildlife & Parks Wildlife Management Area

wolf-human conflict: where a public safety problem develops; a situation where an MFWP employee reasonably determines that the continued presence poses a threat to human safety, an attack has resulted in the loss of livestock or personal pets, or that a human has been physically injured or killed.

wolf-livestock conflict: where a wolf or wolves are loitering, testing, worrying, or otherwise disrupting livestock; also, a situation where a wolf is suspected to have killed or injured livestock or guarding animals

worrying: to disrupt, cause anxiety, make uneasy, or harass repeatedly or over a period of time; also, to seize, especially by the throat, with the teeth and shake or mangle

WS: U.S. Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services; federal work unit with responsibility to address and resolve damage caused by wildlife; examples include bird concentrations at airports or depredation on livestock

YNP: Yellowstone National Park

LITERATURE CITED

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APPENDIX 1

MONTANA WOLF MANAGEMENT ADVISORY COUNCIL

Report to the Governor

December 5, 2000

Preamble

The State of Montana is committed to recovering wolves. We will ensure that wolf populations are maintained at high enough numbers to prevent their reclassification as "threatened" under federal law in the three-state area of Montana, Idaho, and Wyoming. The State intends to implement positive management programs to make sure that recovery is complete and wolves are integrated as a valuable part of our wildlife heritage. Montana Fish, Wildlife & Parks is already engaged in activities which promote wolf recovery through its efforts on ungulate population monitoring, research, and management, through the acquisition and designation of Wildlife Management Areas, purchase of conservation easements, and other efforts to preserve and restore wildlife habitats.

Currently, the wolf is listed under the federal Endangered Species Act of 1973 and under Montana's own Nongame and Endangered Species Conservation Act passed in 1973. Beginning in the mid-1980's, wolves have become established in Montana, Idaho, and Wyoming through natural recolonization and reintroduction. The U.S. Fish and Wildlife Service (USFWS) anticipates that recovery goals will be met in the foreseeable future. Among the requirements for delisting, the USFWS has determined that the states of Montana, Idaho, and Wyoming must have management plans and other adequate regulatory mechanisms in place to ensure that the recovered wolf population will remain secure within the northern Rocky Mountain Recovery Area following delisting.

The Governors of Montana, Idaho and Wyoming have agreed that regional coordination in wolf management among the states, tribes, and other jurisdictions will be necessary. Furthermore, it is in the best interest of the citizens of their respective states for wolf recovery and delisting to proceed as soon as possible.

The people of Montana have a significant stake in the future management of wolves and should be provided an opportunity to deliberate issues related to wolf recovery and management. The Montana Wolf Management Advisory Council was appointed by Governor Racicot to advise Montana Fish, Wildlife & Parks regarding wolf management in Montana after this species is removed from the lists of federal- and state-protected species, respectively.

We, the Council, recognize wolves as a species native to Montana. Integrating and sustaining wolf populations in suitable habitats will occur within the complex biological, social, economic,

and political landscape of Montana. The State of Montana must ensure human safety, safeguard Montana's livestock industry, maintain viable wildlife populations, and uphold the support of people with diverse public interests.

Wolves do well where prey, primarily deer and elk, are abundant. Restoration and maintenance of these prey populations is made possible through the financial investments of those participating in regulated public harvest of deer, elk, and other species. Prey populations are also dependent on open space, which in Montana, is often synonymous with large agricultural operations on private lands. Livestock operations often provide winter or year-round habitat for prey, which in turn may attract wolves and create the potential for wolf-livestock conflicts. It is important to maintain the economic viability of livestock operations that are adversely affected by wolf depredation. In the long run, this ensures habitat availability for both ungulates and wolves. Continued support and investments by those participating in regulated harvest of ungulates will, in time, lead to a regulated harvest of wolves to maintain a balance with prey populations as wolf numbers and distribution increase.

All Montanans share the challenges and opportunities associated with integrating the wolf into our landscape. To honor these diverse perspectives and interests, we, the Council, endorse the following Guiding Principles as the foundation for Montana's Wolf Management Plan.

Guiding Principles

On Behalf of the Public Interest,

- The State of Montana is committed to maintaining wolf populations at numbers high enough to prevent their reclassification as "threatened" or "endangered" under federal law, in the three-state area.

- The State of Montana should contribute a proportionate number of wolf packs towards the recovery goal identified by the USFWS for the states of Montana, Idaho, and Wyoming. We believe that an equitable distribution of packs among the tri-state area is consistent with the biological intent of the Rocky Mountain Recovery Plan, will ensure a well-distributed and viable population in the region, and will foster greater public acceptance for wolf presence in Montana.

- Montana's wolf management program should be proactive, responsive, cost effective and incorporate public outreach to enhance general acceptance. Effective interagency, interstate, and state/tribal coordination will also be required.

- The Council recognizes the ecological and cultural significance of wolves to Native Americans and encourages their cooperation in coordinated management.

- The State of Montana should continue to engage a diverse, advisory citizen group to collaborate on the management of wolves.

- The Montana Wolf Management Plan should guide the management of wolves while allowing Montana Fish, Wildlife & Parks management discretion and flexibility to accommodate the unique attributes of each pack and the site-specific characteristics of its home range.

- Implementation of the Montana Wolf Management Plan should be contingent upon adequate funding, shared by state, federal, and private entities.

- The State of Montana should make a long-term funding commitment to the conservation of wolves, commensurate with existing programs for black bears and mountain lions.

- Montana Fish, Wildlife & Parks should take a lead role in the creation and implementation of a science-based information and education program to increase public knowledge with a goal of reducing the emotion and controversy regarding wolves and their management. The effort should be collaborative with other agencies and non-governmental organizations.

To Ensure Public Safety,

- The general public, in the unlikely need for defense of human life, may use any means, including lethal take, to address an imminent threat, regardless of location or wolf population status.

- Montana Fish, Wildlife & Parks or a cooperating agency will take action when the continued presence of a wolf (or wolves) poses a potential threat to human safety, consistent with existing guidelines established for black bears and mountain lions.

- The State of Montana may seek statutory authority to regulate the ownership of wolf-dog hybrids, as deemed necessary.

To Maintain Viable Wildlife Populations,

- We recognize that wolves have an important role in the ecosystem.

- Wolves should be encouraged to exist in large, contiguous public land areas where the potential for conflict is lowest. Wolves should be permitted in other areas (mixed land ownership), commensurate with social acceptance and subject to the provisions to protect human safety, the integration of management programs for ungulates and carnivores, and the provisions which address wolf/livestock conflicts.

- The Montana Wolf Management Plan should take a proactive approach to integrate the management of ungulates and carnivores and to maintain traditional hunting heritage and wildlife viewing opportunities.

- Ungulate populations should be enhanced wherever possible (subject to landowner tolerance) to support viable wolf populations, to maintain recreational and viewing opportunities, and to minimize the potential for livestock depredation.

- Montana Fish, Wildlife and Parks should initiate and/or support research efforts to enhance understanding of the complex interactions and population dynamics of ungulate/carnivore ecosystems, in addition to applying adaptive harvest management principles to achieve more effective management.

- Ungulate harvest should be balanced with maintaining sufficient prey populations to sustain viable wolf populations and prevent reclassification under federal law.

- Montana Fish, Wildlife & Parks should have a monitoring program for wolves to document wolf persistence and reproduction in a manner that balances precision and cost-effectiveness.

- Opportunities for regulated public take of wolves through hunting and trapping should be provided as wolf numbers increase, but opportunity should also be consistent with sustaining viable wolf populations into the future, thereby precluding reclassification under federal law.

To Protect the Livestock Industry,

- Economic and other incentives should be provided to livestock producers who voluntarily implement best management practices that decrease the potential for wolf/livestock conflicts.

- Livestock owners should have a quick and efficient means available to them to address wolf depredation problems.

- There should be a positive relationship between wolf numbers and landowner flexibility to address wolf depredation problems on private lands. As wolf numbers increase, landowner flexibility should increase.

- The Council acknowledges that tolerance for wolves on private property is fundamental to wolf population recovery and range expansion. Furthermore, we recognize that wolf recovery in Montana will result in the loss of personal property by wolf predation. Citizens should be compensated for livestock losses at fair market value. Compensation is critical to building tolerance for wolves by citizens who are adversely affected by wolves.

- Montana Fish, Wildlife & Parks funds should not be used to make compensation payments for livestock depredations.

- Montana Department of Livestock and USDA Wildlife Services should take an incremental approach to addressing wolf depredations on livestock, guided by wolf

numbers. When wolf numbers are low, more conservative methods should be applied whereas increasingly more aggressive control methods should be applied as wolf numbers increase.

Recommendations

We, the Council, also make the following specific recommendations regarding legislation, funding, and educational efforts necessary for plan implementation.

Legislation

The wolf is listed as a state endangered species in Montana under the Nongame and Endangered Species Conservation Act (87-5-109 MCA) passed in 1973. Under this statute, the wolf is legally protected from take except for specific purposes (scientific, zoological, or educational) or in specific circumstances under a permit issued by the FWP Director. Wolves may also be taken without a permit in emergency situations involving an immediate threat to human life. Action by the Montana Legislature is required to remove a species from a state classification as 'threatened' or 'endangered.'

In 1995, the Montana Legislature passed Senate Bill 394, which amends Title 81 (Department of Livestock) sections by adding the wolf to the definition of predatory animal (81-7-101, MCA). Furthermore, it states, "The Department of Livestock shall conduct the destruction, extermination, and control of predatory animals capable of killing, destroying, maiming, or injuring domestic livestock or domestic poultry, and the protection and safeguarding of livestock and poultry in this state against depredations from these animals" (81-7-102, MCA). This section also states that the Department of Livestock shall "adopt rules applicable to predatory animal control which are necessary and proper for the systematic destruction of the predatory animals by hunting, trapping, and poisoning operations and payments of bounties." The effective date of this Act is "whenever the gray wolf is removed from the list of threatened or endangered species by the appropriate agency of the United States government."

The USFWS will not delist the gray wolf in Montana while the wolf remains classified as a "predatory animal" because FWP would have no ability to regulate take and the Department of Livestock would be required to conduct its extermination. Unless Statute 81-7-101 is amended, Montana would not have adequate regulatory mechanisms in place to assure the USFWS that wolves would not require subsequent reclassification and federal protection under the Endangered Species Act.

Montana Statute 87-3-130 addresses the taking of wildlife to protect persons or livestock. It states that there should be "no criminal liability for the taking of wildlife protected by this chapter if the wildlife is molesting, assaulting, killing, or threatening to kill a person or livestock." After wolves come under state management authority, the Council understands this Statute to also extend to livestock producers protecting their livestock from wolves which are found "molesting, assaulting, killing, or threatening to kill." However, it is unclear whether this statute could also be interpreted to include domestic pets and guarding animals under the concepts of defense of life and protection of livestock.

The Council makes the following legislative recommendations:

- Amend 81-7-101 to remove the wolf from the list of "predatory animals."

- Remove the wolf from its 'endangered' status under the Montana Nongame and Endangered Species Act concurrent with federal action removing the wolf from legal protection under the federal Endangered Species Act.

- Reclassify the wolf as a species "in need of management" consistent with Montana Statutes 87-5-101 through 122, which convey authority to FWP and the FWP Commission to adopt regulations on take, including permitting livestock producers to take depredating wolves, hunting seasons, trapping regulations, etc. The FWP Commission may then confer a big game or furbearer status to the wolf when wolf numbers have increased to the point where regulated public take becomes appropriate. It should be the intent of the FWP Commission that regulated public take provisions allow hunting and trapping activities, subsequent to Commission oversight.

- Amend Statute 87-3-130 to include pets (domestic dogs) and guard dogs (including guard llamas) under the defense of life and property concept, if legal interpretation concludes that they are not already.

Funding

The Council believes that implementation of the Montana Wolf Management Plan should be contingent upon adequate funding. We recommend that the State of Montana pursue all possible funding sources including, but not limited to, public/private foundations, federal or state appropriations, and other private sources.

Education

A wolf management plan for the state will be controversial. Personal opinions, anecdotal experiences, and biases for and against the wolf lead to emotional and often irrational viewpoints, creating a challenging environment in which to manage wolves. Therefore, the Council recognizes the importance, value, and need for an educational program to parallel management activities. The objectives of a sound wolf management education program should be to provide science-based and factual information regarding the wolf and its management in Montana, in the hopes that the public will become more knowledgeable, more objective, and less emotional regarding this species and its management.

Montana Fish, Wildlife & Parks should be the lead agency in the formulation and dissemination of an educational program. However, the information sources should include other state and federal agencies, non-governmental organizations, and tribes. All material provided to FWP and included in the program must be validated as factual and have a foundation of scientific data.

Assuring the soundness of information will be the responsibility of FWP. This collaborative approach is also necessary to ensure that different groups do not put out conflicting information, which could undermine agency credibility and erode public acceptance of any wolf management program.

APPENDIX 2

2001 Montana Legislature

SENATE BILL NO. 163: Reclassify Certain Species for Management Purposes

INTRODUCED BY L. GROSFIELD

AN ACT REVISING STATUTES APPLICABLE TO THE MANAGEMENT OF CERTAIN ANIMAL SPECIES; RECLASSIFYING CERTAIN SPECIES TO INCREASE THE STATE'S ABILITY TO MAINTAIN OR REGAIN MANAGEMENT AUTHORITY RATHER THAN HAVING MANAGEMENT AUTHORITY EXERCISED BY THE FEDERAL GOVERNMENT; REVISING THE DEFINITION OF "PREDATORY ANIMAL"; ELIMINATING THE AUTHORITY OF THE DEPARTMENT OF LIVESTOCK TO EXTERMINATE PREDATORY ANIMALS; ALLOWING A PERSON TO PROTECT LIVESTOCK BY KILLING OR ATTEMPTING TO KILL A GRIZZLY BEAR THAT IS IN THE ACT OF ATTACKING OR KILLING LIVESTOCK; ALLOWING THE AMENDMENT OF REGULATIONS FOR A SPECIES IN NEED OF MANAGEMENT WITHOUT LEGISLATIVE APPROVAL; PROVIDING FOR MANAGEMENT OF THE GRAY WOLF IF IT IS REMOVED FROM THE FEDERAL AND STATE LISTS OF THREATENED OR ENDANGERED WILDLIFE; AMENDING SECTIONS 81-7-101, 81-7-102, 81-7-103, 81-7-104, 87-3-127, 87-3-130, AND 87-5-105, MCA; REPEALING SECTION 7, CHAPTER 244, LAWS OF 1995; AND PROVIDING AN IMMEDIATE EFFECTIVE DATE.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MONTANA:

Section 1. Section 81-7-101, MCA, is amended to read:

"~~**81-7-101. (Temporary) Definition.** For the purpose of this part the term "wild animal" shall include coyote, lynx, and any other animal causing depredations upon livestock.~~

81-7-101. ~~(Effective on occurrence of contingency)~~ Definition. For the purpose of this part, the term "predatory animal" includes ~~gray wolf,~~ coyote, red fox,~~, lynx,~~ and any other individual animal causing depredations upon livestock."

Section 2. Section 81-7-102, MCA, is amended to read:

"~~**81-7-102. (Temporary) Department to supervise destruction of predatory animals -- cooperation with other agencies -- administration of moneys.** (1) The department of livestock shall conduct the destruction, extermination, and control of wild animals predatory in nature and capable of killing, destroying, maiming, or injuring domestic livestock or domestic poultry, and the protection and safeguarding of livestock and poultry in this state against depredations from these animals. The department shall formulate the practical programs for accomplishing these~~

~~objectives in this state and for carrying out the programs in an efficient and practical manner responsive to the need for control in each area of this state.~~

~~(2) The department shall adopt rules applicable to predatory animal control which are necessary and proper for the systematic destruction of the wild animals by hunting, trapping, and poisoning operations and payments of bounties. The department shall make field, area, range, or other orders and instructions, including orders and instructions to hunter and trapper personnel and others, which are appropriate in the various areas at different seasons of the year, taking into consideration the habits, presence, migrations, or movements of the animals and their attacks on livestock and poultry, either singly or in packs or bands.~~

~~(3) The department shall cooperate with authorized representatives of the federal government, including the biological survey and the fish and wildlife service, the department of fish, wildlife, and parks, boards of county commissioners, voluntary associations of stockgrowers, sheepgrowers, ranchers, farmers, and sportsmen, and corporations and individuals, in the systematic destruction of wild animals by hunting, trapping, and poisoning operations.~~

~~(4) This section and 81-7-103 do not interfere with or impair the power and duties of the department of fish, wildlife, and parks in the control of predatory animals by the department of fish, wildlife, and parks as authorized by law, or the obligation of the department of fish, wildlife, and parks to expend its funds in cooperation with the department for predatory animal control as required by law. Funds of the department of fish, wildlife, and parks for the cooperative predatory animal control shall be administered and expended by the department of fish, wildlife, and parks.~~

81-7-102. ~~(Effective on occurrence of contingency)~~ Department to supervise destruction of predatory animals -- cooperation with other agencies -- administration of money. (1) The department of livestock shall conduct the destruction~~, extermination,~~ and control of predatory animals capable of killing, destroying, maiming, or injuring domestic livestock or domestic poultry~~,~~ and the protection and safeguarding of livestock and poultry in this state against depredations from these animals. The department shall formulate the practical programs for accomplishing these objectives in this state and for carrying out the programs in an efficient and practical manner responsive to the need for control in each area of this state.

(2) The department shall adopt rules applicable to predatory animal control ~~which~~ that are necessary and proper for the systematic destruction of the predatory animals by hunting, trapping, and poisoning operations and payments of bounties. The department shall make field, area, range, or other orders and instructions, including orders and instructions to hunter and trapper personnel and others, ~~which~~ that are appropriate in the various areas at different seasons of the year, taking into consideration the habits, presence, migrations, or movements of the animals and their attacks on livestock and poultry, either singly or in packs or bands.

(3) The department shall cooperate with authorized representatives of the federal government, including the biological survey and the fish and wildlife service, the department of fish, wildlife, and parks, boards of county commissioners, voluntary associations of stockgrowers, sheepgrowers, ranchers, farmers, and sportsmen, and corporations and individuals, in the systematic destruction of predatory animals by hunting, trapping, and poisoning operations.

(4) ~~This section and~~ Section 81-7-103 and this section do not interfere with or impair the power and duties of the department of fish, wildlife, and parks in the control of predatory animals by the department of fish, wildlife, and parks as authorized by law~~,~~ or the obligation of the department of fish, wildlife, and parks to expend its funds in cooperation with the department for predatory animal control as required by law. Funds of the department of fish, wildlife, and parks for the cooperative predatory animal control must be administered and expended by the department of fish, wildlife, and parks."

Section 3. Section 81-7-103, MCA, is amended to read:

"81-7-103. Administration of funds by ~~the~~ department. The department shall administer and expend for predatory animal ~~extermination and~~ control all money ~~which~~ that is made available to it, including the money allocated for this purpose under 81-7-104 and all money ~~which~~ that is made available to the department by appropriations made by the legislature for predatory animal control by the department. The department shall expend the funds for predatory animal control by all effective means responsive to the necessities of control in various areas of the state, including employment of hunters, trappers, and other personnel, procurement of traps, poisons, equipment, and supplies, and payment of bounties in the discretion of the department at those times of the year it considers advisable."

Section 4. Section 81-7-104, MCA, is amended to read:

~~**"81-7-104. (Temporary) Predator control moneys -- use of proceeds.** (1) The department of livestock shall allocate a portion of the money from the levy under 15-24-921 for the purpose of protecting livestock in the state against destruction, depredation, and injury by wild animals, whether the livestock is on lands in private ownership, in the ownership of the state, or in the ownership of the United States, including open ranges and all lands in or of the public domain. This protection may be by any means of effective predatory animal destruction, extermination, and control, including systematic hunting and trapping and payment of bounties.~~

~~(2) Money shall be paid out only on claims duly and regularly presented to the department of livestock and approved by the department in accordance with the law applicable either to claims for bounties or for other expenditures necessary and proper for predatory animal control by means and methods other than payment of bounties, as determined by the department. Money designated for predator control shall be available for the payment of bounty claims and for expenditures for planned, seasonal, or other campaigns directed or operated by the department in cooperation with other agencies for the systematic destruction, extermination, and control of predatory wild animals, as determined by the department and its advisory committee. No claims may be approved in excess of moneys available for such purposes, and no warrants may be registered against the moneys.~~

81-7-104. ~~(Effective on occurrence of contingency)~~ Predator control money -- use of proceeds. (1) The department of livestock shall allocate a portion of the money from the levy under 15-24-921 for the purpose of protecting livestock in the state against destruction, depredation, and injury by predatory animals, whether the livestock is on lands in private ownership, in the ownership of the state, or in the ownership of the United States, including open ranges and all lands in or of the public domain. This protection may be by any means of effective

predatory animal destruction~~, extermination,~~ and control, including systematic hunting and trapping and payment of bounties.

(2) Money ~~must~~ may be paid out only on claims duly and regularly presented to the department of livestock and approved by the department in accordance with the law applicable either to claims for bounties or for other expenditures necessary and proper for predatory animal control by means and methods other than payment of bounties, as determined by the department. Money designated for predator control must be available for the payment of bounty claims and for expenditures for planned, seasonal, or other campaigns directed or operated by the department in cooperation with other agencies for the systematic destruction~~, extermination,~~ and control of predatory animals, as determined by the department and its advisory committee. Claims may not be approved in excess of money available for those purposes, and warrants may not be registered against the money."

Section 5. Section 87-3-127, MCA, is amended to read:

"87-3-127. Taking of stock-killing animals. (1) Livestock owners, their agents, or employees of the department or ~~the~~ a federal ~~fish and wildlife service~~ agency may use dogs in pursuit of stock-killing black bears, stock-killing mountain lions, and stock-killing bobcats. Other means of taking stock-killing black bears, stock-killing mountain lions, and stock-killing bobcats may be used, except ~~the use of~~ the deadfall.

(2) Traps used in capturing bears ~~shall~~ must be inspected twice each day with the inspections 12 hours apart."

Section 6. Section 87-3-130, MCA, is amended to read:

"87-3-130. Taking of wildlife to protect persons or livestock. (1) This chapter may not be construed to impose, by implication or otherwise, criminal liability for the taking of wildlife protected by this chapter if the wildlife is ~~molesting, assaulting,~~ attacking, killing, or threatening to kill a person or livestock, except that, for purposes of protecting livestock, a person may not kill or attempt to kill a grizzly bear unless the grizzly bear is in the act of attacking or killing livestock. In addition, a person may kill or attempt to kill a wolf or mountain lion that is in the act of attacking or killing a domestic dog. A person who ~~so~~ takes wildlife protected by this chapter shall notify the department within 72 hours.

(2) A person may not intentionally provide supplemental feed to game animals in a manner that results in an artificial concentration of game animals that may potentially contribute to the transmission of disease. A person who violates this subsection is guilty of a misdemeanor and is subject to the penalty provided in 87-1-102(1). This subsection does not apply to supplemental feeding activities conducted by the department for disease control purposes.

(3) As used in this section, "livestock" includes ostriches, rheas, and emus."

Section 7. Section 87-5-105, MCA, is amended to read:

"87-5-105. Regulations to manage nongame wildlife. (1) On the basis of the determinations made pursuant to 87-5-104, the department shall issue management regulations. ~~Such~~ The regulations ~~shall~~ must set forth species or subspecies of nongame wildlife ~~which~~ that

the department ~~deems~~ considers to be in need of management pursuant to 87-5-104 through 87-5-106, giving their common and scientific names by species and subspecies. ~~The department may from time to time amend such regulations on the approval of the legislature by adding or deleting therefrom species or subspecies of nongame wildlife.~~

(2) The department shall by ~~such regulations~~ regulation establish ~~proposed~~ limitations relating to taking, possession, transportation, exportation, processing, sale or offer for sale, or shipment ~~as may be deemed~~ considered necessary to manage ~~such~~ nongame wildlife that is designated in need of management. ~~The department may make such changes in the proposed regulations as are consistent with effective management of nongame wildlife as designated by the legislature.~~"

Section 8. Process for delisting of gray wolf -- management following delisting. (1) If the United States fish and wildlife service removes the Northern Rocky Mountain or gray wolf from the United States' list of endangered or threatened wildlife, the department is authorized to remove the wolf from the state list of endangered species upon a determination by the department pursuant to this part that the wolf is no longer endangered.

(2) Following state delisting of the wolf, the department shall manage the wolf as a species in need of management until the department and the commission determine that the wolf no longer needs protection as a species in need of management and can be managed and protected as a game animal. Upon making that determination, the commission may declare the wolf a big game animal or a furbearer and may regulate the taking of a wolf as a big game animal or furbearer.

(3) Following state delisting of the wolf, the department, or the department of livestock, pursuant to 81-7-102 and 81-7-103, may control wolves for the protection and safeguarding of livestock if the control action is consistent with a wolf management plan approved by both the department and the department of livestock.

Section 9. Repealer. Section 7, Chapter 244, Laws of 1995, is repealed.

Section 10. Codification instruction. [Section 8] is intended to be codified as an integral part of Title 87, chapter 5, part 1, and the provisions of Title 87, chapter 5, part 1, apply to [section 8].

Section 11. Effective date. [This act] is effective on passage and approval.

- END -

New language in a bill appears underlined, deleted material appears stricken.

APPENDIX 3

WOLF PLAN IMPLEMENTATION BUDGET

Program / Activity	Estimated Budget
Montana Fish, Wildlife & Parks	
Wildlife	
Staff (4.30 FTE):	
Wolf Specialists (4.0 FTE)	$149,516
Operations	$156,000
Enhanced Ungulate Monitoring	$ 50,000
Wildlife Lab (.30 FTE)	$ 8,280
Wildlife Lab Operations	$ 7,000
Total	**$370,796**
Enforcement	
Staff(2.5 FTE):	
Game Wardens (2.5 FTE)	$ 86,250
Operations	$ 70,500
Total	**$156,750**
Information & Education	
Staff (.75 FTE):	
Information Officers (.50 FTE)	$ 29,000
Headquarters Staff (.25 FTE)	$ 14,500
Operations	$ 6,000
Total	**$ 49,500**
Administration	
Staff (.75 FTE)	
Program Coordination (Hdqtrs/Field) (.5 FTE)	$ 27,000
Support Staff (Hdqtrs/Field)(.25 FTE)	$ 10,000
Operations	$ 10,000
Total	**$ 47,000**
Depredation	**$100,000**
Wildlife Services (USDA/APHIS) Cooperative Wolf Damage Management and State Directed Predator Control	
MFWP ANNUAL TOTAL	**$724,046**
Other Agency/Private	
Compensation for Livestock Losses:	
Estimate based upon current payments by Defenders Of Wildlife Wolf Compensation Trust Fund Program and estimated 20 wolf packs within Montana	**$ 41,250**
Annual Total (Including Compensation)	**$765,296**

APPENDIX 4

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APPENDIX 5

Rocky Mountain States: Confirmed Wolf Depredation and Wolf Control, 1987-2000

	1987	1988	1989	1990	1991		1993	1994	1995	1996	1997	1998	1999	2000	TOTAL
Northwest Montana Recovery Area:															
Cattle	6	0	3	5	2	1	0	6	3	9	16	9	13	10	83
Sheep	10	0	0	0	2	0	0	0	0	0	30	0	19	2	63
Dogs	0	0	0	1	0	0	0	0	2	1	0	0	2	3	9
wolves moved	0	0	4	0	3	0	0	2	2	10	7	0	4	0	32
wolves killed	4	0	1	1	0	0	0	0	0	4	14	4	9	4	41
Yellowstone Recovery Area:															
Cattle									0	0	5	3	4	7	19
Sheep									0	13	67	7	13	39	139
Dogs									1	0	0	4	6	8	19
wolves moved									6	8	14	0	0	6	34
wolves killed									0	1	6	3	9	6	25
Central Idaho Recovery Area:															
Cattle									0	4	1	10	16	15	46
Sheep									0	24	29	5	57	39	154
Dogs									0	0	4	0	5	0	9
wolves moved									0	5	0	3	15	10	33
wolves killed									0	1	1	0	6	10	18
Total, 3 States, 3 Recovery Areas:															
Cattle	6	0	3	5	2	1	0	6	3	13	22	22	33	32	148
Sheep	10	0	0	0	2	0	0	0	0	37	126	12	89	80	356
Dogs	0	0	0	1	0	0	0	0	3	1	4	4	13	11	37
wolves moved	0	0	4	0	3	0	0	2	8	23	21	3	19	16	99
wolves killed*	4	0	1	1	0	0	0	0	0	6	21	7	24	20	84

* Includes 2 wolves legally shot by ranchers. Others killed in government control efforts.

Source: U.S. Fish and Wildlife Service, Nez Perce Tribe, National Park Service, and USDA Wildlife Services. 2001. Rocky Mountain Wolf Recovery 2000 Annual Report. USFWS, Helena Montana. 35pp.

OR

http://mountain-prairie.fws.govwolf/annualrpt00/

Appendix 6

SHEEP AND LAMB LOSSES

By Non-Predator Cause and Number of Head, Montana, USA*

1984-2000

Last updated February 27, 2001

NON-PREDATOR											
Year	Weather Conditions	Disease	Poison	Lambing Complic-ations	On Back	Old Age	Theft	Other	Total Non-Predator	Un-known Causes	Total Loss
	Number of Head										
2000	7,000	9,900	1,900	7,700	1,300	5,700	400	3,400	37,300	9,800	66,000
1999	8,600	12,400	1,500	6,900	1,000	3,900	1,200	1,300	36,800	6,900	64,000
1998	10,000	9,300	1,800	9,400	1,000	4,900	700	1,600	38,700	6,500	67,000
1997	26,200	7,800	1,500	6,500	800	4,100	1,300	900	49,100	8,900	85,000
1996	14,500	6,700	1,300	6,600	1,200	4,500	2,400	2,000	39,200	12,600	83,000
1995	14,300	10,000	1,900	8,400	1,200	5,700	2,000	3,400	46,900	8,000	92,000
1994	11,800	15,700	2,200	10,700	1,900	6,500	2,900	2,100	53,800	7,300	104,000
1993	12,000	12,400	2,300	15,700	3,000	7,100	3,300	3,600	59,400	8,400	108,000
1992	11,900	12,300	2,000	16,600	2,300	6,300	2,900	8,700	63,000	7,800	112,000
1991	21,500	14,500	2,600	25,000	2,600	7,300	4,100	5,900	83,500	13,600	142,000
1990	19,100	14,500	2,900	21,700	2,500	9,200	2,500	7,500	79,900	14,000	133,000
1989	23,400	12,900	2,500	17,400	2,600	10,900	3,400	7,700	80,800	24,300	144,000
1988	15,900	15,800	3,400	13,200	3,000	9,500	5,900	18,000	84,700	22,200	150,000
1987	16,900	16,500	4,700	14,000	3,600	12,000	5,500	6,600	79,800	20,300	137,000
1986	18,000	16,000	4,700	8,800	3,300	11,300	3,700	6,300	72,100	17,800	132,000
1985	14,100	11,200	3,600	11,900	3,100	7,500	5,000	3,400	59,800	15,500	127,000
1984	72,800	9,600	2,300	10,700	2,200	5,600	3,200	5,300	111,700	16,600	180,000

1/ Category not available that year. -- Denotes less than 100 head. Please note: Totals may not add due to rounding.

*****wolf depredation confirmed by USDA, Wildlife Services is presented in Appendix 5

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, Montana Field Office, Helena, Montana: http://www.nass.usda.gov/mt/livestock/sh&llos4.htm

SHEEP AND LAMB LOSSES

By Predator Cause and Number of Head, Montana, USA*

1984-2000

Last updated February 27, 2001

Year	PREDATOR									
	Fox	Dog	Coyote	Eagle	Bobcat	Bear	Mountain Lion	Other Animals	Unknown Predators	Total Predators
	Number of Head									
2000	1,000	1,300	12,900	1,600	--	900	400	100	700	18,900
1999	1,200	600	15,100	1,700	--	400	400	--	900	20,300
1998	2,000	1,200	14,900	2,000	--	300	600	100	700	21,800
1997	2,200	1,000	19,900	2,400	100	400	500	--	500	27,000
1996	2,700	1,400	22,600	2,200	200	800	500	--	800	31,200
1995	3,400	1,600	28,000	2,700	--	300	500	--	600	37,100
1994	6,000	1,000	28,500	5,300	300	600	1,000	200	--	42,900
1993	3,300	1,700	30,700	2,500	200	700	1,000	100	--	40,200
1992	5,000	1,800	31,100	1,900	--	800	600	--	--	41,200
1991	4,900	3,500	33,700	1,300	100	600	600	200	--	44,900
1990	4,000	1,600	29,700	2,200	--	700	600	300	--	39,100
1989	3,500	1,500	28,200	800	400	1,000	500	--	--	35,900
1988	4,200	3,100	31,000	2,700	300	1,300	400	100	--	43,100
1987	2,900	3,100	26,400	2,700	100	1,200	300	200	--	36,900
1986	5,100	2,900	30,500	2,000	100	1,100	400	1/	--	42,100
1985	4,300	1,500	41,600	2,500	100	1,400	300	1/	--	51,700
1984	6,200	2,100	38,300	2,500	200	1,400	1/	1,000	--	51,700

1/ Category not available that year. -- Denotes less than 100 head. Please note: Totals may not add due to rounding.

*wolf depredation confirmed by USDA, Wildlife Services is presented in Appendix 5

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, Montana Field Office, Helena, Montana; http://www.nass.usda.gov/mt/livestock/sh&llos3.htm

CATTLE AND CALF LOSSES

Itemized by Cause, Montana, USA 1995*

TYPE	COWS	CALVES	TOTAL
coyote	(0)	(1,100)	(1,100)
dog	(0)	(200)	(200)
lion/bobcat	(200)	(100)	(300)
other predators	(200)	(400)	(600)
PREDATORS TOTAL	400	1800	2,200
DIGESTIVE	2,600	10,000	12,600
RESPIRATORY	3,600	8,600	12,200
CALVING	2,000	13,900	15,900
WEATHER	2,700	13,100	15,800
POISON	800	900	1,700
THEFT	0	200	200
OTHER	5,000	3,600	8,600
UNKNOWN	5,800	4,900	10,700
TOTAL LOSSES, ALL CAUSES	22,900	57,000	79,900

*wolf depredation confirmed by USDA, Wildlife Services is presented in Appendix 5

*Most recent itemized data available; wolf depredation confirmed by USDA, Wildlife Services is presented in Appendix 5

Source: U.S. Department of Agriculture, National Agricultural Statistics Service, Montana Field Office, Helena, Montana

APPENDIX 7

Compensation payments by Defenders of Wildlife for wolf depredation in states and in the Northern Rockies Recovery Areas, respectively, from 1987 to April, 2001. Cents are not reported.

LOCATION	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	TOTAL
MONTANA	$3,049		$1,730	$4,700	$1,250	$374		$2,322	$1,633	$3,506	$16,495	$4,810	$12,062	$7,935	$1,804	$61,670
IDAHO										$3,977	$3,761	$6,380	$15,694	$24,772	$1,245	$55,829
WYOMING											$12,434	$500	$4,957	$14,338		$32,229
NM/AZ												$466	$2,225	$3,400		$6,091
CANADA								$3,379								$3,379
TOTAL	$3,049	$0	$1,730	$4,700	$1,250	$374	$0	$5,701	$1,633	$7,483	$32,690	$12,156	$34,938	$50,446	$3,049	$159,200

LOCATION	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	TOTAL
Northwest Montana Recovery Area	$3,049		$1,730	$4,700	$1,250	$374		$1,772		$1,485	$7,554	$3,835	$9,567	$4,357	$1,804	$41,477
Central Idaho Exp. Area.										$4,777	$7,492	$6,855	$15,079	$23,022	$1,245	$58,470
Greater Yellowstone Exp. Area								$550	$1,633	$1,221	$17,644	$1,000	$8,067	$19,666		$49,781
TOTAL	$3,049	$0	$1,730	$4,700	$1,250	$374	$0	$2,320	$1,633	$7,483	$32,690	$11,690	$32,713	$47,046	$3,049	$149,730

APPENDIX 8

DRAFT MFWP PUBLIC INFORMATION PLAN

September 2001

INTRODUCTION

Montana Fish, Wildlife & Parks will soon take on management responsibility for the state's gray wolf population.

An accepted and approved Montana Wolf Management Plan will allow MFWP to obtain local management of wolves. The plan must be accepted and approved by the U.S. Fish and Wildlife Service and by the people of Montana.

An estimated 40 breeding wolf packs exist in the Montana, Idaho, and Wyoming recovery areas. A federal plan currently calls for establishing 10 packs in each of the three areas for three years before delisting can occur. Federal wolf managers, however, say that the biological intent of the recovery plan could also be met with a total of 30 packs evenly distributed in the tri-state area. A total of 30 packs for three years could trigger delisting, a process that could begin in 2003.

Once delisted the wolves will come under state management.

> MFWP is preparing now to answer questions that will emerge as the state moves toward developing a balanced wolf management plan for Montana. Because wolf management procedures will be closely examined and arouse controversy, MFWP seeks to build a balanced management approach that acknowledges the complexity of the political, social and environmental factors associated with wolves and their management.
>
> Basic questions Montanans and others will expect to have answered include:
> - How will wolves be managed?
> - What areas will wolves be permitted to inhabit?
> - Should Montanans be concerned about public safety?
> - Who will fund wolf management in Montana?
> - What impacts will wolves have on wildlife populations?
> - What impacts will wolves have on livestock?

This draft public information plan will serve as MFWP's initial guide as it prepares to inform the public in Montana and across the nation about gray wolf management in Montana.

OBJECTIVES

1. Increase public awareness of the gray wolf and its recovery in Montana and increase awareness that once delisted the gray wolf will come under state management.

   Answer the following questions:
   - What is a gray wolf?
   - Where are gray wolves found?
   - Why is MFWP going to manage wolves?
   - How will wolves impact wildlife?
   - How will wolves impact livestock?
   - What are the legal aspects of state-run wolf management?
   - What is being done to prepare Montanans for state management of wolves?
   - How can the public participate?

2. Increase awareness of the status of the gray wolf in Montana, the delisting process and delisting milestones.

3. Increase awareness of the array of management tools MFWP will employ once the gray wolf is delisted in Montana.

STRATEGIES

To meet the above objectives, a cooperative approach will be necessary. Partnerships among state and federal agencies, Indian tribes, hunting and conservation groups, the agricultural community, schools, civic groups and others are vital for success. MFWP will also employ targeted information delivery based on MFWP surveys that show where and how Montanans and others get information on natural resource issues. Most strategies will have an associated MFWP website component. Initial strategies include:

Internal Affairs

Use MFWP internal communication vehicles to highlight and explain the Montana Wolf Management Plan

- Prepare a Montana Wolf Management Plan primer for MFWP employees to include information, status and logistics of Montana's wolf management responsibilities.
- Fresh Tracks internal newsletter updates about Montana Wolf Management Plan progress
- Regional and division meetings will include presentations on the Montana Wolf Management Plan

Media

Use statewide media to highlight and explain the Montana Wolf Management Plan

- Prepare a "Montana Wolf Management Plan" news and information kit for news reporters.

- Use paid radio advertising and Public Service Announcements to reach a broad spectrum of the public for an initial announcement focusing on Montana Wolf Management Plan participation and comment; and develop more announcements as the project moves forward.
- Use paid television advertising and PSAs to highlight important information.
- Include selected paid advertisements in local newspapers.
- Expand and update MFWP's Wolf Management website.
- Issue regular news releases to highlight the Montana Wolf Management Plan launch and its progress.
- Produce MFWP "Outdoor Reports" for television news broadcasts

Displays and Information
Use displays and prepared information to highlight and explain the Montana Wolf Management Plan

- Produce a quality full-color pamphlet--suitable for direct mailings, meeting handouts, and website placement--that outlines Montana Wolf Management Plan goals, recovery triggers, management options, and wolf ecology and history in Montana.
- Produce associated portable display and materials for meetings, lobbies, and gatherings.
- Include project specific information in interest group newsletters and MFWP's legislator updates.
- Include project specific information in MFWP license agent newsletters.
- Include project specific information in MFWP Hunter Education newsletters

Presentations
Use statewide presentations that could include, video, PowerPoint, web-based PowerPoint, 35mm slides, and associated educational materials to explain the Montana Wolf Management Plan

- Present objective "wolves in Montana" programs at local schools
- Present objective "wolves in Montana" programs for civic and interest groups
- Conduct or cooperate in "wolves in Montana" discussions at statewide meetings or conventions. For example at the Montana Bowhunters Association, Montana Outfitters and Guides Association, Montana Livestock Association, and Montana Wildlife Federation and other annual gatherings.
- Work closely with MFWP biologists, information center staff, and wardens to enhance their direct contacts; also include biologists and wardens in school presentations and other presentations.