MONTANA FISH, WILDLIFE AND PARKS
HUNTING SEASON/QUOTA CHANGE SUPPORTING INFORMATION

Species: Gray Wolf
Region: Statewide/all Regions
Year: 2011 Hunting Season

1. Describe the proposed quota change and provide a summary of prior history.

FWP proposes a statewide quota of 220. This quota is to be allocated in a season framework that mostly repeats the 2010 wolf hunting season adopted by the FWP Commission in July 2010. That season was precluded by wolf relisting.

MANAGEMENT INTENT: Implement state management authority for wolves to reduce the current wolf population by approximately 25% via hunter harvest.

MEASURABLE OBJECIVES:

1. Maintain a viable and connected wolf population in Montana.
2. Gain and maintain authority for State of Montana to manage wolves.
3. Maintain positive and effective working relationships with livestock producers, hunters, and other stakeholders.
4a. Reduce wolf impacts on livestock.
4b. Reduce wolf impacts on big game populations.
4c. Maintain sustainable hunter opportunity for wolves.
4d. Maintain sustainable hunter opportunity for ungulates.
5. Increase broad public acceptance of sustainable harvest and hunter opportunity as part of wolf conservation.
6. Enhance open and effective communication to better inform decisions
7. Learn and improve as we go.

A 2011 statewide wolf quota of 220, partitioned into thirteen individual wolf management units (WMUs) shown in Table 1 (WMU legal descriptions in Appendix I) is proposed. FWP also proposes quotas or subquotas in WMU 150 and in deer/elk hunting districts (HDs) 280 and 316 where an early back country rifle wolf season is proposed to coincide with the existing early elk back country hunting season. An archery-only wolf season in all WMUs with an allocated harvest potential not to exceed 20% of the WMU quota or subquota is also proposed to coincide with the existing deer and elk archery only season. Any harvest over-run at the WMU scale is proposed to be reduced from adjacent WMU quotas, other WMUs in the region or at the statewide scale to eliminate potential for any harvest over-run. Additional mechanisms include rigorous tracking of harvest in each WMU through mandatory harvest reporting and the 24-hour closure notice process. Harvest quotas are proposed to tally only legal hunting harvest. **A harvest equal to this proposed quota level is predicted to reduce the year-end minimum total wolf numbers 25% from 566 in 2010 to approximately 425 in 2011.** Alternative quota ranges are being analyzed and will be available at the May 12 commission meeting. A competing model predicts a 7% decline.

Elements of the previous wolf season structure assured safety nets were incorporated so that regulated public hunting would not jeopardize wolf population long term viability. The proposed 2011 season structure retains many fundamental features from earlier season structures listed below.

1. Establishing quotas at a time of year (tentative in May and final in July) so that the most current monitoring data could be considered.
2. Maintain a 1-800 hotline so that hunters would know whether or not wolf harvest was legal (i.e. quota was open) prior to going hunting.
3. Mandatory reporting of successful harvest within 12 hours so FWP can closely monitor hunter success and quota status. Harvest quotas are proposed to tally only legal hunting harvest.
4. Mandatory carcass inspection within 10 days.
5. Closure of the season upon a 24-hour notice when a WMU or subunit quota is filled. Any harvest over-run at the WMU scale is proposed to be reduced from adjacent WMU quotas, other WMUs in the region or former recovery area or at the statewide scale.
6. FWP authority to initiate a season closure prior to reaching a quota when conditions or circumstances indicate the quota may be reached within 24 hours.
7. Definite season-ending closure date, regardless of whether the quotas were reached.
8. Emergency season closure at any time by order of the FWP Commission.
9. Adopt season structure and quota annually to better adapt and respond.

Other elements proposed include:

1. A hunting season beginning with the start of the general archery season and running through December 31, 2011. No trapping proposed during this period.
2. Licenses proposed to remain over-the-counter general sale to residents and nonresidents with total harvest controlled via required reporting of harvest by successful hunters.
3. Any licensed hunter may take only one wolf in this proposed hunting season.
4. An archery only season is proposed for all WMUs from September 3, 2011 until 20% of the WMU quota or subquota is met but ending no later than October 16, 2010.
5. A backcountry rifle season is proposed to run from September 15, 2010 until the WMU quota or subquota is met but ending no later than December 31, 2010. This backcountry rifle season is proposed for WMU 150, deer/elk hunting district 280 portion of WMU 290 (subquota of 4) and deer/elk hunting district 316 portion of WMU 390 (subquota of 3).
6. The general rifle season for all WMUs with remaining unfilled harvest quotas/subquotas is proposed to run from October 23, 2011until the total WMU quota or subquota is met but ending no later than December 31, 2011.
7. Any wolf license purchased during an open season is proposed to not be valid until 5 days from the day of purchase. This would make the sale of wolf licenses consistent with the sale of bear and lion licenses in an Enforcement effort to address potential illegal harvest prior to license purchase (see additional justification provided).

All other season elements not specifically noted are proposed to be unchanged from 2010.

Table 1. QUOTA ALTERNATIVE: Proposed 2011 statewide quota of 220, partitioned into proposed 13 individual WMUs (Legal Descriptions in Appendix I).

Wolf Management Unit	Proposed 2011 Quota
Northwest Montana	
Purcell – WMU 100	18
Salish – WMU 101	19
North Fork Flathead – WMU 110	2
Lower Clark Fork – WMU 121	17
Flathead – WMU 130	12
Bob Marshall – WMU 150	3
Lower Clark Fork – WMU 200	22
Blackfoot – WMU 290 (subquota of 4 in deer/elk HD 280)	20
Northcentral – WMU 400	10
Northwest Montana Total	**123**
Western Montana	
Bitterroot/Upper Clark Fk/Big Hole/Tendoys – WMU 210	36
West Fk Bitterroot – WMU 250	18
Western Montana Total	**54**
Southwest Montana	
Highlands/Tobacco Roots/Gravelly/Snowcrest – WMU 320	6
Gallatin/Madison – WMU 310	19
Southcentral Montana (subquota of 3 in deer/elk HD 316) – WMU 390	18
Southwest Montana	**43**
STATEWIDE TOTAL	**220**

Historical Perspective, Proposal Development and Biological Context

Historical Perspective and Proposal Development

Wolf recovery in the northern Rocky Mountains (NRM) has been underway since the late 1980s. The biological recovery criteria were first achieved in 2002. The U.S. Fish and Wildlife Service (USFWS) first delisted the gray wolf from the federal Endangered Species Act (ESA) throughout the northern Rockies in February 2008. That decision was challenged in federal court and a requested injunction was eventually granted in July 2008. After reviewing the court order, USFWS eventually withdrew the decision. The combined actions of the court and the USFWS "relisted" the gray wolf under federal law. USFWS opted for additional agency review and public comment on an alternative delisting approach in the latter half of 2008. Also during the latter half of 2008, the states of Montana and Idaho finalized a Memorandum of Understanding for the Protection of Genetic Diversity of Northern Rocky Mountain Gray Wolves. On May 4 2009, wolves were officially delisted a second time.

On June 2 2009, a lawsuit challenging the second delisting was filed in Federal District Court in Missoula by a coalition of 13 environmental and animal rights groups. Another separate lawsuit challenging the USFWS delisting criteria was filed shortly after in the same court by the Greater Yellowstone Coalition. The complaints allege the NRM wolf population is not recovered and that the delisting violates ESA for many legal reasons, including delisting cannot occur without an adequate Wyoming regulatory framework approved by the U.S. Fish and Wildlife Service (which it currently does not). Montana intervened as a party to defend the delisting decision. A preliminary injunction request to relist the wolf while the main litigation moved forward was denied on September 8, 2009, clearing the way to implement a 2009 hunting season. A hearing on the merits of the legal challenge to the federal 2009 delisting decision occurred on June 15, 2010. A ruling that formally reinstated federal Endangered Species Act protections for wolves in the Northern Rockies was issued on August 5, 2010. That ruling precluded the implementation of the 2010 wolf season structure and quotas adopted by the FWP Commission on July 8, 2010. A congressional delisting tied to the federal budget resolution was signed into law on April 15, 2011. That federal law provides 60 days for the USFWS to reissue the wolf delisting rule first published in April 2009 and allows Montana to prescribe public harvest as a component of wolf management. Unlike wolf delisting rules issued in the past, this congressional action excludes the rule from judicial review.

In the latter half of 2008, FWP also completed an administrative rulemaking process. The Commission approved final rules in September 2008. These administrative rules stand in effect upon delisting. The gray wolf was reclassified by the rule as a species in need of management; furthermore, Montana Administrative Rules and state laws replaced federal regulations.

For developing a proposed 2010 season structure and harvest quota, FWP completed the following process. In addition to maintaining a statewide population modeling effort as an important input to quota setting, FWP assigned regional staff the task of assembling regional inputs to season structure and quotas based upon regional circumstances to include wolf biology and relationships with livestock and prey. This was done to enhance the sensitivity to and opportunity for local inputs in a manner that best fosters ground-based conservation support for the wolf itself. In this light,

regional inputs called for a general reduction in wolf numbers reasonably within the flexibility of the species biology and recovery requirements. These regional quotas were considered alongside population modeling outputs that relied upon wolf population inputs from the previous year. Various harvest rates were applied to simulated populations. Development of the 2011 season proposal was anchored to this 2010 process.

Another internal procedural step of structured decision making (SDM) was used to identify wolf management units (WMUs) for the 2010 hunting season. SDM consists of 5 steps arranged in an iterative sequence: define the Problem, identify Objectives that would characterize successful resolution of the problem, develop management Alternatives to meeting those objectives, identify Consequences for each of the alternatives, and evaluate Trade-offs among the alternatives. This two-day effort included regional and Helena staff across multiple positions and bureaus and culminated in the development of a specific problem statement specific to the 2010 season setting process, a list of prioritized objectives and multiple wolf management units. The products of this process are listed here in the context of and applied to the 2011 proposal.

Problem Statement from SDM process

FWP must propose a 2011 wolf harvest strategy that maintains a recovered and connected wolf population, minimizes wolf-livestock conflicts, reduces wolf impacts on low or declining ungulate populations and ungulate hunting opportunities, and effectively communicates to all parties the relevance and credibility of the harvest while acknowledging the diversity of values among those parties.

Objectives from SDM process

1. *Maintain a viable and connected wolf population in Montana.*
2. *Gain and maintain authority for State of Montana to manage wolves.*
3. *Maintain positive and effective working relationships with livestock producers, hunters, and other stakeholders.*

4a. *Reduce wolf impacts on livestock.*
4b. *Reduce wolf impacts on big game populations.*
4c. *Maintain sustainable hunter opportunity for wolves.*
4d. *Maintain sustainable hunter opportunity for ungulates.*

5. *Increase broad public acceptance of sustainable harvest and hunter opportunity as part of wolf conservation.*
6. *Enhance open and effective communication to better inform decisions*
7. *Learn and improve as we go.*

Biological

At the statewide level, at least 15 BPs statewide are required to offer any public hunting and trapping opportunities (2003 Montana Gray Wolf Conservation and Management Plan Final EIS August 2003). Managing for higher wolf numbers affords a greater degree of flexibility when addressing wolf-livestock conflicts and other elements of wolf management. Harvest needs to be implemented in such a way that accounts for the dynamic aspects of conflict management and

wolf population ecology. After any final quota adoption, FWP will continue to monitor wolf removals in response to livestock conflict. If those removals grow significantly beyond levels experienced in the past and beyond those levels incorporated into population modeling, the Commission could potentially revisit quota numbers and/or close all or portions of any adopted wolf season.

The Montana wolf plan outlines an adaptive management framework, through which FWP will work to integrate gray wolves into the natural and human landscapes (Montana Fish, Wildlife & Parks 2003). Wolves will be conserved and managed in conjunction with Montana's other resident wildlife.

The typical and most influential mechanism to increase wolf numbers and distribution is dispersal and formation of new packs in new places. Based on data gathered from radio-collared wolves, the average dispersal distance is about 60 miles. Wolves have been documented to disperse twice that distance (120 miles) and even longer. The longest distance dispersers (>180 miles) had significantly lower survival and most did not breed.

To simulate dispersal in any direction from the geometric center of wolf pack territories from 1989 to 2008, FWP did some exploratory mapping. FWP buffered the geometric center by 10-mile increments and delineated a line where the Northwest Montana and the central Idaho wolf packs appear to be within 60 miles of wolf packs in the Greater Yellowstone area. The line is buffered and shaded on either side to display the average dispersal distances of 60 and 120 miles (Figure 1).

Dispersal has another important biological function – namely to maintain genetic diversity in a wolf population. The gray wolf has a very strong inherent tendency to "outbreed" and will thus seek to breed with unrelated individuals. Figure 2 shows the origin and end point of dispersing radio-collared wolves in the northern Rocky Mountains from 1995-2005.

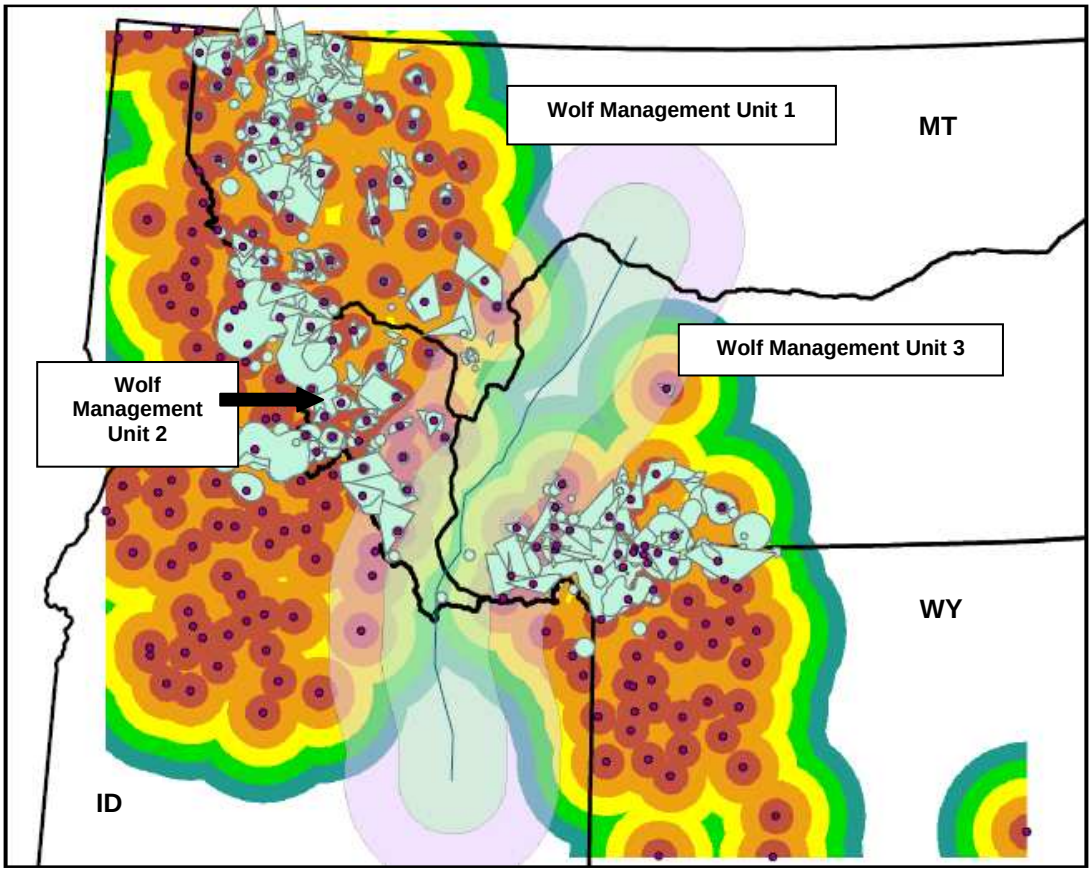

Figure 1. Map of wolf pack territories from 1989-2007 (teal colored shapes) and 2008 wolf pack territories (smallest dots) in Montana and near the state borders showing the geometric center buffered by 10-mile increments to simulate wolf dispersal in 360 degrees from the center. The line and shaded portion separating the Northwest Montana and central Idaho subpopulations from the Greater Yellowstone subpopulation depicts the average dispersal distance of 60 miles (30 miles on either side of the line) and two times the average or 120 miles (60 miles on either side of the line).

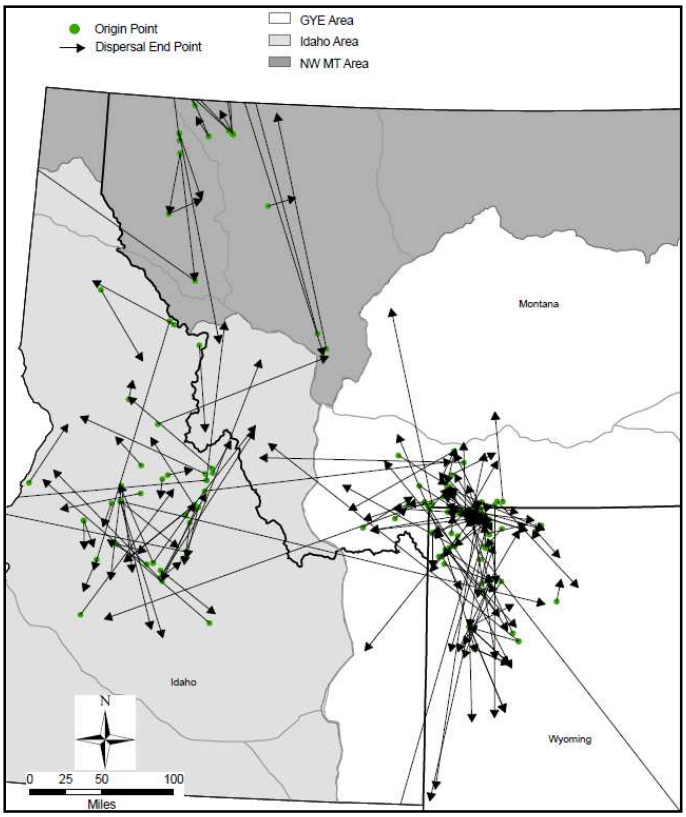

Figure 2. Map of the origin and end points of radio collared wolves dispersing in the northern Rocky Mountain federal recovery area, 1995-2005.

Review of Proposed Season Structure and Quotas

FWP has typically reported wolf numbers as the year-end total number of known wolves, packs and BPs. These represent a *minimum number* and likely under-represents the total number of wolves by 10-30%, depending upon the size of the wolf population, terrain, vegetation (i.e., sightability) and monitoring effort.

One output of the model used to evaluate impact of harvest is the *total minimum* number of wolves at the end of each year. Therefore, readers are advised to pay attention to whether the numbers being reported are the *minimum* number obtained through field-based monitoring efforts or the estimate obtained through the modeling exercise. FWP believes the observed number of lone wolves is biased low, but the degree is unknown.

One intentional feature of the current model is that it is run annually with the most recent year's monitoring data as its inputs. A model run with the most recent inputs and with no harvest predicts a 2011 *predicted total* number of wolves to be 647 wolves. The model assumes harvest mortality is additive to all other mortality and quotas are completely filled, which is a conservative approach

Proposed 220 Quota, Statewide Context

A total statewide quota of 220 wolves is the sum quotas of 123, 54 and 43 respectively in northwest Montana, western Montana and southwest Montana. On a statewide scale, this quota represents an approximately 40% harvest rate applied by the model to the simulated 2011 pre-harvest population. This in contrast to the approximate 15% statewide harvest rate (75 wolf quota) applied in 2009. The model inputs are based on rates of depredation removal (agency and private citizen), natural mortality, illegal mortality, unknown mortality, immigration, emigration, and dispersal as observed and documented in the field during 2010. The model then simulates harvest and assumes that harvest will be additive to all other forms of mortality to predict the year-end number of wolves and breeding pairs. The model predicts that a harvest equal to the proposed quota of 220 would reduce the year-end *minimum* total wolf numbers approximately 25% from 566 in 2010 to a predicted 425 in 2011. Given the likely undercount of single wolves in the field, FWP would expect to document approximately 383 (90% of 425 total predicted wolves) pack-living wolves at the end of 2011 using the same monitoring methods as were used in 2010. This number of pack-living wolves does not include lone wolves that are also recorded in year-end minimums. More than fifteen (15) breeding pairs were predicted in approximately 95% of 1000 model simulations. A competing model predicts a smaller impact from harvest with a 7% decline in wolf numbers.

As precautions against harvest over-runs, the quota is closely tracked with a12-hour reporting period. Depredation removals can also be tracked. From January 1, 2011 through April 26, 2011 six (6) wolves were removed for livestock conflicts. 141 wolves associated with livestock conflicts were removed through the whole of 2010. There is Commission authority for emergency season closures at any time. FWP is proposing that any harvest over-run at the WMU scale be reduced from adjacent WMU quotas, other WMUs in the region or at the statewide scale. Thus monitoring capacity and regulatory mechanisms are in place or proposed to prevent overharvest relative to the quota.

Summary

To summarize, the combination of the wolf season structure and the proposed final quota reflects efforts to meet objectives identified in the SDM process described above.

These are:

1. *Maintain a viable and connected wolf population in Montana.*

The quota looks to maintain the current overall distribution of wolves albeit at a reduced level.

2. *Gain and maintain authority for State of Montana to manage wolves.*

A harvest equal to this proposed quota level is predicted to reduce the year-end minimum total wolf numbers 25% from 566 in 2010 to approximately 425 in 2011. Alternative quota ranges are being analyzed and will be available at the May 12 commission meeting. Monitoring capacity and regulatory mechanisms are in place or proposed to prevent overharvest relative to the quota.

3. *Maintain positive and effective working relationships with livestock producers, hunters, and other stakeholders.*

Current wolf levels are well above conservation minimums. The proposed reduction maintains species distribution and viability while recognizing sentiment among some publics for a reduced wolf presence. It also seeks to recognize and balance awareness that other publics seek a greater wolf presence.

4a. Reduce wolf impacts on livestock.

While it is not clear exactly what relationship will evolve between hunter harvest and any reduction in livestock depredations, given the history of wolves and depredation events it is reasonable to assume that some population level reduction stands to potentially reduce livestock depredations. Additionally, hunter harvest has some unknown potential to literally and directly curtail or prevent livestock loss or agency response to that loss at a local scale.

4b. Reduce wolf impacts on big game populations.

FWP's commitment to wolf is no less than its commitment to other wildlife and is adaptively pursuing a balance that accommodates all species' biology and population status.

4c. Maintain sustainable hunter opportunity for wolves.

Consistent with all managed wildlife species, FWP wolf management is grounded in the statutory direction and agency intent to maintain state authority and to provide species viability and presence and associated public opportunities in perpetuity.

4d. Maintain sustainable hunter opportunity for ungulates.

This proposed reduction in wolf numbers reflects concern over ungulate populations but does not dismiss the value of the wolf, its biological needs and its ecological role.

5. *Increase broad public acceptance of sustainable harvest and hunter opportunity as part of wolf conservation.*

This proposal looks to keep hunters and livestock producers supportive of wolves in Montana and recognizes that without the elements of hunter harvest the wolf cannot be widely supported in the state. It also looks to demonstrate Montana's careful consideration of wolf population data as the basis for proposing this quota option for the Commission to consider.

6. Enhance open and effective communication to better inform decisions.

This proposal and other supporting documents will be made available to decision makers and to others upon request prior to any final decision. Public comment will run through 5:00 PM Monday, June 20.

7. Learn and improve as we go.
Given current uncertainties associated with a relatively short history of wolf management with hunting on the Montana landscape, the present dissatisfaction with the current wolf population level by some segments of the public and the specie's reproductive ability to grow and/or rebound, it is paramount that FWP move forward in decisive fashion that clearly prescribes actions with predictions that can be recognized, measured and responded to. Season adoptions are scheduled to be annual rather than biennial to better adapt to evolving management understanding. Competing models will continue to be assessed for their relative and absolute fit.

FWP has carefully considered the need to implement wolf harvest and management in light of uncertainty. There are many sources of uncertainty, including the fact that wolves do not have a long history (only one year) of being hunted in Montana as a managed species through fair chase and regulated means. Further, FWP does not yet have a reliable way to predict participation, hunter success, wounding loss, spatial distribution of harvest, and wolf vulnerability to harvest. All are currently laden with assumptions, with no way of validating them until after the fact. Mechanisms are in place through mandatory harvest reporting, pelt / skull inspection, and the annual telephone harvest survey to gather new information about wolf hunting and to fully assess these unknowns.

Some insight can be gleaned from the published literature, though the findings vary with the study area and management framework. A wolf population can generally withstand a range of about 30-50% total human-caused mortality and remain relatively stable, depending on a variety of variables and environmental conditions. The overall size of the population from which wolves are removed and the size and proximity to other populations appear to be particularly important considerations. Mortality levels exceeding 50% are generally required to initiate a population decline. Other important factors highlighted in the literature include: overall wolf density and population size, pup survival, immigration / emigration rates at local and regional scales, the size

and proximity of other wolf populations, the size and juxtaposition of core protected areas having low levels of human-caused mortality, road density, habitat condition, degree of habitat fragmentation, other non-harvest mortality (e.g. lethal control), prey populations, and livestock density (Fuller et al. 2003; Oakleaf et al. 2006, Person and Russell 2007; Brainerd et al. 2008; Adams et al. 2008).

FWP efforts are already underway to refine and improve its model and develop mechanisms imbedded in the modeling process itself to learn more about wolf population dynamics in conjunction with public harvest and conflict management. Subsequent population monitoring efforts and better models within the adaptive management framework will allow FWP and others to improve knowledge and reduce the level of uncertainty as more experience is gained through time.

2. Why is the proposed change necessary?

In response to growing wolf numbers, impacts to livestock and prey populations (deer/elk/moose) and associated growing concern among some public constituents, FWP is proposing a higher wolf quota for 2011. The intent of this increased quota is to cap and reverse the wolf population by an estimated 25%.

Multiple management units are proposed to direct the harvest potential in prescribed (active rather than passive) fashion. This season element along with the separate backcountry WMU quotas/subquotas and the 20% limit on archery-only harvest are in direct response to the 2009 hunting season circumstance where the significant majority of harvest came in the backcountry unit of deer/elk HD 316.

FWP further expects to expand understanding about the level of hunter interest in harvesting a wolf, the extent to which wolves on the Montana landscape are and remain vulnerable to harvest, how successful Montana hunters will continue to be, and how the population continues to respond. The adaptive management framework and the Commission season setting process will allow FWP to adjust the season structure / quotas in the future. To best facilitate this adaptive process, FWP will develop and propose wolf seasons and quotas again in 2012 for the 2012 season.

Regulated public hunting as a wildlife management tool helps to balance wildlife populations with ecological and social carrying capacities. Moreover, fair chase, regulated public hunting will enhance acceptance of wolves because the public will more fully participate in wolf management. This, in alignment with the public's conservation ethic and the state's hunting heritage and tradition, will ultimately develop an additional constituency through time much in same way as witnessed for mountain lions. Initiating a larger public harvest at this time gives FWP the opportunity to continue to build invaluable experience with a new and necessary management tool. It is FWP's expectation that public harvest will help fine tune wolf numbers and distribution, which may provide some relief in areas prone to chronic wolf-livestock conflicts. It will also provide some relief to prey populations (deer / elk) in areas where predation by a variety of carnivores has contributed to low recruitment.

3. **What is the current population's status in relation to management objectives?**

The Montana wolf population is securely recovered, though dynamic. As of December 31, 2010, the most recent total *minimum* wolves for Montana was 566 wolves in 108 packs, 35 of which were breeding pairs (Sime et al. 2011). The statewide population has trended upward since the mid 1980s and most noticeably since 2004. Some of that increase is probably actual population increase and part is likely due to increased monitoring efforts by FWP compared to previous USFWS efforts.

Recent population increases have occurred even with an estimated average total annual mortality rate of about 30% in Montana from 2005-2008 based on a radio-collared sample. The rate of wolf population growth in Montana appears to be slowing down as the highest quality habitats with the lowest potential for conflicts are occupied. Previous annual increases have been in the 20-35% range year to year, but the most recent increases from 2007 to 2008 was 18%, from 2008 to 2009 was 4% and from 2009 to 2010 was 8%. The current and predicted number of breeding pairs is above the 15 breeding pairs required to offer harvest opportunity.

While clear numerical objectives at local or larger scales can ultimately be an asset to management direction and efforts, FWP has not solidified such numerical objectives while in pursuit of better understanding of wolf response to various mortality rates, hunter effectiveness and wolf relationships to livestock and natural prey on the Montana-specific landscape. Such improved understanding stands to come from completed, ongoing and planned formal research and continued applied adaptive management, including hunting. Fifteen (15) breeding pairs (BPs) [and 150 wolves] is not a minimum or maximum but rather is used to transition between liberal and conservative management strategies. The season structure, quotas and overall process were guided by the objectives identified in an intentional and facilitated structured decision making process.

FWP is aware that the proposed quota options predict a population decline from 2010 to 2011. Managing for lower wolf numbers is prudent given the significant resistance to wolf numbers by some members of the public, livestock depredations and impacts to prey populations. As wolf numbers have increased, so has the level of confirmed wolf-caused livestock losses and the number of wolves killed to resolve conflicts (Sime et al. 2011). And it appears that in some places, total predation to include wolf predation has been a factor in prey population dynamics (Hamlin and Cunningham 2009). Thus, harvest needs to be implemented in such a way that accounts for the dynamic aspects of conflict management, wolf population ecology, prey populations, other predator populations and all the social factors surrounding wolf management.

4. **Provide information related to weather/habitat factors that have relevance to this change.**

Continuation of a wolf hunting season will help FWP manage and fine-tune wolf numbers and distribution more proactively. Anecdotal evidence over the last several years seems to indicate that larger packs may have a greater tendency to injure or kill domestic livestock than when the same pack had fewer members. FWP believes that public hunting (and trapping at some future date) will help maintain smaller pack sizes for those packs which routinely encounter livestock and live on or near private lands. It may even completely remove packs that are chronic sources of conflict.

An additional consideration when adopting harvest quotas is Montana's "defense of property" law that allows a person to haze, harass, or kill a wolf seen actively attacking, killing, or threatening to kill or killing livestock. The defense of property statute (MCA 87-3-130) and new ARM rules took effect upon delisting when federal regulations expired. The flexibility afforded under state law is similar to the federal 10j experimental regulations that applied to southern Montana since 2005. Thus delisting and transitioning to the state legal framework does not create more liberal means for private citizens to kill wolves caught in the act attacking, killing, or threatening to kill livestock across southern Montana where most livestock conflicts occur. The current modeling effort already takes that mortality into account.

Transition to state law does provide new flexibility to livestock owners across northern Montana. Under the federal regulations in the endangered area, livestock owners did not have that flexibility. While some of Montana's highest livestock densities, thus most wolf-livestock conflicts occur in southern Montana, wolf packs across northern Montana can and do encounter livestock. FWP acknowledges that a small number of wolves could be killed when caught in the act of killing or threatening to kill livestock. The number is expected to be similar to southern Montana and FWP will learn over time what additional mortality will consistently appear in northwest Montana.

Prey declines due to the combination of weather, habitat, total predation, and human harvest led FWP to decrease hunter opportunity in some places in occupied wolf range. In conjunction with lower human harvest levels of deer, elk and moose, the 2011 proposed wolf season quotas may provide some relief to these prey populations.

5. Briefly describe concerns with this proposal or contacts made.

<u>Concerns</u>

There has been significant public support to harvest more wolves given wolf biology and sincere concerns about the status of deer/elk populations. The rate of wolf population increase has been robust and the harvest simulation model predicts population resiliency under higher quotas. As with all such efforts, FWP does acknowledge limitations of the model despite its thoughtful development and an anchor in field-based data.

There has been the public input that FWP should do more to address connectivity requirements for sustaining a northern Rockies metapopulation given Montana's unique geographic link with wolf populations in Canada / Alaska and the Greater Yellowstone Recovery area (which includes Yellowstone National Park and all of Wyoming). Strong reaction to wolf harvest in 2009 north of Yellowstone National Park prompted a proposed subquota in deer/elk hunting district 316.

FWP is aware that wolf populations in western and southwest Montana are strongly influenced by immigration and wolf dispersal from Idaho and Yellowstone National Park into Montana, respectively. Depending on how those populations perform under their respective management frameworks (in conjunction with natural fluctuations due to prey availability or disease etc.), dispersal rates may be either positively or negatively affected – thus, connectivity may be affected. If so, FWP may need to adjust quotas, create more subunits / subquotas, or change the season

structure in the future and is prepared to do so, in conjunction with the Commission.

Genetic diversity in the northern Rocky Mountain wolf metapopulation is currently high and is not a problem. The interagency genetic diversity MOU commits Montana, along with Idaho and the federal government to monitoring protocols that should enable detection of any emerging conservation issues.

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Appendix I. Proposed 2011 Legal Descriptions.

Purcell – WMU 100: This WMU lies in the extreme northwest part of the state and is made up of deer and elk HDs 100 and 104.

Salish – WMU 101: This WMU lies in the central part of Region 1 and is made up of deer/elk HDs 101, 102, 103, 109, 120 and a portion of 110.

North Fork – WMU 110: This WMU is the same North Fork sub-unit from 2009 immediately west of Glacier National Park and is a portion of deer/elk HD 110. Beginning on the U.S./British Columbia border west of Frozen Lake, proceeding southerly along the Whitefish Divide to the top of Big Mountain, then proceeding easterly from the top of Big Mountain down Canyon Creek to the North Fork of the Flathead River, then northerly up the middle of the North Fork of the Flathead River to the U.S./British Columbia border, then westerly along the U.S./British Columbia border to the Whitefish Divide, the point of beginning.

Lower Clark Fork – WMU 121: This WMU lies along the lower Clark Fork and Bull Rivers and is made up of deer/elk HDs 121, 122, 123 and 124.

Flathead – Swan – WMU 130: This WMU includes the Swan Valley, non-wilderness portions of the South and Middle Forks of the Flathead River, and the agricultural and urban landscapes of the Flathead Valley and is comprised of deer/elk HDs 130, 132, 140, 141 and 170.

Bob Marshall – WMU 150: This WMU is entirely a wilderness WMU made up of deer and elk HDs 150 and 151 in portions of the Great Bear and Bob Marshall Wildernesses.

Lower Clark Fork -- WMU 200: This WMU is the northwest portion of Region 2 and includes deer/elk HDs 200,
201, 202 and 203.

Bitterroot & Upper Clark Fork/Big Hole & Tendoys -- WMU 210: This WMU is the south and central portion of Region 2 and the far western portion of Region 3 south of Interstate 90 and west of Interstate 15 and includes deer/elk HDs 204, 210, 211,

212, 213, 214, 215, 216, 240, 260, 261, 270, 300, 302, 319, 321, 328, 329, 331, 332, 334 and 341.

West Fork Bitterroot – WMU 250: This WMU is the south portion of Region 2 and includes deer/elk HD 250.

Blackfoot -- WMU 290: This WMU is the northeast portion of the Region w and includes deer/elk HDs 280, 281, 282, 283, 284, 285, 290, 291, 292, 293, and 298.

Highlands-Tobacco Roots -Gravelly-Snowcrest—WMU 320: This WMU encompasses that portion of Region 3 south of Interstate 90, east of Interstate 15 and west of Highway 287 and Highway 87. This unit encompasses deer/elk hunting districts 320, 322, 323, 324, 325, 326, 327, 330, 333 and 340.

Gallatin-Madison – WMU 310: This WMU encompass that portion of Region 3 south of Interstate 90, east of Highway 287 and Highway 87, and west of the Gallatin/Yellowstone Divide. This unit encompasses deer/elk hunting districts 301, 309 (south of I-90), 310, 311, 360, 361 and 362.

South-Central Montana -- WMU 390: This WUM encompasses those portions of Silverbow, Jefferson, Lewis & Clark, Cascade, Meagher, Gallatin, Park, Judith Basin, Wheatland, Sweet Grass, Stillwater, Carbon, Golden Valley, Fergus, Petroleum, Musselshell, Yellowstone, Big Horn, Treasure, Rosebud, Garfield, McCone, Prairie, Custer, Powder River, Carter, Fallon, Wibaux, Dawson and Richland Counties within the following boundary. Beginning at the junction of Interstate 90 and Interstate 15 at Butte, then northerly along Interstate 15 to the Continental Divide at Elk Park Pass, then northerly along the Continental Divide to the North Fork of Lyons Creek (northwest of Flesher Pass), then southeasterly down said creek to Interstate 15, then northeasterly along said interstate to the junction with Highway 200, then easterly along said highway to the Montana-North Dakota border, then southerly along said border to the Montana-South Dakota border, then southerly along said border to the Montana-Wyoming border, then westerly along said border to the Montana-Yellowstone National Park boundary, then westerly along said boundary to the Yellowstone-Gallatin River Divide, then northerly along said divide to the Goose Creek Road, then northwesterly along said road to Meadow Creek Road (west of Livingston), then westerly along said road to Interstate 90, then westerly along said interstate to Butte, the point of beginning. This unit encompasses deer/elk hunting districts 309 (north of I-90), 312, 313, 314, 315, 316, 317, 318, 335, 339, 343, 350, 370, 380, 388, 390, 391, 392, and 393 AND all of Region 5, all of Region 7 south of US Hwy 200 and a portion of Region 4 south of US Hwy 200 and east of I-15.

North Central Montana – WMU 400. Those portions of Glacier, Pondera, Teton, Lewis and Clark, Cascade, Chouteau, Judith Basin, Toole, Liberty, Hill, Blaine, Fergus, Petroleum, Phillips, Valley, Garfield, McCone, Richland, Roosevelt, Sheridan, Daniels and Dawson counties within the following described boundary: beginning at the intersection of Interstate Highway 15 and State Highway 200 near Great Falls, then easterly along Highway 200 to the Montana - North Dakota border, then northerly along said border to the Montana – Canada border, then westerly

along the Montana – Canada border to its intersection with the continental divide in Glacier National Park, then southerly along said continental divide, through Rogers Pass, to the North Fork of Lyons Creek, then southeasterly down Lyons Creek to Interstate Highway 15, then northerly along Interstate Highway 15 to its intersection with State Highway 200 near Great Falls, the point of beginning.

Proposal compiled by: Wildlife Bureau Staff, 4/28/11