

Montana Gray Wolf Conservation and Management 2012 Annual Report

A cooperative effort by Montana Fish, Wildlife & Parks, USDA Wildlife Services, Glacier National Park, Yellowstone National Park, Blackfeet Nation, and The Confederated Salish and Kootenai Tribes

This report presents information on the status, distribution, and management of wolves in the State of Montana, from January 1, 2012 to December 31, 2012.

It is also available at: <http://fwp.mt.gov/fishAndWildlife/management/wolf/>
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MONTANA EXECUTIVE SUMMARY

Wolf recovery in Montana began in the early 1980's. Gray wolves increased in number and expanded their distribution in Montana because of natural emigration from Canada and a successful federal effort that reintroduced wolves into Yellowstone National Park and the wilderness areas of central Idaho. The U.S. Fish and Wildlife Service (USFWS) approved the Montana Gray Wolf Conservation and Management Plan in early 2004.

In April of 2011, a congressional budget bill directed the Secretary of the Interior to reissue the final delisting rule for Northern Rocky Mountain wolves originally published in April of 2009. On May 5, 2011 the USFWS published the final delisting rule designating wolves throughout the Designated Population Segment, except Wyoming, as a delisted species. Wolves in Montana became a species in need of management statewide under Montana law; state rules and the state management plan took full effect. Using a combination of federal funds and license dollars, Montana Fish, Wildlife and Parks (FWP) implements the state management plan by monitoring the wolf population, directing problem wolf control and take under certain circumstances, coordinating and authorizing research, regulating sport harvest, and leading wolf information and education programs.

The minimum count of Montana wolves decreased about 4% from 2011 to 2012. A total of 147 verified packs of 2 or more wolves yielded a minimum count of 625 wolves in Montana for 2012. Thirty-seven packs qualified as a breeding pair according to the federal recovery definition (an adult male and female with two surviving pups on December 31). In northwest Montana, we documented at least 400 wolves in 100 packs, 25 of which were breeding pairs. In western Montana, we documented at least 93 wolves in 23 packs, 4 of which were breeding pairs. In southwest Montana, we documented at least 132 wolves in 24 packs, 8 of which were breeding pairs.

USDA Montana Wildlife Services (WS) confirmed that 67 cattle, 37 sheep, 1 dogs, 1 llama, and 2 horses were killed by wolves in calendar year 2012 compared to 88 confirmed losses in 2011. Additional losses (both injured and dead livestock) most certainly occurred, but could not be confirmed. Most depredations occurred on private property. The Montana Livestock Loss Board paid \$102,714 for 125 head of livestock that were verified by WS as either confirmed or probable death loss due to wolves in 2012. One hundred eight wolves were killed to reduce the potential for further depredations. Of the 108, 5 were killed by private citizens either by kill permit or under state regulations that allowed citizens to kill wolves seen chasing, killing, or threatening to kill livestock.

Wolf hunting was recommended as a management tool in the final wolf conservation and management plan (FWP 2004) but can only be implemented when wolves are delisted and if more than 15 breeding pairs of wolves existed in Montana the previous year. During 2012, 45 wolves were harvested as a part of the 2011-12 season and 130 wolves were harvested during the 2012-13 season, for a total harvest of 175 wolves.

The total number of known wolf mortalities during 2012 was 324. Of these 324 mortalities, the cause of death was human-related for 312 wolves (175 legal harvest, 12 illegal harvest, 108 due to control actions (103 agency control, 2 under Defense of property statute, and 3 under shoot-on sight-permits, 6 killed incidentally, and 11 due to car/train collisions). In addition, 5 wolves died of natural causes, 2 were euthanized, and 5 died of unknown causes.

This annual report presents information on the status, distribution, and management of wolves in the State of Montana from January 1 to December 31, 2012. The report and other information about wolves and their management in Montana are available at <http://fwp.mt.gov/fishAndWildlife/management/wolf/>.

INTRODUCTION AND BACKGROUND

Wolf recovery in Montana began in the early 1980's. Gray wolves increased in number and expanded their distribution in Montana 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. Montana contains portions of all three federal recovery areas: the Northwest Montana Recovery Area (NWMT), the Central Idaho Experimental Area (CID), and the Greater Yellowstone Experimental Area (GYA) (Figure 1).

The biological and temporal requirements for wolf recovery in the northern Rocky Mountains of Montana, Idaho, and Wyoming were met in December 2002 and in 2003, all three states submitted wolf management plans to the USFWS for review. The USFWS accepted Montana's state plan and it is the document guiding wolf management in the state today.

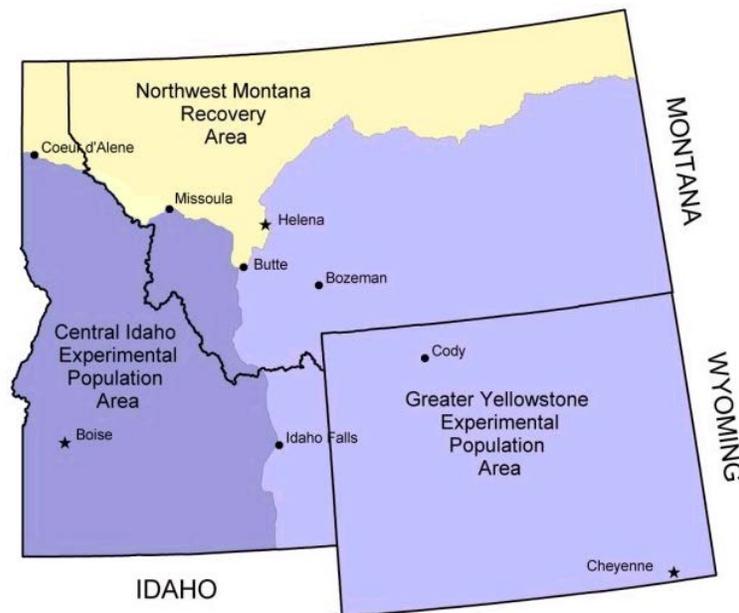


Figure 1. Northern Rockies gray wolf federal recovery area comprised of the states of Montana, Idaho, and Wyoming.

STATEWIDE PROGRAM OVERVIEW

The Montana Wolf Conservation and Management Plan is based on the work of a citizen's advisory council. Completed in 2003, the foundations of the plan are to recognize gray wolves as a native species and a part of Montana's wildlife heritage, to approach wolf management similar to other wildlife species such as mountain lions, to manage adaptively, and to address and resolve conflicts.

Prior to delisting in May 2011, the legal classification and federal regulations put wolves into two separate categories in Montana – endangered in northern Montana and experimental non-essential across southern Montana. Wolf-livestock conflicts were addressed and resolved using a combination of the statewide adaptive management triggers identified in the Montana plan and the federal regulations. In northwest Montana, the 1999 Interim Control Plan provided less flexibility to agencies and livestock owners. In contrast, more flexibility was provided through the revised 10(j) regulations (revised in February 2008).

Beginning with delisting in May 2011, the wolf was reclassified as a species in need of management statewide. Montana's laws, administrative rules, and state plan replaced the federal framework.

In the early stages of implementation, a core team of experienced individuals led wolf monitoring efforts and worked directly with private landowners. FWP's wolf team also worked closely with and increasingly involved other FWP personnel in program activities. Montana wolf conservation and management has transitioned to a more fully integrated program since delisting, led and implemented at the FWP Regional level. WS continues to investigate injured and dead livestock, and FWP works closely with them to resolve conflicts.

Overview of Wolf Ecology in Montana

Wolves are distributed primarily in western Montana east to the Beartooth face near Red Lodge inhabiting various habitats on both private and public lands (Figure 3). Montana wolf pack territory size estimates are naturally variable and heavily influenced by FWP's ability to collect location data on pack members throughout the year. Our confidence in estimating home territories for all packs has decreased as pack numbers, conflict management, and staff workloads increase.

The size of the average wolf pack with good documentation in Montana is between 6 and 7 wolves. The largest wolf pack documented in Montana in recent years has been 22 animals but packs this large are very rare. There is no significant difference in the average size of wolf packs across the state.

Monitoring Methods

Montana wolf packs are monitored year round. Common wolf monitoring techniques include direct observational counts, howling and track surveys, use of trail cameras, and public wolf reports. FWP seeks to document pack size and breeding pair status of known packs; determine pack territories and identify potentially affected private landowners; document dispersal to the extent possible and assess connectivity; and verify wolf activity in new areas that can result in new packs forming.

FWP conducts ground tracking and flies 1-2 times per month to locate collared animals and determine localized use throughout the year and the number of wolves traveling together. Den sites and rendezvous sites are visited to determine if reproduction has taken place. Additional information is collected, such as identification of private lands used by wolves, identification of public land grazing allotments where conflicts could occur, and common travel patterns. At the end of the year, FWP compiles information gathered through field surveys, telemetry, and public reporting.

FWP estimates the number of individual wolves in each pack when possible. Lone dispersing animals are accounted for when reliable information is available. Through its monitoring program, FWP is required to also tally and report the number of “breeding pairs” according to the federal recovery definition of “an adult male and a female wolf that have produced at least 2 pups that survived until December 31.” Montana is required to maintain at least 10 breeding pairs as an absolute minimum to maintain the delisted status of wolves. The state plan calls for the maintenance of at least 15 breeding pairs. Packs of 2 or more wolves that meet the recovery definition are considered “breeding pairs” and noted as such in the summary tables. Not all packs in Montana satisfy the breeding pair criteria.

The total number of packs is determined by counting the number of animal groups with 2 or more individuals holding a territory that existed on the Montana landscape on December 31. If a pack was removed because of livestock conflicts or otherwise did not exist at the end of the calendar year (e.g. disease, natural/illegal mortality or dispersal), it is not included in the year-end total or displayed on the Montana wolf pack distribution map for that calendar year.

The statewide minimum wolf population is estimated by adding up the number of observed wolves in verified packs + known lone animals as of December 31 each year. This is a minimum count, not a population estimate, and has been reported as such since wolves first began re-colonizing northwestern Montana in the mid 1980’s. Suspected wolf packs are those that could not be verified with confidence. They are not included in the final minimum estimated count.

FWP wolf monitoring data, while not a precise accounting of the number of wolves in Montana, are used to make decisions to address wolf-livestock conflicts, to set wolf hunting and trapping regulations, and to set harvest quotas. These minimum data are also adequate to demonstrate maintenance of a recovered population, such that relisting is not warranted.

In anticipation of an increased work load and declining federal funding, FWP first began considering alternative approaches to monitoring the wolf population in 2007. The capacity for FWP personnel to monitor a growing wolf population is complicated by the robust wolf population growth since about 2006. The traditional field-based methods yield minimum counts

that are increasingly conservative and inevitably below actual abundance. Preliminary work focused on developing a more reliable method to estimate the number of breeding pairs based on the size of a wolf pack using logistic regression models (Mitchell et al. 2008). Subsequent work focused on finding ways to use wolf observations by hunters in a more systematic way. A collaborative research effort with the University of Montana Wildlife Cooperative Research Unit was initiated in 2008. The primary objectives were to find alternative approaches to wolf monitoring that would yield statistically reliable estimates of the number of wolves, the number of wolf packs, and the number of breeding pairs (see Appendix 3).

Minimum Statewide Wolf Population and Distribution

As the wolf population has increased in size and distribution it has become increasingly difficult to obtain pack counts and to determine the breeding pair status of known packs. FWP increased the amount of field monitoring effort with the hiring of a new full time specialist in the Livingston area in late 2010. FWP also hired a new full time specialist to work in the Great Falls area beginning in 2012. FWP hired two experienced seasonal field technicians and brought on additional volunteers to help with 2012 monitoring efforts. Recent increases in the wolf population over the last few years have meant that FWP has to verify more new packs, the status of previously verified packs, and determine breeding pair status for as many packs as possible. Inevitably, some packs are suspected, but not verified and FWP conservatively notes those packs in the narrative. Those suspected packs are not included in the minimum estimate. Similarly, if the breeding pair status is not known with confidence, it is recorded as “not” a breeding pair or “breeding status unknown.” Thus, the number of breeding pairs is a minimum known and others certainly exist, but could not be verified with existing effort. The Montana wolf population is secure well above the 10 breeding pair minimum.

The Montana minimum wolf count decreased by about 4%, from a minimum count of 653 in 2011 to a minimum count of 625 in 2012.

The minimum number of breeding pairs in Montana decreased from 39 in 2011 to 37 at the end of 2012. The minimum number of packs statewide increased from 130 in 2011 to 147 at the end of 2012. Pack numbers have steadily increased since the minimum count of 46 in 2005.

In northwest Montana, the minimum wolf count increased from 372 in 2011 to 400 in 2012. Twenty-five of 100 packs were documented to have met the breeding pair criteria. Three wolf packs occurred on the Blackfeet Indian Reservation and 7 packs occurred on the Flathead Indian reservation, for a total of 10 packs on reservation lands.

In western Montana, the minimum wolf count decreased from 147 in 2011 to 93 in 2012. Four of 23 packs were documented to have met the breeding pair criteria. There continues to be high turnover in the population in parts of western Montana (e.g. Big Hole Valley) due to livestock conflicts and agency control. Yet, wolves recolonize some areas quite rapidly along the Montana-Idaho border.

In southwest Montana, the minimum wolf count decreased from 134 in 2011 to 132 in 2012. Eight of 24 packs were documented to have met the breeding pair criteria.

Border Packs

Northern Rocky Mountain wolf program cooperators have agreed that packs will be tallied in the population of the administrative area where the pack denned or spent most of their time. This assures that all packs are accounted for, but none are double-counted in population estimates. Transboundary packs are included in the administrative region in which the animals were counted.

During 2012, 30 packs occupied areas along the Montana-Idaho Border. Of those, 21 were counted as Montana packs. Five packs occupied the Montana-Yellowstone National Park boundary. Of those, 2 were counted as Montana packs. One pack variously occupied Montana, Yellowstone National Park, and Idaho. That pack (Madison) was counted as an Idaho pack. Five packs occupied the Montana-Canada border and 3 of those were counted as Montana packs.

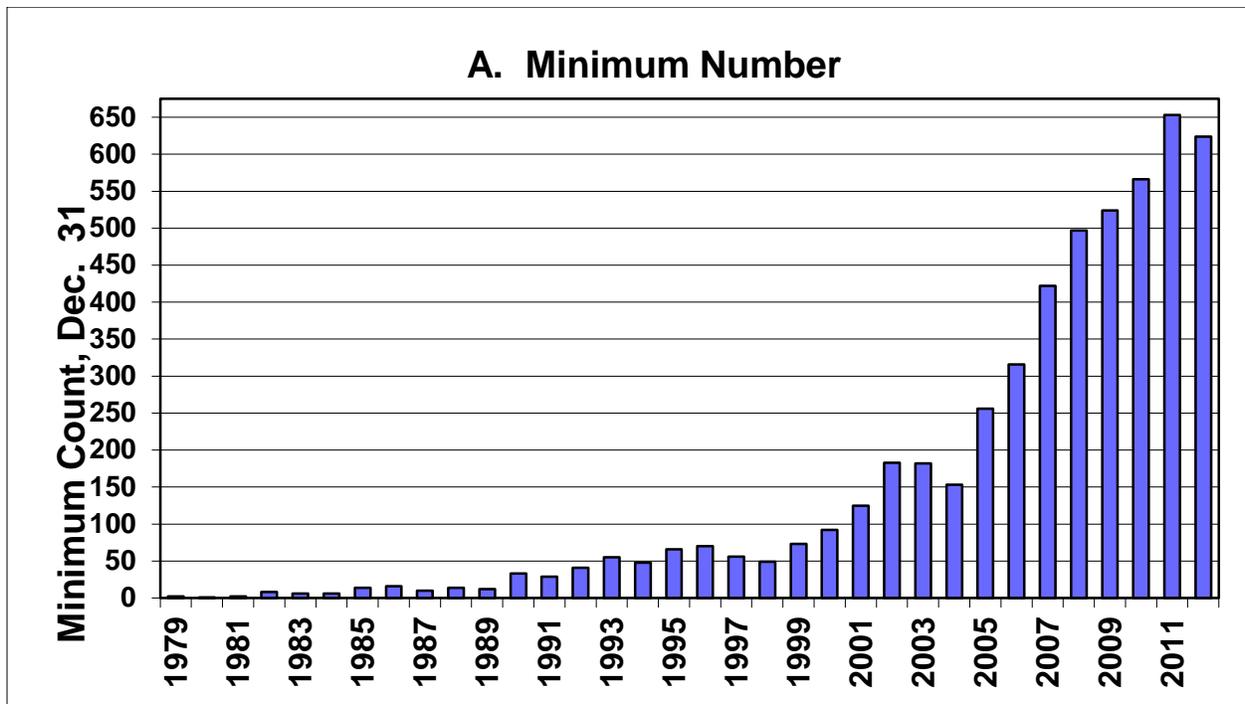


Figure 2: Estimated minimum number of wolves in Montana (1979-2012).

2012 Montana Wolf Pack Locations

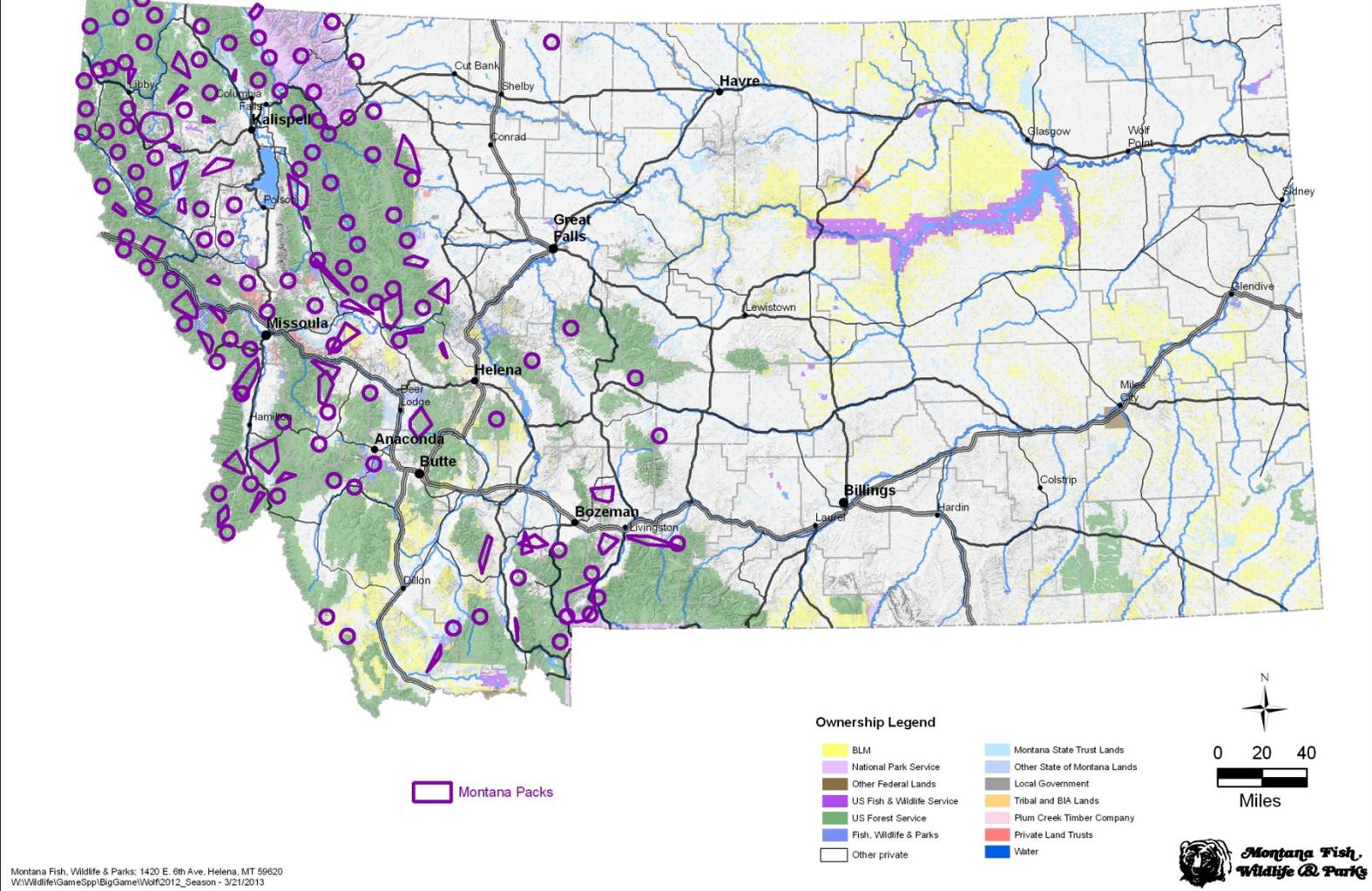


Figure 3. Verified wolf pack distribution in the State of Montana, as of December 31, 2012.

Regulated Public Hunting and Trapping

Regulated public harvest of wolves, recommended by the Governor's Wolf Advisory Council in 2000, was included in Montana's final wolf conservation and management plan. In 2001, the Montana Legislature authorized the FWP Commission to reclassify wolves under state law from an endangered species to a species in need of management upon federal delisting. In anticipation of delisting, FWP first began exploring the idea of how to design regulated public hunting and trapping for wolves early in 2007. The 2007 Legislature created a wolf hunting license for residents and nonresidents (SB 372). The 2013 Legislature modified that statute to allow the sale of multiple wolf licenses, allowing the FWP Commission to set hunting bag limits higher than 1 wolf per hunter (HB 73). Other statutes within MCA enable the FWP Commission to adopt rules and regulations pertaining to wolf hunting and trapping as a species in need of management upon delisting. FWP has developed and implemented wolf harvest strategies that maintain a recovered and connected wolf population, minimize wolf-livestock conflicts, reduce wolf impacts on low or declining ungulate populations and ungulate hunting opportunities, and effectively communicate to all parties the relevance and credibility of the harvest while acknowledging the diversity of values among those parties. The Montana public has the opportunity for continuous and iterative input into specific decisions about wolf harvest throughout the public season-setting process. Finally, hunting can only be implemented when wolves are successfully delisted and if more than 15 breeding pairs of wolves existed in Montana the previous year.

Following the delisting of wolves in Montana in May 2011, a statewide wolf quota of 220, partitioned into fourteen individual wolf management units (WMU's) was proposed at the May FWP Commission meeting. FWP proposed quotas or subquotas in WMU 150 and in deer/elk hunting districts (HD's) 280 and 313/316 where an early back country rifle wolf season would 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 was also proposed to coincide with the existing deer and elk archery only season. Any harvest over-run at the WMU scale was 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 to regulate take included rigorous tracking of harvest in each WMU through mandatory harvest reporting and a 24-hour closure notice process. Harvest quotas were proposed to tally only legal hunting harvest. In addition to other forms of wolf mortality (including cattle depredation removal), a harvest equal to the proposed quota level was predicted to reduce the year-end minimum total wolf numbers 25% from 566 in 2010 to approximately 425 in 2011.

By December 31, 121 wolves had been harvested during the legal take season and quotas had been met in only 2 of the 14 WMUs. At the November FWP Commission meeting a season extension was proposed in order to increase wolf harvest closer to the statewide quota of 220. That specific proposal extended the 2011 wolf hunting season through January 31, 2012 or until specific WMU quotas were met. The commission adjusted the season extension end date to February 15, 2012 at the December commission meeting and then adopted that extension. From January 1 through February 15, 2012, 45 wolves were harvested by hunters.

On July 12, 2012, the FWP Commission adopted the framework for the 2012-13 wolf season. Significant changes included a hunting closing date of February 28; no statewide quota with WMU

quotas remaining only in WMU's 110 (2) and 316 (3); trapping authorized from December 15 through February 28; overall bag limit of 3, with up to 3 taken via trapping and up to 1 taken via hunting; and up to 3 taken via hunting with the passages of necessary legislation. On February 19, 2013, Governor Bullock signed House Bill 73 which, among other elements, authorized electronic calls and the sale of multiple wolf hunting licenses. Given the prior commission authorization on July 12, the hunting bag limit was increased to 3 and electronic calls were allowed immediately. At the close of the season on February 28th, the harvest included 128 wolves taken by hunters and 97 wolves taken by trappers, for a total of 225 wolves harvested during the 2012-13 season. The total, calendar year 2012 wolf harvest in Montana was 175, including 45 wolves harvested during the 2011-12 season and 130 wolves harvested during the 2012-13 season.

Fish, Wildlife & Parks Wildlife Lab Surveillance of Wolf Mortality and Disease, 2007-2012

Biologists collected genetic samples (gene cards, hair, tissue samples) and blood from live wolves captured in the field during 2012. Genetic samples are being banked at the wildlife lab in Bozeman. Blood was used to conduct serological testing for exposure to *Brucella abortus*, *Brucella canis*, Canine Parvovirus (CPV), Canine Adenovirus (CAV), Canine Distemper Virus (CDV), Canine Herpes Virus (CHV), *Neospora caninum*, and Leptospirosis.

Serology results are currently available for 31 wolves captured in calendar year 2012. None of the wolves tested had titers suggesting serologic evidence for exposure to *Brucella abortus* or *Brucella canis*. Only 6 wolves had titers for *Neospora caninum*, and 4 had titers for one or more serovars of Leptospirosis. Higher proportions of wolves tested did have titers for CPV (29/31), CHV (20/31), CAV (19/31), CDV (16/31). Most of the titers for these viruses were quite low; however, a small number of animals had relatively high titers for CPV, which may indicate recent exposure to the virus or active infection.

A small number of wolf carcasses were brought to the wildlife health lab in Bozeman for evaluation in 2012. Most of these carcasses were examined upon request of Montana FWP game wardens for enforcement cases.

A more thorough discussion of wolf diseases and previous serology and parasitology sampling results can be found in the 2010 annual report.

2011 Documented Statewide Wolf Mortalities

FWP documented a total of 324 mortalities in 2012 statewide due to all causes. Undoubtedly, additional mortalities occurred but were not detected. Because mortality counts and total population counts are incomplete, actual mortality rates cannot be determined.

The majority of wolf mortality overall in Montana is related to humans: livestock conflict removals, regulated public harvest, car strikes, train strikes, illegal killings, and incidental to other activities (e.g. trapping/snaring). That pattern is similar across time and all of the northern

Rocky Mountains, except inside national parks where the majority of wolf mortality is due to intraspecific strife (wolf on wolf aggression) or other natural causes.

Documented total wolf mortality in 2012 was higher than in 2011. Mortalities in 2012 included 175 public harvests versus 121 harvests in 2011. There were more lethal control removals in 2012 (108) than in 2011 (64), but fewer than in 2010 (141). Of the 108 wolves removed in 2012 for livestock depredations, 5 were killed by private citizens under kill permits or under the Montana state law known as the Defense of Property statute. Other mortalities included: 12 illegally killed, 11 vehicle collisions, 2 were euthanized, and 6 legal take. In addition, 5 wolves died of natural causes and 5 wolves died of unknown causes.

Mange continues to be documented in southwest Montana. It does not appear to have a detrimental effect on Montana’s wolf population as a whole (see Jimenez et al. 2010a).

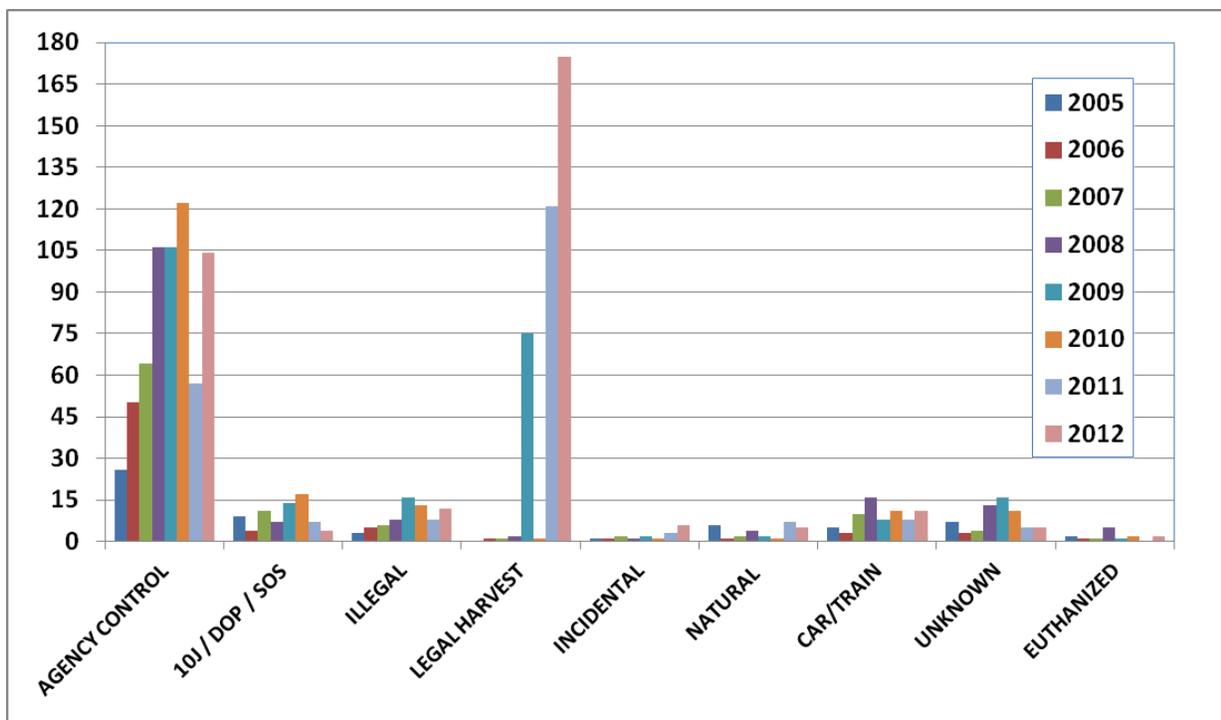


Figure 4. Minimum number of wolf mortalities documented by cause for gray wolves (2005-2012). Total number of documented wolf mortalities in 2012 was 324.

Wolf – Livestock Interactions in Montana

Montana wolves routinely encounter livestock on both public grazing allotments and private land. Wolves are opportunistic predators, most often seeking wild prey. However, some wolves “learn” to prey on livestock and teach this behavior to other wolves. Wolf depredations are very difficult to predict in space and time. Between 1987 and 2012, the majority of cattle and sheep wolf depredation incidents confirmed by WS occurred on private lands. The likelihood of detecting injured or dead livestock is probably higher on private lands where there is greater human presence than on remote public land grazing allotments. The magnitude of under-

detection of loss on public allotments is unknown. Nonetheless, most cattle depredations occurred in the spring or fall months while sheep depredations occurred more sporadically throughout the year.

USDA Wildlife Service’s workload has increased over the last 10 years as the wolf population increased and distribution expanded. The number of suspected wolf complaints received by WS increased steadily from federal fiscal year 1997 to 2009 (Figure 5). The number of complaints received since those years declined steadily from 233 complaints in 2009 to 152 in 2011. Complaints increased in 2012 to 201. About 50% of the complaints received by WS are verified as wolf-caused.

In 2012 wolves were under full management authority of the state and wolf-livestock conflict resolution was guided by a combination of Montana’s approved state plan and the administrative rules of Montana. Federal and state regulations since 2009 have allowed private citizens to kill wolves seen in the act of attacking, killing, or threatening to kill livestock. In 2009, 14 wolves were taken by private citizens, 17 were taken in 2010, 7 in 2011, and 5 in 2012. The remainder of wolves killed in control situations were removed by federal agency personnel.

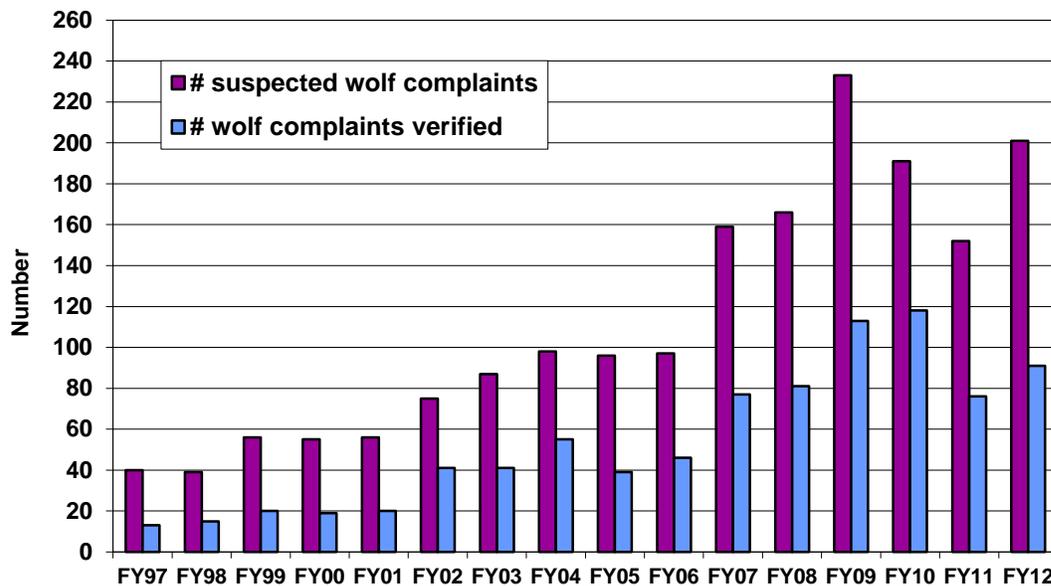


Figure 5. Number of complaints received by USDA Wildlife Services as suspected wolf damage and the percent of complaints verified as wolf damage, FFY 1997 – 2012.

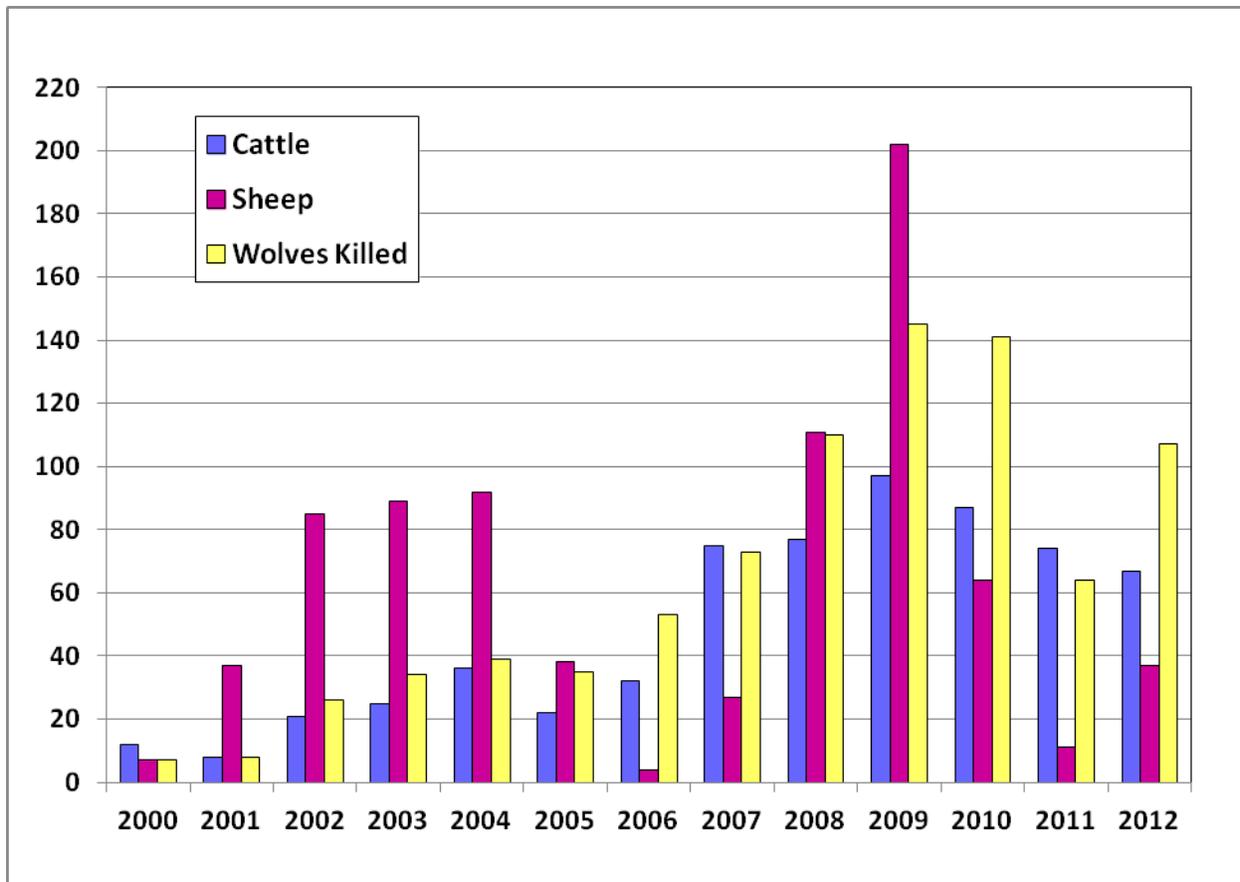


Figure 6. Number of wolves removed through agency control and take by private citizens, number of cattle and sheep killed annually (2000-2012).

Depredation Incidents in 2012

WS confirmed that, statewide, 67 cattle, 37 sheep, 1 domestic dog, 1 llama, and 2 foals were killed by wolves in 2012. Total confirmed cattle losses are down from 2011 levels and are the lowest recorded in the last six years. Sheep depredations were up from 2011 but still lower than losses during 2008 - 2010. Agency control was higher in 2012 than 2011 but also lower than in 2008 – 2010. This overall decrease in livestock depredations in 2011 and 2012 may be a result of several factors including a trend toward more aggressive wolf control in response to depredations, effects of wolf harvest, or both.

In 2012 WS also confirmed 13 cattle, 7 sheep, and 1 dog injured by wolves. Probable wolf depredations included 23 cattle and 1 injured calf. Furthermore, many livestock producers reported “missing” livestock and suspected wolf predation. Others reported indirect losses including poor weight gain and reduced productivity. There is no doubt that there are undocumented losses.

To address livestock conflicts and to reduce the potential for further depredations, 108 wolves were killed in 2012. Two of the 108 were killed by private citizens when the wolf was seen

chasing, killing, or threatening to kill livestock. Three were killed with Shoot-on-Site permits. The others were taken by WS using either ground or aerial based methods. Eight packs were removed entirely due to chronic livestock conflicts. Approximately 19% of the packs that were present at some point during 2012 were confirmed to have killed livestock.

Montana Livestock Loss Board Program: A Montana-Based Reimbursement Program

The Montana Wolf Conservation and Management Plan called for creation of this Montana-based program to address the economic impacts of verified wolf caused livestock losses. The plan identified the need for an entity independent from FWP to administer the program. The plan also identified that the reimbursement program be funded through sources independent from FWP's wolf management dollars and other FWP funds intended for fish and wildlife management.

The purposes of the MLLB are to provide financial reimbursements to producers for losses caused by wolves based on the program criteria and to proactively apply prevention tools and incentives to decrease the risk of wolf-caused losses and to minimize the number of livestock killed by wolves through proactive livestock management strategies.

The Loss Mitigation element implements a reimbursement payment system for confirmed and probable losses that are verified by USDA WS. Indirect losses and costs are not directly covered, but eventually could be addressed through application of a multiplier for confirmed losses and a system of bonus or incentive payments. Eligible livestock losses are cattle, calves, hogs, pigs, horses, mules, sheep, lambs, goats, llamas, and guarding animals. Confirmed and probable death losses are reimbursed at 100% of fair market value. Veterinary bills for injured livestock that are confirmed due to wolves may be covered up to 100% of fair market value of the animal when funding becomes available.

Preliminary reimbursement totals for 2012 are \$102,714 paid to livestock owners on 125 head of livestock. Overall, 2012 livestock losses increased over 2011 totals. Sheep losses increased in 2012 while cattle losses were slightly lower. Individual animal values continue to be higher than animal values in prior years.

Livestock loss statistics are available for 2008 to the present on the board's website http://liv.mt.gov/LLB/lossdata_2013.mcp. The board began accepting claims in the spring of 2008. Total numbers for 2009 to 2012 are for a full calendar year.

The Livestock Loss Board has a Facebook page where the number of livestock killed and the county where the loss occurred is listed. This page is updated on the same day the livestock loss claim is received. To view the page, go to <https://www.facebook.com/pages/Livestock-Loss-Board/208087235878971>.

See the MLLB for detailed information <http://liv.mt.gov/LLB/default.mcp> .

AREA SUMMARIES

Northwest Montana Summary Montana Portion of the Northwest Montana Endangered Area (NWMT)

Overview

In 2012, we documented a minimum estimate of 400 wolves, 100 packs, and 25 breeding pairs in the Montana portion of the NWMT recovery area. There were 25 newly identified packs in 2012. Some of these packs are believed to be first-year packs, and some are likely to have existed the previous year. Five packs were removed from the population as a consequence of chronic livestock depredation. Another four packs could no longer be counted due to lack of evidence. This is a net increase of 16 packs in NWMT area in 2012.

Fifty-five radio collared wolves in 43 packs, (43%) of the 100 total known packs, were monitored in northwest Montana during at least some portion of 2012. This is up from 37% of 84 total packs in 2011. An additional 2 radio collared wolves that dispersed were monitored at some point during the year and 1 of those was still known to be alive at the end of the year. Radio collared wolves were located from aircraft approximately 1–2 times per month. Twenty-five collared wolves from 24 packs (24% of the 100 total packs) were monitored by the end of the year. One collar is an ARGOS GPS collar furnished by Flathead Valley Community College in a cooperative venture as an educational tool for natural resource students.

MFWP traplines were set in 26 pack territories. Twenty-two wolves were captured and, of those, 20 were collared in 2012. Two were small pups and released without radio collars. USDA Wildlife Services (WS) trapped in 27 additional areas and collared 12 wolves. Eight of the WS traplines were conducted with the cooperation of the Confederated Salish Kootenai Tribes, resulting in 5 wolves collared.

MFWP surveyed a total of 95 areas for wolf presence and pack status. Sixteen of those areas resulted in the verification of new packs. Wolf activity was verified in 2 other areas, but it was unclear whether it is a discrete pack or an area used by an adjacent pack. Fifty of those surveys were conducted to determine pack status in known pack territories that do not have functioning radio collars. One new pack was verified by USDA Wildlife Services.

There were 15 packs along the Montana-Idaho border within the NWMT Recovery area. Eleven (Bitterroot Range, Cache Creek, DeBorgia, Lost, Lost Peak, Preacher, Quartz Creek, Silver Lake, Solomon Mountain, Twilight, Wiggletail) denned and spent most of their time in Montana and therefore are counted towards the Montana population. Four (Copper Falls, Deception, Lookout, and Fish Creek) denned and spent most of their time in Idaho and therefore are counted towards the Idaho wolf population. There were 5 packs along the Montana-Canada border. Three (Kintla, Kootenai North, Kootenai South) of those denned and spent most of their time in Montana and therefore are counted towards the Montana population. Two (Spruce Creek, Belly River) of those denned and spent most of their time in Canada and therefore are not counted in the NWMT population.

We were able to confirm reproduction in 62 of the 100 packs. Twenty-five of those packs met the criteria as breeding pairs. Breeding pair status could not be documented in some packs because we were unable to confirm a minimum of 2 adults and 2 pups at the end of the year.

During 2012, 204 wolf mortalities were documented in the Montana portion of the NWMT recovery area population. All but 4 were attributed to some form of human cause including 83 harvested by hunters, 23 harvested by trappers (106 total harvest), 76 lethally removed in control actions, 6 illegally killed, 6 vehicle collisions, 3 incidental mortalities related to Wildlife Services capture and collaring efforts, 2 legal take, and 1 euthanized (poor health). Two wolves died of natural causes. Two wolves died of unknown causes. All control action and legally harvested mortalities are precise numbers, while the number of mortalities from all other causes is a minimum observed. Because mortality counts and total population counts are incomplete, actual mortality rates cannot be determined.

A total of 7 radio-collared wolves were missing by the end of the year. Missing collars are due to long-range dispersal, collar failure, or other unknown fate.

Three dispersals were recorded. NW2054F dispersed from the Arrastra Creek pack to the newly formed Chamberlain pack in the Garnet range. NW1039F apparently has dispersed as a pup from the Chippy pack northwest about 12 miles away. She appeared to be alone at the end of the year. B444, missing from the Idaho Boundary pack since Oct 2009, was located dead about 71 miles southeast near Libby Dam.

We documented 37 confirmed livestock kills. There were 33 cattle, 1 sheep, 2 foals, and 1 llama confirmed killed by wolves. An additional 16 calves were ranked as probable kills. Five cattle were confirmed injured. The number of wolves lethally controlled increased from 17 in 2011 to 78 in 2012. Two of those were legally killed by affected livestock producers that were issued Shoot-on-Sight permits. Two of those were legally killed by livestock producers that caught wolves in the act of killing livestock. Six packs, Canyon Creek, Elbow, Garnet, Irvine, Jefferson Creek, and Monitor Mountain no longer exist due entirely or in large part to control. These figures only account for verified livestock losses. It is not possible to document unverified losses due to wolves. Unverified losses are losses where the cause of dead or missing livestock is not known. Nonlethal measures ranging from range riders to aversive tools such as Radio Activated Guard Boxes and fladry are routinely deployed where applicable and as available. A range rider was employed in the Blackfoot Valley on Arrastra Creek, Morrell Mountain, Monture, and Ovando Mountain packs. Fladry also was used in various locations in the Blackfoot Valley.

Miscellaneous / Lone Individuals in Northwest Montana

Washington Creek: FWP and WS documented at least 3 wolves in the Washington Creek and Nevada Creek areas east of Helmville at the end of 2012, but it was unknown if they were holding a territory.

Nemote Creek: FWP received numerous reports of wolves in the Nemote Creek area in the Lower Clark Fork at the end of 2012. An adult female was hit and killed on I-90 in early 2013 in

this area. At least 2 wolves were believed present at the end of 2012 but it was unknown if they were holding a territory.

NW1039F: Apparently has dispersed as a pup from the Chippy pack northwest about 12 miles away near McGregor Lake. She appeared to be alone at the end of the year.

Verified Border Packs Counting in Idaho Population Estimate

Copper Falls: Believed to den and spend most of their time in Idaho.

Deception: Believed to den and spend most of their time in Idaho.

Lookout: Believed to den and spend most of their time in Idaho.

Fish Creek: Believed to den and spend most of their time in Idaho.

Verified Border Packs Counting in Canada Population Estimate

Spruce Creek pack: Spends most or all of their time in Canada.

Suspected Packs in Northwest Montana

Albert Creek: FWP received reports of wolves in the Albert Creek area throughout 2012, but reports were usually of 1 and sometimes 2 individuals. Winter surveys turned up little evidence of wolf presence. This area will be surveyed again in 2013.

Carten Creek: FWP received reports in early 2013 of a pair of wolves in the Carten Creek area northeast of Drummond.

Telegraph Creek: FWP received reports in early 2013 of a possible pack of 4-6 wolves in the Telegraph Creek area south of McDonald Pass.

Cottonwood Creek: FWP received reports in early 2013 of 3-5 wolves in the Cottonwood Creek area south of Helmville. It is unknown if this is the Dalton Mountain pack using this area or a new pack.

Bluebird Basin: There has been wolf activity for a number of years, but we have not been able to determine if it is a distinct pack or the Ksanka pack.

Lost Prairie: There has been wolf activity for a number of years, but most recently this area has been occupied by the Tallulah pack. Currently we are uncertain if all wolf activity in the Tallulah home range persists as 1 or 2 packs.

Sickler Creek: There is wolf activity in this area, but we are so far unable to determine if it is a discrete pack or the Dry Forks pack.

Western Montana Montana Portion of the Central Idaho Experimental Area (CID)

Overview

At the end 2012, we documented a minimum of 93 wolves and 23 packs, 4 of which qualified as breeding pairs, in the Montana portion of the Central Idaho Experimental Area. This is a decrease from the 2011 estimate of 147 wolves but the number of packs remained stable. There were 3 newly identified packs in 2012. Some of these packs are believed to be first year packs and some are likely to have existed the previous year.

Previously verified packs that still existed in 2012 were the Alta, Anaconda, Big Hole, Black Pine, Divide Creek, Flint Creek, Gash Creek, Gird Point, Harvey Creek, Jeff Davis, Mt. Haggin, One Horse, Painted Rocks, Pintler, Ross' Fork, Sliderock Mountain, Sula, Trapper Peak, and Watchtower packs. Newly documented packs in 2012 included Bloody Dick, Shook Mountain, and Tepee Point. The Trail Creek pack was suspected to not exist and could not be verified in 2011, but was documented again in 2012. No packs were removed in 2012 due to livestock depredations. The Stewart Mountain pack had depredation removals in 2011 and hunter harvest removed the remaining wolves in early 2012. The East Fork Rock Creek and Welcome Creek packs were naturally extinguished due to natural death and dispersal of the remaining members.

During 2012, 12 (46%) of 26 Montana CID verified packs were monitored using ground and aerial telemetry at some point during the year. At the end of 2012, 7 (30%) of 23 Montana CID verified packs were being monitored using ground and aerial telemetry. Five wolves in 4 packs were captured and radio collared in the Montana portion of the CID in 2012. Three wolves were radio collared during MFWP trapping efforts and one was collared by WS. One wolf was darted and collared by Quicksilver/FWP in the Bitterroot. One wolf was trapped by FWP but was too small to collar and was released. Radio collared wolves were located 1-2 times per month by fixed-wing aircraft when possible. Ten of 26 packs monitored in the MT portion of the CID occupied the Montana/ Idaho border: Alta, Big Hole, Bloody Dick, Gash Creek, Jeff Davis, One Horse, Painted Rocks, Sula, Trail Creek, and Watchtower. In 2012, one pack was verified to spend time in Idaho. The others may spend time in Idaho, based on proximity of sightings or telemetry locations near the Montana/Idaho border. Because these 10 packs denned in Montana, or were known to have spent most of their time in Montana, they were counted as Montana packs for 2012. MFWP conducts most of the monitoring of these packs in close coordination with IDFG and the NPT.

The Beaverhead, Four Eyes, Hughes Creek, Pleasant Valley, and Pyramid packs (Idaho/Montana border packs) denned and spent time in Idaho in 2012 and will therefore count in the Idaho population estimate.

Reproduction was confirmed in 12 packs: Alta, Big Hole, Divide Creek, Gird Point, Harvey Creek, Jeff Davis, Painted Rocks, Pintler, Sliderock Mtn, Sula, Tepee Point, and Trapper Peak packs. At the end of 2012, 4 packs met the breeding pair requirement: Big Hole, Gird Point,

Harvey Creek, and Sliderock Mountain. Reproductive status of the Anaconda, Black Pine, Bloody Dick, Flint Creek, Gash Creek, Mt Haggin, One Horse, Ross' Fork, Shook Mtn, Sula, Trail Creek, and Watchtower packs was unknown. Three dispersals were documented in the CID in 2012.

Three packs were confirmed to have killed livestock or dogs: Jeff Davis, Stewart Mountain, and Pintler. Single or unknown wolves were responsible for killing 6 calves and 6 sheep. This is down from 9 packs in 2011. In total, 11 cattle and 12 sheep were confirmed killed in 2012. This is down from 21 cattle, 3 sheep, 1 dog and 1 horse confirmed killed in 2011. Four cattle were confirmed injured. Fifty-nine wolf mortalities were documented in 2012, up from fifty-one in 2011. Seventeen wolves were killed by WS in response to depredations. One was killed by WS as a non-target with an M-44. Four wolves were killed illegally and two were killed in vehicle collisions. Thirty wolves were harvested legally during the 2012 hunting season, up from nineteen in 2011. Two wolves were documented as killed by mountain lions.

Verified Border Packs Counting in Idaho Population Estimate (Table 3 in Appendix 3)

Beaverhead: See 2012 Idaho Annual Report. Historically this pack has spent time in Montana and was detected in 2012 in Montana.

Four Eyes: See 2012 Idaho Annual Report. Historically this pack has spent time in Montana and was detected in 2012 in Montana in the Big Sheep Creek area.

Hughes Creek: See 2012 Idaho Annual Report. Historically this pack has spent time in Montana but is predominantly in Idaho.

Pleasant Valley: See 2012 Idaho Annual Report. This pack occasionally uses the area near Monida.

Pyramid: See 2012 Idaho Annual Report. This pack occasionally uses the Twin Lakes area of the Big Hole.

Miscellaneous / Lone Individuals in Montana CID

SW2055F: SW2055 dispersed from the Divide Creek pack into the Big Hole. This wolf may join the Pintler pack as that was the last known area.

SW2039: SW2039 dispersed from the Ross' Fork pack into the Big Hole.

SW2008: SW2008 (alpha male of Welcome Creek pack) dispersed from the Welcome Creek pack territory after the alpha female died earlier in the year. He traveled further south in the Sapphire Mountains and appeared to be alone at the end of the year.

Mink Creek: A new pair of wolves was documented in the Mink Creek area of the East Fork of the Bitterroot at the end of the year.

Suspected Packs in Montana CID

East Pioneers area: FWP received reports of wolves in several areas of the East Pioneers. Further work is needed to determine whether a new pack is establishing in the area or if dispersers were passing through.

West Pioneers area: FWP received some reports of wolves in the West Pioneers. Further work is needed to determine whether a new pack is establishing in the area or if dispersers were passing through.

Stony Creek: A large pack of wolves uses the Stony Creek and West Fork Buttes area in the fall and winter. This is believed to be the Gird Point pack coming over from the Bitterroot side but more work is needed to be certain.

Turah: FWP has received reports in the Turah area but is still trying to determine whether this activity is a new pack or if dispersers were passing through.

Modesty Creek: FWP has received reports of at least 2 wolves in the Modesty Creek area near Anaconda but were unable to confirm whether this is a new pack or dispersers.

Other Miscellaneous Information in Montana CID

Upper Big Hole: One calf was killed by the Beaverhead pack that is counted in the Idaho CID and four wolves were killed from this pack. One calf was killed by a lone wolf and that wolf was lethally removed. Three calves were killed by unknown wolves and a collar and release plan was authorized to learn more.

Mt Haggin WMA: One calf was confirmed killed by a wolf. It is unknown what pack was involved with the killing as it was between two territories. One wolf was harvested in this area and it is not know if it was lone or associated with one of the two packs in the area.

Dell area: Four ewes were killed by wolves and associated with the Four Eyes pack that is counted in Idaho. Two wolves were harvested from this pack.

Missoula area: An unknown young male wolf was hit by a car and killed on I-90 east of Missoula in the Rock Creek area.

Bitterroot: A calf was injured in the Burnt Fork area of the Bitterroot by an unknown wolf or wolves.

Southwestern Montana Montana Portion of the Greater Yellowstone Experimental Area (GYA)

Overview

Packs in the Montana portion of the GYA were documented from the East Boulder drainage, north to the Little Belts and West to Dillon. Several packs lived on the border of YNP in 2012. Agencies (YNP, MFWP), primarily monitor these packs through flights and ground tracking. The location of the den site and the percent area/time in an area determines where that pack will be tallied in the population estimates.

In 2012, we documented a minimum estimate of 132 wolves in 24 verified packs, 8 of which qualified as a breeding pair. This represents a consistent minimum count compared with 134 wolves in 2011. This year's number of breeding pairs (8) and number of packs (24) were also similar to those numbers in 2011, which were 9 and 22, respectively. Nine new packs were documented in 2012, including: Avalanche, Boone Mountain, Dixon Creek, Cedar Creek, Jack Creek, Mount Vesuvius, Redbluff, Romy Lake, and Tanner Pass. Packs that were verified in 2011 and still existed in 2012 were: Baker Mountain, Beartrap, Brackett Creek, Cougar 2, Elephant Rock, Elkhorn, Fridley, Hayden, Hogback, Lebo Peak, Meadow Creek, Price Creek, Slip n' Slide Creek, Steamboat Peak, Toadflax, Hayden, and Wilson Creek packs. Efforts to document the Mill Creek, Quadrant, Red Bluff, Rosebud, Snowshoe and Table Mountain packs indicated there was not enough evidence to confirm the packs were still intact and maintaining territories at the end of the calendar year.

One border pack was shared between Montana, Idaho and Yellowstone National Park (the Madison pack), and although it counted in the 2011 MT population, this year it counted towards the ID population. Two other pack territories spanned across the border with YNP (Cougar 2 and Hayden) and were counted towards the MT population in 2012. Three border packs (Eightmile, Blacktail, Junction Butte) spent some time in MT, but were counted towards the WY (YNP) population. The Eightmile pack denned in MT, but spent most of its time in YNP.

The number of collared wolves and the number of wolf packs with at least one member fitted with a radio collar varies throughout the year as new wolves are collared. Additionally, the total number changes as collared wolves die, radio collars malfunction, or collared wolves disperse and are not relocated. At the end of 2012, 6 of 24 (25%) verified packs were being monitored using ground and aerial telemetry. Radio-collared wolves were located 1-2 times per month by fixed-wing aircraft and ground telemetry.

In the GYA in 2012, 12 of 30 packs (40%) that existed at one time during the year were confirmed to have killed livestock (Table 1b). This resulted in the lethal removal of a total of 13 wolves. A total of 23 cattle were confirmed as wolf kills, four of which were killed by lone/miscellaneous wolves. Of the total sheep death loss confirmed statewide in 2012 (37 total sheep), about 65% of the death loss was attributed to wolves in the GYA (24 sheep), while 35% of the cattle death loss statewide occurred in the GYA (23 of 67). In the GYA, five calves and one lamb were determined to be probable wolf kills. Six calves and seven sheep were determined as injured by wolves and survived. Two packs were eliminated due to chronic

livestock conflicts (Snowshoe and Red Bluff packs), whereas one, four and three packs were eliminated during 2011, 2010 and 2009, respectively.

Sixty-one total wolf mortalities were documented in the GYA in 2012, similar to the fifty-eight wolf mortalities recorded in 2011. All of the documented mortalities except for one were human-caused. In 2012, 39 total wolves were harvested – 38 by hunters and one by a trapper. Harvested wolves that were not clearly accounted for by a particular pack, or were harvested in MT but belonged to a pack accounted for by another state, were included as misc/lone (Table 1b). Seven total wolves thought to originate from Yellowstone National Park packs that were harvested in MT were included in the misc/lone column (including three radio-collared wolves). Thirteen wolves were killed to resolve livestock conflicts. Included in these 13 wolves was one wolf from the Steamboat pack that was legally killed under the state defense of property law, and one that was killed with a kill permit. One wolf was found to have died of natural causes (killed by other wolves). Other human-related mortalities included three killed by vehicles; two killed incidentally - one in a coyote snare and another associated with an M44. There was also one wounding loss associated with the harvest that was euthanized. Two wolves were discovered and documented as illegal mortalities. All wolves killed in agency control actions or legally harvested are precise numbers, while the number of mortalities from all other causes is a minimum that MFWP documented. The actual number is unknown. Further, these numbers can only be applied to an overall population count that is also known to be a minimum count.

Two dispersals were documented for the MT GYA population in 2012. SW5009M was originally collared as a part of the Brackett Creek pack in the Bangtail Mountains, and was not located after mid March 2012. The wolf was harvested in Blairemore, Alberta as a part of a legal hunt in September 2012, about 300 straight-line miles from where the wolf was collared. SW350M dispersed and split off with a few wolves from the Beartrap pack to form the Tanner Pass pack in a nearby area. Additionally, 752F, a female originating from YNP that dispersed in 2011 joined the Steamboat pack (Paradise Valley) in January 2012.

Miscellaneous/ Lone individuals:

Lone or miscellaneous individual wolves confirmed but not part of a pack at the end of 2012 included individuals documented near Mill Creek (Paradise Valley), Roscoe, Red Lodge, western Crazy Mountains, Fishtail, Harrison, Willow Creek, and Bear Creek (Madison Valley).

Suspected Packs

Bull Mountains: FWP received a small number of reports of wolves in the Bull Mountains near Whitehall. Field efforts are ongoing to determine whether a pack is establishing or if dispersers were passing through.

Highlands: FWP received a small number of reports of wolves in the Highland Mountains. The Table Mountain pack was no longer present. Field efforts are ongoing to determine whether a pack is establishing or if dispersers were passing through.

West side of the Crazy mountains: FWP received a small number of reports during the 2012 hunting season of wolves in the western portion of the Crazies, and verified tracks of one wolf. Investigations will continue to determine whether this is a new pack or wolves passing through.

Red Lodge/Belfry: A wolf was hit by a car just south of belfry in spring 2012, and there have been a few unverified reports of more than one wolf travelling together in this area. So far only one gray wolf has been confirmed to be using this area, but investigations will continue to verify whether or not a pack is holding a territory here.

Other miscellaneous information for the Montana portion of the GYA

South of Fishtail: One ewe and one lamb died from wolf-related injuries. A black wolf was observed in the area and collar and release response was authorized to learn more. Field efforts are focused on learning more in this area.

Elk Park: One calf was confirmed as killed by wolves. A collar and release plan was implemented as well as an initial response plan.

OUTREACH AND EDUCATION

FWP's wolf program outreach and education efforts are varied, but significant. Outreach activities take a variety of forms including; field site visits, phone and email conversations to share information and answer questions, media interviews, formal and informal presentations. FWP also prepared and distributed a variety of printed outreach materials and media releases to help Montanans become more familiar with the Montana wolf population and the state plan. A new "Living with Wolves" pamphlet was developed by wolf program staff.

An increasingly important aspect of outreach is the Internet. In 2012, the FWP website hosted 68 pages with wolf program content. During 2012, those pages had 442,309 page views, averaging 1,212 page views per day.

The "Report a Wolf" application continued to generate valuable information from the public in monitoring efforts for existing packs and documenting wolf activity in new areas. Several hundred reports were received through the website. Countless more were received via postal mail and over the phone.

Most wolf program staff spent some time at hunter check stations in FWP Regions 1-5 to talk with hunters about wolves, wolf management, and their hunting experiences.

LAW ENFORCEMENT

All wolf mortalities that are not the result of an authorized agency lethal control, a shoot on sight permit, a legal sport harvest, a vehicle/train strike or apparent natural causes, are reported to law

enforcement personnel. These mortalities are under investigation until a full determination is made regarding cause of death and any potential criminal activity.

The USFWS Office of Law Enforcement was the lead agency to investigate wolf deaths until delisting in May 2011. Upon delisting, FWP personnel led law enforcement efforts for state-based laws, rules, and FWP Commission regulations including the 2012 wolf hunting season.

Only one case involving illegal activity occurred during the 2012 wolf hunting season. In that case, a hunter failed to properly report his take and was cited.

FUNDING

Montana Fish, Wildlife & Parks

A new five-year funding agreement between the USFWS and FWP was signed in 2011, and \$625,000 was obligated for Federal Fiscal Year 2012 (includes indirect costs). In the 2011 Montana Legislative session, House Bill 363 became law. This law requires that a wolf management account be set up and that all wolf license revenue be deposited into this account for wolf collaring and control. Specifically, it states that subject to appropriation by the legislature, money deposited in the account must be used exclusively for the management of wolves and must be equally divided and allocated for the following purposes:

- (a) wolf-collaring activities conducted pursuant to 87-5-132; and
- (b) lethal action conducted pursuant to 87-1-217 to take problem wolves that attack livestock.

Senate Bill 348 also passed during the 2011 Montana Legislative session. SB 348 requires FWP to allocate \$900,000 toward wolf management. "Management" includes the entire range of activities that constitute a modern scientific resource program, including but not limited to research, census, law enforcement, habitat improvement, control, and education. The term also includes the periodic protection of species or populations as well as regulated taking.

In summary, wolf management funding for state fiscal year 2013 consists of the \$625,000 of federal money from the USFWS cooperative agreement, \$60,400 of federal PR funds, and \$214,600 of state license dollars, including \$163,000 allocated per House Bill 363.

Funding is and will primarily be used to pay for FWP's field presence to implement population monitoring, collaring, outreach, and livestock depredation response. In addition to the ongoing efforts by Montana FWP wolf specialists, additional efforts to meet the intent of SB 348 and HB 363 include:

- A full-time specialist was added in Region 4, with direction to increase collaring efforts in wolf packs associated with livestock. The focus is the Rocky Mountain Front south to Helena, including the Elkhorns and Big Belts. The wolf program increased to a total of 5.5+ FTE in fiscal year 2012 (wolf specialists dedicated to wolf management plus seasonal technicians and volunteers). Those staffing levels continue in 2013.

- The addition of a specialist in Region 4 allowed the Butte area wolf specialist to increase monitoring, collaring, conflict prevention and conflict management efforts in southwest Montana.
- FTE's were added for technicians in Region 1 and Region 2 to increase collaring efforts in wolf packs associated with livestock.
- Funding was dedicated for aerial darting and collaring of wolves in the Madison, Gallatin, and Yellowstone drainages where conflicts with grizzly bears limit trapping and collaring efforts.
- Renewed agreement with Wildlife Services and commitment of \$110,000 towards wolf management efforts.

Other management services provided by FWP include law enforcement, harvest/quota monitoring, legal support, public outreach, and overall program administration. Exact cost figures have not been quantified for the value of these services.

USDA Wildlife Services

Wildlife Services is the federal agency which assists FWP with wolf damage management. WS personnel conduct investigations of injured or dead livestock to determine if it was a predation event and, if so, what predator species was responsible for the damage. Based on WS determination, livestock owners may be eligible to receive reimbursement through the Montana Livestock Loss Program. If WS determines that the livestock depredation was a confirmed wolf kill or was a probable wolf kill, the livestock owner is eligible for 100% reimbursement on the value of the livestock killed based on USDA market value at the time of the investigation.

Under an MOU with FWP, WS conducts the control actions on wolves as authorized by FWP. Control actions may include radio-collaring and/or lethal removal of wolves implicated in livestock depredation events. FWP also authorizes WS to opportunistically radio-collar wolf packs that do not have an operational radio-collar attached to a member of the pack.

As a federal agency, WS receives federal appropriated funds for predator damage management activities but no funding directed specifically for wolf damage management. Prior to Federal Fiscal Year (FFY) 2011, the WS Program in Montana did receive approximately \$250,000 through the Tri-State Predator Control Earmark, some of which was used for wolf damage management operations. However, that earmark was completely removed from the federal budget for FFY 2011 and not replaced in FFY 2012 or FFY 2013.

In FFY 2012, WS spent \$377,232 conducting wolf damage management in Montana (not including administrative costs), a \$65,815 increase from the total spent in FFY 2011. The FFY 2012 expenditure included \$212,832 Federal appropriations, \$110,000 from FWP, \$25,700 from the Rocky Mountain Elk Foundation, and \$28,700 from Montana livestock producers.

PERSONNEL AND ACKNOWLEDGEMENTS

The 2012 FWP wolf team was comprised of Liz Bradley, Nathan Lance, Kent Laudon, Abigail Nelson, Mike Ross, and Ty Smucker. Wolf specialists work closely with regional wildlife managers, Howard Burt, Ray Mule, Mark Sullivan, Graham Taylor, Mike Thompson, and Jim Williams, as well as Wildlife Management Bureau Chief, George Pauley. The wolf team is part of a much bigger team of agency professionals that make up Montana Fish, Wildlife & Parks including regional supervisors, biologists, game wardens, information officers, front desk staff, and many others who contribute their time and expertise. FWP Helena and Wildlife Health Lab staff contributed time and expertise including Ron Aasheim, Neil Anderson, Keri Carson, Justin Gude, Lauri Hanauska-Brown, , Quentin Kujala, Ken McDonald, Adam Messer, Tom Palmer, George Pauley, Kevin Podruzny, and Jennifer Ramsey. Laura Geary and Kristina Skogen assisted with the editing and formatting of this report.

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Confederated Salish and Kootenai Tribal biologists Stacey Courville and Shannon Clairmont, and Blackfeet Tribal biologist Dan Carney and wildlife technician Thad Tidzump captured and monitored wolves in and around their respective tribal reservations.

We acknowledge the work of the citizen-based Montana Livestock Loss Board which oversees implementation of Montana's reimbursement program and its coordinator, George Edwards.

USFWS personnel in Montana included wolf recovery coordinator Ed Bangs (retired) and federal law enforcement agents. We thank Mike Jimenez (USFWS) for his coordination and oversight of state management of the Northern Rockies wolf.

USDA APHIS WS investigates all suspected wolf depredations on livestock and under the authority of FWP, carries out all livestock depredation-related wolf damage management activities in Montana. We thank them for contributing their expertise to the state's wolf program and for their willingness to complete investigations and carry out lethal control and radio-collaring activities in a timely fashion. We also thank WS for assisting with monitoring wolves in Montana. WS personnel involved in wolf management in Montana in 2012 included the state director John Steuber, western district supervisor Kraig Glazier, eastern district supervisor Mike Foster, western assistant district supervisor Chad Hoover, eastern assistant district supervisor Alan Brown, wildlife disease biologist Jerry Wiscomb, helicopter pilots Tim Graff and Eric Waldorf, helicopter/airplane pilot Stan Colton, wildlife specialists Denny Biggs, John Bouchard, Jordan Brinkerhoff, Joe Carpenter, Steve DeMers, Rick Glover, Mike Hoggan, John Maetzold,

Dick Marten, Graeme McDougal, Brian Noftsker, Ted North, Jim Rost, Bart Smith, Pat Sinclair, Mike Thomas, and Dan Thomason.

The Montana Wolf Management program field operations also benefited in a multitude of ways from the continued cooperation and collaboration of other state and federal agencies and private interests such as the USDA Forest Service, Montana Department of Natural Resources and Conservation (“State Lands”), U.S. Bureau of Land Management, Plum Creek Timber Company, Glacier National Park, Yellowstone National Park, Idaho Fish and Game, Wyoming Game and Fish, Nez Perce Tribe, Canadian Provincial wildlife professionals, Turner Endangered Species Fund, People and Carnivores, Wildlife Conservation Society, Keystone Conservation, Boulder Watershed Group, Big Hole Watershed Working Group, the Madison Valley Ranchlands Group, the upper Yellowstone Watershed group, the Blackfoot Challenge, and the Granite County Headwaters Working Group.

We deeply appreciate and thank our pilots whose unique and specialized skills, help us find wolves, get counts, and keep us safe in highly challenging, low altitude mountain flying situations. They include Joe Rahn (FWP Chief Pilot), Neil Cadwell (FWP Pilot), Ken Justus (FWP Pilot), Greg Thielman (FWP Pilot), Trever Throop (FWP Pilot), Jim Pierce (Red Eagle Aviation, Kalispell), Roger Stradley (Gallatin Flying Service, Belgrade), Steve Ard (Tracker Aviation Inc., Belgrade), Lowell Hanson (Piedmont Air Services, Helena), Joe Rimensberger (Osprey Aviation, Hamilton), and Mark Duffy (Central Helicopters, Bozeman).

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APPENDIX 1

MONTANA CONTACT INFORMATION

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Mike Foster
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TO REPORT A DEAD WOLF OR POSSIBLE ILLEGAL ACTIVITY:

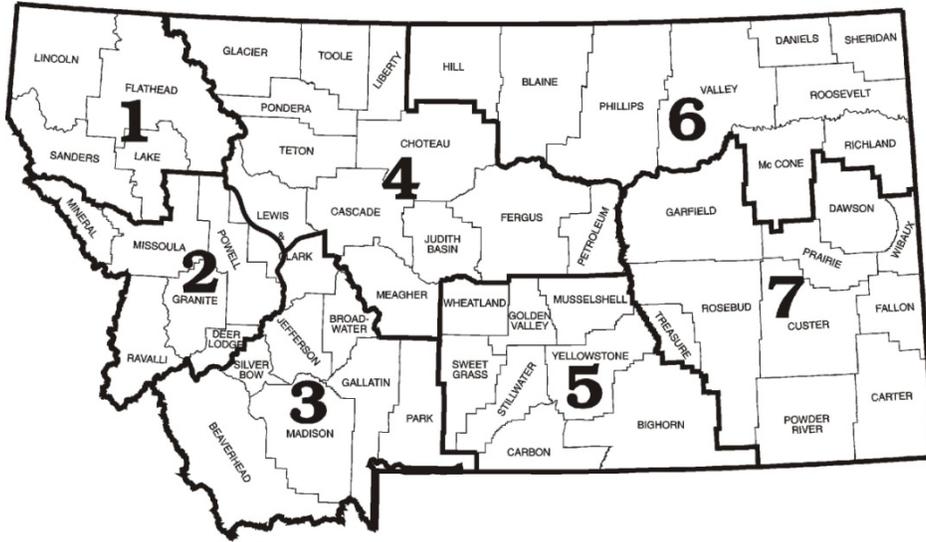
Montana Fish, Wildlife & Parks

- Dial 1-800-TIP-MONT (1-800-847-6668) or local game warden

TO SUBMIT WOLF REPORTS ELECTRONICALLY AND TO LEARN MORE ABOUT THE MONTANA WOLF PROGRAM, SEE:

- <http://fwp.mt.gov/fishAndWildlife/management/wolf/>

MONTANA FISH WILDLIFE & PARKS ADMINISTRATIVE REGIONS



STATE HEADQUARTERS
 MT Fish, Wildlife & Parks
 1420 E 6th Avenue
 PO Box 200701
 Helena, MT 59620-0701
 (406) 444-2535

REGION 1
 490 N Meridian Rd
 Kalispell, MT 59901
 (406) 752-5501

REGION 2
 3201 Spurgin Rd
 Missoula, MT 59804
 (406) 542-5500

REGION 3
 1400 South 19th
 Bozeman, MT 59718
 (406) 994-4042

HELENA Area Res Office (HARO)
 930 Custer Ave W
 Helena, MT 59620
 (406) 495-3260

BUTTE Area Res Office (BARO)
 1820 Meadowlark Ln
 Butte, MT 59701
 (406) 494-1953

REGION 4
 4600 Giant Springs Rd
 Great Falls, MT 59405
 (406) 454-5840

LEWISTOWN Area Res Office (LARO)
 215 W Aztec Dr
 PO Box 938
 Lewistown, MT 59457
 (406) 538-4658

REGION 5
 2300 Lake Elmo Dr
 Billings, MT 59105
 (406) 247-2940

APPENDIX 2

Gray Wolf Chronology in Montana

2011

- In April, President Obama signed the Department of Defense and Full-Year Appropriations Act, 2011. A section of that Appropriations Act directed the Secretary of the Interior to reissue within 60 days of enactment the final rule published on April 2, 2009, that identified the Northern Rocky Mountain (NRM) population of gray wolf (*Canis lupus*) as a distinct population segment (DPS) and to revise the List of Endangered and Threatened Wildlife by removing most of the gray wolves in the DPS.
- May 5, the USFWS published the final delisting rule which designates the NRM distinct population segment and delisted the gray wolf throughout the DPS except WY. Wolves in MT are classified as a species in need of management statewide under Montana law; state rules and the state management plan take full effect. The Service and the states will monitor wolf populations in the Northern Rocky Mountain DPS and gather population data for at least five years.
- In May, the FWP Commission proposed regulations for a 2011 take season. Public comment was taken during June.
- In June, Alliance for the Wild Rockies, Friends of the Clearwater, Wildearth Guardians, Center for Biological Diversity, Cascadia Wildlands, and Western Watersheds Project filed a lawsuit challenging the constitutionality of the Congressional rider under the Separation of Powers clause of the U.S. Constitution. The lawsuit was filed in the Missoula Federal District Court. FWP submitted amicus curiae briefs.
- Commission adopted the 2011 wolf quotas in July. The statewide quota was 220.
- August 3, Judge Molloy upheld the constitutionality of the Congressional rider delisting wolves throughout the DPS except WY.
- August 8, the group of plaintiffs composed of the Alliance for the Wild Rockies, Friends of the Clearwater, and Wildearth Guardians filed a notice of appeal to the 9th Circuit.
- August 12, the second group of plaintiffs, Center for Biological Diversity, Cascadia Wildlands, and Western Watersheds Project, filed a notice of appeal to the 9th Circuit challenging Judge Molloy's decision.
- In August, Secretary of the Interior Ken Salazar and U.S. Fish and Wildlife Service Director Dan Ashe announced that the Service had reached an agreement that if implemented would promote the management of a stable, sustainable population of wolves and pave the way for the Service to return wolf management to Wyoming.
- August 8, wolf license sales began in Montana.
- In August, The Alliance for the Wild Rockies group of plaintiffs made an emergency motion for an injunction in the 9th Circuit to stop the wolf hunt.
- In August, The State of Montana and the FWP filed an amicus curiae brief in support of the federal Defendants and Appellees, Ken Salazar, Dan Ashe, and the United States Fish and Wildlife Service (Federal Defendants) opposition to the emergency motion to stop the planned wolf hunting season in Montana and Idaho.
- September 3, archery hunting opens in all of the 14 wolf management units in Montana. Archery and general season hunts scheduled to end December 31 in all 14 units.
- In December, the Montana Fish, Wildlife and Parks Commission extends the wolf season in any units with unmet quotas to February 15, 2012
- December 31, 121 wolves legally harvested in Montana during the 2011 season. Season remains open until February 15, 2012 in all but 2 of the 14 units.

- An estimated minimum of 653 wolves with 39 breeding pairs are counted in Montana. Distribution continues to be primarily in the western one-third of Montana.

2012

- May 10, the FWP Commission proposed regulations for a 2012 take season. Public comment was taken during June.
- July 12, the Commission adopted the 2012 wolf general season framework (no statewide quota) that included a trapping season; bag limit of 3 wolves (up to 3 via trapping and 1 via hunting); and included authorization of a 3 wolf hunting bag limit and electronic calls with legislation.
- September 8, FWP instructs the first wolf trapper education course in Montana.
- October 11, the FWP Commission proposed a trap pan tension rule for wolf trappers to minimize non-target captures.
- November 8, the FWP Commission adopted the final trap pan tension rule for wolf trappers to minimize non-target captures.
- December 8, wolf trapper education is completed for the year in Montana, with 2,414 students completing the course.
- December 15, the first Montana trapping season opens.
- An estimated minimum of 625 wolves and 37 breeding pairs are counted in Montana.

APPENDIX 3

RESEARCH, FIELD STUDIES, AND PROJECT PUBLICATIONS

Each year in Montana, there are a variety of wolf-related research projects and field studies in varying degrees of development, implementation, or completion. These efforts range from wolf ecology, predator-prey relationships, wolf-livestock relationships, policy, or wolf management. Additionally, the findings of some completed projects get published. The 2012 efforts are summarized below, with updates or project abstracts.

Survival rates in Rocky Mountain wolves

Graduate Student: Jack Massey

Collaborators: Imperial London of College, Northern Rocky Mountains wolf team

Project summary: Datasets were compiled on radio-collared wolf sightings from state-wide studies in Idaho, Wyoming and Montana and from the Yellowstone National Park wolf study, for 2005-10. Initial analyses are complete, and results have been distributed to the research team for consideration and review. Plans are being made to draft a manuscript on these results for submission to a peer-reviewed scientific journal.

Efficacy of wolf removal in reducing recurrence of depredation on livestock in Montana, Wyoming and Idaho

Investigators: Kyran Kunkel (University of Montana), Liz Bradley and Justin Gude (Montana Fish, Wildlife & Parks), Hugh Robinson (Panthera), Carolyn Sime (University of Montana), Ed Bangs and Mike Jimenez (US Fish & Wildlife Service), Todd Grimm (USDA Wildlife Services), Jim Holyan (Nez Perce Tribe), and Val Asher (Turner Endangered Species Fund).

Depredation on livestock has put wolves in conflict with humans for centuries and continues to be a major issue facing their persistence and recovery in agricultural areas around the world. Therefore, we compared the efficacy of 3 management responses to wolf depredation on livestock; no lethal action, partial pack removal, and full pack removal. We examined the effectiveness in reducing further depredations of the 3 treatments using a conditional recurrent event model. From 1989 to 2010 we documented 967 depredations by 156 packs, 228 on sheep and 739 on cattle and other stock. Mean time between recurrent depredations was 115 days following no action, 170 days following partial pack removal, and 753 days following full pack removal. Compared to no action, full pack removal reduced the occurrence of subsequent depredations by 79% (Haz. Ratio = 0.21, $P < 0.001$) over a span of 1850 days (5 years), while partial pack removal reduced the occurrence of subsequent depredations by 29% (Haz. Ratio = 0.71, $P < 0.001$) over the same period. Within partial pack removal we found no effect of which individual was removed (i.e. alpha female removed Haz. Ratio = 0.5862, $P = 0.11$, and adult male removed Haz. Ratio 0.9896, $P = 0.95$). Partial pack removal was only effective if conducted within the first 7 days following depredation; after which time there was only a marginally significant difference between partial pack removal and no action (Haz. Ratio = 0.86, $P = 0.07$),

and no difference after 14 days (Haz. Ratio = 0.99, P=0.93). The relative effect of all treatments was generally consistent across season and type of livestock. Ultimately, pack size alone may be the best predictor of a recurrent depredation with the probability of depredation occurring within 5 years increasing by 6-8% for each animal left in the pack following management action.

Food Web Complexity in a Large Mammal System (formerly Trophic Cascades Involving Humans, Wolves, Elk, and Aspen in the Crown of the Continent Ecosystem)

Graduate Student: Cristina Eisenberg, Boone and Crockett Club Fellow

Committee Chair: Dr. David E. Hibbs, Oregon State University, Corvallis

Dissertation Abstract (project completed February 2012):

Food webs consist of a combination of bottom-up (resource-driven) and top-down (predator-driven) effects. The strength of these effects depends on the context in which they occur. I investigated food web (trophic) relationships between wolf (*Canis lupus*) predation, elk (*Cervus elaphus*) herbivory, aspen (*Populus tremuloides Michaux*) recruitment, and fire. The study setting, in the central portion of the Crown of the Continent Ecosystem, spans the US/Canada border and encompasses Glacier National Park (GNP), Montana and Waterton Lakes National Park (WLNP), Alberta. I stratified my observations across three spatially distinct areas, the North Fork Valley, in the western portion of GNP; the Waterton Valley, in the eastern portion of WLNP; and the Saint Mary Valley, in the eastern portion of GNP. All valleys are elk winter range (low-lying grasslands with patches of aspen). The valleys have three different observed wolf population levels (Saint Mary: low; Waterton: moderate; North Fork: high), which represent three levels of long-term predation risk (the probability of an elk encountering a wolf). Ecological characteristics (e.g., climate, soils, elevation, plant associations) are comparable among valleys. Fire has occurred in 90% of the North Fork.

My objective was to examine the relative influence of bottom-up (fire) and top-down (predation risk) factors and the context-dependence of these relationships via data gathered during a three-year time span. I found complex elk responses to bottom-up and top-down factors that could influence habitat use by elk. Pellet transect data demonstrated that elk exhibited the same risk reduction behavior at all wolf population levels, even at very low levels. Predation risk variables that provided impediments to detecting or escaping wolves had a similar and negative influence on occurrence of elk (pellet piles), regardless of wolf population density. Fire had a negative effect on elk density and a positive effect on wolf density (per scat piles) in aspen communities where a high wolf population existed. Aspen cover, which may be riskier than open grassland, also had a negative effect on elk density, except at very high wolf levels without fire. The risk of wolf predation alone did not drive elk behavior.

Conversely, focal animal (elk vigilance behavior) data suggested a positive relationship between wolf population and elk vigilance. However, when I deconstructed vigilance, elk demonstrated complex, context-dependent adaptive behavior in response to the long-term risk of predation by wolves. Commonly identified drivers of elk vigilance (group size, impediments to wolf detection and escape) appeared to be important drivers at an intermediate level of long-term predation risk (e.g., Waterton). These drivers ceased to function in this manner when the long-term predation risk level increased (The North Fork). At high levels of long-term predation risk, vigilance was high, but not driven by these common factors. In some cases, the relationship

between vigilance and risk factors was reversed (e.g., group size). And at a low level of long-term predation risk (Saint Mary), elk did not respond to these drivers of vigilance.

When I measured aspen demography (browse, recruitment), browse was lower in the North Fork, where there was a high wolf population, suggesting a top-down effect. However, I found low aspen recruitment in the absence of fire in all valleys, which indicates a bottom-up effect in that aspen is highly fire-dependent. Top-down predictors of aspen recruitment (e.g., plot position and stand size, which are related to predation risk) had no effect on browse levels regardless of wolf population level.

In sum, the risk of wolf predation alone did not drive the food web relationships I observed. Bottom-up and top-down forces worked together in valleys that contained well-established wolf populations, and to a lesser degree in a valley with a low wolf population. Commonly used measures of predation risk responses (e.g., vigilance) reversed their relationship as the wolf population increased. Low aspen recruitment in the absence of fire demonstrates the importance of bottom-up effects. Bottom-up and top-down effects may be important joint engineers of aspen communities. My findings invite deeper inquiry into the interaction between bottom-up and top-down effects in large mammal systems.

Assessing wolves and cougars as conservation surrogates

Investigators: Kyran Kunkel (World Wildlife Fund), Todd Atwood (Utah State University), Toni Ruth (Hornocker Wildlife Institute), Dan Pletscher (University of Montana), and Maurice Hornocker (Hornocker Wildlife Institute)

Large carnivores have been posited as potential conservation surrogates to inform the design and prioritization of conservation planning. We show that wolves *Canis lupus* and cougars *Puma concolor* may have potential to serve as a surrogate suite for conserving landscape heterogeneity, hypothesized to be a determinant of biodiversity in some landscapes. We examined habitat and landscape features associated with the spatial distribution of wolf- and cougar-killed prey in the basin of the North Fork of the Flathead River in Montana. The spatial distribution of wolf-killed prey was driven largely by cover type, whereas physiographic characteristics were the primary driver of the distribution of cougar-killed prey. Spatial templates, generated using >0.66 probability quantiles from spatially explicit models of kill site distribution, estimated over three times as much high-quality habitat for wolves (1005 km²) than for cougars (381 km²). While there were only minor differences in the proportional representation of land cover types between the wolf and cougar templates, 40% of the cougar template fell outside the wolf template, and the former contained over three times more rugged terrain than the latter. The use of a combined wolf–cougar spatial template resulted in a 15% increase in total area and 91% increase in the amount of rugged terrain identified. Based on our models, the advantage of using both wolves and cougars as a focal suite in north-west Montana is the ability to identify a greater area of high-quality habitat, and capture landscape heterogeneity that may be important to conserving biodiversity.

Estimating Occupancy and Predicting Numbers of Gray Wolf Packs in Montana Using Hunter Surveys

Investigators: Lindsey Rich, University of Montana, Montana Cooperative Wildlife Research Unit, Dr. Betsy Glenn, U.S. Fish and Wildlife Service, Dr. Michael Mitchell, Montana Cooperative Wildlife Research Unit

Collaborators: Dr. Robin Russell, U.S. Geological Survey; Kevin Podruzny, Kent Laudon, Justin Gude, and Carolyn Sime, Montana Fish, Wildlife & Parks; David Ausband, University of Montana, Montana Cooperative Wildlife Research Unit; Dr. James D. Nichols, U.S. Geological Survey

Reliable knowledge of the status and trend of carnivore populations is critical to their conservation and management. Methods for monitoring carnivores, however, are challenging to conduct across large spatial scales. In the Northern Rocky Mountains, wildlife managers need a time- and cost-efficient method for monitoring gray wolf (*Canis lupus*) populations. Montana Fish, Wildlife and Parks (MFWP) conducts annual telephone surveys of >50,000 deer and elk hunters. We explored how survey data on hunters' sightings of wolves could be used to estimate the occupancy and distribution of wolf packs and predict their abundance in Montana for 2007-2009. We assessed model utility by comparing our predictions to MFWP minimum known number of wolf packs. We minimized false positive detections by identifying a patch as occupied if 2-25 wolves were detected by ≥ 3 hunters. Overall, estimates of the occupancy and distribution of wolf packs were generally consistent with known distributions, and as expected our predictions of the number of wolf packs exceeded MFWP minimum counts by 40% in 2007, 31% in 2008, and 28% in 2009. Our results indicate occupancy models based on public sightings can be used to monitor population trends and changes in the spatial distribution of territorial carnivores across large areas where alternative methods may be limited by personnel, time, accessibility, and budget constraints.

Determining occurrence dynamics when false positives occur: estimating the range dynamics of wolves from public survey data

Investigators: Dr. David Miller, U.S. Geological Survey; Dr. James Nichols, U.S. Geological Survey ; Justin Gude and Kevin Podruzny, Montana Fish, Wildlife and Parks; Lindsey N Rich and Dr. Michael Mitchell, University of Montana, Montana Cooperative Wildlife Research Unit; James Hines, U.S. Geological Survey

Summary

1. Large-scale presence-absence monitoring programs have great promise for many conservation applications. This promise is limited, however, by the potential for incorrect inferences because of observational errors, especially when data are collected by the public.
2. Previous analytical methods have largely focused on addressing non-detection from public survey data. Misclassification errors have received less attention but are also likely to be a common component of public surveys, as well as other data types.
3. We derive estimators for dynamic occupancy parameters (extinction and colonization), focusing on the case where certainty can be assumed for a subset of detections. We show

how to simultaneously account for non-detection (false negatives) and misclassification (false positives) when estimating occurrence parameters for gray wolves in northern Montana from 2007-2010. Our primary data source for the analysis was observations by deer and elk hunters recorded as part of the state's annual hunter survey, which was supplemented by data on known locations of radio-collared wolves.

4. We found that occupancy was relatively stable during the years of the study and wolves were largely restricted to the highest quality habitats in the study area. Transitions in the occupancy status of sites were rare, as occupied sites almost always remained occupied and unoccupied sites remained unoccupied. Failing to account for false positives led to over estimation of both the area inhabited by wolves and the frequency of turnover.
5. Synthesis and applications: The ability to properly account for both false negatives and false positives is an important step to improve inferences for conservation from large scale public surveys. The approach we propose will improve our understanding of the status of wolf populations and is relevant to many other data types where false positives are a component of observations.

Bitterroot elk project

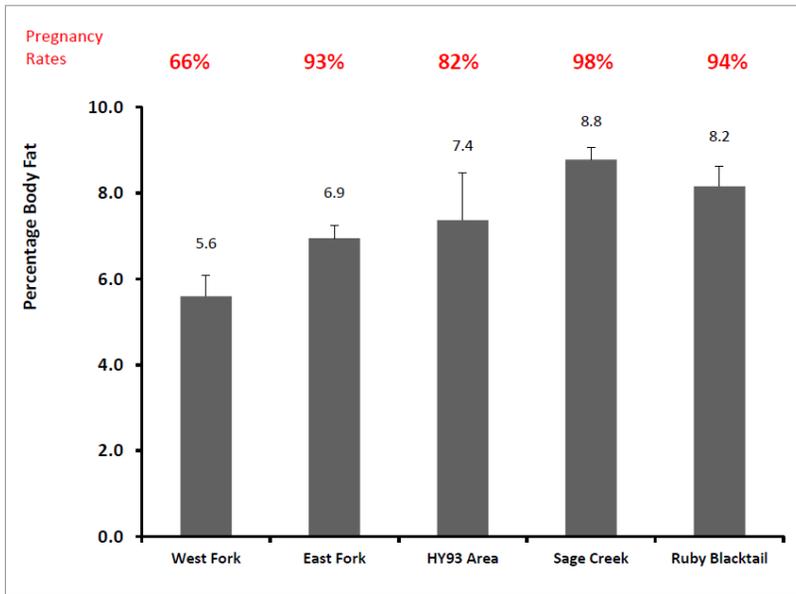
Investigators: Dr. Kelly Proffitt, Craig Jourdonnais, Ben Jimenez, Liz Bradley, Mike Thompson, and Justin Gude, Montana Fish, Wildlife and Parks, Dr. Mark Hebblewhite, University of Montana

Year 2 Adult Survival Update

Of the 40 adult female elk captured during winter 2011-2012, 35 survived through December 2012. Three animals died shortly after capture, likely of capture related causes. One East Fork elk was killed by a lion during the spring, and one West Fork elk was killed by wolves in the spring.

Adult Pregnancy and Body Condition

During both of the first two years of this three year project, adult female elk in the West Fork were in relatively poor body condition and had lower pregnancy rates than elk tested elsewhere in Montana.



Year 2 Summer-Fall Calf Survival Update

During late May and early June 2012, 76 neonatal elk calves were captured and marked with VHF transmitters. In addition to capturing calves in the East Fork and West Fork areas of the Bitterroot, in 2012 we also captured calves in the Upper Big Hole Valley. Prior to the start of the calf capture, more than half of the radiocollared East Fork adult females migrated to the Big Hole, so we expanded our capture efforts into that area in efforts to mark calves from within the entire East Fork elk herd calving range.

Through December 2012, 19 calves were alive, 32 calves were dead, and 25 calves were off the air and of unknown fate.

Area	Dead	Live	Off Air	Total
West Fork	19	8	11	38
East Fork	12	6	4	22
Big Hole	1	5	9	15
Total	32	19	25	76

Similar to the cause specific mortality data from year 1, in year 2 lion predation continues to be an important mortality source. Preliminary mortality causes during the second year of the calf study include:

	Bear	Lion	Wolf	Coyote	Natural, non-predation	Unknown cause	Unknown predator	Total
West Fork	2	7	1		1	1	7	19
East Fork	3	3	0	1	1	2	2	12
Big Hole	0	0	0	0	0	1	0	1
Total	5	10	1	1	2	4	9	32

These data should be considered preliminary, as additional DNA evidence is pending in several cases.

Other project related updates

During summer 2012, we initiated a vegetation sampling study with goals of estimating elk nutritional resources available on the West Fork and East Fork summer ranges. This field work will continue during summer 2013. During winter 2012-2013, we are conducting a 4 month study to estimate mountain lion density within the HD250/270 study area.

Blackfoot Range Rider Program Update

Investigators: Seth M. Wilson, Liz Bradley, and George Smith

Collaborators: Blackfoot Challenge; Blackfoot area ranchers, landowners and managers; Montana Fish, Wildlife & Parks; U.S. Fish and Wildlife Service; U.S. Forest Service; Bureau of Land Management; Montana Department of Natural Resources and Conservation; The Nature Conservancy, and The University of Montana.

The Blackfoot Challenge has been actively working to reduce the risk of livestock losses to wolves in the Blackfoot watershed since 2007. In addition to livestock carcass removal and electric fencing of calving areas, the Blackfoot Challenge has hired several seasonal range riders to help monitor wolf and livestock activity and to provide non-lethal tools to help reduce the potential for livestock depredations by wolves. These efforts have been carried out in close partnership with Fish, Wildlife and Parks.

The 2012 range rider season in the Blackfoot watershed focused on continuing to increase human presence around livestock herds that were adjacent to concentrations of wolf activity. George Smith was hired as the new full-time range rider for the 2012 field season, while Lyle Pocha and Warren Bignell returned to work part-time as assistant range riders. Molly Brown was a volunteer intern with FWP and Jenni Boutz served as a volunteer to the Blackfoot Challenge. Several livestock producers also devoted considerable time and effort toward increasing herd monitoring efforts on grazing allotments in the valley. This was the fourth official year of livestock and wolf monitoring efforts carried out by the Blackfoot Challenge.

Increased livestock monitoring efforts in 2012 helped producers track overall herd health, behavior, and use of grazing allotments. Range riders regularly communicated with producers about the status of their herds and any concerns about cattle. Wolf monitoring efforts focused mainly on the Arrastra Creek, Morrell Mountain, Humbug, and Union Peak packs whose territories overlap extensively with summer livestock grazing areas. There was less wolf activity observed on the BCCA (Ovando Mtn. pack area) in 2012 and therefore there was less focus on this area than in prior years.

The Arrastra Creek pack was monitored closely in 2012 after a large litter of pups (~10-12) was documented by part-time range rider assistant Lyle Pocha. This pack was frequently located in the vicinity of cattle on allotments, but moved back into the Scapegoat Wilderness later in the summer and early fall. In the fall FWP observed 12 wolves traveling together in this pack (4 adults and 8 pups) so not all of the pups appeared to have survived. No depredations were detected in the pack's territory in 2012.

The Garnet pack was again involved in depredations in Spring 2012. A female was collared by WS and subsequently killed along with one other wolf after three confirmed livestock depredations occurred. A new pair of wolves in the Jefferson Creek area was also involved in depredations in the early spring and both were removed by WS.

2012 Field Season Statistics:

- Completed 6 month field season monitoring livestock and wolves.
- Monitored 650-800 cow/calf pairs per week across 45,000 acres.
- Herd health and behavior were monitored and any issues were reported to producers.
- Range riders and cooperating producers logged over 2100 hours of livestock monitoring.
- Radio telemetry monitoring of three wolf packs documented presence of wolves regularly in the vicinity of livestock during the grazing season.
- Twelve wolf packs confirmed in the watershed.
- Five confirmed livestock losses (5 calves), 1 probable calf, and 1 dog during the 2012 season.
- Five wolves removed for livestock depredations during 2012.

Social Tolerance / Communication Statistics:

- Worked to maintain trust and credibility with over a dozen local landowners and livestock producers whose herds were at greatest risk.
- Maintained regular communication with an additional 40-50 landowners and producers who were at moderate risk of depredations by wolves.
- Maintained regular communication through list-serve and BC website with 150 people.
- Produced 8 *Wolf Activity Reports* for community and project partners.
- Maintained weekly contact with Fish, Wildlife and Parks and partners.
- Made 2 public presentations on wolf issues to approximately 100 people.

Timeline of wolf abundance and livestock interactions for the Blackfoot watershed:

2008:

- 3 confirmed wolf packs (est. 18 wolves)
- 4 confirmed calf losses
- 4 wolves removed

2009:

- 5 confirmed wolf packs (est. 24 wolves including pups)
- 2 confirmed calf losses
- 2 wolves removed

2010:

- 7 confirmed wolf packs (est. 45 wolves including pups)
- 4 confirmed livestock losses (2 calves, 1 cow, 1 horse)
- 8 wolves removed

2011:

- 10 confirmed wolf packs (est. 55 animals including pups)
- 3 confirmed livestock losses (2 calves and 1 ewe)
- No wolves removed by W.S.
- 2 wolves killed illegally

2012:

- 12 confirmed wolf packs (est. 52 animals including pups)
- 5 confirmed livestock losses (5 calves)
- 5 wolves removed by W.S.

Discussion: The use of intensive herd monitoring or range riding is an important tool that may be helping to decrease the risk of livestock depredation by wolves in the project area. Regular monitoring of wolves and extensive communication networks that have been developed in the project area with the help of ranchers, residents, and our agency partners has been of great benefit. Cultivating trust within the ranching community is essential for documenting actual estimated wolf numbers/packs, understanding wolf pack behavior, and ultimately for developing the willingness by landowners to engage in proactive efforts that reduce livestock depredation risk to both grizzly bears and wolves.

We are hopeful that the combination of livestock carcass removal, electric fences that serve as safe havens for livestock from both bears and wolves, and our range rider project are having a cumulative, positive effect that helps people and wolves coexist in an agricultural landscape.

Sustaining Rangeland Health via Rider- West Pioneers Update

Collaborators: Huntley Ranch, Lapham Ranch, Montana Fish, Wildlife and Parks, Big Hole Watershed Committee, People and Carnivores, US Forest Service, Wildlife Conservation Society, Wildlife Services

Introduction: As part of a broader effort to better explain, reduce conflicts and build tolerance with carnivores and people, Montana Fish Wildlife and Parks (FWP) partnered with the Big Hole Watershed Committee (BHWC), People and Carnivores (P&C), and Wildlife Conservation Society (WCS) to help two ranches in the Big Hole (Huntley and Lapham): to increase human presence, facilitate timely investigation of injured or dead livestock, increase knowledge about predator activity in the area, detect developing problems more quickly, reduce the risk of livestock-carnivore interactions, and maintain rangeland health on the Forest Service grazing allotments on the Beaverhead-Deerlodge National Forest, including Warm Springs Creek, Cox Creek, South Steel Creek and Stanley Creek as well as adjacent private land.

Funding was provided by US Forest Service, WCS, P & C and FWP to hire a person from the Big Hole as a range rider. Between July 2012 and October 2012, the rider rode on the Forest Service allotments looking for dead or injured livestock, sign of carnivore activity, monitoring cattle behavior, monitoring wildlife activity, and as needed, moving cattle from riparian areas. The rider operated under the direction of FWP.

Goals of the Project

- Increase human presence and monitoring of livestock on summer grazing allotments;
- Detect and report dead or injured livestock in a timely manner for investigation;
- Survey (sightings, tracks, scat) the allotments and private land for presence of large carnivores;
- Interrupt predator/livestock interactions that would result in dead or injured livestock utilizing nonlethal and lethal methods as situations arise as per state regulations allow; and
- Manage livestock consistently with the goal of maintaining rangeland health, by making sure that grazing is in compliance with forest service allotment regulations.

Methods: The rider spent approximately six days per week on allotments utilizing both day and night time patrols. The rider kept a daily journal of his work, travels, and observations and reported to ranchers and FWP as needed. The rider was provided a daily logbook and data sheets to record dead/injured livestock, livestock/predator incidents, livestock behavior and distribution, and general wildlife observations. He filled out a daily log and bi-weekly reports to summarize daily riding activities and share this information with all partners. Whenever the rider saw wolf activity on land of a non-participating landowner, the rider called the landowner to inform him. The rider was also under instruction that in the case of injured or dead livestock or a suspected depredation, to call the livestock owner and FWP immediately and note the GPS location.

The final results of this project are as follows:

- *Ranges Monitored:* The range monitored included private land belonging to the Huntley, and Lapham Ranches and associated grazing allotments on the Beaverhead-Deerlodge National Forest. Cattle are moved to a US Forest Service grazing allotment from June 1st through September 30th.

- *Number of Days and Nights Monitored:* Approximately 60 days & 20 nights. Livestock leave the USFS range in September, but the rider continued to monitor the range through October to manage stray cattle, monitor for predator activity, and to follow up on reported predator sightings.

- *Wolf Investigations:* One scat was reported and upon investigation determined to be from the prior year. One wolf print was reported and upon investigation determined to be a dog print.

- *Total Number of Injuries to Cattle Due to Wolf Depredation:* 0

- *Other Wildlife Encounters:* Wildlife activity, including elk and bear, were down as compared to last year. Reported sightings included fox, coyote, and bear.

- *Range Condition:* Grass was in good condition, while springs and creeks produced half the flow of the previous year. Cattle were spread evenly throughout the range without congregation in riparian or wet areas.

- *Cattle Condition and Behavior:* Sick, injured, or dead cattle were reported to producers. None of the injured, sick, or dead cattle warranted a wolf depredation investigation. Distribution of

cattle remained adequate with normal behavior. Cattle were noted out of the allotment in one instance due to a broken gate. Chet made the repairs and pushed cattle back into the allotment.

Range Rider Program Partners:

- Huntley and Lapham Ranches, Big Hole Watershed Committee, Fish, Wildlife, & Parks, People and Carnivores, and Wildlife Conservation Society.

Future Directions

While wolf/livestock interactions will continue to be a concern and risk to livestock producers in the West Pioneers, we seek to minimize this risk of conflict by working collaboratively with all partners. Collaborators will continue to evaluate wolf/livestock conflict and the rider project for further improvements and search for other tools to minimize risk. After collaborators reviewed the 2012 rider project, all the partners recognized the value in having the rider and remain committed to working together. This work will continue during the summer of 2013. BHWC, FWP and partner ranchers, with support from P&C and WCS submitted a \$15,000 proposal to the US Forest Service Resource Advisory Committee. The proposal was recommended for approval. The partners also plan to apply for additional funding from the Livestock Loss Board.

APPENDIX 4

MONTANA MINIMUM COUNTS BY AREA

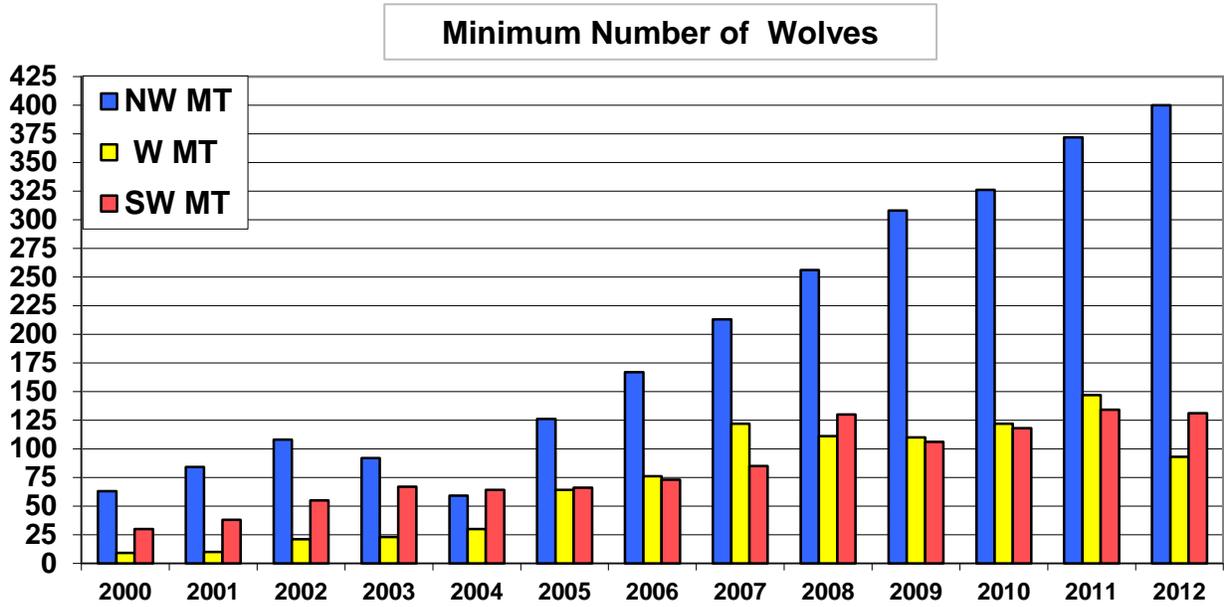


Figure 1. Minimum estimated number of wolves in Montana by recovery area (2000-2012).

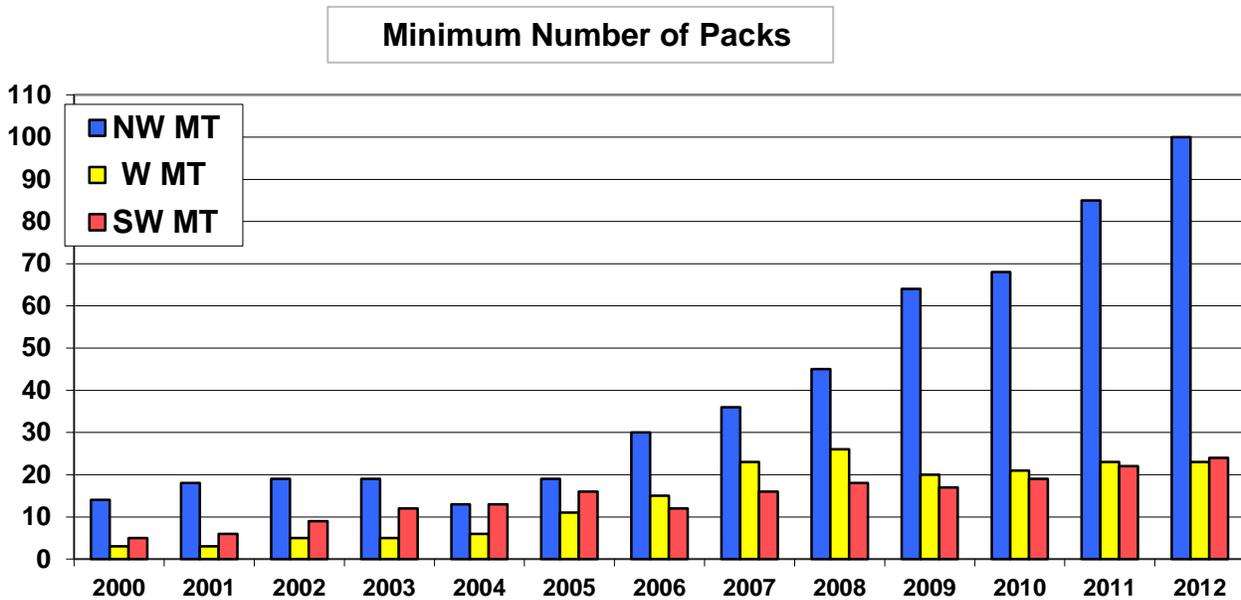


Figure 2. Minimum estimated number of packs in Montana by recovery area (2000-2012).

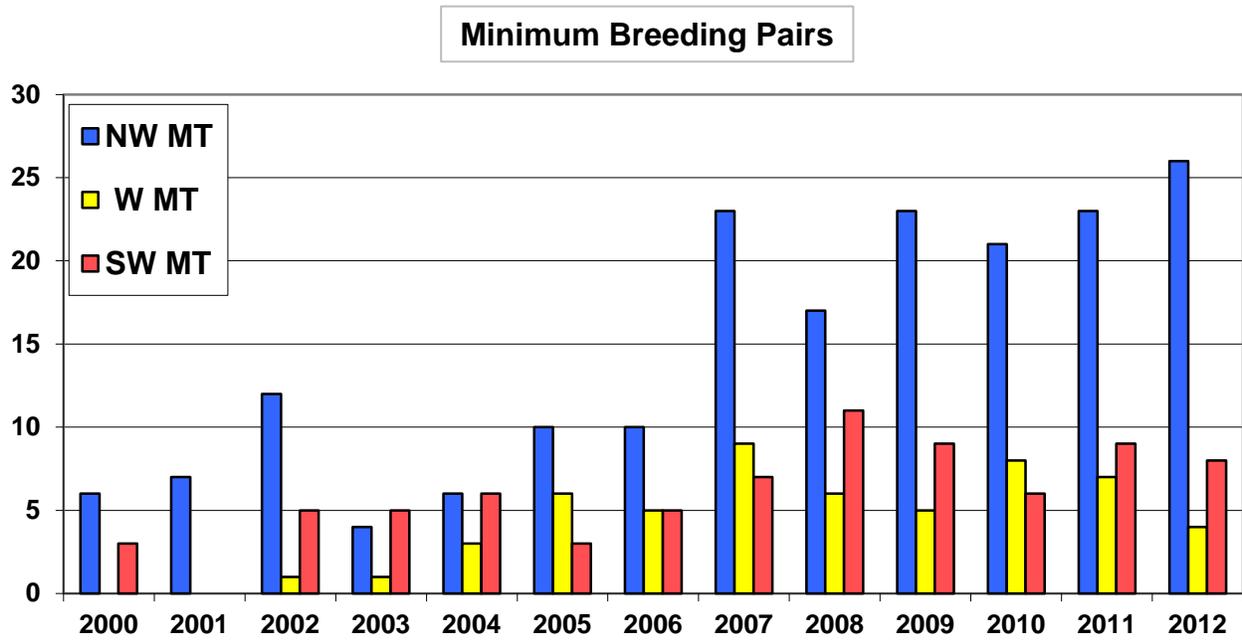


Figure 3. Minimum estimated number of breeding pairs in Montana by recovery area (2000–2012).

APPENDIX 5

NORTHERN ROCKIES WOLF PACK TABLES

Table 1a. Montana wolf packs and population data for Montana's portion of the Northwest Montana Recovery Area, 2011.

Table 1b. Montana wolf packs and population data for Montana's portion of the Greater Yellowstone Experimental Recovery Area, 2011.

Table 1c. Montana wolf packs and population data for Montana's portion of the Central Idaho Experimental Recovery Area and Montana statewide totals 2011.

Table 1a: Montana Wolf Packs and Population Data for Montana's Portion of the Northwest Montana Recovery Area, 2012.

REF #	WOLF PACK ¹	RECOV		MIN. ESTIMATED PACK SIZE DEC 2012	DOCUMENTED MORTALITIES					KNOWN		CONFIRMED LOSSES ⁶					
		AREA	STATE		NATURAL	HUMAN ²	UNKN ³	HARVEST ⁸	CONTROL ⁵	DISPERSED	MISSING ⁴	CATTLE	SHEEP	DOGS	OTHER		
1	Akokala	NWMT	MT	4													
2	Arrastra Creek	NWMT	MT	5				3			1						
3	Ashley	NWMT	MT	5		1		1						1			
4	Baptiste	NWMT	MT	6				1									
5	Bearfite	NWMT	MT	4				1			1						
6	Belmont	NWMT	MT	3				7									
7	Benchmark	NWMT	MT	7				3	7					6			
8	Bennie	NWMT	MT	8				4	8					2			2
	Bisson (CSKT) ⁷	NWMT	MT	0													
9	Bitterroot Range #	NWMT	MT	7													
10	Blowout Mountain	NWMT	MT	5				4	1					1			
11	Blue Mountain	NWMT	MT	4				2									
12	Bugle Mountain	NWMT	MT	8				2									
13	Cabinet	NWMT	MT	2													
14	Cache Creek #	NWMT	MT	14				2									
	Canyon Creek	NWMT	MT	0					7						1		
15	Candy Mountain	NWMT	MT	2				5									
16	Chamberlain	NWMT	MT	4													
17	Chief Mountain (BFN)	NWMT	MT	6													
18	Chippy	NWMT	MT	2				4			1		1				
19	Cilly	NWMT	MT	3				2									
20	Condon	NWMT	MT	6				1					1				
21	Corona	NWMT	MT	2				1	1				1		1		
22	Cottonwood (CSKT)	NWMT	MT	5				1					1				
23	Dalton Mountain	NWMT	MT	5				1						1			
24	DeBorgia #	NWMT	MT	5													
25	Deer Lodge	NWMT	MT	2													
26	Dirtyface	NWMT	MT	2													
27	Dog Gun (BFN)	NWMT	MT	5													
28	Dry Forks (CSKT)	NWMT	MT	6						4							
29	Dutch	NWMT	MT	4		1		1									
	Elbow ⁷	NWMT	MT	0										1			
	Emma ⁷	NWMT	MT	0										1			

Table 1a: Montana Wolf Packs and Population Data for Montana's Portion of the Northwest Montana Recovery Area, 2012.

REF #	WOLF PACK ¹	RECOV		MIN. ESTIMATED PACK SIZE DEC 2012	DOCUMENTED MORTALITIES					KNOWN		CONFIRMED LOSSES ⁶					
		AREA	STATE		NATURAL	HUMAN ²	UNKN ³	HARVEST ⁸	CONTROL ⁵	DISPERSED	MISSING ⁴	CATTLE	SHEEP	DOGS	OTHER		
30	Evano	NWMT	MT	2													
31	Ferry Basin (CSKT)	NWMT	MT	2													
32	Firefighter	NWMT	MT	5				1									
33	Flathead Alps	NWMT	MT	2		2											
34	Garden (CSKT)	NWMT	MT	3		2	1	1				1					
	Garnet ⁷	NWMT	MT	0						2						3	
35	Good	NWMT	MT	2				1									
36	Granite Butte	NWMT	MT	2		1		1	6						1		
37	Great Bear	NWMT	MT	2				1									
38	Great Northern	NWMT	MT	2				1									
39	Halfmoon	NWMT	MT	2		1		1									
	Heart Butte (BFN) ⁷	NWMT	MT	0													
40	Humbug	NWMT	MT	3						1							1
41	Inez	NWMT	MT	7				1									
	Irvine (CSKT) ⁷	NWMT	MT	0						13						3	
	Jefferson Creek ⁷	NWMT	MT	0						2						1	
42	Kintla	NWMT	MT	9				1									
43	Kootenai North	NWMT	MT	2													
44	Kootenai South	NWMT	MT	7													
45	Ksanka	NWMT	MT	4				2									
46	Lamoose	NWMT	MT	2				1									
47	Landers Fork	NWMT	MT	4													
48	Leota	NWMT	MT	2				1									
49	Livermore (BFN)	NWMT	MT	5						8						2	
50	Lost #	NWMT	MT	4													
51	Lost Girl	NWMT	MT	5				2									
52	Lost Peak#	NWMT	MT	2													
53	Lydia	NWMT	MT	3						8						2	
54	Marias	NWMT	MT	6				3									
55	McDonald	NWMT	MT	2													
56	McGinnis	NWMT	MT	2				1	2							1	
57	McKay	NWMT	MT	2													
58	Mineral Mountain	NWMT	MT	4													

Table 1a: Montana Wolf Packs and Population Data for Montana's Portion of the Northwest Montana Recovery Area, 2012.

REF #	WOLF PACK ¹	RECOV		MIN. ESTIMATED PACK SIZE DEC 2012	DOCUMENTED MORTALITIES					KNOWN		CONFIRMED LOSSES ⁶				
		AREA	STATE		NATURAL	HUMAN ²	UNKN ³	HARVEST ⁸	CONTROL ⁵	DISPERSED	MISSING ⁴	CATTLE	SHEEP	DOGS	OTHER	
	<u>Monitor Mountain</u> ⁷	NWMT	MT	0				1	6			2				
59	Monture	NWMT	MT	3				3								
60	<u>Morrell Mountain</u>	NWMT	MT	4												
61	<u>Mullan</u>	NWMT	MT	5				2								
62	Murphy Lake	NWMT	MT	2		1			1							
63	Nasu'kin	NWMT	MT	2				1								
64	<u>Ninemile</u>	NWMT	MT	8				1								
65	No	NWMT	MT	11				1								
66	<u>Noisy</u>	NWMT	MT	8				1								
67	Nyack	NWMT	MT	2												
68	O'Brien	NWMT	MT	2				1								
69	Ovando Mountain	NWMT	MT	3												
70	<u>Petty Creek</u>	NWMT	MT	5				2								1
71	Pierce	NWMT	MT	2				1								
72	<u>Pistol Creek (CSKT)</u>	NWMT	MT	4												
73	Preacher #	NWMT	MT	2												
74	Pulpit Mountain	NWMT	MT	2												
75	Quartz Creek #	NWMT	MT	2												
76	<u>Quintonkon</u>	NWMT	MT	4												
77	Red Shale	NWMT	MT	5				1								
78	Satire	NWMT	MT	2		1		5								
79	Savenac	NWMT	MT	2				1								
80	Silcox	NWMT	MT	2				1								
81	Silver Lake #	NWMT	MT	6												
	<u>Sixmile</u> ⁷	NWMT	MT	0												
82	Sleeping Woman (CSKT)	NWMT	MT	4								1				
83	Smoky	NWMT	MT	2					1							
84	Solomon Mountain #	NWMT	MT	2												
85	<u>Spotted Bear</u>	NWMT	MT	4												
86	Sugarloaf	NWMT	MT	8												
87	<u>Sundance</u>	NWMT	MT	6		1		1								
88	Sweetgrass Hills	NWMT	MT	3												
89	Tallulah	NWMT	MT	3		1		1								

Table 1a: Montana Wolf Packs and Population Data for Montana's Portion of the Northwest Montana Recovery Area, 2012.

REF #	WOLF PACK ¹	RECOV		MIN. ESTIMATED PACK SIZE DEC 2012	DOCUMENTED MORTALITIES					KNOWN		CONFIRMED LOSSES ⁶				
		AREA	STATE		NATURAL	HUMAN ²	UNKN ³	HARVEST ⁸	CONTROL ⁵	DISPERSED	MISSING ⁴	CATTLE	SHEEP	DOGS	OTHER	
90	Telephone Butte	NWMT	MT	5				2								
91	Teton	NWMT	MT	3												
92	Thirsty	NWMT	MT	2				1								
93	Tom Meier ^	NWMT	MT	6		1										
94	Twilight #	NWMT	MT	2												
95	Union Peak	NWMT	MT	3												
96	Vermillion	NWMT	MT	2				1								
97	Weigel	NWMT	MT	2				1								
98	<u>White Earth (CSKT)</u>	NWMT	MT	5												
99	Wiggletail #	NWMT	MT	2												
100	Wolf Prairie	NWMT	MT	2		2		3								
	Misc/Lone	NWMT	MT	6		3		10					5			
MT in NWMT (Table 1a)		NWMT	MT	400	2	16	2	106	78	3	7	33	1	1	3	
ID in NWNMT (Table 3b)		NWMT	ID	60	0	1	0	27	2	0	2	0	0	0	0	
NWMT RECOVERY AREA		NWMT	MT/ID	460	2	17	2	133	80	3	9	33	1	1	3	

Table 1a

- 1 Underlined packs are counted as breeding pairs toward recovery goals. CSKT = Flathead Indian Reservation; BFN = Blackfeet Indian Reservation.
 - 2 Excludes wolves killed in control actions to address livestock depredation and lawful public harvest.
 - 3 Does not include pups that disappeared before winter.
 - 4 Collared wolves that became missing in 2012.
 - 5 Agency lethal control whether under state or federal regulations. Includes wolves killed by private citizens to defend livestock or under terms of a kill permit.
 - 6 Includes only domestic animals confirmed killed by wolves.
 - 7 Pack did not exist on Dec. 31, 2012 and is not displayed on the map.
 - 8 Number legally harvested by humans in 2012.
- # Border pack shared with the State of Idaho; dens in Montana.
 ^ Back name change. Lazy Creek is now Tom Meier.

Table 1b: Montana Wolf Packs and Population Data for Montana's Portion of the Greater Yellowstone Experimental Area, 2012.

REF #	WOLF PACK ¹	RECOV		MIN. ESTIMATED PACK SIZE DEC 2012	DOCUMENTED MORTALITIES					KNOWN		CONFIRMED LOSSES ⁶						
		AREA	STATE		NATURAL	HUMAN ²	UNKN ³	HARVEST ⁸	CONTROL ⁵	DISPERSED	MISSING ⁴	CATTLE	SHEEP	DOGS	OTHER			
101	Avalanche	GYA	MT	9														
102	Baker Mountain	GYA	MT	4				2										
103	Beartrap	GYA	MT	13				3			1				1			
104	Boone Mountain	GYA	MT	3												1		
105	Brackett Creek	GYA	MT	4				2			1		1			2		
106	Cedar Creek	GYA	MT	2				1					1					
107	Cougar 2 *	GYA	MT	7			1	3										
108	Dixon Creek	GYA	MT	3				1										
109	Elephant Rock	GYA	MT	6			1											
110	Elkhorn	GYA	MT	6						1						2		
111	Fridley	GYA	MT	7				1										
112	Hayden *	GYA	MT	6				1										
113	Hogback	GYA	MT	6				3										
114	Jack Creek	GYA	MT	3						1						7		
115	Lebo Peak	GYA	MT	2														
116	Meadow Creek	GYA	MT	2														
	Mill Creek ⁷	GYA	MT	0				2					1					
117	Mount Vesuvius	GYA	MT	3												2		
118	Price Creek	GYA	MT	3				2		2						1		
	Quadrant ⁷	GYA	MT	0			1											
	Red Bluff ⁷	GYA	MT	0						2						13		
119	Romy Lake	GYA	MT	4				1							5	2		
	Rosebud ⁷	GYA	MT	0				1								1		
120	Slip n' Slide	GYA	MT	4				1										
	Snowshoe ⁷	GYA	MT	0						4						2		
121	Steamboat Peak	GYA	MT	3				1		3						2		
	Table Mountain ⁷	GYA	MT	0														
122	Tanner Pass	GYA	MT	6														
123	Toadflax	GYA	MT	9				3					1					
124	Wilson Creek	GYA	MT	7				1										
	Misc/Lone	GYA	MT	10				2		11					4	2		
MT in GYA (Table 1b)		GYA	MT	132				1	8	0	39	13	2	4	23	24	0	0

Table 1b

- 1 Underlined packs are counted as breeding pairs toward recovery goals.
 - 2 Excludes wolves killed in control actions to address livestock depredation and lawful public harvest.
 - 3 Does not include pups that disappeared before winter.
 - 4 Collared wolves that became missing in 2012.
 - 5 Agency lethal control. Includes wolves killed by private citizens to defend livestock or under terms of a kill permit.
 - 6 Includes only domestic animals confirmed killed by wolves.
 - 7 Pack did not exist on Dec. 31, 2012 and is not displayed on the map; see pack narrative.
 - 8 Number legally harvested by humans in 2012. Border harvests that occurred in MT but were members of packs elsewhere are included as Misc/Lone in this table.
- * Border pack shared with YNP; more time in Montana.

Table 1c: Montana Wolf Packs and Population Data for Montana's Portion of the Central Idaho Experimental Area, 2012.

REF. #	WOLF PACK ¹	RECOV		MIN. ESTIMATED PACK SIZE DEC 2012	DOCUMENTED MORTALITIES					KNOWN		CONFIRMED LOSSES ⁶					
		AREA	STATE		NATURAL	HUMAN ²	UNKN ³	HARVEST ⁵	CONTROL ⁵	DISPERSED	MISSING ⁴	CATTLE	SHEEP	DOGS	OTHER		
125	Alta #	CID	MT	5				1									
126	Anaconda	CID	MT	2					2								
127	Big Hole #	CID	MT	6				1									
128	Black Pine	CID	MT	2													
129	Bloody Dick #	CID	MT	3													
130	Divide Creek	CID	MT	5		1		1		1							
	East Fork Rock Creek ⁷	CID	MT	0													
131	Flint Creek	CID	MT	5				1									
132	Gash Creek #	CID	MT	4													
133	Gird Point	CID	MT	10				4									
134	Harvey Creek	CID	MT	6													
135	Jeff Davis #	CID	MT	2					4			3	6				
136	Mt. Haggin	CID	MT	3						2							
137	One Horse #	CID	MT	2	1	1		1									
138	Painted Rocks #	CID	MT	3				1									
139	Pintler	CID	MT	3		1		3	4			1					
140	Ross' Fork	CID	MT	2				1		1							
141	Shook Mountain	CID	MT	2		1		4									
142	Sliderock Mtn	CID	MT	5			1	1									
	Stewart Mtn ⁷	CID	MT	0				3				1					
143	Sula #	CID	MT	5	1			1									
144	Tepee Point	CID	MT	3				1									
145	Trail Creek #	CID	MT	2			1										
146	Trapper Peak	CID	MT	3													
147	Watchtower #	CID	MT	5						1							
	Welcome Creek ⁷	CID	MT	0			1										
	Misc/Lone	CID	MT	5		3		6	5			6	6				
	MT Total in CID	CID	MT	93		2	7	3	30	17	3	11	12	0	0		
	MT in NWMT total (Table 1a)	NWMT	MT	400		2	16	2	106	78	3	33	1	1	2		

Table 1c: Montana Wolf Packs and Population Data for Montana's Portion of the Central Idaho Experimental Area, 2012.

REF. #	WOLF PACK ¹	RECOV		MIN. ESTIMATED PACK SIZE DEC 2012	DOCUMENTED MORTALITIES					KNOWN		CONFIRMED LOSSES ⁶			
		AREA	STATE		NATURAL	HUMAN ²	UNKN ³	HARVEST ⁵	CONTROL ⁵	DISPERSED	MISSING ⁴	CATTLE	SHEEP	DOGS	OTHER
MT in GYA total (Table 1b)		GYA	MT	132	1	8	0	39	13	2	4	23	24	0	0
MT in CID total (Table 1c)		CID	MT	93	2	7	3	30	17	3	0	11	12	0	0
MT STATE TOTAL			MT	625	5	31	5	175	108	8	11	67	37	1	3

Table 1c

- 1 Underlined packs are counted as breeding pairs toward recovery goals.
- 2 Excludes wolves killed in control actions.
- 3 Does not include pups that disappeared before winter.
- 4 Collared wolves that ceased transmitting in 2012.
- 5 Includes agency lethal control and take by private citizens under state regulations.
- 6 Includes only domestic animals confirmed killed by wolves.
- 7 Pack did not exist on December 31, 2012 and is not displayed on the map.
- 8 Number legally harvested by humans in 2012.
- # Border pack shared with State of Idaho; dens in Montana and majority of time in Montana.