

**WOLF CONSERVATION AND MANAGEMENT  
IN IDAHO  
PROGRESS REPORT 2010**



Prepared By:

Jim Holyan .....Nez Perce Tribe  
Kari Holder .....Nez Perce Tribe  
Jeff Cronce .....Nez Perce Tribe  
Curt Mack .....Nez Perce Tribe



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## EXECUTIVE SUMMARY

In winters of 1995 and 1996, the U.S. Fish and Wildlife Service (USFWS) reintroduced 66 gray wolves to central Idaho and Yellowstone National Park as part of efforts to restore populations of endangered gray wolves (*Canis lupus*) across the northern Rocky Mountain states of Idaho, Montana, and Wyoming. In April 2009, the USFWS removed (delisted) the northern Rocky Mountain Distinct Population Segment, excluding Wyoming, of gray wolves from the protections of the Endangered Species Act, returning wolf management authorities to those states. This delisting decision was overturned and wolves were returned to the Endangered Species List in August 2010.

The State of Idaho and Nez Perce Tribe (NPT) worked cooperatively in 2010 to conserve and manage wolves in Idaho through a Memorandum of Agreement signed in 2005. In 2008, the Idaho Fish and Game Commission adopted the “Idaho Wolf Population Management Plan 2008-2012” (2008 Wolf Plan) which was designed to guide the Idaho Department of Fish and Game (IDFG) in management of conflicts between wolves and human interests and aimed to stabilize the wolf population between 500-700 wolves (IDFG 2008). Following delisting, the Fish and Game Commission authorized the first Idaho wolf hunt in 2009, and established a statewide harvest limit of 220 wolves. Members of the NPT were provided an allocation of up to an additional 35 wolves in the Nez Perce Tribal Treaty Area. The 2008 Wolf Plan was suspended by the Commission in December 2010.

In Idaho, wolf packs ranged from the Canadian border south to Interstate Highway 84, and from the Washington and Oregon borders east to the Montana and Wyoming borders. Dispersing wolves were occasionally reported in previously unoccupied areas. During 2010, over 200 wolf observations were reported on IDFG’s online website report form.

Biologists documented 87 Idaho packs alive at the end of 2010. The minimum year-end population was estimated at 705 wolves (Appendix A). In addition, there were 22 documented border packs counted for Montana, Wyoming, and Washington that established territories overlapping the Idaho state boundary during 2010, though not all were extant by the end of the year. Of the 54 Idaho packs known to have reproduced, forty-six qualified as breeding pairs by the end of the year. These reproductive packs produced a minimum of 189 pups.

Biologists confirmed the deaths of 144 wolves in Idaho during 2010; two of those were of wolves that dispersed from Montana packs. Of known wolf mortalities, harvest accounted for 46 deaths and agency control and legal landowner take in response to wolf-livestock depredation, and IDFG-authorized outfitter take, accounted for 80 deaths. Five wolf mortalities were attributed to other human causes (including illegal take), the cause of 11 wolf mortalities could not be determined and were listed as unknown, and 2 wolves died of natural causes.

During the 2010 calendar year, 75 cattle, 148 sheep, 2 horses, and 1 domestic bison were classified by Wildlife Services as confirmed wolf kills; 14 cattle, 30 sheep, and 1 livestock guard dog were considered probable wolf kills.

This annual progress report is a cooperative effort between the agencies involved and summarizes wolf activity and related management in Idaho during 2010.

## ACKNOWLEDGEMENTS

Wolf conservation and management in Idaho is a cooperative effort between the State of Idaho, NPT, WS, and the USFWS. The NPT's Executive Committee and Wildlife Program Director Keith Lawrence provided support and input. We would like to acknowledge and thank the Governor's Office of Species Conservation director, Nate Fisher, and Dustin Miller for assistance and oversight. Mark Collinge, George Graves, Todd Grimm, Rick Williamson (Wildlife Services' [WS] state Wolf Specialist), and all WS field personnel helped resolve wolf-livestock conflicts. U.S. Fish and Wildlife Service personnel Ed Bangs, Brian Kelly, Jeff Foss, Gary Burton, Robert Romero, Scott Kabasa, Scott Winkler, Dirk Hoy and Mike Jimenez provided support and assistance in wolf management responsibilities. Cal Groen, Virgil Moore, Jim Unsworth, Jeff Gould, Brad Compton, Jon Rachael, and Craig White (IDFG) provided support and input. We would like to thank IDFG Regional Supervisors for assuming most of the responsibility in making decisions on control actions in response to wolf depredations while wolves were delisted.

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Thanks to those who reported wolf sightings via the IDFG website or directly to Program personnel. Cover photo by Isaac Babcock.

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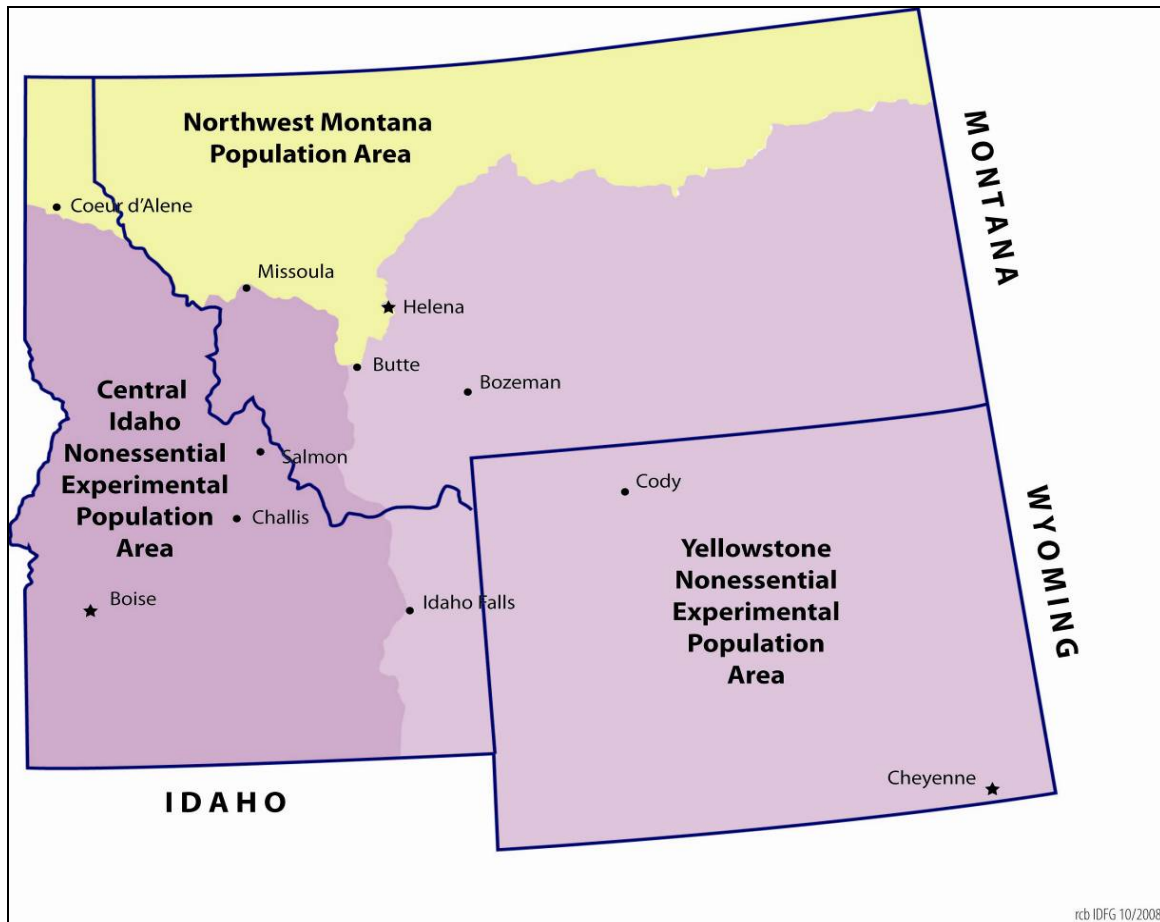
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## INTRODUCTION

The U.S. Fish and Wildlife Service (USFWS) established 3 recovery areas (Northwest Montana, Central Idaho, and the Greater Yellowstone Area) to recover endangered gray wolf (*Canis lupus*) populations across the northern Rocky Mountain (NRM) states of Idaho, Montana, and Wyoming (Figure 1). Sixty-six wolves were released in central Idaho (35 wolves) and Yellowstone National Park (31 wolves) during winters of 1995 and 1996 as part of the USFWS' recovery effort. Biological recovery goals were met in the NRM states in 2002.



**Figure 1.** Recovery areas established by the U.S. Fish and Wildlife Service to restore gray wolf populations in the northern Rocky Mountains of Idaho, Montana, and Wyoming.

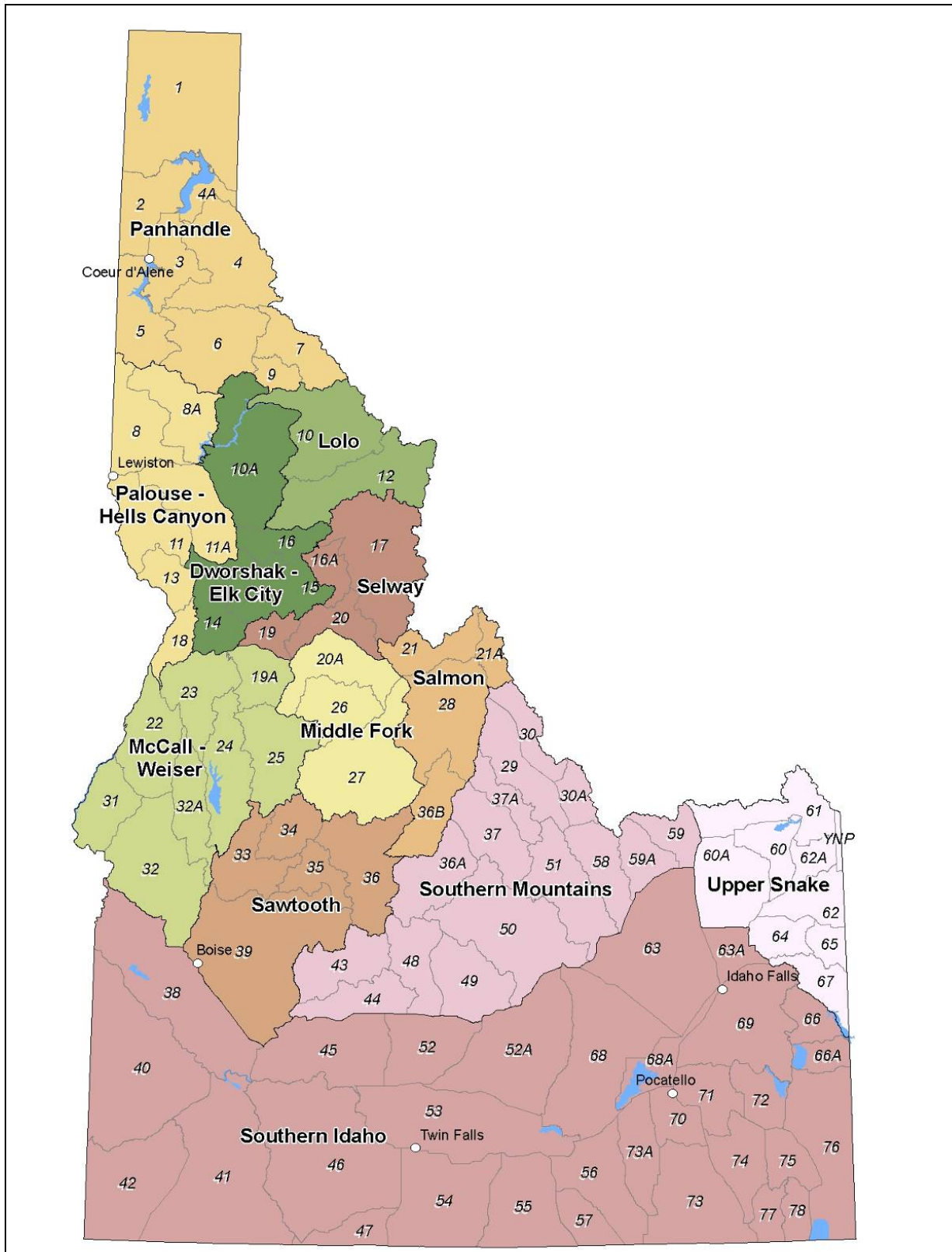
In January 2006, the State of Idaho became the USFWS' designated agent, which gave the State day-to-day wolf management authorities. Previously, the NPT had been the designated agent for Idaho prior to the State becoming involved in wolf conservation and management.

In February 2008, the USFWS initiated the process to delist wolves by creating a NRM Distinct Population Segment (DPS; Figure 2) and published the delisting proposal in the Federal Register. The NRM DPS included all of Idaho, Montana, and Wyoming, eastern portions of Washington and Oregon, and a small part of northern Utah.



**Figure 2.** Northern Rocky Mountain gray wolf Distinct Population Segment (DPS) boundaries established by the U.S. Fish and Wildlife Service in 2008 and 2009.

In preparation for delisting, Idaho Department of Fish and Game (IDFG) prepared, and the Idaho Fish and Game Commission adopted (in March 2008), the “Idaho Wolf Population Management Plan 2008-2012” (2008 Wolf Plan) which was designed to manage conflicts between wolves and human interests. The 2008 Wolf Plan aimed to stabilize the wolf population between 2005 and 2007 levels (IDFG 2008). The 2008 Wolf Plan established 12 Data Analysis Units and guided wolf management direction within those units for 2008-2012 (Figure 3). The Wolf Plan also provided guidelines for wolf harvest opportunities once wolves were delisted.



**Figure 3.** Idaho Wolf Management Zones. Wolf Management Zones were created by combining one or more elk management zones with similarity in wolf population, prey base, and current or potential conflicts with livestock and ungulates. Wolf Management Zones were designed to implement monitoring and management under the State Wolf Population Management Plan (2008).



The delisting rule became final in March 2008 and the State of Idaho assumed full management responsibility for wolves. Delisting was challenged in federal court by a coalition of environmental groups and in July 2008, a ruling returned ESA protections to wolves in the NRM DPS. The State continued as the designated agent.

The USFWS published a second delisting rule in the federal register in January 2009; although Wyoming remained, geographically, a part of the NRM DPS, wolves in that state were excluded from this proposal and would retain protections under the ESA. This delisting proposal was finalized in May 2009 and the State of Idaho again assumed full management responsibility for wolves. This delisting rule was also challenged in federal court; that lawsuit sought to block the scheduled wolf-hunting seasons for 2009 and overturn the delisting decision.

A federal judge denied the plaintiffs' motion for preliminary injunction to block the wolf hunts on grounds that they failed to show a likelihood of irreparable harm to the wolf population. However, the judge indicated the plaintiffs had demonstrated a likelihood of success on the merits of their lawsuit. The judge stated concerns with leaving a portion of the NRM DPS still listed (i.e., state of Wyoming). Wolf-hunting seasons were conducted in Idaho and Montana beginning in fall 2009, with Idaho's season extended through March 2010.

A federal judge ordered in August 2010 that the rule to delist wolves be vacated, which restored ESA protections to the species and effectively nullified the NRM DPS (USFWS 2010). This decision was based on the determination that the USFWS cannot delist, or list, a portion of a species' DPS. The judgment precluded planned fall wolf-hunting seasons in Idaho and Montana for 2010, which were to occur after the date of the judge's decision.

The State of Idaho continued as the designated agent until 18 October 2010, when Governor C. L. Otter informed Secretary of Interior Ken Salazar that the State would no longer serve in that role while wolves were a listed species. In essence, the State withdrew from all wolf-related management activities, though the governor directed the Fish and Game Commission to "...refocus its efforts on protecting...ungulate herds." The governor specifically noted that the State, through IDFG would not be involved in "...perform[ing] statewide monitoring for wolves, conduct[ing] investigations into illegal killings, provid[ing] state law enforcement in response to illegal takings or implement the livestock depredation response program."

The Fish and Game Commission suspended the 2008 Wolf Plan in December 2010. The Commission will direct IDFG, when wolves are successfully delisted, "...to prepare an appropriate wolf species management plan, consistent with the 2002 Idaho Wolf Conservation and Management Plan..." (Idaho Wolf Legislative Oversight Committee 2002). The "2002 Idaho Wolf Conservation and Management Plan" was approved by the Idaho Legislature in March 2002 and by the USFWS in January 2004. The "2002 Idaho Wolf Conservation and Management Plan" differs from the 2008 Wolf Plan in the total numbers of wolves the State of Idaho would manage for. For a more comprehensive chronology of events related to wolf recovery, conservation, and management in Idaho and the NRM, see <http://www.fishandgame.idaho.gov/cms/wildlife/wolves/timeline.cfm> on IDFG's website.

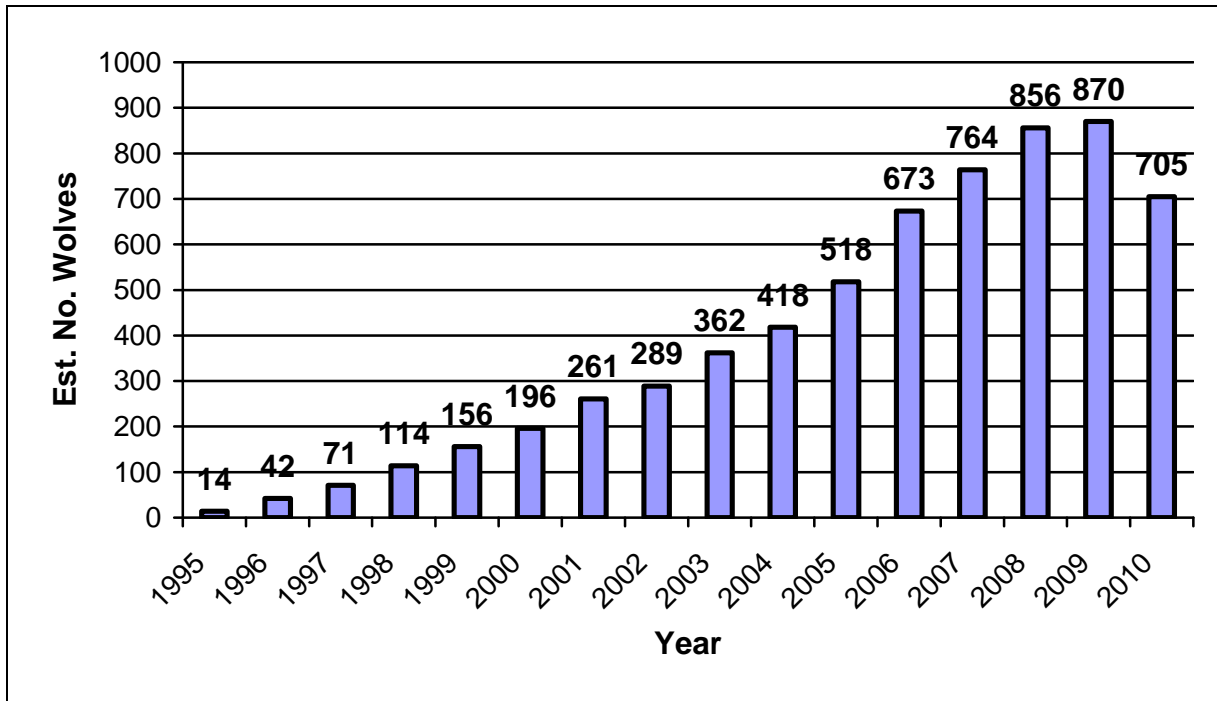
Since the 2008 Wolf Plan was in effect for the majority of this reporting period, this report followed the direction outlined by that plan. This report adopted the term Wolf Management Zones (Zone; WMZ in Tables) in 2009, rather than Data Analysis Unit as used in the 2008 Wolf Plan and its use has been retained. This annual report summarizes wolf population status information and management activities carried out during 2010 and fulfills annual USFWS requirements. It is organized by zones.

## **STATEWIDE SUMMARY**

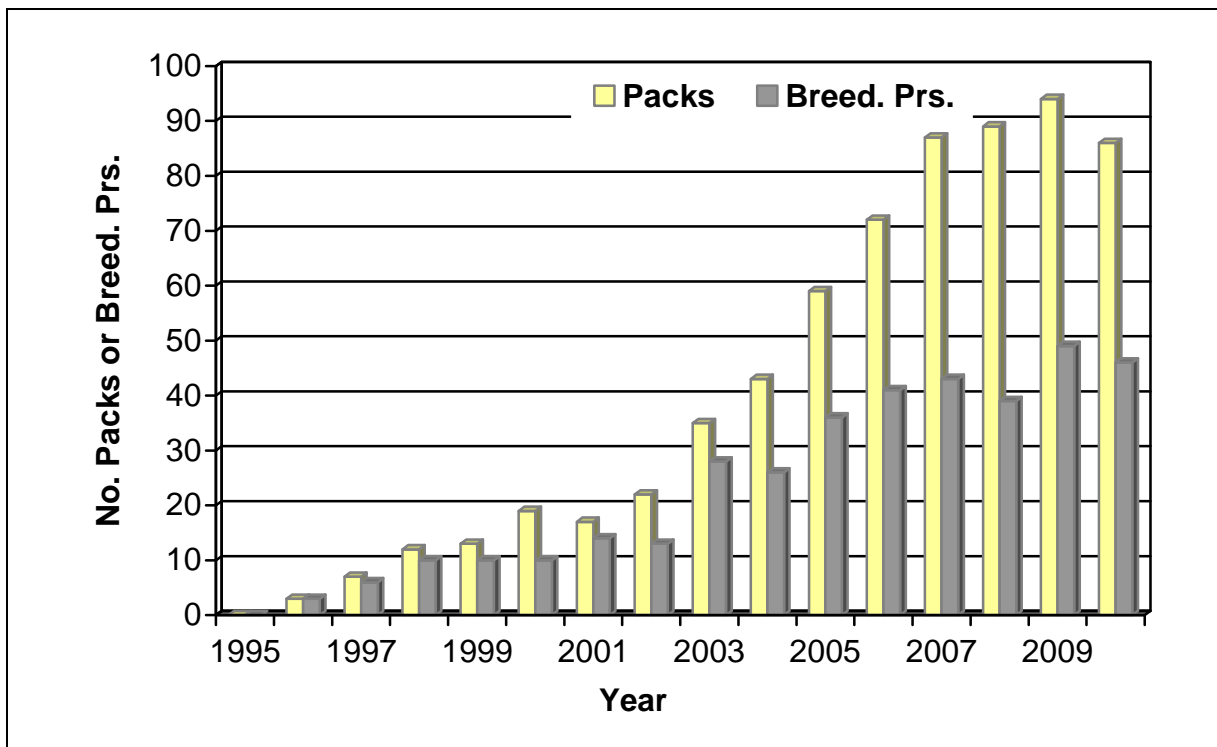
Idaho has a diverse landscape containing large expanses of high quality wolf habitat. Central Idaho includes 3 contiguous wilderness areas; the Selway-Bitterroot, Frank Church-River of No Return, and Gospel Hump encompassing almost 4 million acres (1.6 million ha), which represent the largest block of federally-designated wilderness in the lower 48 states. Outside of wilderness areas, land ownership and human use patterns result in varying levels of potential human conflict with wolves. Southern Idaho includes the vast Snake River Plain, which is predominantly private agricultural land and also contains most of Idaho's urban centers. Three major mountain chains and 2 large river systems help blend these very different landscapes together, many of which are managed for multiple uses. A moisture gradient also influences habitats of both wolves and their prey, with maritime climates in the north supporting western red cedar (*Thuja plicata*)-western hemlock (*Tsuga heterophylla*) vegetation types, transitioning into continental climates of Douglas-fir (*Pseudotsuga menziesii*) and ponderosa pine (*Pinus ponderosa*) to the south. Elevations vary from 1,500 feet (457 m) to just over 12,000 feet (3,657 m). Annual precipitation varies from less than 8 inches (20 cm) at lower elevations to almost 100 inches (254 cm) at upper elevations.

### **Wolf Population Status**

The Idaho wolf population expanded in numbers since initial reintroductions in 1995 and 1996 (Figures 4 and 5) until 2010. By the end of 2010, 87 documented wolf packs (Idaho documented resident and documented resident border packs) were extant in Idaho, ten fewer than were reported in 2009. The minimum population estimate for 2010 was 705 wolves (Appendix A).



**Figure 4.** Estimated number of wolves in Idaho, 1995-2010. Annual numbers were based on best information available and were retroactively updated as new information was obtained.

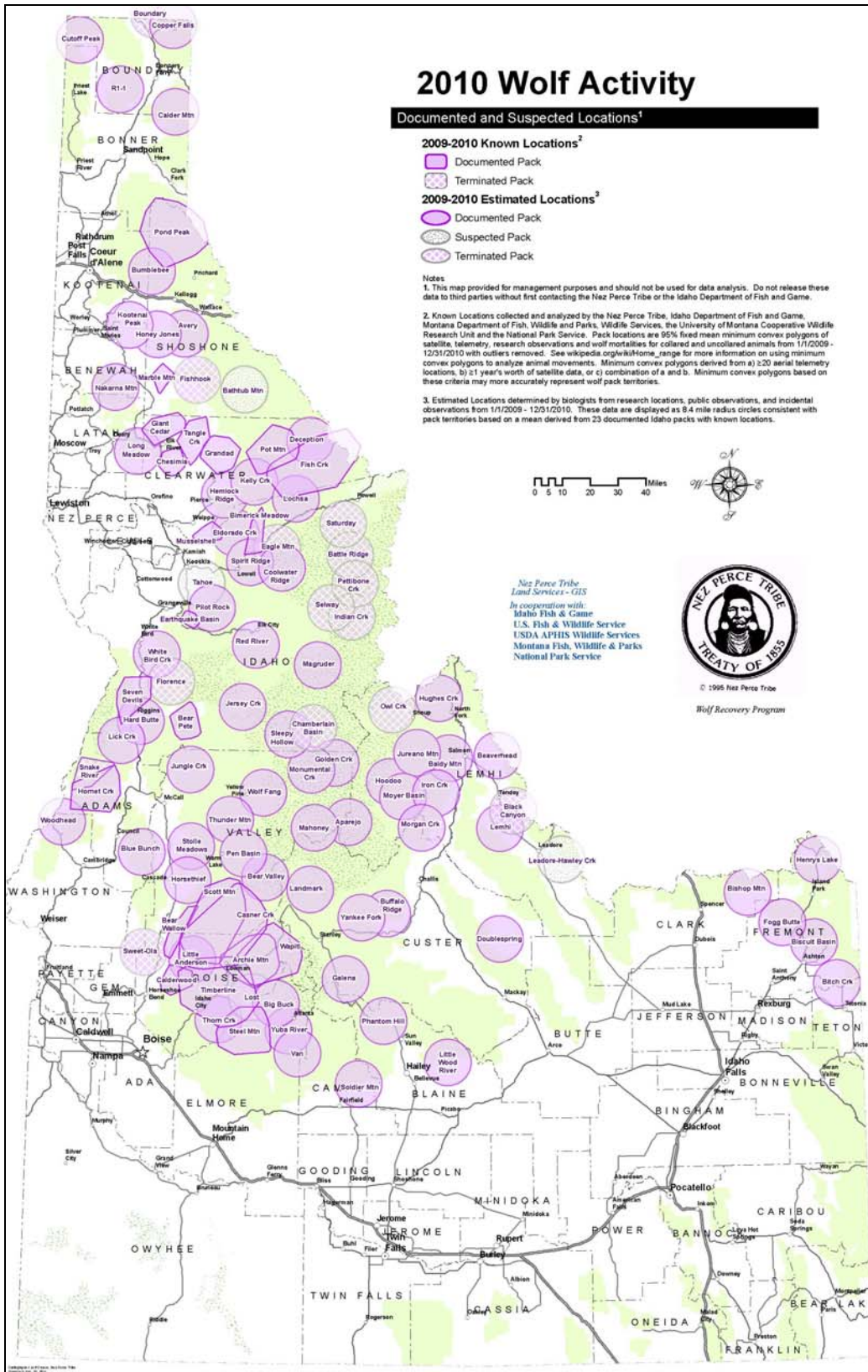


**Figure 5.** Number of documented wolf packs and breeding pairs in Idaho, 1995-2010. Annual numbers were on based best information available and were retroactively updated as new information was obtained.

## Distribution, Reproduction, and Population Status

Estimates of wolf numbers, pup production, and breeding pairs are conservative. The “minimum number of wolves detected” is the number of wolves aerially observed during winter (December through February) and represents the Program’s year-end knowledge regarding wolf social units (pack/group). Typically counts can only be obtained for those packs/groups containing at least 1 radiocollared wolf. For those packs where a year-end count is labeled “complete,” Program personnel felt that all of the wolves in that pack were observed. For those packs where a year-end count is labeled “incomplete,” Program personnel felt that not all of the wolves in that pack were observed and the size of the pack may have been higher than that reported. Not all known wolf packs could be adequately surveyed.

Wolves were well distributed across the state from the Canadian border, south to the Snake River Plain, and from the Washington and Oregon borders east to the Montana and Wyoming borders (Figure 6). Of the 87 documented packs present at the end of 2010, territories of most were predominantly on U.S. Forest Service (USFS) public lands. Four packs were newly documented in 2010; one each in the Palouse-Hells Canyon, Panhandle, Sawtooth, and Southern Mountains zones. Another 3 packs initially verified were determined to have been established prior to 2010 and were retroactively added as documented packs in 2009. Three packs were removed for repeated livestock depredations, 1 pack (Snowy Top) was removed because there was evidence that it was actually another pack (Cutoff Peak), 1 pack was considered disbanded due to the effects of human harvest, and 9 packs were removed because the Program has found no evidence during the past 2 years to indicate they remained extant by the end of 2010. The majority of these latter packs resided in wilderness areas where monitoring was difficult.



**Figure 6.** Distribution of documented and suspected wolf packs in Idaho, 2010.

Of 87 documented packs, a minimum of fifty-four produced litters and 46 packs qualified as breeding pairs (Table 1). Seven packs reproduced but did not meet breeding pair criteria. A minimum of 189 wolf pups was documented in 2010. Documented litter sizes ranged from 1-9 pups. Average minimum litter size for those packs where counts were presumed complete ( $n = 25$ ) was 4.2 pups per litter. Wolf pup counts were conservative because complete pup counts could not always be obtained and some documented packs were not surveyed. Likewise, the reported number of breeding pairs was a minimum count as reproductive status of some surveyed packs was not determined and 20 documented packs were not surveyed for reproductive status. One pack (White Bird Creek) was presumed to be non-reproductive during 2010 because the pregnant female was legally killed. Three packs did not produce litters because they were eliminated prior to whelping.

Based on the presence of multiple ( $>2$ ) adults, 3 packs newly documented in 2010 were presumed to be extant during the previous year and were retroactively added to the number of documented packs for 2009. Based on this retroactively corrected pack count, the estimated wolf population decreased ~19% between 2009 ( $\hat{N} = 870$ ) and 2010 ( $\hat{N} = 705$ ; Figure 4). In 2010, the average minimum number of wolves detected per pack was 7.1 wolves, using only those packs ( $n = 20$ ) where complete counts were obtained, compared to 7.8 wolves for 2009, influencing the population estimate (Appendix A). The removal of 9 packs per Program protocols also had an affect. The social carrying capacity for wolves will likely be below the biological carrying capacity as wolves are managed in concert with other wildlife values, livestock concerns, and management objectives. Ultimately the citizens of Idaho, not habitat, will determine the number of wolves that will persist in the state.

**Table 1.** Number of wolves detected, documented packs, and other documented wolf groups; pack reproductive status, documented mortality by cause, known dispersal, and monitoring status; and wolf-caused livestock depredations within Idaho Wolf Management Zones, 2010.

	Dworshak -Elk City	Lolo	McCall- Weiser	Middle Fork	Palouse- Hells Canyon	Panhandle	Salmon	Sawtooth	Selway	South Idaho	South Mtns	Upper Snake	Total
Minimum No. wolves detected <sup>a</sup>	32	31	10	13	14	31	36	51	3	0	8	6	235
Documented packs													
No. during year	12	8	13	8	3	14	9	15	6	0	8	5	101
No. removed <sup>b</sup>	0	0	2	0	0	1	0	0	0	0	1	0	4
No. at end of year <sup>c</sup>	11	7	11	7	3	11	8	15	2	0	7	5	87
Other documented groups <sup>d</sup>													
No. during year	3	2	2	0	1	5	1	4	2	1	5	0	26
No. removed <sup>b</sup>	0	0	0	0	0	1	0	0	0	0	1	0	2
No. at end of year <sup>c</sup>	1	0	2	0	1	1	0	3	1	0	3	0	12
Reproductive status													
Minimum no. pups produced	30(1)	20	29(1)	5	10(2)	32(1)	21(1)	26(2)	2	0	2	12	189(8)
No. of reproductive packs	9	5	7	1	3	8	5	9	1	0	1	4	53
No. of breeding pairs <sup>e</sup>	6	5	6	1	2	8	5	8	0	0	1	4	46
Known dispersal	3	1	0	1	0	0	0	1	0	0	0	0	6
Monitoring status													
No. of wolf captures <sup>f</sup>	5	4	0	4	2	3	6	9	0	0	3	1	37
No. of wolves missing <sup>g</sup>	0	1	2	1	0	0	0	1	0	0	1	0	6
Documented mortalities													
Natural	0	0	0	0	0	2	0	0	0	0	0	0	2
Control <sup>h</sup>	10	2 <sup>k</sup>	24	0	5	1	7	15	0	0	14	2	80
Harvest	0	6	0	2	0	11	6	15	5	1	0	0	46
Other human-caused <sup>i</sup>	0	0	0	0	0	4	0	0	1	0	0	0	5
Unknown	5 <sup>j</sup>	0	3	1	0	0	0	1	0	0	1	0	11
Total mortalities	15	8	27	3	5	18	13	31	6	1	15	2	144

**Table 1 (cont.).** Number of wolves detected, documented packs, and other documented wolf groups; pack reproductive status, documented mortality by cause, known dispersal, and monitoring status; and wolf-caused livestock depredations within Idaho Wolf Management Zones, 2010.

	Dworshak -Elk City	Lolo	McCall- Weiser	Middle Fork	Palouse- Hells Canyon	Panhandle	Salmon	Sawtooth	Selway	South Idaho	South Mtns	Upper Snake	Total
Confirmed (probable) wolf-caused livestock losses													
Cattle	5(1)	0	23(3)	0	3	0	14(4)	3	0	0(3)	27(3)	0	75(14)
Sheep	0	0	15(2)	0	0	0	0	66(9)	0	11(18)	56(1)	0	148(30)
Dogs	0	0	0(1)	0	0	0	0	0	0	0	0	0	0(1)
Other	2 <sup>l</sup>	0	0	0	0	0	0	0	0	0	1 <sup>m</sup>	0	3

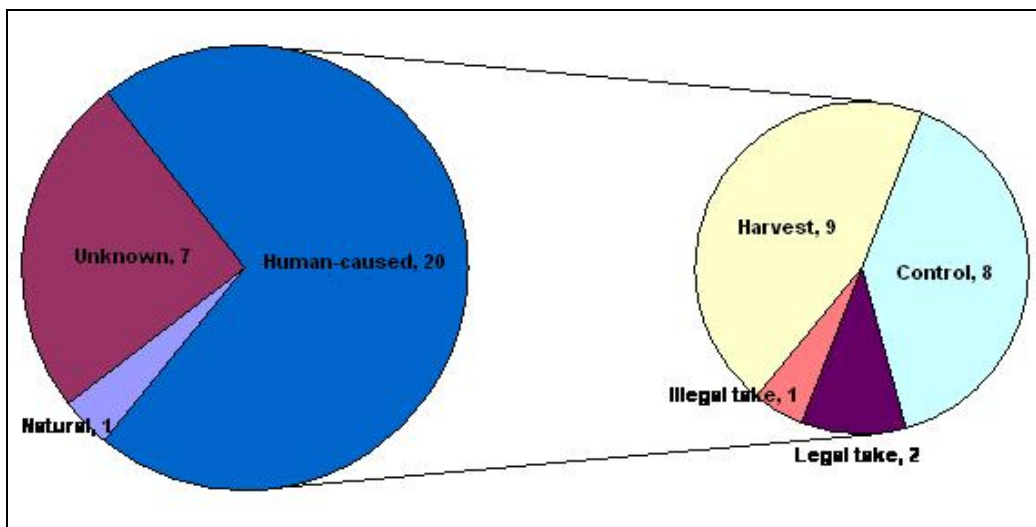
- <sup>a</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Sum of this row does not equate to number of wolves estimated to be present in the population.
- <sup>b</sup> Includes documented packs/other documented groups removed via agency control, other human-related, or natural causes. Includes documented border packs tallied for Idaho.
- <sup>c</sup> Number remaining extant at end of 2010 after subtracting those removed via agency control, other human-related, natural cause, and those removed due to lack of verified evidence for the preceding 2 years. Includes documented border packs tallied for Idaho.
- <sup>d</sup> Other documented wolf groups include suspected packs and known and suspected mated pairs; verified groups of wolves that do not meet Idaho's definition of a documented pack.
- <sup>e</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".
- <sup>f</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.
- <sup>g</sup> Radiocollared wolves that became missing in 2010.
- <sup>h</sup> Includes agency lethal control and legal take by landowners or authorized by the State.
- <sup>i</sup> Includes all other human-related deaths.
- <sup>j</sup> Pack affiliation of 1 pup that died in this WMZ was not known.
- <sup>k</sup> Wolves legally taken during spring bear-hunting season by IDFG-authorized guides/outfitters.
- <sup>l</sup> Horse.
- <sup>m</sup> Domestic bison.



## Mortality

Project personnel documented 144 wolf mortalities in 2010 within the state (Table 1). Two wolves that died in Idaho dispersed from Montana packs. Of the 144 wolf mortalities, at least 131 deaths were human-caused, 11 deaths were from unknown cause (some of which may have been human-caused), and 2 deaths were of natural causes. Of 131 confirmed human-caused mortalities, 46 wolves were harvested legally by hunters, 80 wolves were killed by WS or were legally taken by livestock producers/private citizens and by IDFG-authorized outfitters, two were killed illegally, and three died from other human-related causes. Wolves that were attacking or harassing livestock/dogs could be legally killed under Idaho Code §36-1107 (State of Idaho 2008), shoot-on-sight permits issued prior to 4 May 2009 (while wolves were listed under the ESA) or kill permits issued to livestock operators under IDFG authority after that date. Following the State's withdrawal from wolf management, IDFG no longer participated in responding to livestock depredations or authorizing the take of wolves; those authorizations became the purview of the USFWS. Fewer wolves ( $n = 80$ ) were lethally removed in Idaho in 2010 than in 2009. Lethal removals, ranging from 1 to 9 wolves in Idaho packs, occurred in 17 documented wolf packs, 4 other documented groups, and at least 18 unknown wolf groups; though 7 wolves taken in the Slate Creek/John Day Creek area probably belonged to either the White Bird Creek or Florence packs. These figures are likely underestimates of the true amount of overall mortality occurring within the wolf population, as documenting mortalities of uncollared wolves is difficult. Only 2 wolf deaths due to natural causes were recorded, another indication that mortality was underestimated, as more individuals undoubtedly succumbed to non-human-related factors. Lastly, we were unable to estimate deaths of pups that occurred prior to our surveys.

Documented mortalities among radiocollared wolves were primarily human-caused ( $n = 20$ ; 71%), followed by unknown ( $n = 7$ ; 25%) and natural causes ( $n = 1$ ; 4%; Figure 7). Of 20 human-caused mortalities, 9 wolves (45%) were legally harvested; 8 wolves (40%) were lethally controlled by WS; two (10%) were legally killed while harassing livestock/dogs by private citizens; and one (5%) was illegally killed (Figure 7).



**Figure 7.** Cause-specific mortality of 28 radiocollared wolves that died during 2010. Numbers are different than Table 1 because not all documented dead wolves had radiocollars.

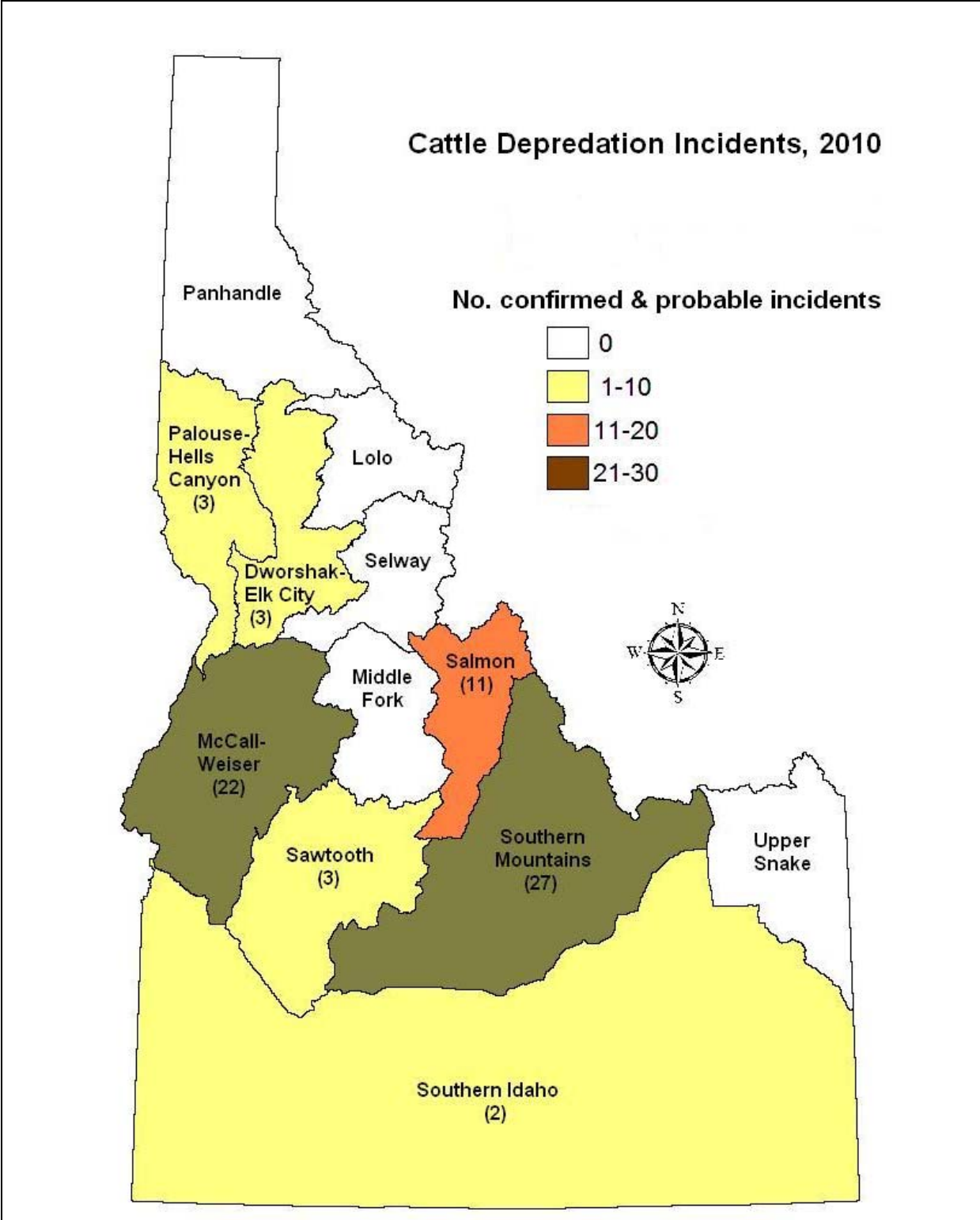
Using these proportions, we estimated the total number of wolves dying during 2010 from various causes was 274 wolves, representing a total overall population mortality rate of 28%. Documented and estimated wolf mortality by cause included agency control and legal take ( $n = 80$  wolves [documented]; 8% of estimated population), harvest ( $n = 46$  wolves [documented]; 5% of estimated population), and all other causes ( $n = 148$  wolves [estimated]; 15% of estimated population).

### Wolf Harvest Summary

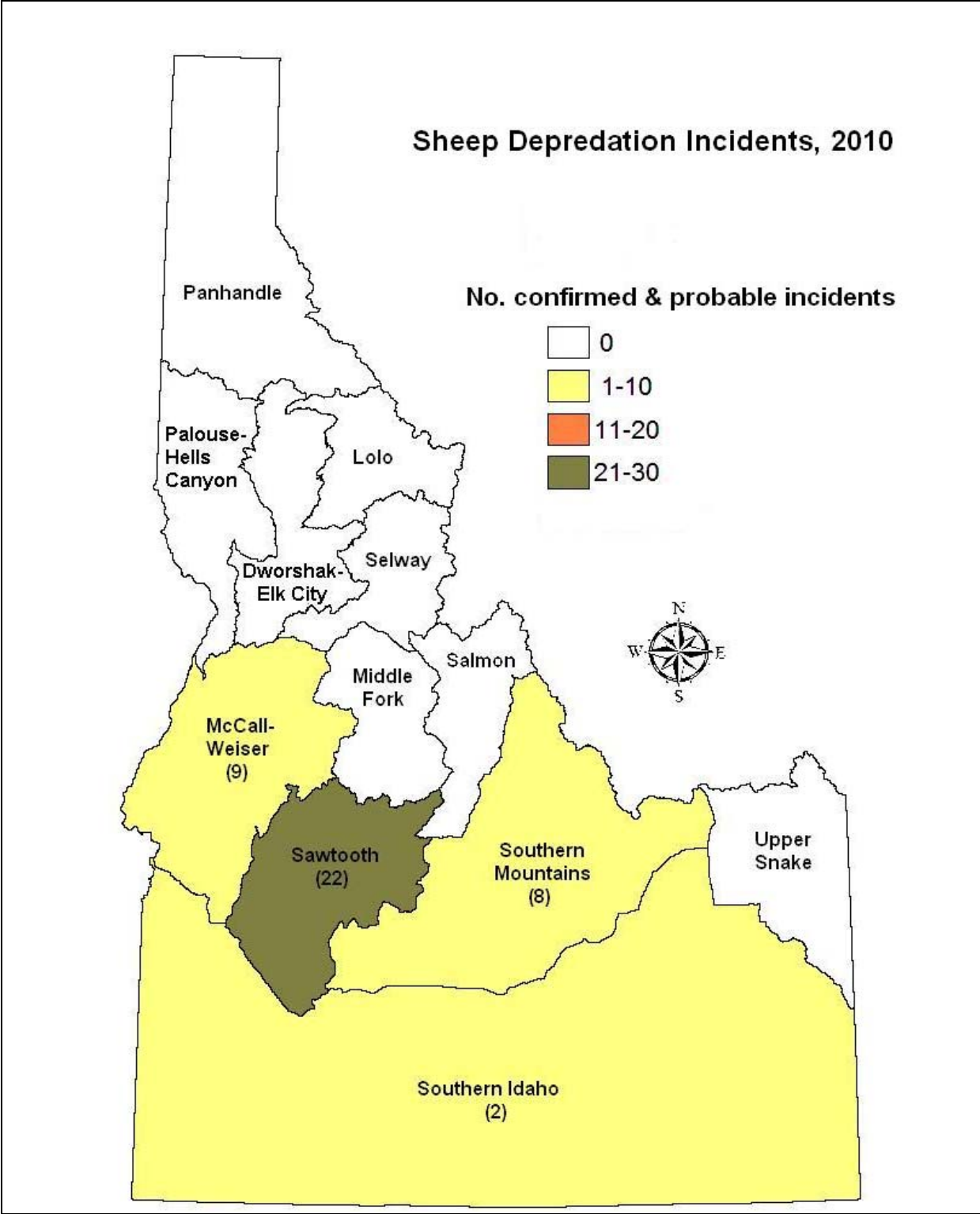
Harvest limits were not met in seven of the 12 zones by the end of 2009. The Idaho Fish and Game Commission extended the wolf-hunting season through 31 March 2010, or until respective zone quotas were reached. Forty-six wolves were legally harvested during 2010. Wolves were harvested from each of the 7 zones that remained open, and quotas were met for the Middle Fork and Salmon zones during 2010; quotas for the Dworshak-Elk City, McCall-Weiser, Palouse-Hells Canyon, Southern Mountains, and Upper Snake zones were reached in 2009. Harvest limits for the Lolo, Panhandle, Sawtooth, Selway, and Southern Idaho zones were not reached. In total, 186 wolves were counted toward the statewide harvest limit of 220 wolves during the 2009/2010 wolf-hunting season.

### **Livestock and Dog Mortalities**

Wildlife Services recorded 89 cattle, 178 sheep, 1 dog, and 1 domestic bison that were classified as confirmed or probable wolf-kills during the 2010 calendar year (Table 1; USDA-APHIS Wildlife Services 2011). The numbers of wolf depredation investigations (Figure 8) and losses of cattle were highest in the Southern Mountains and McCall-Weiser zones, respectively. The numbers of wolf depredation investigations of sheep were highest in the Sawtooth and McCall-Weiser zones (Figures 9), whereas the numbers of sheep losses were greatest in the Sawtooth and Southern Mountains zones, respectively. During 2010, 80 wolves were removed by WS, or legally killed by livestock producers/private citizens, to resolve wolf conflicts with livestock/dogs in Idaho.



**Figure 8.** Number of confirmed and probable cattle depredation incidents in Idaho attributed to wolves by Wolf Management Zone, 2010. The majority of incidents were investigated by Wildlife Services.



**Figure 9.** Number of confirmed and probable sheep depredation incidents in Idaho attributed to wolves by Wolf Management Zone, 2010. The majority of incidents were investigated by Wildlife Services.

## Research

Federal/state agencies and the NPT continued to coordinate and support scientific research assisting in long-term wolf conservation and management.

### Statewide Elk and Mule Deer Ecology Study

During 2010, the IDFG continued efforts to measure the effects of wolf predation and habitat on elk (*Cervus elaphus canadensis*) populations across Idaho. Project objectives included: 1) determining survival, cause-specific mortality, pregnancy rates, and body condition for radiocollared animals; 2) monitoring wolf distribution and abundance within project areas; 3) developing habitat condition and trend maps for Idaho; and 4) developing a model set to predict elk mortality across a range of wolf:elk ratios and habitat/environmental conditions. Project focus shifted from >10 extensive study areas to 2 intensive areas (Lowman study area in the Sawtooth Zone and North Fork Clearwater River study area in the Lolo Zone) where detailed information regarding wolf and ungulate interactions is being gathered via satellite telemetry. These data may improve our understanding of the predator/prey dynamic in contrasting landscapes. This research is providing contemporary data regarding survival, important mortality factors, and productivity of elk populations that will help biologists identify and evaluate specific predator and habitat management actions necessary to achieve ungulate population objectives.

Results from the Lolo Zone study led the State to submit a proposal (IDFG 2010) to the USFWS, seeking to reduce wolf numbers in this area to help address “unacceptable impacts” of wolf predation on elk. This proposal will be evaluated by the USFWS in 2011.

### Developing Monitoring Protocols for the Long-term Conservation and Management of Gray Wolves in Idaho

We have devised a population monitoring program rooted in patch occupancy modeling, a statistical technique that can integrate data from multiple sampling methods (Ausband et al. 2009). To populate a patch occupancy model, we are evaluating a variety of survey methods that have demonstrated strong relationships to wolf abundance and distribution. The survey methods we have created and are testing are hunter surveys, rendezvous site surveys, howlboxes, and rub stations.

Because statewide hunter survey data were readily available from Montana in 2010, we used hunters’ wolf observations and an occupancy model to estimate wolf pack abundance across Montana. Estimates of wolf pack abundance compared well to the minimum number of wolf packs in the state and we expanded the model to accurately estimate individual wolf abundance statewide. These analyses are directly applicable for Idaho, and in 2010 we conducted a statewide survey of 13,000 hunters in Idaho to generate similar data for use in an occupancy model. Data are currently being entered from mail-out survey forms and will be used to populate a statewide occupancy model that can generate wolf abundance estimates for Idaho. To provide more detailed data that could be used for model validation, we developed a habitat model that predicts the locations of wolf pack rendezvous sites. We conducted surveys at 248

predicted rendezvous sites in 2010, resulting in the detection of six of the 8 known litters of pups and all study packs without the aid of radiotelemetry. Analysis of 888 genetic samples collected during these surveys is underway at the University of Idaho.

We worked with the University of Montana's Computer Sciences Department to improve the howlbox, an automated wolf detection device that broadcasts wolf howls and records responses from wild wolves. We deployed the howlbox at wolf pack rendezvous sites and detected adults and pups quickly and enumerated individuals via analysis of audio spectrograms. This latest howlbox is less expensive, can be deployed longer, allows more flexible scheduling, and uses software that is user-friendly and more reliable than previous prototypes.

Additionally, in 5 study areas across Idaho, we used rub stations to collect >2,300 hair samples to provide occupancy data and to assess measures of genetic diversity. Each of our survey methods is designed to provide the data needed to populate a patch occupancy model; some of the methods can yield highly detailed information on wolves and provide biologists with tools for better understanding wolves in areas where management interest is high. We suggest a monitoring framework based on patch occupancy modeling, using observations available from a variety of sampling techniques, can provide reliable statewide estimates of wolf population size.

#### Biofence for Manipulating Wolf Pack Movements

Gray wolves can conflict with livestock production throughout the NRM. Wolves that prey on domestic livestock are often killed by management agencies or private landowners. These actions typically stop depredations for producers in the short-term, but are not a lasting solution because wolf packs generally fill the recently vacated territory within 1 year and livestock predation often recurs (Bradley 2004). Most tools currently available for non-lethal control of wolves are short-lived in their effectiveness or require constant human presence. Wolves, like most canids worldwide, use scent-marking (deposits of urine, scat, and scratches at conspicuous locations) to establish territories on the landscape and avoid intraspecific conflict. We hypothesized that scent-marks consisting of wolf scat and urine (i.e., "biofence"), deployed by humans, and could be used to manipulate wolf pack movements in Idaho (Ausband 2010).

We deployed 40.2 miles (64.7 km) of biofence within 3 wolf pack territories in central Idaho during summer 2010. Location data provided by wolves with satellite radiocollars in two of the packs showed little to no trespass of the biofence even though the excluded areas were used by the pack (> 75% kernel level) in previous summers. Wolf sign surveys at predicted rendezvous sites in areas excluded by our biofence yielded little or no recent wolf use of those areas. Lastly, we opportunistically deployed a biofence between a resident wolf pack's rendezvous site and a nearby (<1.0 miles [ $<1.6$  km]) active grazing allotment totaling 2,400 sheep. This pack killed sheep annually since 2006 and 1 guard dog in 2006, but were not implicated in any depredations in summer 2010, even though their rendezvous site was in close proximity to sheep. Our pilot test provided preliminary evidence that wolf movements can be manipulated using human-distributed wolf scent-marks. Further testing is required, however, before the efficacy of biofences can be evaluated rigorously. Provided adequate funding can be obtained, we plan to conduct these tests on packs with multiple wolves wearing satellite radiocollars, packs of different sizes, during different times of the year, and near livestock operations that have historically incurred losses due to wolf predation.

## Evaluation of Wolf Impacts on Cattle Productivity and Behavior

Oregon State University's Beef Cattle Sciences unit initiated and employed an Adaptive Management System to document the effects of gray wolves on cattle production systems in Oregon and Idaho (Clark et al. 2009). The project collected information on cattle movement on land in both wolf-common and wolf-rare areas with satellite radiocollars that record positions every 5 minutes. Sixty domestic cow (*Bos taurus*) collars were deployed in 2008 and sixty-five in 2009. We also documented wolf presence using scat/sign surveys, sighting reports, and depredation reports filed by cooperating ranchers and APHIS Wildlife Services. The Geographic Information System data layers were collected or made for areas which were used to define livestock preference for vegetative communities and landscape classes. Economic analysis has begun of ranching systems on paired sites to document wolf effects on the cattle productivity and profitability.

### **Outreach**

Program personnel talked to numerous members of the public via telephone, email, and in person. Also, news articles were released by IDFG on an almost weekly basis summarizing noteworthy items about wolves. Wolf issues continued to be an interesting topic for the public and television, radio, and print media contacted program staff often to obtain wolf information and agency perspective.

The IDFG online wolf reporting system continued to provide an opportunity for the public and professionals to record wolf observations in Idaho. During 2010, in excess of 200 wolf observations were reported on the web site. The online reporting system is a tool which assisted biologists in identifying areas of possible wolf activity and allowed the public a means to communicate wolf concerns to the appropriate agency.

## **DWORSHAK-ELK CITY WOLF MANAGEMENT ZONE (Game Management Units [GMUs] 10A, 14, 15, 16)**

### **Background**

The Dworshak-Elk City Zone is comprised of GMUs 10A, 14, 15, and 16. Game Management Unit 10A, is predominantly timberland with the remaining areas in either open or agricultural lands, and is bisected by canyons leading to the Clearwater River. During the 1980s and 1990s, timber harvest occurred on almost all available state and private land as demand for timber, and management of these lands, intensified. In GMUs 14, 15, and 16, most of the land base is in public ownership with privately-owned portions at lower elevations along the Clearwater and Salmon Rivers. Productive conifer forests with intermixed grasslands characterized the majority of this zone. Many forested areas have become overgrown with lodgepole pine (*Pinus contorta*) and fir (*Abies sp.*) due to fire suppression during the past 40 years (IDFG 2007). A small segment of this zone is federally designated wilderness.

Major river drainages in, or bordering upon, this zone included the Salmon, South Fork Clearwater, Middle Fork Clearwater, main stem Clearwater, North Fork Clearwater, lower portion of the Selway, Crooked, American, Red, and Lolo Creek.

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock and wolf-ungulate conflicts are currently considered moderate. Management direction for wolves in this zone is to decrease the number of wolves to the 2005-2007 level and subsequently stabilize it at that lower level (IDFG 2008). The Fish and Game Commission established a harvest limit of 18 wolves for this zone during the 2009 harvest season set for 1 October through 31 December 2009.

### **Management Summary**

The Dworshak-Elk City Zone was home to 12 documented resident packs, 1 suspected resident pack, and 2 other documented groups during 2010 (Figure 10; Table 2). One documented resident pack was no longer considered extant by the end of the year. Neither of the other documented groups survived to the end of the year.

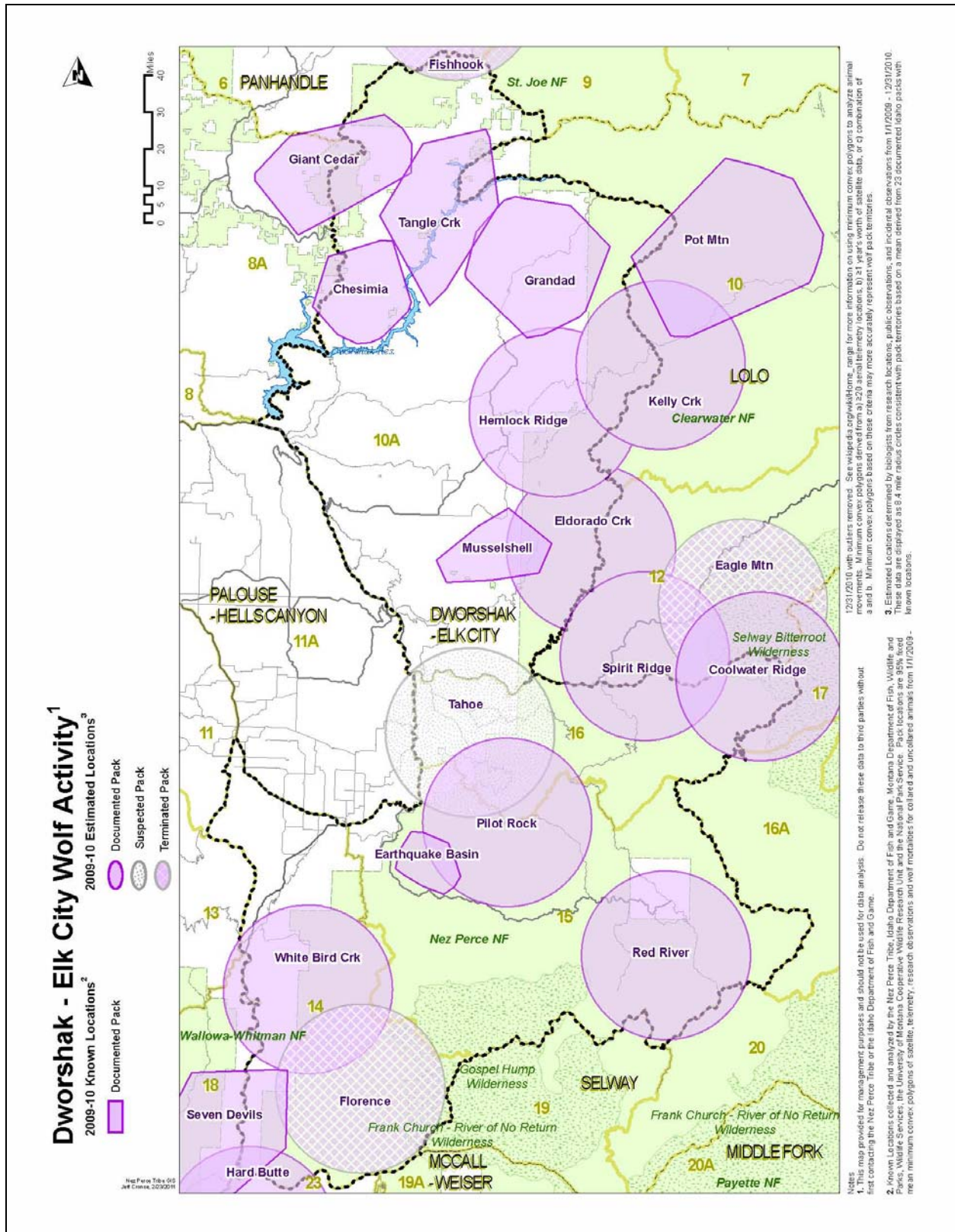
Six of 9 reproductive packs qualified as breeding pairs (Table 2); 3 packs did not qualify as breeding pairs as only 1 pup was verified for each. One pack was considered non-reproductive as a pregnant female was legally killed prior to whelping. The reproductive status of 2 packs was unknown.

Three wolves were known to have dispersed from the packs where they were originally captured. Two of these individuals survived and were monitored in the areas where they settled, while the third died. Five wolves were captured by Program personnel and all received radiocollars.

Documented mortalities ( $n = 15$ ) included control (agency removal and legal take;  $n = 10$ ) and unknown ( $n = 5$ ) causes (Table 3). The harvest limit was met and the season was closed on 16 November 2009, so the season was not extended into 2010 in this zone.



Confirmed ( $n = 5$ ) and probable ( $n = 1$ ) wolf-caused cattle losses were attributed to 2 packs (Table 3). Seven wolves were lethally controlled in the Slate Creek and John Day Creek drainages during January through March 2010 and were likely members of either the Florence or White Bird Creek packs; neither pack contained radiocollared wolves, so these deaths could not be assigned definitively to a pack. One wolf of unknown group status was legally killed near Weippe, Idaho. Two horses were determined to have been killed by a pack residing in this zone. No domestic sheep or dog losses were recorded.



**Figure 10.** Distribution of documented and suspected wolf packs in the Dworshak-Elk City Wolf Management Zone, 2010.

**Table 2.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Dworshak-Elk City Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Chesimia	4	1	YES	NO	1	1	0
Coolwater Ridge	?	1	YES	NO	0	0	0
Earthquake Basin	9	7	YES	YES	0	1	0
Eldorado Creek	?	7(1)	YES	YES	1	0	0
<del>Florence</del>	0	?	NO	NO	0	0	0
Grandad	5	4	YES	YES	0	2	0
Hemlock Ridge	?	3	YES	YES	1	1	0
Musselshell	5	2	YES	YES	0	0	0
Pilot Rock	?	1	YES	NO	0	0	0
Red River	?	4	YES	YES	0	0	0
Tangle Creek	8	?	NO	NO	0	0	0
White Bird Creek	?	0	NO	NO	0	0	0
<b>SUBTOTAL</b>	<b>31</b>	<b>30(1)</b>			<b>3</b>	<b>5</b>	<b>0</b>
<b>SUSPECTED PACK</b>							
Tahoe (B342)	1				0	0	0
<b>SUBTOTAL</b>	<b>1</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
<del>B281</del>	0				0	0	0
<del>B330</del>	0				0	0	0
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>WMZ TOTAL</b>	<b>32</b>	<b>30(1)</b>			<b>3</b>	<b>5</b>	<b>0</b>

<sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).

<sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.

<sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 3.

<sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".

<sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.

<sup>f</sup> Radiocollared wolves that became missing in 2010.

**Table 3.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the Dworshak-Elk City Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
10A	0	1	0	0	4 <sup>d</sup>	0	0	0	0
14	0	9	0	0	1	5	0	0	2 <sup>e</sup>
15	0	0	0	0	0	0(1)	0	0	0
16	0	0	0	0	0	0	0	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>5(1)</b>	<b>0</b>	<b>0</b>	<b>2</b>

<sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)

<sup>b</sup> Includes all other human-related deaths.

<sup>c</sup> Does not include pups that disappeared before winter.

<sup>d</sup> Pack affiliation of 1 pup that died in this WMZ was not known.

<sup>e</sup> Horse.

## Pack Summaries

### Documented Resident Packs

#### *Chesimia*

Former breeding female B451 dispersed from the Chesimia pack in May 2010. Male B468 joined this pack after dispersing from the Fishhook pack. Non-breeding adult female B483 was captured and fitted with a satellite radiocollar in late May 2010. Multiple efforts over the course of the field season yielded a count of 1 pup, so this pack did not qualify as a breeding pair. The year-end minimum number of wolves detected was four (complete).

#### *Coolwater Ridge*

This pack has not contained a known radiocollared wolf since 2007, which hampered monitoring efforts. A Program biologist elicited a howling response from multiple adult wolves and at least 1 pup, however the Coolwater Ridge pack was not reported as a breeding pair in 2010 and there was no year-end count.

#### *Earthquake Basin*

Female wolf B274, captured in 2006, remained with the pack. Female wolf B489 was outfitted with a satellite radiocollar in June 2010. Investigation of an historic rendezvous site yielded a pup count of seven. One domestic cow was classed as a probable wolf-kill by the pack. The Earthquake Basin pack was a 2010 breeding pair. The year-end minimum number of wolves detected was nine (incomplete).

#### *Eldorado Creek*

There were no known radiocollared wolves with the pack following loss of contact with male wolf B281 (see Other Documented Groups; Dworshak-Elk City Zone). Multiple trapping efforts were conducted in 2010, but no wolves were caught. A Program biologist located the pack's rendezvous site and observed 7 pups. A pup was found dead along the road in the Yakus Creek drainage and was assigned to this pack. The Eldorado Creek pack was a breeding pair for 2010, though no year-end count was obtained.

### *Florence*

Members of this pack have not been radiocollared since 2008 and repeated visits to historic den and rendezvous sites since then have failed to document pack activity, though scattered wolf sign has been observed. Depredations on cattle in the John Day Creek drainage, traditionally within this pack's territory, led to the removal of 4 wolves, while 3 others taken in the vicinity of Slate Creek may also have been members of this pack; the latter wolves could also have been from the White Bird Creek pack. No evidence of reproduction was found in 2010. The Florence pack was not considered a breeding pair and was removed as a documented pack at the end of 2010.

### *Granddad*

Two wolves, male B496 and female B497, were captured and fitted with radiocollars in 2010, joining B458. One of the radiocollared wolves was reported as dead to USFWS Law Enforcement, which opened an investigation. Four pups were seen at a rendezvous site near where the adult wolves were trapped. The Granddad pack qualified as a breeding pair for 2010. The year-end minimum number of wolves detected was five (complete).

### *Hemlock Ridge*

Trapping efforts in 2010 resulted in the capture of male B493, which was fitted with a satellite radiocollar. B493 dispersed from the pack in November 2010. A minimum of 3 pups was heard howling on multiple occasions; therefore the Hemlock Ridge pack was considered a breeding pair for 2010. No year-end count was obtained due to B493's departure.

### *Musselshell*

Probable breeding male B360 was the sole known radiocollared wolf in this pack during 2010. Two pups were verified, which qualified this pack as a breeding pair. The year-end minimum number of wolves detected was five (incomplete).

### *Pilot Rock*

There have been no known radiocollared wolves in this pack since 2008, when B342 (see Suspected Resident Packs section below) left the group. In 2010, field investigations determined that an historic rendezvous site had been used, but had already been abandoned. Evidence found there indicated that at least 1 pup had been present, but no pup count was obtained. This pack did not qualify as a breeding pair for 2010 and there was no year-end count.

### *Red River*

Without the aid of a radiocollared wolf in the pack monitoring was difficult. Multiple capture efforts were undertaken, but no wolves were caught. A Program biologist was able to detect a minimum of 4 pups based on howling. The Red River pack was considered a breeding pair for 2010, but no year-end count was made.

### *Tangle Creek*

Male B310 remained as the sole known radiocollared member of this pack, though he did not lead Program biologists to a litter of pups. The pack was not counted as a breeding pair for 2010. The year-end minimum number of wolves detected was eight (complete).

### *White Bird Creek*

Radiocollared male B285 has not been located since October 2009, leaving no known radiocollared wolves in this pack. Investigation of historic rendezvous sites failed to detect the pack or a litter of pups, which was not unexpected as a breeding female was legally shot in March 2010; she was carrying 8 fetuses. Another pack member had been legally shot a few days earlier while harassing cattle. The pack was implicated in depredations where 5 domestic calves and 2 horses were confirmed to have been killed by wolves. The White Bird Creek pack was not reported as a breeding pair in 2010 and there was no year-end count.

### Suspected Resident Packs

#### *Tahoe*

Since 2008, female wolf B342, captured as a member of the neighboring Pilot Rock pack, has been aerially located in areas almost completely overlapping those previously occupied by female wolf B320 (likely a member of the Tahoe group). Land ownership patterns inhibited efforts to ground-monitor B342, so no data was collected pertaining to number of wolves present in this area or reproductive status.

### Other Documented Wolf Groups

#### *B281*

This male wolf was captured as an adult member of the Eldorado Creek pack in 2006. It remained with that pack until March 2010, at which time contact with it was lost and it was presumed its radiocollar had expired. The wolf's signal was found again in October 2010, approximately 69 miles (111 km) south of its previous location. Three days later another monitoring flight detected the signal in mortality mode. A site examination revealed the wolf's well-weathered radiocollar and skull hanging in a tree, indicating human presence at the site and that the wolf had been dead for several months. No determination as to cause of death was possible and this group was no longer considered extant at the end of 2010.

#### *B330*

This female wolf was radiocollared as a member of the Hemlock Ridge pack in 2007. In mid-2008 she drifted into the western portion of the Eldorado Creek pack's territory and remained in that area until December 2009, when she began movements initially to the southwest and then northward over the next few months. A mortality signal was detected in May 2010; condition of the carcass prevented determination of cause of death. This group was no longer considered extant at the end of 2010.

## **LOLO WOLF MANAGEMENT ZONE (GMUs 10, 12)**

### **Background**

The Lolo Zone is primarily forested and is almost entirely publicly-owned and administered by the USFS. Historically, habitat productivity was high in this zone, but has decreased following decades of intensive fire suppression. Until the 1930s, wildfires were the primary habitat disturbance in this zone. Between 1900 and 1934, approximately 70% of the Lochsa River drainage was burned by wildfires. Approximately 1/3 of the zone provides good access for motorized vehicles with moderate road densities. The remaining portion has low road densities. Between 1926 and 1990, over 1,181 miles (>1900 km) of roads were built in this area to access marketable timber. United States Highway 12 along the Lochsa River was completed in 1962 and is the primary travel corridor. In 1964, most of the southern portion of GMU 12 was designated as part of the Selway-Bitterroot Wilderness (IDFG 2007).

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock conflicts are classified as low, whereas wolf-ungulate conflicts are currently considered high. Management direction for wolves in this zone is to decrease the number of wolves and subsequently stabilize it at that lower level (IDFG 2008). The Fish and Game Commission established a harvest limit of 27 wolves for this zone during the 2009 harvest season set from 1 September 2009 through 31 March 2010.

### **Management Summary**

The Lolo Zone was home to 7 documented resident packs, 1 documented resident border pack, 1 suspected resident pack, and 1 other documented group during 2010; one documented resident pack, the suspected resident pack, and the other documented group were no longer considered extant by the end of the year (Figure 11; Table 4). Five border packs tallied for Montana resided adjacent to this zone.

All 5 reproductive packs qualified as breeding pairs, while the reproductive status of 3 documented packs was unknown (Table 4). Monitoring of the latter packs was complicated by lack of radiocollared wolves during all or parts of the year, which prohibited locating den and rendezvous sites.

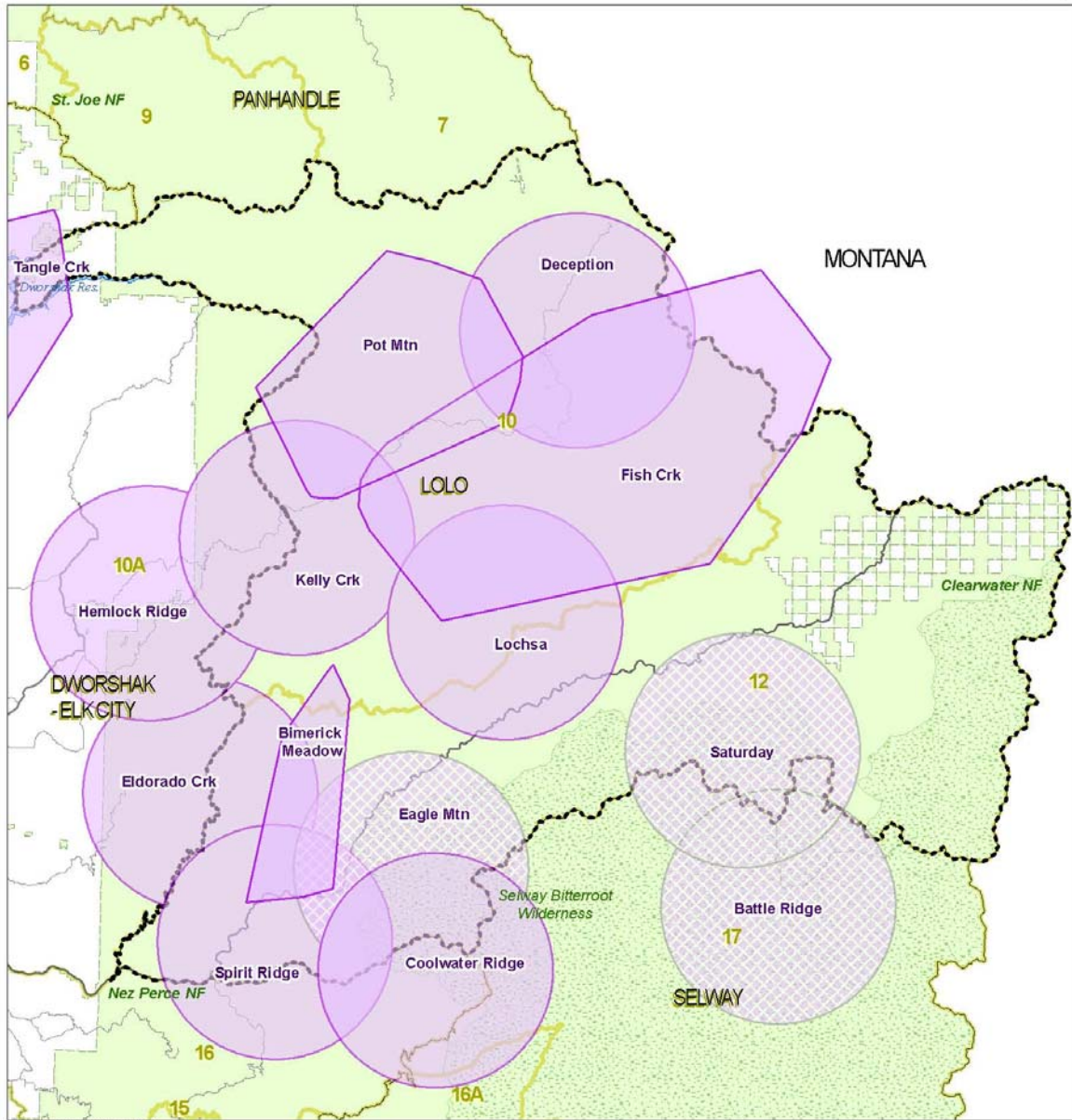
One radiocollared wolf was known to have dispersed from the pack where it was initially captured. Four wolves in 2 packs were captured by Program personnel, one by helicopter and three by trapping.

Documented mortalities ( $n = 8$ ) included harvest ( $n = 6$ ) and legal take (IDFG-authorized outfitter take;  $n = 2$ ; Table 5). Seven wolves were counted toward the harvest limit by the end of 2009, and the season continued as originally set; which resulted in the additional wolves harvested as noted above. There were no confirmed or probable wolf-caused losses to domestic livestock or dogs (Table 5).

# Lolo Wolf Activity<sup>1</sup>

2009-2010 Known Locations<sup>2</sup> 2009-2010 Estimated Locations<sup>3</sup>

Documented Pack  
 Documented Pack  
 Terminated Pack



Nez Perce Tribe GIS, Jeff Crooke, 2/2/2011

0 1.5 3 6 9 12 Miles

**Notes:**

1. This map provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Nez Perce Tribe or the Idaho Department of Fish and Game.

2. Known Locations collected and analyzed by the Nez Perce Tribe, Idaho Department of Fish and Game, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Pack locations are 95% fixed mean minimum convex polygons of satellite, telemetry, research observations and wolf mortalities for collared and uncollared animals from 1/1/2009 -

12/31/2010 with outliers removed. See [wikipedia.org/wiki/home\\_range](http://wikipedia.org/wiki/home_range) for more information on using minimum convex polygons to analyze animal movement. Minimum convex polygons derived from a) ≥20 aerial telemetry locations, b) ≥1 year's worth of satellite data, or c) combination of a and b. Minimum convex polygons based on these criteria may more accurately represent wolf pack territories.

3. Estimated Locations determined by biologists from research locations, public observations, and incidental observations from 1/1/2009 - 12/31/2010. These data are displayed as 0.4 mile radius circles consistent with pack territories based on a mean derived from 23 documented Idaho packs with known locations.

**Figure 11.** Distribution of documented and suspected wolf packs in the Lolo Wolf Management Zone, 2010.



**Table 4.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Lolo Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Big Hole (MT) <sup>g</sup>							
Bimerick Meadow	5	3	YES	YES	0	0	1
Bitterroot Range (MT) <sup>g</sup>							
Brooks Creek (MT) <sup>g</sup>							
Cache Creek (MT) <sup>g</sup>							
Deception	4	5	YES	YES	0	3	0
<del>Eagle Mountain</del>	0	?	NO	NO	0	0	0
Fish Creek (ID) <sup>g</sup>	?	?	NO	NO	1	0	0
Kelly Creek	?	2	YES	YES	0	0	0
Lochsa	15	6	YES	YES	0	0	0
Pot Mountain	7	?	NO	NO	0	1	0
Quartz Creek (MT) <sup>g</sup>							
Spirit Ridge	?	4	YES	YES	0	0	0
<b>SUBTOTAL</b>	<b>31</b>	<b>20</b>			<b>1</b>	<b>4</b>	<b>1</b>
<b>SUSPECTED PACK</b>							
<del>Saturday</del>	0				0	0	0
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
<del>B202</del>	0				0	0	0
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>WMZ TOTAL</b>	<b>31</b>	<b>20</b>			<b>1</b>	<b>4</b>	<b>1</b>

<sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).

<sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.

<sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 5.

<sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".

<sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.

<sup>f</sup> Radiocollared wolves that became missing in 2010.

<sup>g</sup> Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2010 Annual Report or other source.

**Table 5.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the Lolo Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
10	0	2 <sup>d</sup>	5	0	0	0	0	0	0
12	0	0	1	0	0	0	0	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>2</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

<sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)

<sup>b</sup> Includes all other human-related deaths.

<sup>c</sup> Does not include pups that disappeared before winter.

<sup>d</sup> Wolves legally taken during spring bear-hunting season by IDFG-authorized guides/outfitters.

## Pack Summaries

### Documented Resident Packs

#### *Bimerick Meadow*

Radiocollared females B289 and B398 were being monitored at the beginning of the year, but the former has not been located since January 2010 and it was presumed her radiocollar expired. One pup was captured, but it was too small to radiocollar. At that time a second pup was observed, and subsequently 3 pups were heard howling. This pack was a breeding pair for 2010. The year-end minimum number of wolves detected was five (incomplete).

#### *Deception*

Three wolves were captured and radiocollared in this pack; male B397 (who had dispersed from the Hemlock Ridge pack in late December 2009) and adult females B488 and B498. Five pups were documented near a historic rendezvous site. The pack qualified as a breeding pair for 2010. The year-end minimum number of wolves detected was four (incomplete).

#### *Eagle Mountain*

Female wolf B295 had not been located since late 2007 and its radiocollar was discovered in the Big Hole River in 2009. No field effort was conducted in 2010. Because there has been no wolf activity verified in this area for the past 2 years, the Eagle Mountain pack was removed as a documented pack.

#### *Kelly Creek*

Female B476's signal was detected in mortality mode in mid-May 2010; an investigation did not determine the cause of death. With no other known radiocollared pack members, a Program biologist surveyed historic rendezvous sites and was able to verify the pack produced 2 pups. The long-standing Kelly Creek pack was reported as a breeding pair in 2010, but no year-end count was obtained.

#### *Lochsa*

Female wolf B345, the sole known radiocollared member of this pack, was not present with other pack members when a rendezvous site was located. Three pups were observed and 3 others were heard howling. Three adult-sized wolves were also heard there. The Lochsa pack

was considered a breeding pair for 2010 and the year-end minimum number of wolves detected was fifteen (complete).

#### *Pot Mountain*

Helicopter capture efforts in April 2010 resulted in the replacement of female B382's satellite radiocollar. Field efforts to determine reproductive status were unsuccessful. This pack was not reported as a 2010 breeding pair. The year-end minimum number of wolves detected was seven (incomplete).

#### *Spirit Ridge*

Despite no known radiocollared members of this pack since 2008, a Program biologist was able to locate the pack via howling surveys and determined that multiple adults and 4 pups responded. The Spirit Ridge pack qualified as a breeding pair for 2010; however no year-end count was obtained.

### Documented Resident Border Packs

#### *Fish Creek*

Seven members of this pack were helicopter captured and equipped with satellite radiocollars in 2009, but most of those had failed prematurely or expired by 2010, and 1 wolf was known to have dispersed. A horse-packing capture effort in spring 2010 was unsuccessful in catching any wolves and no litter of pups was found. The Fish Creek pack was not considered a breeding pair and no year-end count was obtained.

### Documented Non-Resident Border Packs

#### *Big Hole*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

#### *Bitterroot Range*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

#### *Brooks Creek*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

#### *Cache Creek*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

#### *Quartz Creek*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

### Suspected Resident Packs

#### *Saturday*

The Saturday group was removed from the list of other documented groups due to lack of verified wolf activity.

## Other Documented Wolf Groups

### *B202*

Captured as a member of the Florence pack in 2004, B202 was not located with that pack after March 2005. During a monitoring flight in January 2010, B202's mortality signal was detected along the Lochsa River. A site investigation recovered the wolf's skull and radiocollar from beneath the snow, approximately 76 miles (122 km) from its last location in the Florence pack territory. This group was no longer considered extant at the end of 2010.

## **MCCALL-WEISER WOLF MANAGEMENT ZONE (GMUs 19A, 22, 23, 24, 25, 31, 32, 32A)**

### **Background**

The McCall-Weiser Zone is composed of GMUs 19A, 22-25, 31, 32, and 32A. Over 70% of the land area in GMUs 19A, 23, 24, and 25 is in public ownership and management. The Little Salmon River and North Fork Payette River valley bottoms comprise most of the private ownership. Private land in these GMUs is predominantly agricultural or rural subdivisions. Timber harvest and livestock grazing are prevalent. Road densities are relatively low in GMUs 19A and 25. Road densities in GMUs 23 and 24 are moderate to high (IDFG 2007).

About 60% of GMUs 22 and 32A and 20% of GMU 32 is in public ownership and management. Privately-owned land comprised much of the western portion of GMU 32 and the Weiser River Valley of GMUs 22 and 32A (IDFG 2007). Timber harvest and livestock grazing are prevalent. Most forested habitat is in the early- to mid-successional stage. Cecil D. Andrus Wildlife Management Area in the southwest portion of GMU 22 is managed for elk and mule deer (*O. hemionus*) winter range and encompasses about 8,000 acres (3,237 ha).

About 50% of GMU 31 is in public ownership and management. Privately-owned land comprised much of the southern and eastern portions of the GMU. Higher elevations are timbered, whereas lower elevations are primarily shrub-steppe or desert habitat types. Timber harvest, livestock grazing, and prescribed fires have occurred.

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock are currently considered high, whereas wolf-ungulate conflicts are considered low. Management direction for wolves in this zone is to decrease the number of wolves to the 2005-2007 level and subsequently stabilize it at that level (IDFG 2008). The Fish and Game Commission established a harvest limit of 15 wolves for this zone during the 2009 harvest season set for 1 October through 31 December 2009.

## Management Summary

The McCall-Weiser Zone was home to 13 documented resident packs and 2 other documented groups during 2010 (Figure 12; Table 6). One pack, based on the presence of multiple adult-sized wolves, was retroactively added as a documented pack in 2009. Two packs were removed through lethal control in 2010.

Six of 7 reproductive packs qualified as breeding pairs (Table 6); 1 pack produced a litter of 7 pups in 2010, but it was presumed that lethal control removed all adults but one, which disqualified them from breeding pair status. The reproductive status of 4 packs was undetermined. Two packs were extirpated prior to whelping.

No radiocollared wolves were known to have dispersed in 2010. No wolves were captured by Program personnel during attempts to radiocollar wolves in 2 packs.

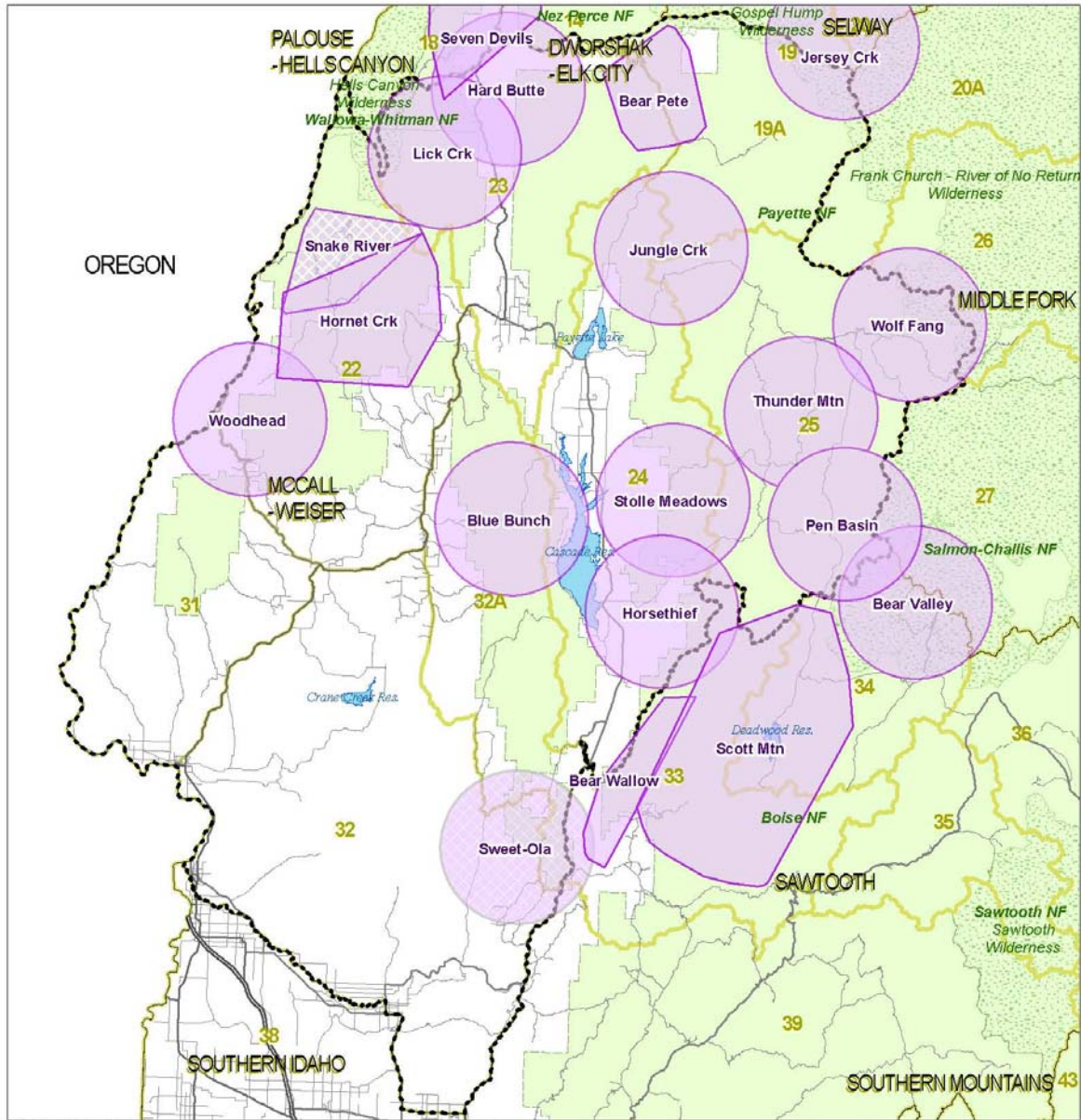
Documented mortalities ( $n = 27$ ) included control (agency removal and legal take;  $n = 24$ ) and unknown ( $n = 3$ ) causes (Table 7). Twenty-one wolves from 3 packs and 2 wolves of unknown pack affiliation were lethally controlled. One pack member and 2 wolves of undetermined association were legally killed by livestock producers. The harvest limit was reached in November 2009, so the season was not extended into 2010 in this zone.

Confirmed ( $n = 23$ ) and probable ( $n = 3$ ) wolf-caused cattle losses were attributed to 3 documented packs and unknown wolves (Table 7). Confirmed ( $n = 15$ ) and probable ( $n = 2$ ) wolf-caused domestic sheep losses were attributed to 2 packs and unknown wolves (Table 7). Probable ( $n = 1$ ) wolf-caused loss of 1 domestic dog was attributed to 1 pack.

# McCall - Weiser Wolf Activity<sup>1</sup>

2009-2010 Known Locations<sup>2</sup>    2009-2010 Estimated Locations<sup>3</sup>

Documented Pack    
  Documented Pack  
 Terminated Pack    
  Terminated Pack



Notes:

1. This map provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Nez Perce Tribe or the Idaho Department of Fish and Game.

2. Known Locations collected and analyzed by the Nez Perce Tribe, Idaho Department of Fish and Game, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Pack locations are 95% fixed mean minimum convex polygons of satellite, telemetry, research observations and wolf mortalities for collared and uncollared animals from 1/1/2009 - 12/31/2010 with outliers removed. See [wikipedia.org/wiki/home\\_range](http://wikipedia.org/wiki/home_range) for more information on using minimum convex polygons to analyze animal movements. Minimum convex polygons derived from a)  $\geq 20$  aerial telemetry locations, b)  $\geq 1$  year's worth of satellite data, or c) combination of a and b. Minimum convex polygons based on these criteria may more accurately represent wolf pack territories.

3. Estimated Locations determined by biologists from research locations, public observations, and incidental observations from 1/1/2009 - 12/31/2010. These data are displayed as 0.4 mile radius circles consistent with pack territories based on a mean derived from 23 documented Idaho packs with known locations.

**Figure 12.** Distribution of documented and suspected wolf packs in the McCall-Weiser Wolf Management Zone, 2010.

**Table 6.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the McCall-Weiser Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Bear Pete	6	4	YES	YES	0	0	0
Blue Bunch	?	7(1)	YES	NO	0	0	0
Hard Butte	?	?	NO	NO	0	0	0
Hornet Creek	4	4	YES	YES	0	0	0
Horsethief	?	?	NO	NO	0	0	0
Jungle Creek	?	?	NO	NO	0	0	0
Lick Creek	?	5	YES	YES	0	0	0
Pen Basin	?	2	YES	YES	0	0	0
<del>Snake River</del>	0	0	NO	NO	0	0	0
Stolle Meadows	?	?	NO	NO	0	0	0
<del>Sweet Ola</del>	0	0	NO	NO	0	0	0
Thunder Mountain	?	3	YES	YES	0	0	0
Woodhead	?	4	YES	YES	0	0	0
<b>SUBTOTAL</b>	<b>10</b>	<b>29(1)</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>SUSPECTED PACK</b>							
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
B429	?				0	0	1
B478	?				0	0	1
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>2</b>
<b>WMZ TOTAL</b>	<b>10</b>	<b>29(1)</b>			<b>0</b>	<b>0</b>	<b>2</b>

- <sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).
- <sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.
- <sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 7.
- <sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".
- <sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.
- <sup>f</sup> Radiocollared wolves that became missing in 2010.

**Table 7.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the McCall-Weiser Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
19A	0	0	0	0	0	0	0	0	0
22	0	2	0	0	1	2	0	0	0
23	0	6	0	0	2	2	11(2)	0	0
24	0	4	0	0	0	7	4	0	0
25	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0
32	0	9	0	0	0	5	0	0(1)	0
32A	0	3	0	0	0	7(3)	0	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>24</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>23(3)</b>	<b>15(2)</b>	<b>0(1)</b>	<b>0</b>

<sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)

<sup>b</sup> Includes all other human-related deaths.

<sup>c</sup> Does not include pups that disappeared before winter.

## Pack Summaries

### Documented Resident Packs

#### *Bear Pete*

Presumed breeding wolves B157 (male) and B331 (female) produced a litter of 4 pups in 2010. B157's radio signal was heard in mortality mode in June 2010; cause of death was not ascertained from field investigation. This pack was recorded as a breeding pair for 2010. The year-end minimum number of wolves detected was six (incomplete).

#### *Blue Bunch*

Breeding female wolf B218 remained the sole known radiocollared member of this pack. In mid-January 2010, 5 wolves were observed during a monitoring flight, including a black individual; no black wolves had previously been observed with this pack. Two uncollared wolves were lethally removed in March and three in April 2010. These lethal removals stemmed from depredations that occurred in 2009. B218, presumed the only adult wolf that remained, produced a litter of 7 pups, including black ones, suggesting that the black wolf observed in January was the breeding male. Two depredation incidents, 1 confirmed and 1 probable, on cattle occurred in 2010 and subsequently led to the removal of B218 and 1 pup. One other adult-sized wolf was observed by WS at the time B218 was killed. The fate of the remaining pups, and the pack itself, was uncertain. The Blue Bunch pack was not a breeding pair for 2010 and there was no year-end count.

#### *Hard Butte*

In winter 2009/2010, aerial observations ranged from 3- 5 wolves, including male B443, but this pack lost its only known radiocollared member when B443 was lethally controlled in March 2010. Two additional wolves were removed during this control action. Four depredation incidents were attributed to this pack during summer 2010 that resulted in the confirmed loss of 10 sheep, while 1 other sheep was classed as a probable wolf-kill. No evidence of reproduction



was obtained, so the Hard Butte pack was not reported as a breeding pair in 2010. A year-end count was not obtained.

#### *Hornet Creek*

Breeding female wolf B290 produced a litter of 4 pups. Two uncollared adult-sized wolves were observed in the vicinity of the den site. The Hornet Creek pack was considered a breeding pair for 2010. The year-end minimum number of wolves detected was four (incomplete).

#### *Horsethief*

This uncollared pack was documented in 2009 when a pup was legally harvested during the wolf-hunting season. This pack inhabited the territory formerly occupied by the Orphan pack and may have stemmed from members of the latter group. Seven confirmed depredations were attributed to the Horsethief pack in which a single head of cattle was lost in each. No information was obtained regarding the reproductive status of this pack and it was not considered a breeding pair in 2010. No end-of-year count was obtained.

#### *Jungle Creek*

There were no known radiocollared wolves in this group which made monitoring difficult. The Jungle Creek pack was implicated in 3 depredation events where 3 sheep were confirmed killed and one was classed as a probable wolf-kill. This pack was not reported as a breeding pair for 2010 and no year-end count was obtained.

#### *Lick Creek*

The Lick Creek pack's traditional den site was visited in late May 2010; 5-6 pups were observed. The Lick Creek pack was a breeding pair for 2010. There were no known radiocollared wolves in this pack, so no year-end count was obtained.

#### *Pen Basin*

This pack, verified in 2009, contained no known radiocollared members despite multiple attempts to capture wolves. Program biologists were able to confirm at least 2 pups from howling responses, which qualified this pack as a breeding pair for 2010. A year-end count was not obtained.

#### *Snake River*

Prior to whelping in 2009, 12 wolves were aerially observed in this pack. That year the pack produced 6 pups. Depredations began in May 2009 and continued into October 2009, with resultant legal and lethal controls removing 12 wolves, including all of the pups; leaving at least female B315 and male B446 for monitoring. B446 was legally killed by a livestock producer in April 2010, though he had been reported by WS as lethally controlled in December 2009. Three wolves were observed during a monitoring flight in December 2009, B315 and 2 others, one of which may have been B446, who was no longer being monitored. B315's signal was detected in mortality mode in March 2010; field investigation did not determine cause of death. Two confirmed depredations occurred in this pack's territory, but the wolves responsible were not presumed to have been affiliated with the Snake River pack, as this pack was no longer considered extant following B315's death.

### *Stolle Meadows*

There has been no contact with this pack since October 2009, with neither male wolf B259 nor female wolf B380 having been located. It was presumed that B380 was leaving the pack at that time and that its radiocollar was failing. Searches within this pack's territory failed to detect wolf sign and the local livestock producer reported to Program personnel that he had not seen evidence of wolves in the area during 2010. The Stolle Meadows pack was not counted as a breeding pair for 2010 and no year-end count was obtained.

### *Sweet-Ola*

Nine of the 10 members of the Sweet-Ola pack were lethally controlled in late January and early February 2010 after 4 livestock depredations. This pack was not reproductive and was considered extirpated by 2 February 2010. Seven depredation incidents took place following the pack's removal (8 cattle confirmed as wolf-kills, 2 cattle probable wolf-kills), but the identity of the wolves responsible was not known.

### *Thunder Mountain*

The Thunder Mountain pack has not had a known radiocollared member since 2002, making monitoring difficult. Multiple searches and capture attempts have been made since then, but no wolves have been caught. Investigation of an historic rendezvous site yielded an observation of 1 adult wolf and 3 pups, and a second adult was heard howling. The Thunder Mountain pack was reported as a breeding pair for 2010, but no year-end count was obtained.

### *Woodhead*

Acting on a sighting report made to IDFG's web site, a Program biologist verified this pack; based on the evidence of 4 adult-sized wolves, the pack was retroactively added as a documented pack in 2009. Four pups were observed at a den site, which qualified this pack as a breeding pair. A year-end count was not obtained.

## Other Documented Wolf Groups

### *B429*

Female wolf B429 was radiocollared as a member of the Casner Creek pack in January 2009. B429 dispersed from that pack in late May 2009 and travelled north to the Salmon River by early June 2009. The wolf then headed south and seemed to have settled near McCall, Idaho, by late June 2009. B429 (black) was seen amongst a group of 3 black wolves in February 2010; it was not known if those were members of the Stolle Meadows pack (the resident pack) or other individuals. The satellite radiocollar failed by May 2010, and there has been no contact with this group since.

### *B478*

Male wolf B478 was captured by IDFG during a helicopter darting effort in the Frank Church-River of No Return Wilderness in March 2010. At that time the wolf was a member of the Monumental Creek pack. B478 was aerially monitored into June, at which time the radio signal was no longer located in that pack's territory. His radio signal was re-detected in October 2010, north of McCall, Idaho, but this dispersing wolf has not been detected since then.

## **MIDDLE FORK WOLF MANAGEMENT ZONE (GMUs 20A 26, 27)**

### **Background**

That portion of the Middle Fork Zone comprised of GMUs 20A and 26 is predominantly within the federally designated Frank Church-River of No Return Wilderness. That portion within GMU 27 is primarily publicly-owned USFS lands within the Middle Fork of the Salmon River drainage. Large areas of the wilderness have burned creating a patchwork of vegetative seral stages (IDFG 2007).

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock conflict potential is considered low, whereas wolf-ungulate conflicts are considered moderate. Management direction for wolves in this zone is to stabilize the number of wolves at the 2005-2007 level (IDFG 2008). The Fish and Game Commission established a harvest limit of 17 wolves for this zone during the 2009 harvest season initially set for 1 October through 31 December 2009.

### **Management Summary**

The Middle Fork Zone was occupied by 8 documented resident wolf packs during 2010, though 1 pack was no longer considered extant at year's end (Figure 13; Table 8).

One pack met breeding pair status (Table 8). The reproductive status of 7 packs was unknown.

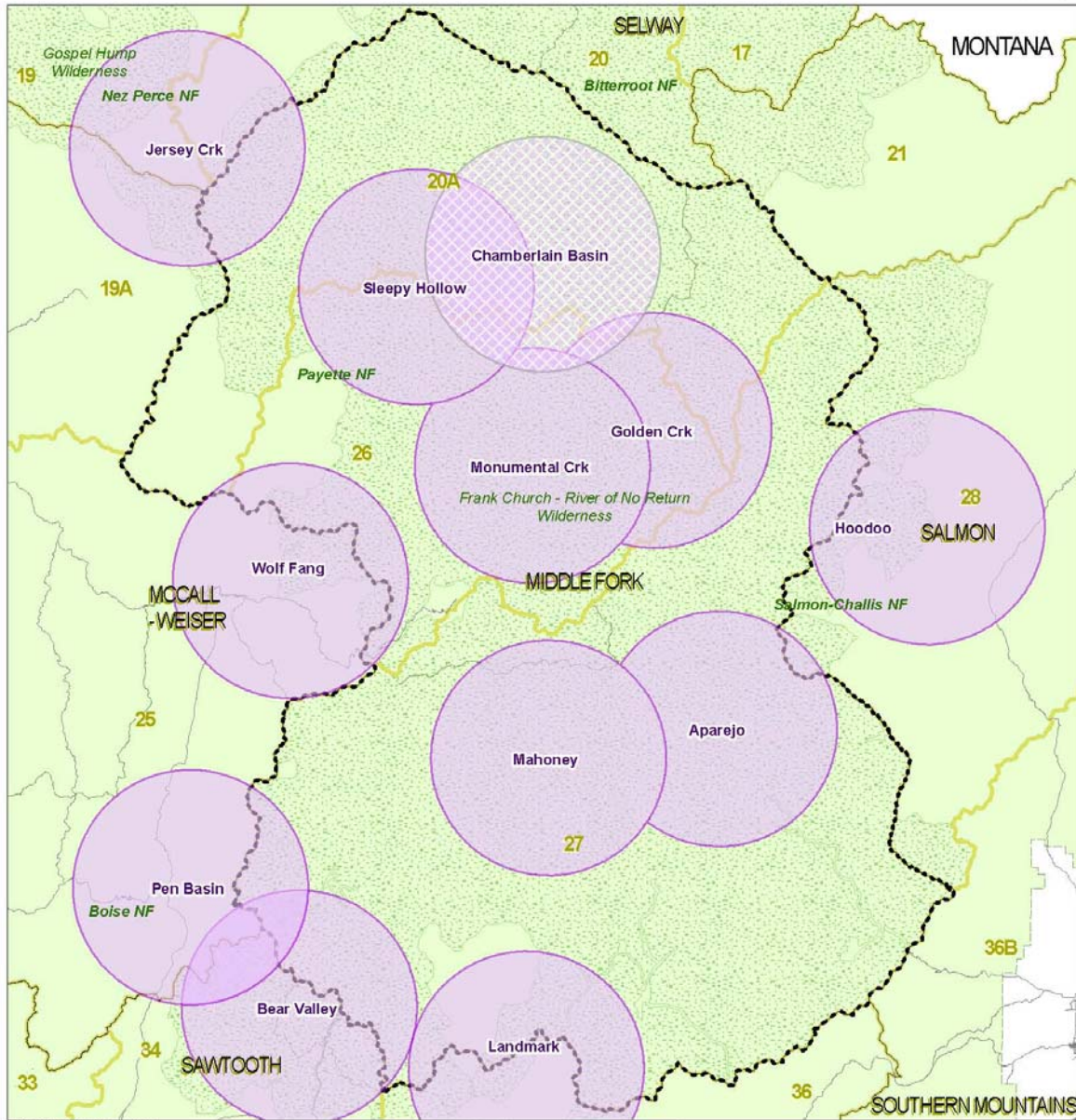
One radiocollared wolf was known to have dispersed from the pack where it was originally captured. The remoteness of this zone generally has hindered trapping operations. The IDFG conducted a winter helicopter capture effort that resulted in the radiocollaring of 4 wolves from 3 packs.

Documented mortalities ( $n = 3$ ) were attributed to harvest ( $n = 2$ ) and unknown ( $n = 1$ ) causes (Table 9). Because the harvest limit was not reached by the end of 2009, the season was extended through 31 March 2010 or until the quota was reached, by the Fish and Game Commission, which resulted in the harvest of the wolves noted above; the quota was met on 31 January 2010. This predominantly wilderness zone contains few domestic livestock and no losses were reported (Table 9).

# Middle Fork Wolf Activity<sup>1</sup>

2009-2010 Estimated Locations<sup>2</sup>

-  Documented Pack
-  Terminated Pack



Nez Perce Tribe GIS, Jeff Cronce, 2/23/2011

**Notes**

1. This map provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Nez Perce Tribe or the Idaho Department of Fish and Game.

2. Estimated Locations determined by biologists from research locations, public observations, and incidental observations from 1/1/2009 - 12/31/2010. These data are displayed as 8.4 mile radius circles consistent with pack territories based on a mean derived from 23 documented Idaho packs with known locations.

**Figure 13.** Distribution of documented and suspected wolf packs in the Middle Fork Wolf Management Zone, 2010.

**Table 8.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Middle Fork Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Aparejo	5	?	NO	NO	0	1	0
Chamberlain Basin	0	?	NO	NO	0	0	0
Golden Creek	?	?	NO	NO	0	0	0
Landmark	?	5	YES	YES	0	0	0
Mahoney	8	?	NO	NO	0	1	0
Monumental Creek	?	?	NO	NO	1	2	1
Sleepy Hollow	?	?	NO	NO	0	0	0
Wolf Fang	?	?	NO	NO	0	0	0
<b>SUBTOTAL</b>	<b>13</b>	<b>5</b>			<b>1</b>	<b>4</b>	<b>1</b>
<b>SUSPECTED PACK</b>							
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>WMZ TOTAL</b>	<b>13</b>	<b>5</b>			<b>1</b>	<b>4</b>	<b>1</b>

- <sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).
- <sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.
- <sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 9.
- <sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".
- <sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.
- <sup>f</sup> Radiocollared wolves that became missing in 2010.

**Table 9.** End of year summary of documented wolf mortality and wolf-caused livestock deprecations by Game Management Unit (GMU) within the Middle Fork Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
26	0	0	0	0	1	0	0	0	0
27	0	0	1	0	0	0	0	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

- <sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)
- <sup>b</sup> Includes all other human-related deaths.
- <sup>c</sup> Does not include pups that disappeared before winter.

## **Pack Summaries**

### Documented Resident Packs

#### *Aparejo*

Adult female wolf B481 was helicopter darted in March 2010. She joined B269 as radiocollared members of this pack. No field effort was made on this pack during 2010. This pack was not reported as a breeding pair and the year-end minimum number of wolves detected was five (complete).

#### *Chamberlain Basin*

There has been no field effort by Program personnel during the past 2 years. This long-standing pack, one of the first documented following the initial 1995 translocation of wolves from Canada, was not reported as a 2010 breeding pair and was no longer considered a documented pack.

#### *Golden Creek*

Male wolf B319 remained as the sole known radiocollared wolf in the group. This radio signal was last heard in January 2010, though he was later observed by a former Program biologist who determined that the radiocollar had failed. No attempt was made to determine reproductive status of the pack. In October 2010, wolf remains and a radiocollar were found along the Big Creek drainage by a hunter. It was determined that the dead wolf was B319. The Golden Creek pack was not considered a breeding pair for 2010. A year-end count was not obtained.

#### *Landmark*

Five pups, including black ones, were observed by a former Program biologist. No black wolves had ever been observed with this pack before, so the presence of those pups suggested that a black-colored breeding wolf had joined the group. The Landmark pack has not had a known radiocollared member since 2004, which has made monitoring difficult. Pup counts have been possible because of the pack's fidelity to known den and rendezvous sites. This pack was reported as a breeding pair for 2010, though no year-end count was obtained.

#### *Mahoney*

Subadult male wolf B480 was darted during helicopter capture efforts in the Frank Church-River of No Return Wilderness in March 2010. He joined male B332 as radiocollared members of this pack. B480's satellite radiocollar failed prematurely. Reproductive status of this pack was unknown, so the Mahoney pack was not classified as a breeding pair in 2010. The year-end minimum number of wolves detected was eight (complete).

#### *Monumental Creek*

Two wolves were radiocollared during helicopter capture efforts in the Frank Church-River of No Return Wilderness in March 2010. The breeding female wolf, B479, was fitted with a satellite radiocollar; it has not been detected since July and may have failed prematurely. The other wolf captured, subadult male B478, dispersed after mid-July and was subsequently located north of McCall, Idaho. Some historic den and rendezvous sites were visited, but no evidence of reproduction was found. This pack did not qualify as a 2010 breeding pair and there was no year-end count.

### *Sleepy Hollow*

Male wolf B408, captured and radiocollared as a pup in 2008, has not been located since October 2009, leaving no known marked individuals in this pack. No field effort was made to determine reproductive status, so the Sleepy Hollow pack was not considered a breeding pair in 2010 and no year-end count was obtained.

### *Wolf Fang*

The sole radiocollared wolf, female B282, was lethally controlled in 2009, rendering this pack difficult to monitor. Efforts to investigate historic den and rendezvous sites and conduct howling surveys were not successful in determining reproductive status. This pack was not considered a breeding pair for 2010 and no year-end count was obtained.

## **PALOUSE-HELLS CANYON WOLF MANAGEMENT ZONE (GMUs 8, 8A, 11, 11A, 13, 18)**

### **Background**

The Palouse-Hells Canyon Zone is composed of GMUs 8, 8A, 11, 11A, 13, and 18. Game Management Units 8, 8A, and 11A contain portions of the highly productive Palouse and Camas prairies. Since the onset of dry-land agriculture near the beginning of the 20<sup>th</sup> century, virtually all native grassland has been tilled, leaving only small, isolated patches of native perennial vegetation. Timber harvest in the corporate timber, private timber, state land, and federal land areas of GMU 8A increased dramatically during the 1980s and 1990s, creating vast acreages of early successional ungulate habitat (IDFG 2007). Non-forested habitat is not anticipated to provide habitat where wolves would persist.

Habitat within GMUs 11, 13, and 18 varies widely from steep, dry, river-canyon grasslands having low annual precipitation to higher elevation forests with greater precipitation. This area contains large tracts of both privately- and publicly-owned land: GMU 11 is mostly private land except for Craig Mountain Wildlife Management Area along the Snake and Salmon Rivers (Craig Mountain has been extensively logged); GMU 13 has been mostly under private ownership since settlement and has been managed mostly for agriculture and livestock; GMU 18 is 1/3 private ownership located at lower elevations along the Salmon River. Road density is moderate, with restricted access in many areas. The majority of Hells Canyon Wilderness Area is in GMU 18 (IDFG 2007).

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock conflicts are considered low, but a potential for high levels of conflict is noted if wolf populations increase. Wolf-ungulate conflicts in this zone are classified as moderate. Management direction for wolves in this zone is to stabilize the number of wolves at the 2005-2007 level (IDFG 2008). The Fish and Game Commission established a harvest limit of 5 wolves for this zone during the 2009 harvest season set for 1 October through 31 December 2009.

## Management Summary

The Palouse-Hells Canyon Zone was home to 3 documented resident packs and 1 other documented group by the end of 2010 (Figure 14; Table 10). One pack was newly formed in 2010 and another pack was retroactively added as a documented pack in 2009 based on the presence of at least 1 subadult wolf and a non-breeding adult female.

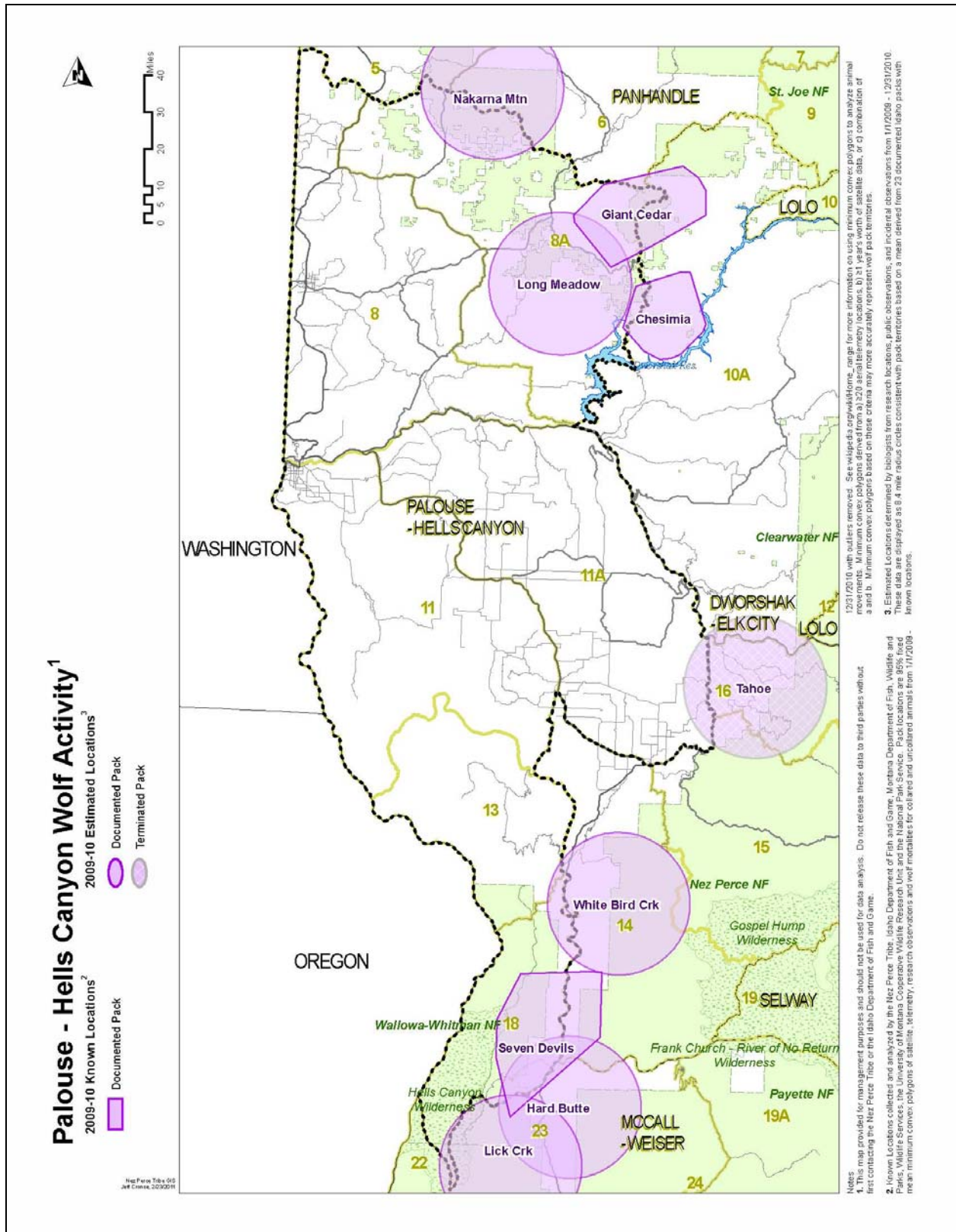
Two packs qualified as breeding pairs (Table 10). Two of 3 known pups for the third pack were lethally controlled, precluding them from breeding pair status.

One radiocollared wolf was known to have dispersed from the pack where it was originally captured. Two wolves from 1 pack were captured and fitted with radiocollars.

All documented wolf mortalities ( $n = 5$ ) were attributed to control (agency removal and legal take; Table 11). Four members of 1 pack were lethally controlled and a wolf of unknown group association was legally killed in an area with no known wolf activity. The harvest limit was reached and the season closed on 18 December 2009, so the season was not extended into 2010 in this zone.

Three cattle were classified as confirmed wolf-kills; 1 domestic cow and 1 domestic calf were attributed to 1 pack and another calf was killed by unknown wolves (Table 11). No wolf activity has been documented in the area where the unknown wolf/wolf group depredated prior to this incident.





**Figure 14.** Distribution of documented and suspected wolf packs in the Palouse-Hells Canyon Wolf Management Zone, 2010.

**Table 10.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Palouse-Hells Canyon Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Giant Cedar	6	3	YES	YES	0	2	0
Long Meadow	?	3(2)	YES	NO	0	0	0
Seven Devils	6	4	YES	YES	0	0	0
<b>SUBTOTAL</b>	<b>12</b>	<b>10(2)</b>			<b>0</b>	<b>2</b>	<b>0</b>
<b>SUSPECTED PACK</b>							
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
B451	2				0	0	0
<b>SUBTOTAL</b>	<b>2</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>WMZ TOTAL</b>	<b>14</b>	<b>10(2)</b>			<b>0</b>	<b>2</b>	<b>0</b>

- <sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).
- <sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.
- <sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 11.
- <sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".
- <sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.
- <sup>f</sup> Radiocollared wolves that became missing in 2010.

**Table 11.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the Palouse-Hells Canyon Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
8	0	1	0	0	0	0	0	0	0
8A	0	4	0	0	0	2	0	0	0
11	0	0	0	0	0	1	0	0	0
11A	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>

- <sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)
- <sup>b</sup> Includes all other human-related deaths.
- <sup>c</sup> Does not include pups that disappeared before winter.

## **Pack Summaries**

### Documented Resident Packs

#### *Giant Cedar*

Female wolf B401, captured as a pup in 2008, remained with the pack during 2010. Tracking its radio signal led Program biologists to rendezvous sites where 3 pups were observed. Two additional wolves, adult female B500 and male pup B501, were radiocollared in September 2010. The Giant Cedar pack was a breeding pair in 2010. The year-end minimum number of wolves detected was six (incomplete).

#### *Long Meadow*

This uncollared pack was verified during control actions conducted by WS; 2 domestic cattle were confirmed killed by this pack. Four wolves were lethally controlled, including 2 pups, a subadult male, and an adult non-breeding female; the presence of the latter 2 wolves suggested that this pack was present prior to 2010, so it was retroactively added as a documented pack in 2009. Following those removals only 1 pup remained based on track evidence. The Long Meadow pack was not considered a breeding pair in 2010. No year-end count was obtained.

#### *Seven Devils*

Female wolf B288 was the former breeding female in the Lick Creek pack, but left that group in early 2009. She roamed north of the Lick Creek pack's territory and was observed with another wolf in early 2010, at which time it was suspected this was a potential mated pair. Attempts to verify reproduction resulted in detection of 1 pup on multiple occasions. The minimum number of wolves detected was six (complete), including 4 pups, so this newly documented pack qualified as a breeding pair in 2010.

### Other Documented Wolf Groups

#### *B451*

When captured in 2009, B451 was the breeding female for the Chesimia pack, but she dispersed in 2010 and seemed to have settled in an area west of Elk River, Idaho. Her association with other wolves was unverified until she was observed with male wolf B493 (disperser from the Hemlock Ridge pack) in winter 2010/2011. B493 subsequently left this area, but B451 was seen with another wolf after B493's departure and these two are presumed to be a potential mated pair.

## **PANHANDLE WOLF MANAGEMENT ZONE (GMUs 1, 2, 3, 4, 4A, 5, 6, 7, 9)**

### **Background**

The Panhandle Zone includes the IDFG Panhandle administrative region. The climate is strongly influenced by Pacific maritime patterns that produce heavy late fall and winter precipitation and moderate temperatures. Typical spring weather has prolonged periods of rain, while summer months are warm and dry.

The Panhandle Zone is predominantly timbered, consisting of public forests managed by a variety of agencies and large areas of private corporate timber holdings. Timber harvest is the prevailing land use, but large tracts of roadless designation or remote access are scattered throughout the area. White-tailed deer (*Odocoileus virginianus*), elk, mule deer and moose (*Alces alces*) occur at varying densities throughout the zone. Livestock grazing is minimal on public properties but exists in most areas of private lands (IDFG 2007).

### **Management Direction**

As outlined in the 2008 Wolf Plan wolf-livestock and wolf-ungulate conflicts in this zone are classified as low, but a potential for moderate levels of conflicts is noted if wolf populations increase. Management direction for wolves in this zone is to stabilize wolf numbers at the 2005-2007 level (IDFG 2008). The Fish and Game Commission established a harvest limit of 30 wolves for this zone during the 2009 harvest season initially set for 1 October through 31 December 2009.

### **Management Summary**

The Panhandle Zone was home to 8 documented resident packs, 6 documented resident border packs, 1 suspected pack and 4 other documented wolf groups during 2010 (Figure 15; Table 12). Six border packs were tallied for Montana and one for Washington. By the end of 2010, 1 documented resident pack and 2 documented resident border packs were no longer considered extant. The 4 other documented wolf groups were no longer considered extant at the end of the year.

Eight documented resident and documented resident border packs produced litters and all qualified as breeding pairs (Table 12). The reproductive status of 6 packs, including those no longer considered extant, was unknown.

No radiocollared wolves were known to have dispersed in 2010. Three wolves were captured and fitted with radiocollars by Program personnel.

Documented mortalities ( $n = 18$ ) were attributed to harvest ( $n = 11$ ), other human (illegal take, vehicle collision, etc.;  $n = 4$ ), natural ( $n = 2$ ), and control causes (agency removal and legal take  $n = 1$ ; Table 13). Because the harvest limit was not reached by the end of 2009, the season was extended through 31 March 2010 or until the quota was reached, by the Fish and Game Commission, which resulted in the additional wolves harvested as noted above. No wolf-caused livestock losses occurred in this zone (Table 13).

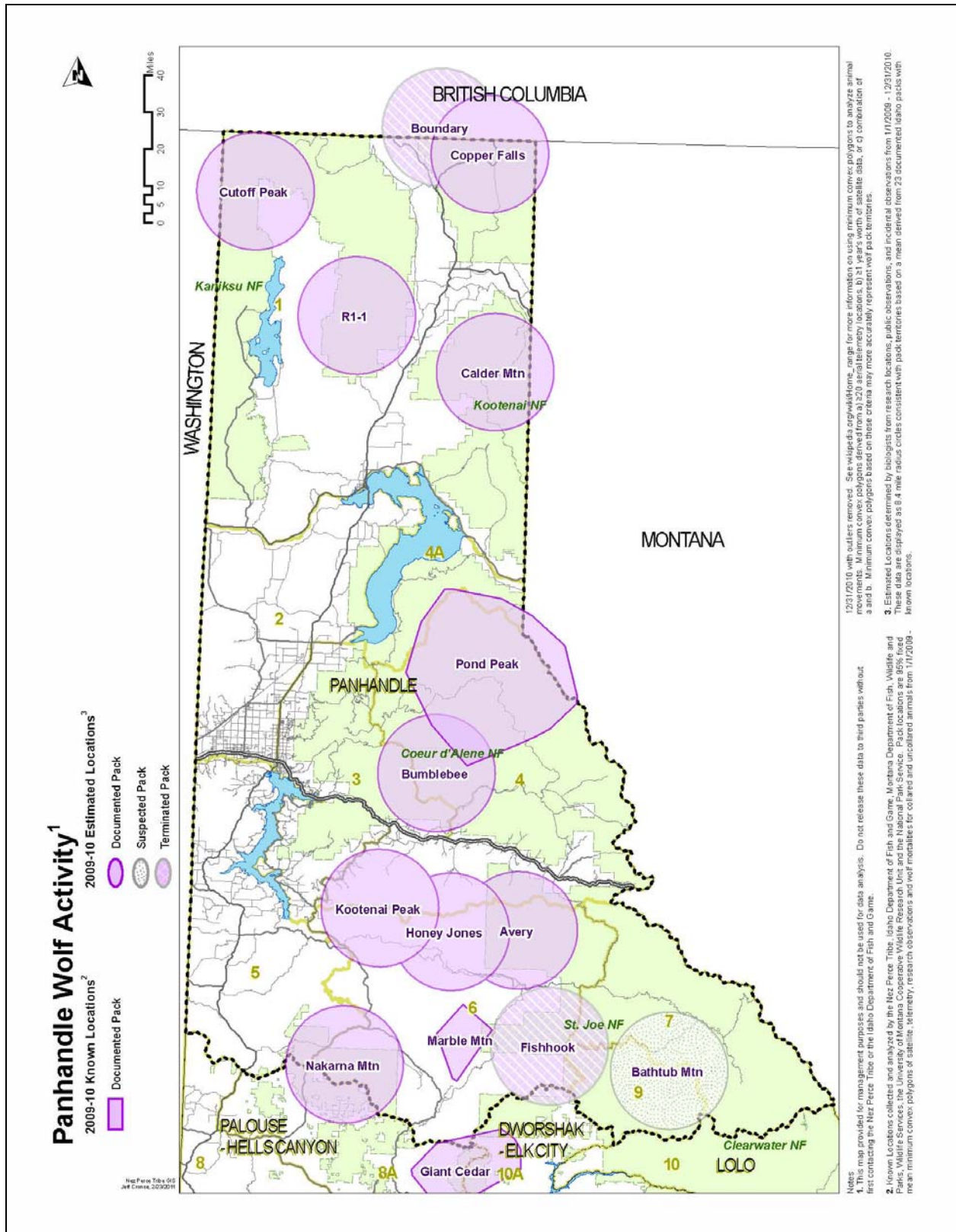


Figure 15. Distribution of documented and suspected wolf packs in the Panhandle Wolf Management Zone, 2010.

**Table 12.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Panhandle Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Avery	10	4	YES	YES	0	0	0
<del>Boundary (ID)<sup>g</sup></del>	0	?	NO	NO	0	0	0
Bumblebee	?	?	NO	NO	0	0	0
Calder Mountain (ID) <sup>g</sup>	?	?	NO	NO	0	0	0
Copper Falls (ID) <sup>g</sup>	?	5	YES	YES	0	0	0
Cutoff Peak (ID) <sup>g</sup>	?	4	YES	YES	0	1	0
De Borgia (MT) <sup>g</sup>							
Diamond (WA) <sup>g</sup>							
<del>Fishhook</del>	0	?	NO	NO	0	0	0
Honey Jones	4	3(1)	YES	YES	0	1	0
Kootenai Peak	10	4	YES	YES	0	0	0
Marble Mountain	7	5	YES	YES	0	1	0
Mullan (MT) <sup>g</sup>							
Nakarna Mountain	?	4	YES	YES	0	0	0
Pond Peak (ID) <sup>g</sup>	?	?	NO	NO	0	0	0
R1-1	?	3	YES	YES	0	0	0
Silver Lake (MT) <sup>g</sup>							
<del>Snowy Top (ID)<sup>g</sup></del>	0	0	NO	NO	0	0	0
Solomon Mountain (MT) <sup>g</sup>							
<del>Superior (MT)<sup>g</sup></del>							
Twilight (MT) <sup>g</sup>							
<b>SUBTOTAL</b>	<b>31</b>	<b>32(1)</b>			<b>0</b>	<b>3</b>	<b>0</b>
<b>SUSPECTED PACK</b>							
Bathtub Mountain	?				0	0	0
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
<del>B234</del>	0				0	0	0
<del>GMU-2</del>	?				0	0	0
<del>NW526</del>	0				0	0	0
<del>Pettis Peak</del>	?				0	0	0
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>WMZ TOTAL</b>	<b>31</b>	<b>32(1)</b>			<b>0</b>	<b>3</b>	<b>0</b>

- <sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).
- <sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.
- <sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 13.
- <sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".
- <sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.
- <sup>f</sup> Radiocollared wolves that became missing in 2010.
- <sup>g</sup> Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2010 Annual Report or other source.

**Table 13.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the Panhandle Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
1	0	1	1	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	1	0	3	3	0	0	0	0	0
4A	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	1	0	3	1	0	0	0	0	0
7	0	0	4	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0
<b>WMZ TOTAL</b>	<b>2</b>	<b>1</b>	<b>11</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

<sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)

<sup>b</sup> Includes all other human-related deaths.

<sup>c</sup> Does not include pups that disappeared before winter.

## Pack Summaries

### Documented Resident Packs

#### *Avery*

Male B465, captured as a pup in 2009, was the sole known radiocollared wolf in the pack. Four pups were counted inside the den, which qualified this pack as a breeding pair for 2010. The year-end minimum number of wolves detected was ten (complete).

#### *Bumblebee*

Field efforts to determine reproductive status of this uncollared pack failed to locate evidence of a litter of pups, so it was not considered a breeding pair for 2010. There was no year-end count.

#### *Fishhook*

This pack was heavily impacted by the wolf harvest in 2009 and 2010, when at least 4 wolves were killed, including the probable breeders. Investigations at known den and rendezvous sites failed to locate evidence of wolf presence. The pack was not recorded as a breeding pair. Based on the lack of wolf sign in their territory after wolf-hunting season was concluded, this pack was no longer considered extant, due to human disruption, by the end of 2010.

#### *Honey Jones*

This second-year pack received a satellite radiocollar when female B490 was captured in late June 2010. Three pups, and possibly a fourth, were observed on multiple occasions. A pup was later found dead; it had been killed by a cougar. The pack was a breeding pair for 2010. The year-end minimum number of wolves detected was four (complete).

### *Kootenai Peak*

Adult male wolf B459 was the sole known radiocollared wolf present. Four pups were documented through howling, so the group was counted as a breeding pair for 2010. The year-end minimum number of wolves detected was ten (complete).

### *Marble Mountain*

There were 2 radiocollared wolves associated with this pack during 2010; adult female B314 and female pup B494 (captured in 2010). Five pups were seen in mid-May. The Marble Mountain pack was counted as a breeding pair for 2010. The year-end minimum number of wolves detected was seven (complete).

### *Nakarna Mountain*

This pack was founded in 2009 by male wolf B308, who dispersed from the Giant Cedar pack. In 2010, the Nakarna Mountain pack's second litter consisted of 4 pups. Multiple capture efforts were conducted in order to place a satellite radiocollar, but the wolves evaded capture. This pack was classified as a breeding pair for 2010. No year-end count was obtained.

### *RI-1*

A trail camera placed by a hunter captured pictures of 2 adult-sized wolves in 2009. The camera was set up in the identical location again in 2010 and it recorded 2 pups, though Program personnel verified a minimum of 3 pups. This pack was newly documented as a result of verified reproduction and they were reported as a breeding pair for 2010, although a year-end count was not obtained.

## Documented Resident Border Packs

### *Boundary*

There were no known radiocollared wolves associated with this pack in 2010. Reproduction was not verified and the pack was not counted as a breeding pair. This pack has not been verified for the past 2 years and was removed as a documented pack.

### *Calder Mountain*

There were no known radiocollared wolves associated with this pack in 2010. The minimum number of wolves for this pack was not verified, reproduction was not verified and the pack was not counted as a breeding pair for 2010.

### *Copper Falls*

There were no known radiocollared wolves associated with this pack in 2010. Five pups were observed, thus the pack counted as a breeding pair for 2010. Without radiocollared wolves, no year-end count was obtained.

### *Cutoff Peak*

A male pup, B499, was captured and fitted with a satellite radiocollar in September 2010. B499 ranged widely, travelling into Canada and Washington on multiple occasions; these movements likely were not a dispersal event as a pup of this age typically remains with its pack. Because B499's locations indicated that this wolf was using nearly the entirety of what was thought to be the Snowy Top pack's territory, the 2 packs are likely the same group and will be identified as



the Cutoff Peak pack. Program personnel verified 4 pups and the pack was recorded as a breeding pair for 2010. No year-end count was obtained.

#### *Pond Peak*

Five wolves were captured in the Pond Peak pack in 2009; 3 pups (male B460 was radiocollared), and adult-sized male wolves B462 and B464. B460 was never located and neither B462 nor B464 has been found during monitoring flights since December 2009. The reproductive status was unknown, so the group was not counted as a breeding pair for 2010. There was no year-end count.

#### *Snowy Top*

This pack was previously considered a documented resident border pack. B499 of the Cutoff Peak pack was using nearly the entirety of what was thought to be the Snowy Top pack's territory, suggesting these 2 packs were one and the same. The Snowy Top pack was removed as a documented pack based on satellite-location data indicating that the Cutoff Peak pack was resident within this area.

### Documented Non-Resident Border Packs

#### *De Borgia (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

#### *Diamond (WA)*

This documented border pack was tallied for Washington in 2010, though it used a rendezvous site in Idaho. See [http://wdfw.wa.gov/conservation/gray\\_wolf/](http://wdfw.wa.gov/conservation/gray_wolf/).

#### *Mullan (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

#### *Silver Lake (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

#### *Solomon Mountain (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

#### *Superior (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

#### *Twilight (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

### Suspected Resident Packs

#### *Bathtub Mountain*

There was verified evidence of wolf presence in this area in 2009, but no sign of wolf activity was located during 2010. Further monitoring efforts will determine whether this suspected pack continues to be considered extant.

## Other Documented Wolf Groups

### *B234*

This male wolf was captured as a member of the Avery pack in 2005 and remained with that pack through at least 2008. Aerial location information from 2009 indicated that B234 was not located with the other radiocollared wolf in that pack. Although B234 was located within the territory, he may no longer have been a pack member. B234's signal was detected in mortality mode in early January 2010; field examination of the remains suggested it died of natural causes. This group was no longer considered extant at the end of 2010.

### *GMU 2*

The Program has not verified wolf activity for this group, so it was no longer considered extant by the end of 2010.

### *NW526*

This wolf dispersed from the Lydia pack in Montana and was legally shot east of Bonners Ferry, Idaho, so this group was no longer considered extant at the end of 2010.

### *Pettis Peak*

The Program has not verified wolf activity for this group, so it was no longer considered extant by the end of 2010.

## **SALMON WOLF MANAGEMENT ZONE (GMUs 21, 21A, 28, 36B)**

### **Background**

The Salmon Zone encompasses 4 GMUs (21, 21A, 28, 36B) that also comprise the Salmon elk zone. The topography within the Salmon Zone is characterized by steep, mountainous slopes interspersed by river valleys. The habitat consists primarily of timbered hillsides with grass understory, although lower elevations are arid rangelands comprised of sagebrush (*Artemisia spp.*) and bunchgrass vegetation. Land ownership is primarily public, with approximately 95% under USFS, Bureau of Land Management, or State ownership. Cattle ranching, livestock grazing, mining, timber harvesting, and recreation are the dominant human uses in this region.

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock conflict levels are currently considered high, whereas wolf-ungulate conflicts are considered moderate. Management direction for wolves in this zone is to reduce the number of wolves to the 2005-2007 level and then stabilize at that lower level (IDFG 2008). The Fish and Game Commission established a harvest limit of 16 wolves for this zone during the 2009 harvest season initially set for 1 October through 31 December 2009.

## Management Summary

The Salmon Zone was occupied by 8 documented resident packs and 1 documented resident border pack during 2010 (Figure 16; Table 14). One pack was no longer considered extant at the end of 2010. Four border packs were claimed by Montana, though one of those was eradicated. One pack was upgraded from suspected to documented status in 2010 after confirmation of a pregnant female was obtained. One other documented group was also present during 2010, but was no longer considered extant by the end of the year.

Five of 6 reproductive packs qualified as breeding pairs (Table 14). The reproductive status of the remaining 3 packs was not determined.

No radiocollared wolves were known to have dispersed in 2010. Six wolves were captured by Program personnel that resulted in the placement of 5 new radiocollars and replacement of 1 expired radiocollar.

Documented mortalities within the Salmon Zone ( $n = 13$ ; Table 15) were attributed to control (agency removal and legal take;  $n = 7$ ) and hunter harvest ( $n = 6$ ). Because the harvest limit was not reached by the end of 2009, the season was extended through 31 March 2010 or until the quota was reached, by the Fish and Game Commission, which resulted in the additional wolves harvested as noted above; the quota was met on 15 March 2010.

Confirmed ( $n = 14$ ) and probable ( $n = 4$ ) wolf-caused cattle losses were attributed to 5 packs, as well as unknown wolves (Table 15). In addition, a pack from the neighboring Southern Mountains Zone killed 2 cattle in this zone.

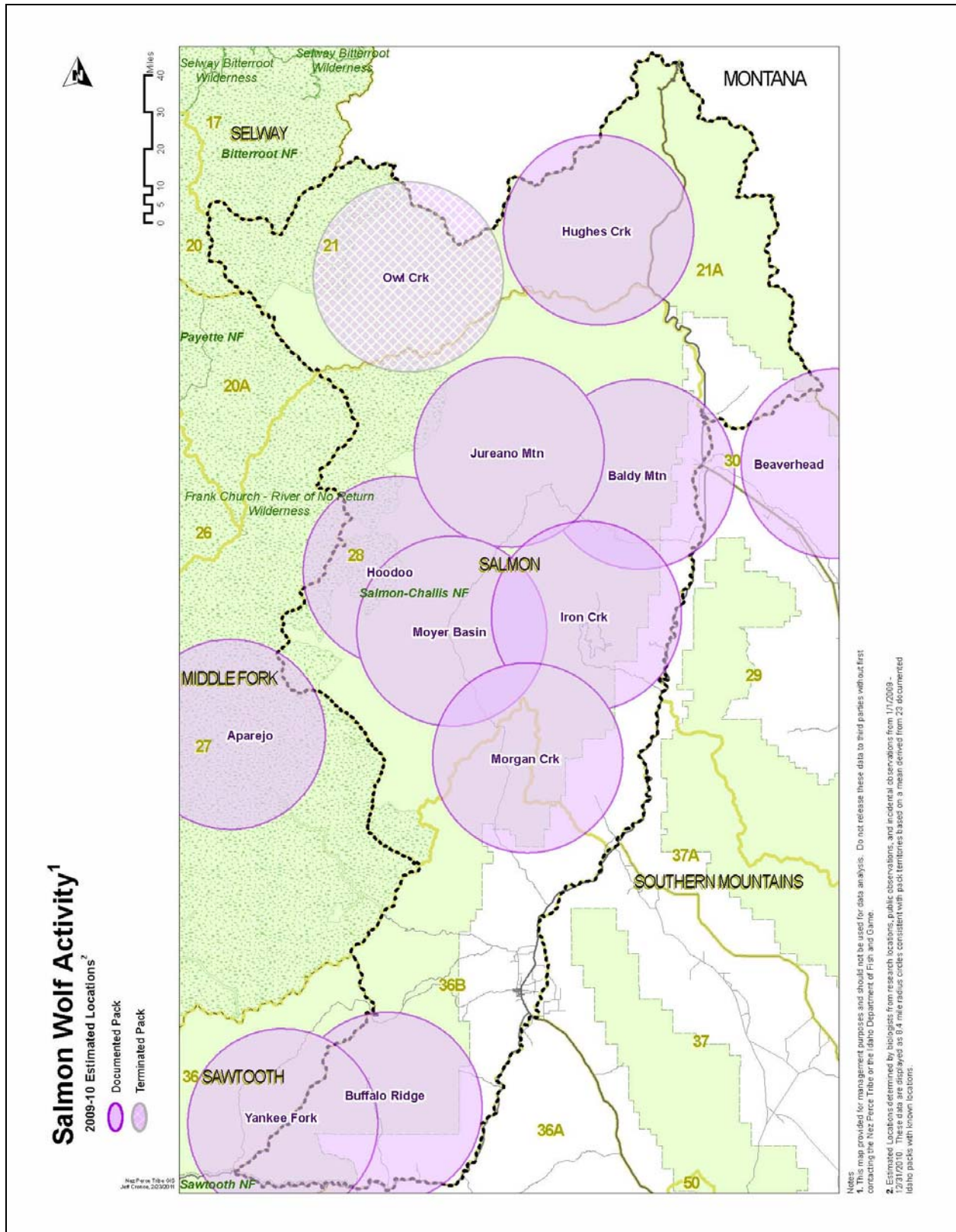


Figure 16. Distribution of documented and suspected wolf packs in the Salmon Wolf Management Zone, 2010.

**Table 14.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Salmon Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Baldy Mountain	7	?	YES	NO	0	1	0
Buffalo Ridge	7	2	YES	YES	0	1	0
Hoodoo	?	2	YES	YES	0	0	0
Hughes Creek (ID) <sup>g</sup>	?	5	YES	YES	0	0	0
Iron Creek	?	?	NO	NO	0	0	0
Jureano Mountain	10	3(1)	YES	YES	0	2	0
<del>Miner Lakes (MT)<sup>g</sup></del>							
Morgan Creek	?	?	NO	NO	0	0	0
Moyer Basin	12	9	YES	YES	0	1	0
<del>Owl Creek</del>	0	?	NO	NO	0	0	0
Painted Rocks (MT) <sup>g</sup>							
Sula (MT) <sup>g</sup>							
Trail Creek (MT) <sup>g</sup>							
<b>SUBTOTAL</b>	<b>36</b>	<b>21(1)</b>			<b>0</b>	<b>5</b>	<b>0</b>
<b>SUSPECTED PACK</b>							
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
<del>B504</del>	0				0	1	0
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>1</b>	<b>0</b>
<b>WMZ TOTAL</b>	<b>36</b>	<b>21(1)</b>			<b>0</b>	<b>6</b>	<b>0</b>

<sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).

<sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.

<sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 15.

<sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".

<sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.

<sup>f</sup> Radiocollared wolves that became missing in 2010.

<sup>g</sup> Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2010 Annual Report or other source.

**Table 15.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the Salmon Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
21	0	0	3	0	0	0	0	0	0
21A	0	0	0	0	0	0	0	0	0
28	0	7	1	0	0	9(1)	0	0	0
36B	0	0	2	0	0	5(3)	0	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>7</b>	<b>6</b>	<b>0</b>	<b>0</b>	<b>14(4)</b>	<b>0</b>	<b>0</b>	<b>0</b>

<sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)

<sup>b</sup> Includes all other human-related deaths.

<sup>c</sup> Does not include pups that disappeared before winter.

## Pack Summaries

### Documented Resident Packs

#### *Baldy Mountain*

This pack was upgraded from suspected to documented status in 2010 when reproduction was confirmed. A lactating female was legally killed in late April 2010 during a WS control action and examination of her reproductive tract indicated that she had been pregnant; it was suspected that those pups perished following her death. A second wolf was killed during a control action. Another wolf, subadult female B482, was captured and radiocollared. Due to the presumed death of the pups, this pack was not considered a breeding pair in 2010. The year-end minimum number of wolves detected was seven (incomplete).

#### *Buffalo Ridge*

Male wolf B196 joined this pack in 2005 after dispersing from the Morgan Creek pack. He was monitored until January 2008, when it was assumed his radiocollar expired. In late February 2010, B196 was legally harvested in the Buffalo Ridge pack's territory. A Program biologist located a rendezvous site where 2 pups were observed, and caught and radiocollared subadult female B492. The Buffalo Ridge pack was reported as a breeding pair for 2010. The year-end minimum number of wolves detected was seven (incomplete).

#### *Hoodoo*

This pack lost its only known radiocollared wolf when probable breeding male Y239 was legally harvested in September 2009. Despite the difficulties monitoring this pack without a radiocollared member, a Program biologist was able to document a minimum of 2 pups. The Hoodoo pack was reported as a breeding pair for 2010, although no year-end count was obtained.

#### *Iron Creek*

No field effort was conducted on this pack in 2010. This pack was not reported as a breeding pair for 2010 and because there were no known radiocollared wolves present a year-end count was not obtained.

### *Jureano Mountain*

Two subadult wolves, male B486 and female B487, were captured and radiocollared in June 2010. Ground-tracking of these 2 individuals led a Program biologist to an historic rendezvous site where 3 pups were seen. Control actions stemming from 1 confirmed wolf-killed calf led to removal of 2 adults, 1 pup, and 1 wolf of unknown age. The pack was reported as a breeding pair for 2010. The year-end minimum number of wolves detected was ten (incomplete).

### *Morgan Creek*

This pack has not contained a known radiocollared wolf since 2007, which made monitoring difficult. Field efforts in 2010 failed to detect wolf activity, therefore the pack was not considered a breeding pair and a year-end count was not obtained.

### *Moyer Basin*

Long-time pack member, female wolf B145, was recaptured and radiocollared in August 2010. She had initially been helicopter darted in 2003, at which time she was the breeding female. B145 joined female wolf B471 as marked pack members. Female wolf B472 had also been monitored, but its radiocollar came off in April 2010. Based on size discrepancies of pups observed in May 2010, this pack produced 2 litters in 2010, totaling 9 pups; they also produced 2 litters in 2009. The pack was implicated in a single depredation event where 4 domestic cattle were confirmed killed, which led to lethal control of 1 wolf in October. The pack was a breeding pair in 2010 and the year-end minimum number of wolves detected was twelve (complete).

### *Owl Creek*

This pack has not had any known radiocollared wolves. No field effort was conducted on this pack in 2010. This pack was not reported as a breeding pair for 2010 and because there has been no wolf activity verified in this area for the past 2 years, the Owl Creek pack was removed as a documented pack.

## Documented Resident Border Packs

### *Hughes Creek*

Male wolf B264's signal had not been detected since mid-June 2008. B264 was legally harvested, as were 2 other wolves from the pack in 2010; in addition to two taken in the 2009 portion of the wolf-hunting season. The pack produced a litter of 5 pups and was considered a breeding pair, though no year-end count was obtained.

## Documented Non-Resident Border Packs

### *Miner Lakes (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

### *Painted Rocks (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

### *Sula (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

### *Trail Creek (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

### Other Documented Wolf Groups

#### *B504*

This wolf was captured in 2010 in an area formerly occupied by the Twin Peaks pack. Too few aerial locations were gathered to determine this wolf's pack affiliation, if any, but suggested B504 may be a member of either the Twin Peaks or the Buffalo Ridge packs. B504's signal was detected in mortality mode during winter 2010/2011; USFWS law enforcement opened an investigation. This group was no longer considered extant at the end of 2010.

## **SAWTOOTH WOLF MANAGEMENT ZONE (GMUs 33, 34, 35, 36, 39)**

### **Background**

Access within the Sawtooth Zone ranges from heavily-roaded urban areas to roadless wilderness areas. The majority of this zone is forested public land administered by the Boise and Sawtooth National Forests. However, significant portions of private agricultural land also exist in the Mayfield and Horseshoe Bend, Idaho, areas. The Treasure Valley, Idaho's largest metropolitan area, is also found in this zone. The climate tends to be warm and dry in the summer and wet and cold in the winter. Lower elevations tend to receive more rain in the winter trending to heavy snow in higher elevations (IDFG 2007).

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock and wolf-ungulate conflict levels are currently considered moderate, with the potential for wolf-livestock conflicts to increase over time. Management direction for wolves in this zone is to stabilize the number of wolves at the 2005-2007 level (IDFG 2008). The Fish and Game Commission established a harvest limit of 55 wolves for this zone during the 2009 harvest season set from 1 September 2009 through 31 March 2010.

### **Management Summary**

The Sawtooth Zone was home to 15 documented resident packs during 2010, 1 suspected resident pack, and 3 other documented groups; one of the latter was no longer considered extant by the end of the year (Figure 17; Table 16).

Nine packs were known to have produced litters of pups and eight were counted as breeding pairs (Table 16). The reproductive status of 6 packs was unknown.

One wolf was known to have dispersed from the pack where it was originally captured. Nine wolves from 7 packs and 1 other documented group were captured by Program personnel, that resulted in placement of 5 new radiocollars and replacement of 4 others.



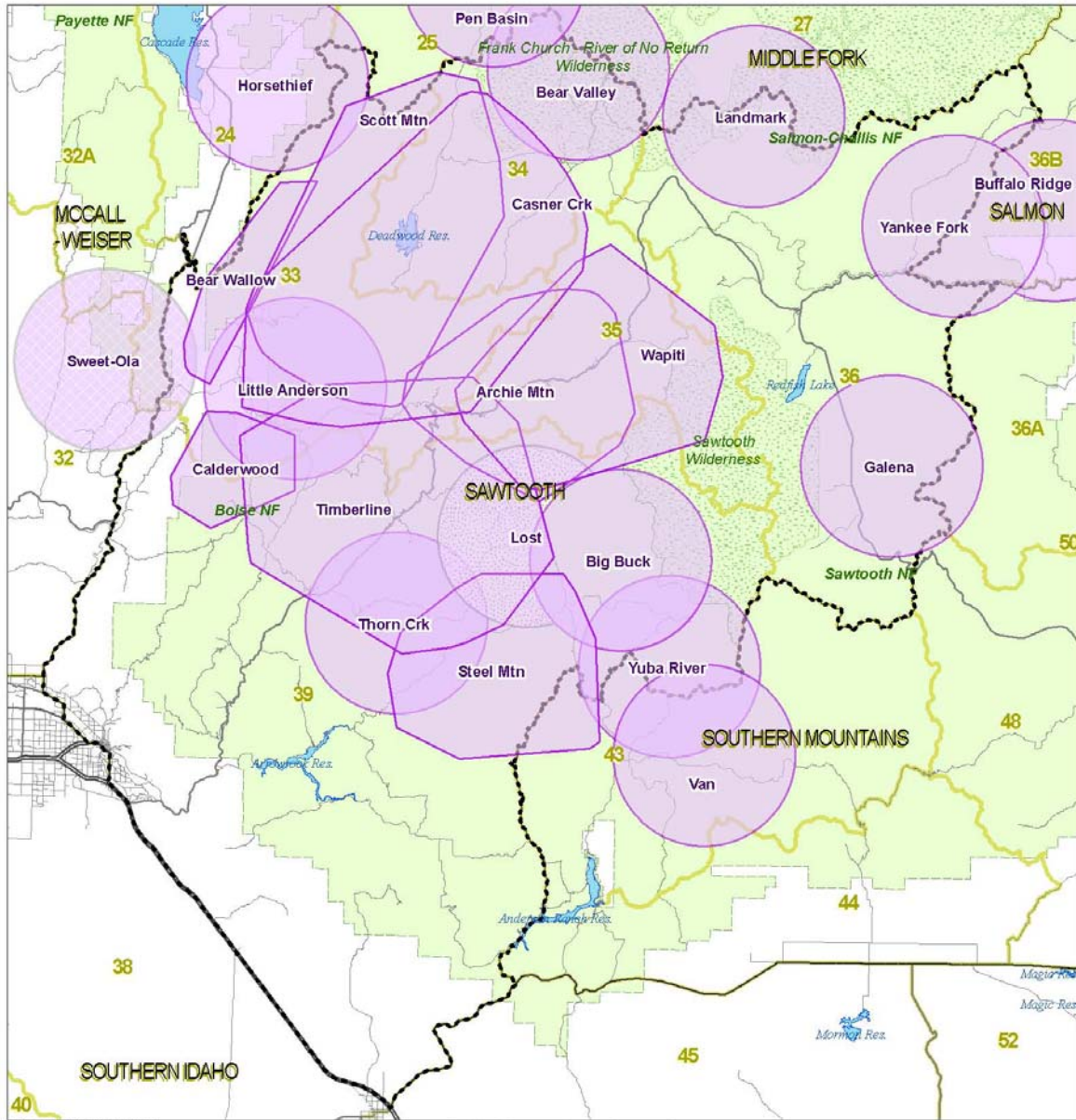
Documented mortalities ( $n = 31$ ) included control (agency removal and legal take;  $n = 15$ ), harvest ( $n = 15$ ), and unknown ( $n = 1$ ) causes (Table 17). Because the harvest limit was not reached by the end of 2009, the season was extended through 31 March 2010 or until the quota was reached, by the Fish and Game Commission, which resulted in the harvest of the 15 additional wolves noted above.

Confirmed ( $n = 3$ ) wolf-caused cattle losses were attributed to 1 pack and unknown wolves (Table 17). Confirmed ( $n = 66$ ) and probable ( $n = 9$ ) wolf-caused domestic sheep losses were attributed to 5 packs and unknown wolf groups (Table 17); losses attributed to 1 Sawtooth Zone pack occurred in the Southern Mountains Zone.

# Sawtooth Wolf Activity<sup>1</sup>

2009-2010 Known Locations<sup>2</sup> 2009-2010 Estimated Locations<sup>3</sup>

- Documented Pack
- Documented Pack
- Suspected Pack
- Terminated Pack



Nez Perce Tribe GIS, Jeff Cronce, 2/23/2011

Notes:  
 1. This map provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Nez Perce Tribe or the Idaho Department of Fish and Game.

2. Known Locations collected and analyzed by the Nez Perce Tribe, Idaho Department of Fish and Game, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Pack locations are 95% fixed mean minimum convex polygons of satellite, telemetry, research observations and wolf mortalities for collared and uncollared animals from 1/1/2009 -

12/31/2010 with outliers removed. See wikipedia.org/wiki/home\_range for more information on using minimum convex polygons to analyze animal movements. Minimum convex polygons derived from a)  $\geq 20$  aerial telemetry locations, b)  $\geq 1$  year's worth of satellite data, or c) combination of a and b. Minimum convex polygons based on these criteria may more accurately represent wolf pack territories.

3. Estimated Locations determined by biologists from research locations, public observations, and incidental observations from 1/1/2009 - 12/31/2010. These data are displayed as 0.4 mile radius circles consistent with pack territories based on a mean derived from 23 documented Idaho packs with known locations.

Figure 17. Distribution of documented and suspected wolf packs in the Sawtooth Wolf Management Zone, 2010.

**Table 16.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Sawtooth Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Archie Mountain	2	1(1)	YES	NO	1	1	0
Bear Valley	?	2	YES	YES	0	0	0
Bear Wallow	4	?	NO	NO	0	0	0
Big Buck	?	2	YES	YES	0	0	0
Calderwood	3	?	NO	NO	0	0	0
Casner Creek	5	2	YES	YES	0	1	0
Galena	4	2	YES	YES	0	1	0
Little Anderson	?	?	NO	NO	0	0	0
Scott Mountain	2	?	NO	NO	0	1	0
Steel Mountain	?	3(1)	YES	YES	0	0	1
Thorn Creek	7	5	YES	YES	0	1	0
Timberline	10	5	YES	YES	0	1	0
Wapiti	11	4	YES	YES	0	2	0
Yankee Fork	?	?	NO	NO	0	0	0
Yuba River	?	?	NO	NO	0	0	0
<b>SUBTOTAL</b>	<b>48</b>	<b>26(2)</b>			<b>1</b>	<b>8</b>	<b>1</b>
<b>SUSPECTED PACK</b>							
Lost	?				0	0	0
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
<del>B109</del>	0				0	0	0
B450	3				0	0	0
B503	?				0	1	0
<b>SUBTOTAL</b>	<b>3</b>	<b>0</b>			<b>0</b>	<b>1</b>	<b>0</b>
<b>WMZ TOTAL</b>	<b>51</b>	<b>26(2)</b>			<b>1</b>	<b>9</b>	<b>1</b>

<sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).

<sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.

<sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 17.

<sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".

<sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.

<sup>f</sup> Radiocollared wolves that became missing in 2010.

**Table 17.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the Sawtooth Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
33	0	0	6	0	0	0	10	0	0
34	0	0	0	0	0	0	0	0	0
35	0	0	3	0	1	0	0	0	0
36	0	2	1	0	0	1	2(1)	0	0
39	0	13	5	0	0	2	54(8)	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>15</b>	<b>15</b>	<b>0</b>	<b>1</b>	<b>3</b>	<b>66(9)</b>	<b>0</b>	<b>0</b>

<sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)

<sup>b</sup> Includes all other human-related deaths.

<sup>c</sup> Does not include pups that disappeared before winter.

## Pack Summaries

### Documented Resident Packs

#### *Archie Mountain*

At the beginning of 2010, this pack had 4 radiocollared wolves: One wolf died, one dispersed, and 1 wolf's radiocollar failed, leaving female B495 as the sole radiocollared wolf during 2010. Reproduction was verified when Program personnel discovered the remains of a pup at an abandoned rendezvous site; no other evidence of living pups was obtained, so this pack was not considered a breeding pair for 2010. The year-end minimum number of wolves detected was two (complete).

#### *Bear Valley*

Subadult male wolf B503 was captured in this pack's territory in mid-September 2010, but during the next monitoring flight he was located outside the territory, so his pack affiliation was questionable. No other known radiocollared wolves resided within this pack. Two pups were verified, so this pack was considered a breeding pair for 2010. No year-end count was obtained.

#### *Bear Wallow*

One radiocollared wolf, female B454, resided with this pack in 2010. Biologists made several attempts to track B454 in hopes that she would lead them to a rendezvous site where pups could be verified, but none were successful; the pack was not considered a breeding pair for 2010. This pack was implicated in a single depredation event where 10 sheep were confirmed killed. The year-end minimum number of wolves detected was four (complete).

#### *Big Buck*

The Big Buck pack has not contained a known radiocollared wolf since February 2008. A trapping effort in early June 2010 was unsuccessful. A Program biologist heard multiple adults and pups howling in early August, so the Big Buck pack was considered a breeding pair with a minimum of 2 pups. No year-end count was obtained.

### *Calderwood*

Female wolf B141, initially captured in 2002, remained with this pack during 2010. At one time she was the breeding female, but her status in that regard was no longer known. Multiple attempts were made to determine reproductive status, but no evidence of pups was found. The Calderwood pack was not considered a 2010 breeding pair. The year-end minimum number of wolves detected was three (complete).

### *Casner Creek*

Male wolf B415 was suspected to have died in April 2010 based on data from its satellite radiocollar (stationary locations over an extended time period), though during a site investigation the mortality signal was not heard and no wolf remains were found. Female B427 was recaptured in July 2010 and her signal led a Program biologist to a rendezvous site where 2 pups were verified. The pack was reported as a breeding pair for 2010. The year-end minimum number of wolves detected was five (complete).

### *Galena*

During a control action, female pup B502 was captured and radiocollared in September 2010. Two other wolves, an uncollared male and one-time breeding female B107 (10 years old), were lethally controlled. The pack was implicated in 3 depredation events where 1 sheep and 1 domestic calf were confirmed as wolf-kills, and 1 sheep was classed as a probable wolf-kill. A howling survey determined that a minimum of 2 pups was produced by this pack. This pack was considered a breeding pair for 2010 and the year-end minimum number of wolves detected was four (complete).

### *Little Anderson*

There were no known radiocollared wolves present with this pack. A sighting by the public suggested a litter of pups had been produced, but a Program biologist was unable to verify reproduction. The pack was not considered a breeding pair in 2010 and no year-end count was obtained.

### *Scott Mountain*

Female wolf B404 was initially captured in the Casner Creek pack's territory in 2008, but has not been located with any radiocollared members of that pack and the majority of satellite locations indicated her affiliation with the Scott Mountain pack. B404 was recaptured in 2010 and the satellite radiocollar replaced. The reproductive status of the Scott Mountain pack was unknown, so it was not considered a breeding pair for 2010. B404 was observed with 1 other wolf, which was the year-end minimum number of wolves detected (incomplete).

### *Steel Mountain*

Long-time pack member male R241 has not been located since January 2010, and it was presumed its radiocollar expired, leaving no known radiocollared wolves present with this pack. Probable breeding female B189 was lethally controlled in 2009, but the pack produced a minimum of 3 pups in 2010. One confirmed depredation incident was attributed to the pack in which 38 sheep were killed in the Southern Mountains Zone. Two wolves, including a pup, were lethally controlled in mid-September 2010. The Steel Mountain pack was a breeding pair for 2010, but no year-end count was obtained.

### *Thorn Creek*

Male wolf B477, trapped during a control action in what was presumed outside the pack's territory (but a previously radiocollared Thorn Creek pack member was aurally located within 10 miles [16 km] of the capture site), was found with this pack's litter of pups in mid-August. Three pups were observed, but based on howling it was felt that at least five were present. The Thorn Creek pack was confirmed to have killed 1 domestic lamb. This pack was considered a breeding pair for 2010. The year-end minimum number of wolves detected was seven (complete).

### *Timberline*

Female wolf B368, originally captured in 2008, remained with the pack during 2010, and male wolf B491 was radiocollared after being caught in a snare set by IDFG bear researchers in June 2010. One wolf, female B425, was legally harvested in March 2010. Four pups were observed and a fifth was heard howling, which qualified this pack as a breeding pair. The year-end minimum number of wolves detected was ten (complete).

### *Wapiti*

Two radiocollared wolves, male B419 and female B422, were recaptured in April 2010, while female wolf B473's transmitter beacons had failed by February 2010; B473 was captured in late August 2009. Four pups were observed and a fifth may have been present. This pack qualified as a breeding pair for 2010. The year-end minimum number of wolves detected was eleven (complete).

### *Yankee Fork*

The last radiocollared wolf in this pack, female B405, was illegally killed in 2009, which made monitoring difficult. No evidence of reproduction was found at historic den or rendezvous sites, so the Yankee Fork pack was not reported as a breeding pair for 2010 and no year-end count was obtained.

### *Yuba River*

This pack was newly documented in 2010 when depredations occurred in an area not part of neighboring packs' territories. In 5 confirmed depredation incidents on domestic sheep, losses totaled 6 ewes and 14 lambs. Capture efforts were unsuccessful, which made monitoring difficult. Evidence of reproduction was not found; therefore the pack was not considered a breeding pair. No year-end count was obtained.

## Suspected Resident Packs

### *Lost*

This suspected pack was sandwiched between the Timberline, Steel Mountain, Big Buck and Archie Mountain packs.

## Other Documented Wolf Groups

### *B109*

Female wolf B109, formerly of the Warm Springs pack, wandered throughout that territory and beyond after the pack disbanded in 2008. Multiple aerial observations during 2009 and 2010

indicated the wolf was alone. B109 was legally harvested in March 2010 and this other documented group was no longer considered extant.

#### *B450*

Captured as a subadult member of the Basin Butte pack, this male wolf evaded death during the lethal control action that eliminated the rest of his pack in November 2009. He left the pack's territory and in mid-December 2009 was aerially located approximately 60 miles (97 km) to the south near Anderson Ranch Reservoir. He remained in this area through mid-January 2010, but then moved northwards. By early March 2010 he was located near Atlanta, Idaho, and by mid-May 2010 had returned to the former Basin Butte pack's territory where he has remained. During a monitoring flight in winter 2010/2011, B450 was observed with 2 other wolves.

#### *B503*

Captured and radiocollared in the Bear Valley pack's territory in mid-September, this male wolf's membership in that pack was uncertain, as within 1 week of being radiocollared B503 was located outside the southern end of the Bear Valley pack's home range. This wolf was last located in mid-October.

## **SELWAY WOLF MANAGEMENT ZONE (GMUs 16A, 17, 19, 20)**

### **Background**

In 1964, almost all of GMU 17 and a small portion of GMU 16A were included in the Selway-Bitterroot Wilderness. Most of GMU 19 became part of the Gospel Hump Wilderness in 1978, and in 1980, part of GMU 20 was included in the Frank Church- River of No Return Wilderness (IDFG 2007). Habitat within the Selway Zone varies from high-precipitation, forested areas along the lower reaches of the Selway River to dry, steep, south-facing Ponderosa pine and grassland habitat along the Salmon River. Many areas along the Salmon River represent a mix of successional stages due to frequent fires within the wilderness. Fire suppression within portions of the Selway River drainage has led to decreasing forage production for big game. Road densities are low. Noxious weeds, especially spotted knapweed (*Centaurea stoebe*), have encroached upon many low-elevation areas (IDFG 2007). Due to the rugged and remote nature of this zone, human impacts have been limited.

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock conflicts are considered low, while wolf-ungulate conflicts are currently considered high. Management direction for wolves in this zone is to decrease the number of wolves and subsequently stabilize it at that lower level (IDFG 2008). The Fish and Game Commission established a harvest limit of 17 wolves for this zone during the 2009 harvest season initially set for 1 October through 31 December 2009.

### **Management Summary**

The Selway Zone was home to 6 documented packs and 2 other documented groups during 2010 (Figure 18; Table 18). Two packs remained extant at the end of 2010. Four packs were no

longer considered extant by the end of the year and were removed as documented packs because the Program has failed to verify wolf activity in those areas. One other documented group was no longer considered extant at the end of the year due to lack of verified activity. Three border packs tallied for Montana resided adjacent to this zone.

Reproductive status was known only for 1 pack (reproductive but not a breeding pair) due to the remote nature of this zone (Table 18). Only one of the resident packs contained a radiocollared individual during 2010, and that wolf died during the course of the year, so monitoring in this isolated area was arduous.



No radiocollared wolves were known to have dispersed in 2010. No wolf-capture efforts were undertaken in this zone.

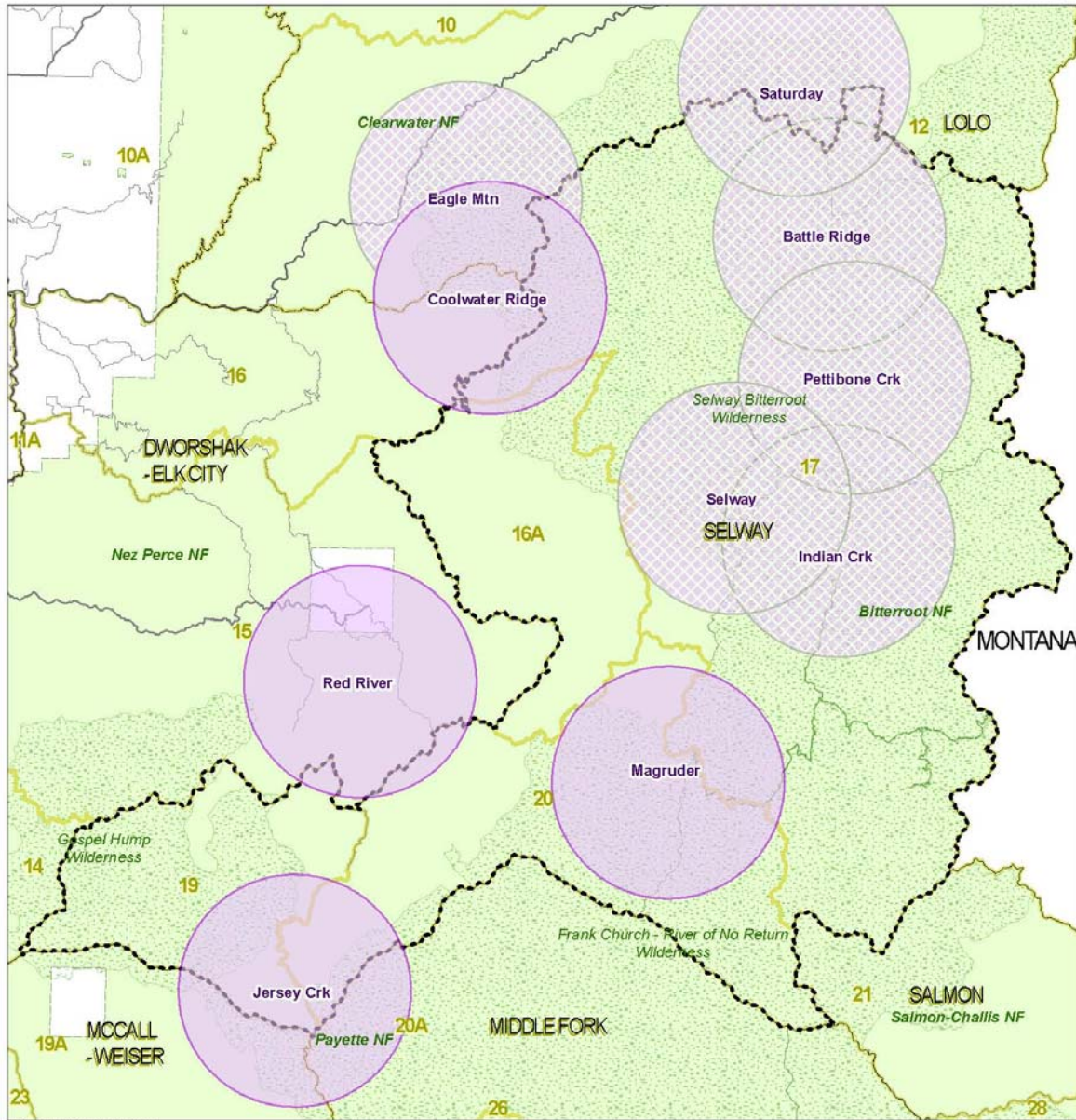
Five wolves were legally harvested within this zone and one was illegally killed, which accounted for all known mortality in 2010 ( $n = 6$ ; Table 19). Because the harvest limit was not reached by the end of 2009, the season was extended through 31 March 2010 or until the quota was reached, by the Fish and Game Commission, which resulted in the additional wolves harvested as noted above. This predominantly wilderness zone contained few domestic livestock and no losses were reported (Table 19).



# Selway Wolf Activity<sup>1</sup>

2009-2010 Estimated Locations<sup>2</sup>

-  Documented Pack
-  Terminated Pack



Nez Perce Tribe GIS, Jeff Cronce, 2/23/2011

- Notes
1. This map provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Nez Perce Tribe or the Idaho Department of Fish and Game.
  2. Estimated Locations determined by biologists from research locations, public observations, and incidental observations from 1/1/2009 - 12/31/2010. These data are displayed as 8.4 mile radius circles consistent with pack territories based on a mean derived from 23 documented Idaho packs with known locations.

**Figure 18.** Distribution of documented and suspected wolf packs in the Selway Wolf Management Zone, 2010.

**Table 18.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Selway Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Alta (MT) <sup>g</sup>							
<del>Battle Ridge</del>	0	?	NO	NO	0	0	0
<del>Indian Creek</del>	0	?	NO	NO	0	0	0
Jersey Creek	?	2	YES	NO	0	0	0
Lake Como (MT) <sup>g</sup>							
Magruder	?	?	NO	NO	0	0	0
<del>Pettibone Creek</del>	0	?	NO	NO	0	0	0
<del>Selway</del>	0	?	NO	NO	0	0	0
Watchtower (MT) <sup>g</sup>							
<b>SUBTOTAL</b>	<b>0</b>	<b>2</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>SUSPECTED PACK</b>							
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
<del>Roaring Lion (ID)<sup>g</sup></del>	?				0	0	0
B356	3				0	0	0
<b>SUBTOTAL</b>	<b>3</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>WMZ TOTAL</b>	<b>3</b>	<b>2</b>			<b>0</b>	<b>0</b>	<b>0</b>

- <sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).
- <sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.
- <sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 19.
- <sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".
- <sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.
- <sup>f</sup> Radiocollared wolves that became missing in 2010.
- <sup>g</sup> Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2010 Annual Report or other source.

**Table 19.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the Selway Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
16A	0	0	0	0	0	0	0	0	0
17	0	0	2	0	0	0	0	0	0
19	0	0	2	0	0	0	0	0	0
20	0	0	1	1	0	0	0	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>0</b>	<b>5</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

- <sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)
- <sup>b</sup> Includes all other human-related deaths.
- <sup>c</sup> Does not include pups that disappeared before winter.

## **Pack Summaries**

### Documented Resident Packs

#### *Battle Ridge*

No field effort was conducted on this pack in 2010. This pack was not reported as a breeding pair for 2010 and because there has been no wolf activity verified in this area for the past 2 years the Battle Ridge pack was removed as a documented pack.

#### *Indian Creek*

No field effort was conducted on this pack in 2010. This pack was not reported as a breeding pair for 2010 and because there has been no wolf activity verified in this area for the past 2 years the Indian Creek pack was removed as a documented pack.

#### *Jersey Creek*

The Jersey Creek pack was founded by male wolf B407 in 2009, though pack status was not attained until January 2010 when an aerial observation of 5 wolves (B407, uncollared mate, and presumably 3 pups) was made. A wolf was legally harvested during the wolf-hunting season in 2010; most likely a pup and aerial sightings following this death counted 4 gray wolves. B407's signal was detected in mortality mode in July 2010 and a site investigation found that he had been illegally killed. A howling survey in September 2010 elicited a response from 2-3 pups. Despite the presence of multiple pups, breeding pair status was precluded because the pack probably did not contain a male of reproductive age following B407's death. No year-end count was obtained.

#### *Magruder*

This group was reinstated as a documented pack in 2008, but no information was obtained regarding reproductive status in 2010 and no year-end count was obtained. This pack was not considered a breeding pair.

#### *Pettibone Creek*

No field effort was conducted on this pack in 2010. This pack was not reported as a breeding pair for 2010 and because there has been no wolf activity verified in this area for the past 2 years the Pettibone Creek pack was removed as a documented pack.

#### *Selway*

Investigation of a traditional rendezvous site failed to detect evidence of pups or pack occupancy. The Selway pack was not reported as a breeding pair in 2010. Because there has been no wolf activity verified by Program personnel during the past 2 years, the long-standing Selway pack (one of the first documented following the initial 1995 translocation) was no longer considered a documented pack.

### Documented Non-Resident Border Packs

#### *Alta (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

#### *Lake Como (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

### *Watchtower (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

### Other Documented Wolf Groups

#### *Roaring Lion*

No field effort was conducted on this group in 2010. Because there has been no wolf activity verified in this area for the past 2 years the Roaring Lion group was removed as an other documented group.

#### *B356*

This wolf was captured in 2007 as a member of the Selway pack, but dispersed from that pack and had seemingly settled in the Meadow Creek drainage. During a winter 2010/2011 monitoring flight, B356 was observed as part of a group of 3 wolves.

## **SOUTHERN IDAHO WOLF MANAGEMENT ZONE**

**(GMUs 38, 40, 41, 42, 45, 46, 47, 52, 52A, 53, 54, 55, 56, 57, 63, 63A, 66, 66A, 68, 68A, 69, 70, 71, 72, 73, 73A, 74, 75, 76, 77, 78)**

### **Background**

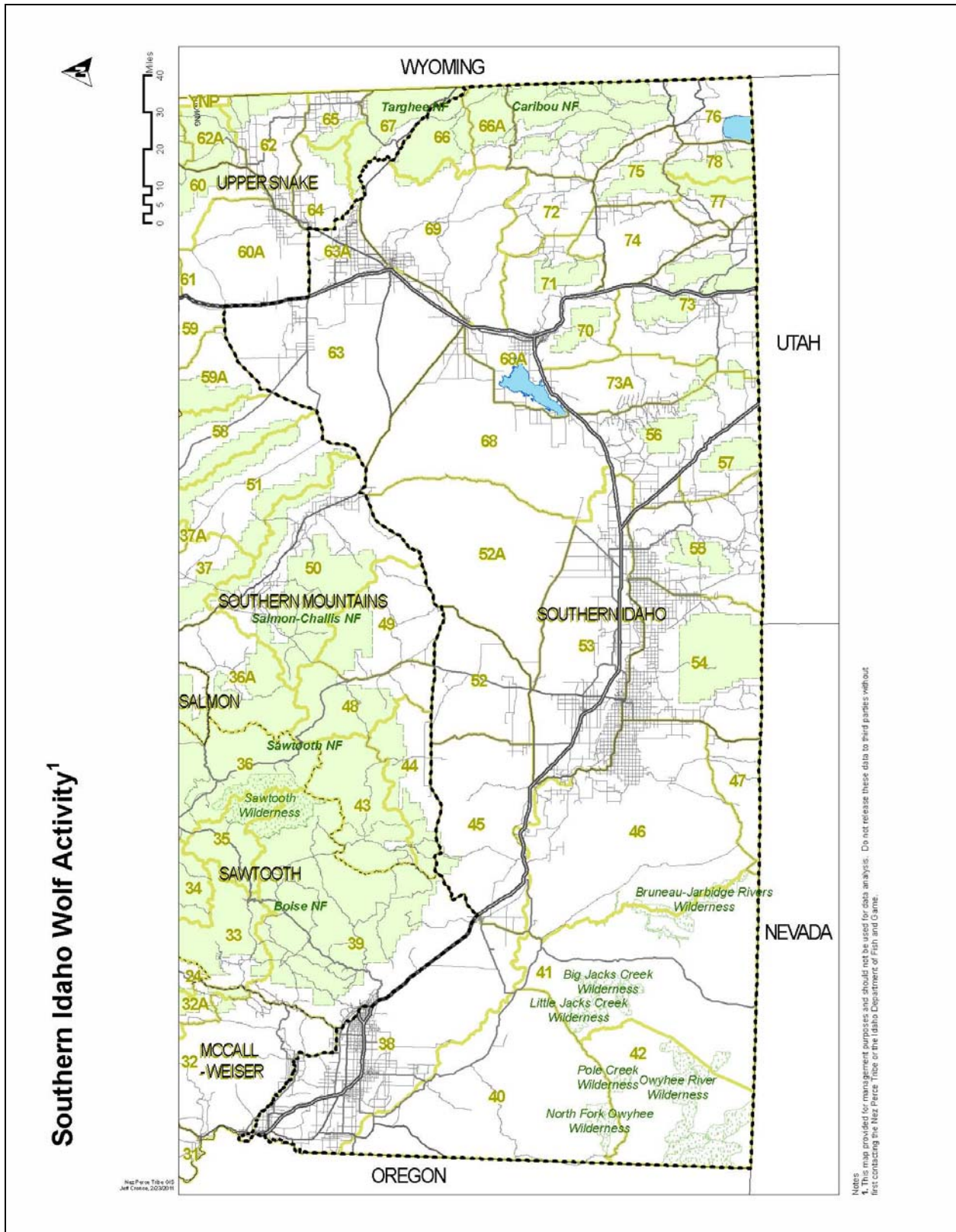
The Southern Idaho Zone includes the Snake River Plain, which comprises an area of heavy agricultural use with a metropolitan corridor along U.S. Interstate 84. The zone includes several mountain ranges spanning from the Owyhees in the west to the Portneufs in the east. These ranges might act as corridors for dispersing wolves, but potential for livestock conflicts could be high. The zone also contains some protected areas including Craters of the Moon National Monument and the Idaho National Laboratory. The climate tends to be hot and dry during summer and cold and wet during winter. Temperatures range from mild in the west to more severe in the east.

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock and wolf-ungulate conflict levels are currently considered low, but there may be potential for increased conflicts with livestock. Management direction for wolves in this zone is to stabilize the number of wolves at the 2005-2007 level (IDFG 2008). The Fish and Game Commission established a harvest limit of 5 wolves for this zone during the 2009 harvest season initially set for 1 October through 31 December 2009.

### **Management Summary**

During 2010, the Southern Idaho Zone was occupied by 1 other documented wolf group, but this individual was killed so none remained at the end of the year (Figure 19; Table 20). No breeding pairs were documented in this zone (Table 20). One mortality was documented; a radiocollared wolf was legally harvested by a hunter (Table 21). Because the harvest limit was not reached by the end of 2009, the season was extended through 31 March 2010 or until the quota was reached, by the Fish and Game Commission, which resulted in the additional wolf harvested as noted above. Three cattle were classed as probable wolf-kills by unknown wolves. Eleven sheep were classed as confirmed wolf-kills and 18 others as probable wolf-kills by unknown wolves (Table 21). No wolves were captured or radiocollared.



**Figure 19.** Distribution of documented and suspected wolf packs in the Southern Idaho Wolf Management Zone, 2010.

**Table 20.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Southern Idaho Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
<b>SUBTOTAL</b>	0	0			0	0	0
<b>SUSPECTED PACK</b>							
<b>SUBTOTAL</b>	0	0			0	0	0
<b>OTHER DOC. GROUP</b>							
<del>B439</del>	0				0	0	0
<b>SUBTOTAL</b>	0	0			0	0	0
<b>WMZ TOTAL</b>	0	0			0	0	0

<sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).

<sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.

<sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 21.

<sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".

<sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.

<sup>f</sup> Radiocollared wolves that became missing in 2010.

**Table 21.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the Southern Idaho Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
38	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0
41	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0
45	0	0	1	0	0	0(1)	1	0	0
46	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0
52	0	0	0	0	0	0	0	0	0
52A	0	0	0	0	0	0(2)	0	0	0
53	0	0	0	0	0	0	0	0	0
54	0	0	0	0	0	0	0	0	0
55	0	0	0	0	0	0	0	0	0
56	0	0	0	0	0	0	0	0	0
57	0	0	0	0	0	0	0	0	0
63	0	0	0	0	0	0	10(18)	0	0
63A	0	0	0	0	0	0	0	0	0
66	0	0	0	0	0	0	0	0	0
66A	0	0	0	0	0	0	0	0	0
68	0	0	0	0	0	0	0	0	0
68A	0	0	0	0	0	0	0	0	0
69	0	0	0	0	0	0	0	0	0
70	0	0	0	0	0	0	0	0	0
71	0	0	0	0	0	0	0	0	0
72	0	0	0	0	0	0	0	0	0
73A	0	0	0	0	0	0	0	0	0
74	0	0	0	0	0	0	0	0	0
75	0	0	0	0	0	0	0	0	0
76	0	0	0	0	0	0	0	0	0
77	0	0	0	0	0	0	0	0	0
78	0	0	0	0	0	0	0	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0(3)</b>	<b>11(18)</b>	<b>0</b>	<b>0</b>

<sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)

<sup>b</sup> Includes all other human-related deaths.

<sup>c</sup> Does not include pups that disappeared before winter.

### Other Documented Wolf Groups

#### *B439*

Captured as member of the Phantom Hill pack, this male wolf dispersed in late 2009 and was legally harvested near Bennett Mountain in early March 2010; this other documented group was no longer considered extant.

## **SOUTHERN MOUNTAINS WOLF MANAGEMENT ZONE (GMUs 29, 30, 30A, 36A, 37, 37A, 43, 44, 48, 49, 50, 51, 58, 59, 59A)**

### **Background**

The Southern Mountains Zone is comprised of 4 elk management units: The Smoky Mountains, Pioneer, Lemhi, and Beaverhead. This zone contains a wide diversity of terrain transitioning from relatively flat prairies in the southwestern portion to rolling and moderately steep terrain of the Smoky and Soldier Mountain ranges in the central portions and steeper, spire-like peaks of the Boulder, White Cloud, Pioneer, and Beaverhead mountain ranges in the northeast portions of this zone. These mountain ranges are intersected by several major river drainages, including the South Fork Boise, Big Wood, Big Lost, Little Lost, East Fork Salmon, Salmon, Pahsimeroi, and Lemhi Rivers. Because of this varied terrain, habitats range widely and included grass prairie, coniferous forest, high desert shrub-steppe, and alpine; this diversity reflects the wide range of variation in annual precipitation across this region. Land ownership is predominantly public (USFS, Bureau of Land Management) within this zone. Cattle ranching, livestock grazing, and recreation were the dominant activities on the landscape within the Southern Mountains Zone.

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock conflict levels are currently considered high, whereas wolf-ungulate conflicts are considered low. Management direction for wolves in this zone is to reduce the number of wolves to the 2005-2007 level and then stabilize at that level (IDFG 2008). The Fish and Game Commission established a harvest limit of 10 wolves for this zone during the 2009 harvest season set for 1 October through 31 December 2009.

### **Management Summary**

The Southern Mountains Zone was occupied by 6 documented resident packs and 2 documented resident border packs during 2010 (Figure 20; Table 22). One documented resident border pack was newly confirmed based on an aerial observation of 4 wolves. One documented resident border pack was lethally controlled in Montana and was no longer considered extant at the end of the year. A border pack claimed by Montana was extirpated during the year. One suspected pack and 4 other documented wolf groups were present during the year, though three of these groups were no longer considered extant by the end of the year.

Only 1 pack was verified as reproductive, and it qualified as a breeding pair for 2010 (Table 22). The reproductive status of 6 packs was unknown and 1 other pack was lethally removed prior to whelping.

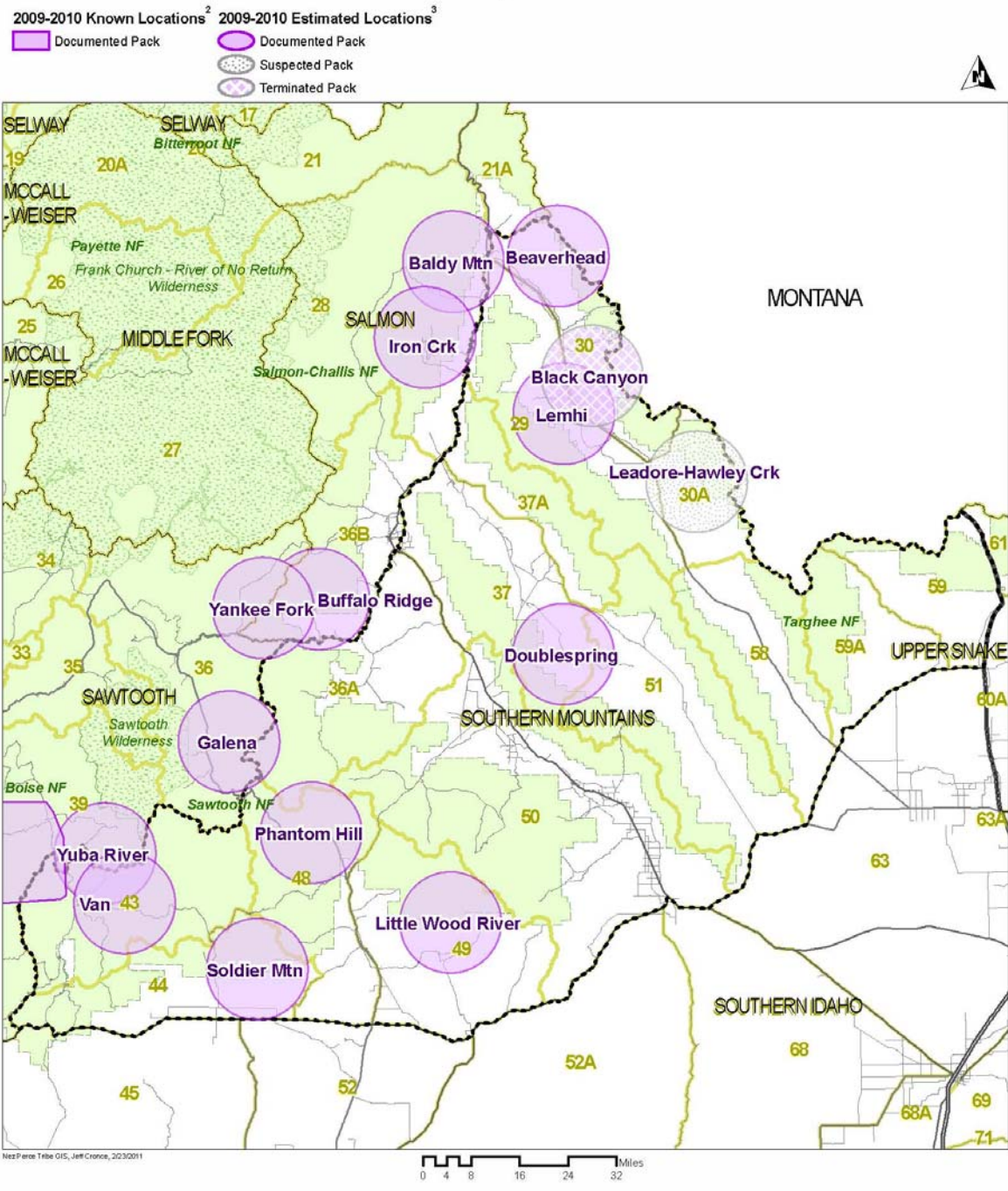
No radiocollared wolves were known to have dispersed in 2010. Three wolves were captured and fitted with radiocollars; two were caught by a coyote trapper who reported them to Program personnel.

Documented mortalities ( $n = 15$ ) included control (agency removal and legal take;  $n = 14$ ) and unknown ( $n = 1$ ) causes (Table 23). The harvest limit was met on 31 December 2009, so the season was not extended into 2010 in this zone.



Confirmed ( $n = 27$ ) and probable ( $n = 3$ ) wolf-caused cattle losses were attributed to 3 packs; losses were also attributed to 2 other documented groups, and unknown wolves (Table 23). Confirmed ( $n = 56$ ) and probable ( $n = 1$ ) wolf-caused domestic sheep losses were attributed to 3 packs, as well as unknown wolves. A pack from outside the Southern Mountains Zone was implicated in killing 38 sheep in this zone. A domestic bison was confirmed killed by a documented resident pack.

# Southern Mountains Wolf Activity<sup>1</sup>



Notes:  
 1. This map provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Nez Perce Tribe or the Idaho Department of Fish and Game.  
 2. Known Locations collected and analyzed by the Nez Perce Tribe, Idaho Department of Fish and Game, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Pack locations are 95% fixed mean minimum convex polygons of satellite, telemetry, research observations and wolf mortalities for collared and uncollared animals from 1/1/2009 - 12/31/2010 with outliers removed. See wikipedia.org/wiki/home\_range for more information on using minimum convex polygons to analyze animal movements. Minimum convex polygons derived from a) >20 aerial telemetry locations, b) >1 year's worth of satellite data, or c) combination of a and b. Minimum convex polygons based on these criteria may more accurately represent wolf pack territories.  
 3. Estimated Locations determined by biologists from research locations, public observations, and incidental observations from 1/1/2009 - 12/31/2010. These data are displayed as 0.4 mile radius circles consistent with pack territories based on a mean derived from 23 documented Idaho packs with known locations.

**Figure 20.** Distribution of documented and suspected wolf packs in the Southern Mountains Wolf Management Zone, 2010.

**Table 22.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Southern Mountains Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Beaverhead (ID) <sup>g</sup>	4	?	NO	NO	0	0	0
<del>Black Canyon (ID)<sup>g</sup></del>	0	0	NO	NO	0	0	0
Doublespring	?	?	NO	NO	0	0	0
<del>Horse Prairie (MT)<sup>g</sup></del>							
Lemhi	?	?	NO	NO	0	1	0
Little Wood River	?	?	NO	NO	0	0	0
Phantom Hill	?	?	NO	NO	0	0	0
Soldier Mountain	4	2	YES	YES	0	2	0
Van	?	?	NO	NO	0	0	0
<b>SUBTOTAL</b>	<b>8</b>	<b>2</b>			<b>0</b>	<b>3</b>	<b>0</b>
<b>SUSPECTED PACK</b>							
Leadore/Hawley Creek	?				0	0	0
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
<del>B410</del>	0				0	0	0
B453	?				0	0	0
B470	?				0	0	1
<del>SW386</del>	0				0	0	0
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>1</b>
<b>WMZ TOTAL</b>	<b>8</b>	<b>2</b>			<b>0</b>	<b>3</b>	<b>1</b>

<sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).

<sup>b</sup> Summing this column does not equate to number of wolves estimated to be present in the population.

<sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 23.

<sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".

<sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.

<sup>f</sup> Radiocollared wolves that became missing in 2010.

<sup>g</sup> Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2010 Annual Report or other source.

**Table 23.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the Southern Mountains Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
29	0	2	0	0	0	5	2	0	1 <sup>d</sup>
30	0	4	0	0	0	1	1	0	0
30A	0	1	0	0	0	0	0	0	0
36A	0	1	0	0	0	8	0	0	0
37	0	2	0	0	0	5	0	0	0
37A	0	0	0	0	0	3(1)	3	0	0
43	0	2	0	0	1	0	38	0	0
44	0	0	0	0	0	0	5(1)	0	0
48	0	0	0	0	0	0	0	0	0
49	0	2	0	0	0	0	7	0	0
50	0	0	0	0	0	3	0	0	0
51	0	0	0	0	0	2(1)	0	0	0
58	0	0	0	0	0	0	0	0	0
59	0	0	0	0	0	0(1)	0	0	0
59A	0	0	0	0	0	0	0	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>27(3)</b>	<b>56(1)</b>	<b>0</b>	<b>1</b>

<sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)

<sup>b</sup> Includes all other human-related deaths.

<sup>c</sup> Does not include pups that disappeared before winter.

<sup>d</sup> Domestic bison.

## Pack Summaries

### Documented Resident Packs

#### *Doublespring*

This pack has not contained a known radiocollared wolf since 2008. Six confirmed depredation incidents were attributed to this pack in 2010 that resulted in the loss of 6 cattle and 5 sheep. No field effort was made in 2010; therefore the Doublespring pack was not reported as a breeding pair and a year-end count was not obtained.

#### *Lemhi*

Six confirmed depredation events were attributed to this pack, which resulted in the loss of 5 cattle and 1 domestic bison in this zone. The Lemhi pack was implicated in the confirmed loss of 2 other cattle in the Salmon Zone. An adult male wolf was lethally controlled in May 2010 as a result, and female wolf B484 was captured and radiocollared during that control action. B484 was only located twice until the end of 2010. No field effort was made to determine reproductive status, so the pack was not reported as a breeding pair and there was no year-end count.

#### *Little Wood River*

Female wolf B231 was the only known radiocollared member in this pack during 2010. B231 was lethally controlled, along with an adult male wolf, in May 2010 as a result of 1 depredation incident where 3 sheep were confirmed killed. No field effort was made to determine

reproductive status, so the pack was not reported as a breeding pair for 2010. Without any radiocollared wolves in this pack, a year-end count was not obtained.

#### *Phantom Hill*

Five wolves wore radiocollars during 2009, but 3 wolves died, one dispersed, and the other's radiocollar failed, leaving no radiocollared wolves during 2010. No field effort was conducted during 2010; this pack was not reported as a breeding pair for 2010 and no year-end count was obtained.

#### *Soldier Mountain*

Field efforts by Program biologists to locate this pack and determine reproductive status were unsuccessful. In July 2010 the pack was implicated in a single depredation incident in which 1 sheep was confirmed killed and another was classed as a probable wolf-kill. Two male pups, B505 and B506, were captured by a coyote trapper and radiocollared by Program biologists in October 2010. Because 2 pups were verified, the pack was recorded as a breeding pair for 2010. The minimum number of wolves detected was four (incomplete).

#### *Van*

Program biologists were unable to ascertain the reproductive status of this uncollared pack, so it was not considered a breeding pair in 2010. No year-end count was obtained.

### Documented Resident Border Packs

#### *Beaverhead*

This pack was documented based on an aerial observation of 4 wolves travelling together in early winter 2010/2011 by Montana Fish, Wildlife and Parks wolf program personnel. Female B447 seemed to localize in the spring, indicative of probable denning, but field efforts were unsuccessful in determining reproductive status. The Beaverhead pack was not reported as a breeding pair for 2010 and the year-end minimum number of wolves detected was four (incomplete).

#### *Black Canyon*

Male wolf B438 was a member of this pack, and aerial observations showed him travelling with 1 other wolf following lethal removals on other pack members that occurred in Montana. An uncollared wolf travelling with B438 was lethally controlled in Idaho in mid-April 2010. B438 was removed in June 2010 after 1 domestic calf was confirmed killed. This pack was extirpated due to livestock depredations that occurred in Montana and Idaho.

### Documented Non-Resident Border Packs

#### *Horse Prairie (MT)*

This documented border pack was tallied for Montana in 2010. See Sime et al. (2011).

### Suspected Resident Packs

#### *Leadore/Hawley Creek*

Depredations continued to occur in this vicinity, although Program personnel have been unsuccessful in verifying pack status.

## Other Documented Wolf Groups

### *B410*

Captured in the Archie Mountain pack's territory in 2008, and then recaptured in 2009, this male wolf left that pack and was located in the East Fork Wood River drainage in mid-April 2010. Based on satellite location information, it was determined that B410 had probably died in early May 2010. An investigation of the site located the wolf's carcass, but cause of death was not definitively made. This group was no longer considered extant at the end of 2010.

### *B453*

Male wolf B453 dispersed from the Galena pack's territory and took up residence in the East Fork Salmon River drainage. He was observed with another wolf, probably a female, during a monitoring flight in March 2010. Six depredations were attributed to this group from February through December 2010, with four occurring after B453 was lethally controlled in April. Because livestock losses continued despite B453's death, this group remained extant at the end of 2010.

### *B470*

Captured in the Phantom Hill pack's territory in August 2009, male wolf B470 was fitted with a satellite radiocollar. This wolf's membership in that pack was in question: B470 was gray in color, while all other wolves known affiliated were black. B470 travelled widely between Pine, Idaho, and Galena Summit until late June 2010 when no further satellite data was received.

### *SW386*

This wolf was captured as a member of Montana's Toadflax pack. It, along with another wolf, was lethally controlled in Idaho's Pahsimeroi Valley following the confirmed depredation of 1 domestic calf. This group was no longer considered extant at the end of 2010.

## **UPPER SNAKE WOLF MANAGEMENT ZONE (GMUs 60, 60A, 61, 62, 62A, 64, 65, 67)**

### **Background**

The topography in this zone consists of gentle to moderately sloping terrain, but contains portions of several mountain ranges. At relatively high elevation, winters are often severe, with associated deep snow accumulations. Habitat communities comprise a mixture of forest types (lodgepole pine, Douglas-fir, quaking aspen (*Populus tremuloides*) associated with adequate moisture, and high-desert, shrub-steppe habitat types indicative of a drier climate. Land ownership consists of a checkerboard of state, federal, and private properties, roughly 1/2 being under federal/state ownership. Dominant land use activities include timber harvest, livestock production, and agriculture.

### **Management Direction**

As outlined in the 2008 Wolf Plan, wolf-livestock conflicts are currently considered moderate, whereas wolf-ungulate conflicts are considered low. Management objectives include stabilizing wolf numbers between the 2005-2007 level, and maintaining connectivity with the wolf

populations in Montana and Wyoming (IDFG 2008). The Fish and Game Commission established a harvest limit of 5 wolves for this zone during the 2009 harvest season initially set for 1 October through 31 December 2009.

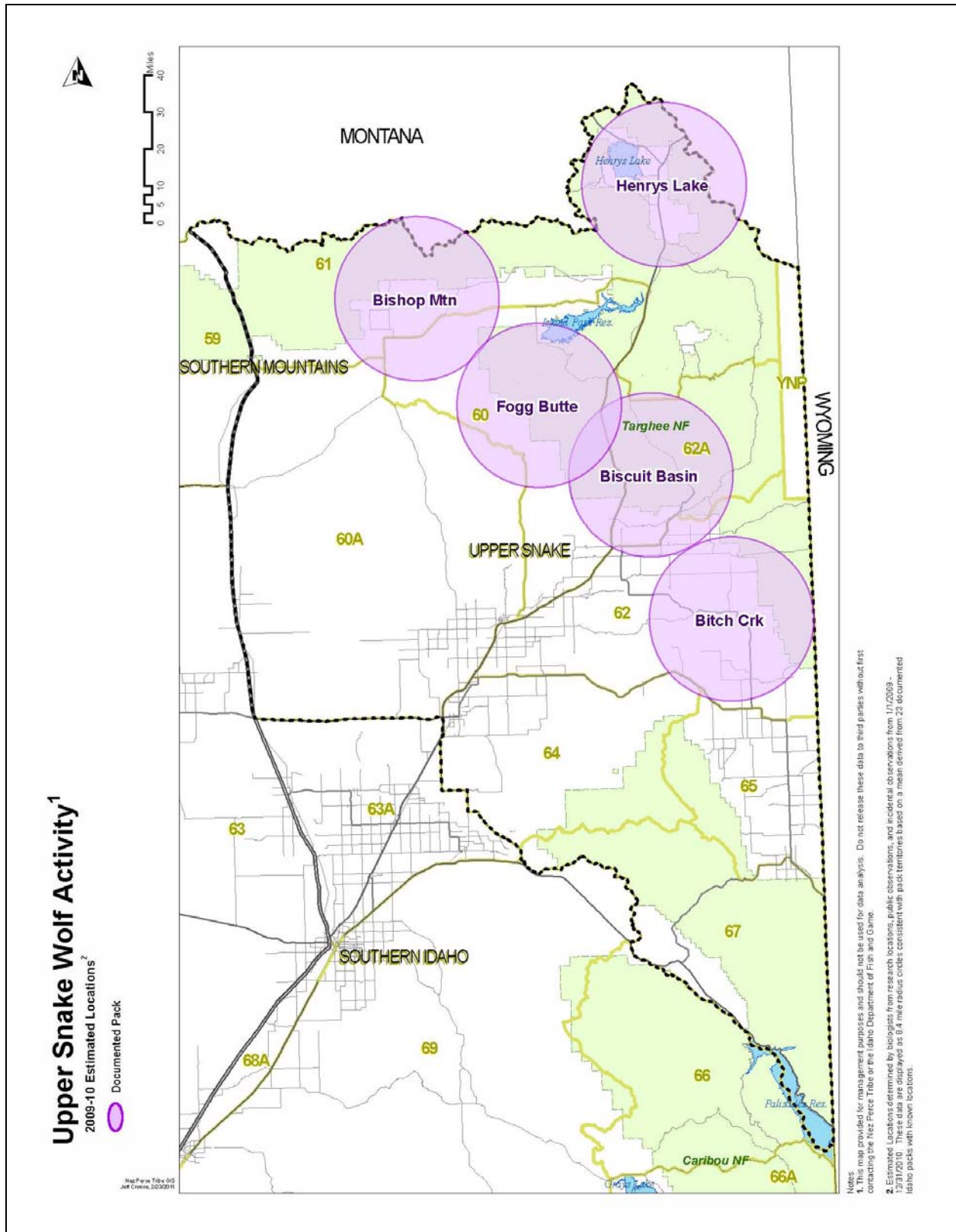
### **Management Summary**

The Upper Snake Zone was occupied by 3 documented resident packs and 2 documented resident border packs during 2010 (Figure 21; Table 24). Two border packs attributed to Wyoming were presumed to spend some time within Idaho.

Four of 5 documented resident and documented resident border packs were verified to have reproduced, with all recorded as breeding pairs for 2010 (Table 24). The reproductive status for 1 pack was not known.

No radiocollared wolves were known to have dispersed in 2010. One wolf was captured by Program personnel that resulted in the placement of a new radiocollar.

Documented mortalities ( $n = 2$ ) resulted from control (agency removal and legal take; Table 25). The harvest limit for this zone was met on 2 November 2009, so the season was not extended into 2010. There were no livestock or dog losses attributed to wolves in the Upper Snake Zone (Table 25).



**Figure 21.** Distribution of documented and suspected wolf packs in the Upper Snake Wolf Management Zone, 2010.



**Table 24.** End of year summary of minimum number of wolves detected, reproductive status, dispersal, and monitoring status for documented and suspected wolf packs and other documented wolf groups within the Upper Snake Wolf Management Zone, 2010.

WOLF GROUP <sup>a</sup>	Min. no. wolves detected <sup>b</sup>	Reproductive status			Known dispersal	Monitoring status	
		Min. no. pups prod.(died) <sup>c</sup>	Reported as			No. wolf captures <sup>e</sup>	No. wolves missing <sup>f</sup>
			Reprod. pack	Breeding pair <sup>d</sup>			
<b>DOCUMENTED PACK</b>							
Bechler (WY) <sup>g</sup>							
Biscuit Basin	2	2	YES	YES	0	0	0
Bishop Mountain	4	3	YES	YES	0	1	0
Bitch Creek (ID) <sup>g</sup>	?	5	YES	YES	0	0	0
Chagrin River (WY) <sup>g</sup>							
Fogg Butte	?	?	NO	NO	0	0	0
Henry's Lake (ID) <sup>g</sup>	?	2	YES	YES	0	0	0
<b>SUBTOTAL</b>	<b>6</b>	<b>12</b>			<b>0</b>	<b>1</b>	<b>0</b>
<b>SUSPECTED PACK</b>							
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>OTHER DOC. GROUP</b>							
<b>SUBTOTAL</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>	<b>0</b>
<b>WMZ TOTAL</b>	<b>6</b>	<b>12</b>			<b>0</b>	<b>1</b>	<b>0</b>

- <sup>a</sup> Documented packs = territorial groups of wolves usually consisting of an adult male and female and their offspring from one or more generations, and has the potential to reproduce (2 adults of opposite sex). Suspected packs = geographic areas where wolf pack presence was suspected but not verified, or where wolf presence was verified but did not meet documented pack status. Other documented group = verified groups not meeting either documented or suspected pack status (e.g. lone wolves, potential mated pairs, etc.).
- <sup>b</sup> Number of wolves observed by wolf program personnel from monitoring flights conducted during winter 2010/2011 and represents end of year (2010) data. Summing this column does not equate to number of wolves estimated to be present in the population.
- <sup>c</sup> Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in DOCUMENTED MORTALITIES in Table 25.
- <sup>d</sup> Breeding pairs are the measure of Federal and State wolf recovery and management goals. A breeding pair is defined as "an adult male and a female wolf that have produced at least 2 pups that survive until December 31 of the year of their birth...".
- <sup>e</sup> Includes wolves captured for monitoring purposes during 2010. Most, but not all, were radiocollared.
- <sup>f</sup> Radiocollared wolves that became missing in 2010.
- <sup>g</sup> Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2010 Annual Report or other source.

**Table 25.** End of year summary of documented wolf mortality and wolf-caused livestock depredations by Game Management Unit (GMU) within the Upper Snake Wolf Management Zone, 2010.

GMU	Documented mortality					Confirmed (probable) wolf-caused livestock losses			
	Natural	Control <sup>a</sup>	Harvest	Other human <sup>b</sup>	Unknown <sup>c</sup>	Cattle	Sheep	Dogs	Other
60	0	0	0	0	0	0	0	0	0
60A	0	1	0	0	0	0	0	0	0
61	0	1	0	0	0	0	0	0	0
62	0	0	0	0	0	0	0	0	0
62A	0	0	0	0	0	0	0	0	0
64	0	0	0	0	0	0	0	0	0
65	0	0	0	0	0	0	0	0	0
67	0	0	0	0	0	0	0	0	0
<b>WMZ TOTAL</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

- <sup>a</sup> Includes agency lethal control and legal take (exclusive of wolf harvest)
- <sup>b</sup> Includes all other human-related deaths.
- <sup>c</sup> Does not include pups that disappeared before winter.

## **Pack Summaries**

### Documented Resident Packs

#### *Biscuit Basin*

One radiocollared wolf, male B392, resided in this pack in 2010. A Program biologist documented 2 pups. The Biscuit Basin pack was considered a breeding pair in 2010. The year-end minimum number of wolves detected was two (incomplete).

#### *Bishop Mountain*

One wolf, subadult male B485, was captured and radiocollared in June 2010. A female from the Gibbon Meadows pack (Yellowstone National Park) joined the Bishop Mountain pack. A minimum of 3 pups was estimated through howling. A pack member was legally killed while harassing livestock in July 2010. This pack was considered a breeding pair for 2010. The year-end minimum number of wolves detected was four (incomplete).

#### *Fogg Butte*

One wolf was lethally controlled in August 2010 during a control action conducted by WS. No pup count was obtained, so the Fogg Butte pack was not reported as a 2010 breeding pair and there was no year-end count.

### Documented Resident Border Packs

#### *Bitch Creek*

Program personnel verified a minimum of 5 pups in summer 2010, so the Bitch Creek pack qualified as a breeding pair for 2010. There were no known radiocollared wolves in this group, so a year-end count was not obtained.

#### *Henrys Lake*

A photograph of 2 black pups, verified by Program personnel, served as verification of breeding pair status for 2010. No year-end count was obtained.

### Documented Non-Resident Border Packs

#### *Bechler (WY)*

This documented border pack was tallied for Montana in 2010. See Jimenez et al. (2011).

#### *Chagrin River (WY)*

This documented border pack was tallied for Montana in 2010. See Jimenez et al. (2011).

## LITERATURE CITED

- Ausband, D., M. Mitchell, A. Mynsberge, C. Mack, J. Stenglein, and L. Waits. 2009. Developing wolf population monitoring techniques: A cooperative research effort between University of Montana, Nez Perce Tribe, University of Idaho, Idaho Department of Fish and Game, Montana Fish, Wildlife and Parks, and U.S. Fish and Wildlife Service. TWG Funding Final Report. University of Montana, Missoula, MT. 71pp.
- Ausband, D.E. 2010. Pilot study report for using a biofence to manipulate wolf pack movements in central Idaho. Available on-line at:  
<http://www.umt.edu/mcwru/personnel/ausband/default.aspx>
- Bradley, E.H. 2004. An evaluation of conflicts and management in the northwestern United States. Thesis, University of Montana, Missoula, USA.
- Clark, P.E., K. D. Wilson, L. L Larson, J. Williams, N. Rimbey, M. D. Johnson, K. Crane, S. K. Ndzeidze, and D. E. Johnson. 2009. Evaluation of wolf impacts on cattle productivity and behavior. Oregon Beef Council Report. Beef010. Corvallis, Oregon: Oregon State University Beef Cattle Sciences. 12 pp.
- Idaho Department of Fish and Game. 2007. Elk PR report, Project W-170-R-31. Progress Report. Idaho Department of Fish and Game, Boise, Idaho. 138pp.
- Idaho Department of Fish and Game. 2008. Idaho wolf population management plan 2008-2012. Idaho Department of Fish and Game, Boise, Idaho. 85pp.
- Idaho Department of Fish and Game. 2010. Idaho Rule 10(j) Proposal, Lolo Zone. Idaho Department of Fish and Game, Boise, Idaho. 37pp.
- Idaho Wolf Legislative Oversight Committee. 2002. Idaho wolf conservation and management plan as modified by the 56<sup>th</sup> Idaho Legislature, second regular session. 32pp.
- Jimenez, M.D., D.W. Smith, D.R. Stahler, Erin Albers, and R.F. Krischke. 2011. Wyoming Wolf Recovery 2010 Annual Report. In U.S. Fish and Wildlife Service Rocky Mountain Wolf Recovery 2010 Annual Report. USFWS, Ecological Services, 585 Shepard Way, Helena, Montana, 59601.
- Mech, D. L. and L. Boitani. 2003. Wolves: behavior, ecology, and conservation. The University of Chicago Press, Illinois, USA.
- Sime, Carolyn A., L. Bradley, K. Laudon, N. Lance, M. Ross, A. Nelson, V. Asher, and J. Steuber. 2011. Montana gray wolf conservation and management 2010 annual report. Montana Fish, Wildlife & Parks. Helena, MT. XXXpp.

State of Idaho and Nez Perce Tribe. 2005. Memorandum of Agreement between State of Idaho and Nez Perce Tribe concerning coordination of wolf conservation and related activities in Idaho. Boise, Idaho, USA.

State of Idaho. 2008. Title 36 Fish and Game- Chapter 11: Protection of animals and birds 36-1107 (as amended).

USDA-APHIS Wildlife Services. In Preparation. Wolf activity report fiscal year 2010. Idaho Wildlife Services, Boise, Idaho.

U.S. Fish and Wildlife Service. 2007. Endangered and threatened wildlife and plants; designating the northern Rocky Mountain population of gray wolf as a distinct population segment and removing this distinct population segment from the federal list of endangered and threatened wildlife. Proposed Rule. Federal Register 72(26):6106-6139.

\_\_\_\_\_. 2009. Endangered and threatened wildlife and plants; final rule to identify the northern Rocky Mountain distinct population of the gray wolf as a distinct population segment and to revise the list of endangered and threatened wildlife. Federal Register 74(62):15123-15188.

\_\_\_\_\_. 2010. Endangered and threatened wildlife and plants; reinstatement of protections for the gray wolf in the northern Rocky Mountains in compliance with a court order. Federal Register 75(206):65574-65579.

**APPENDIX A. POPULATION ESTIMATION TECHNIQUE USED TO DETERMINE WOLF POPULATION NUMBERS IN IDAHO**

From 1996 until 2005, wolf populations were counted using a total count technique that was quite accurate when wolf numbers were low and most had radiocollars. We have, for the past 2 years, used an estimation technique that is more applicable to a larger population which is more difficult to monitor. In 2006 we began using an estimation technique that had been peer reviewed by the University of Idaho and northern Rocky Mountain wolf managers. This technique bypasses the need to count pups in every pack, and instead relies on our documented packs, mean pack size (mean of minimum number of wolves detected for those packs where counts were considered complete), number of wolves documented in small groups not considered packs, and a percentage of the population presumed to be lone wolves. This technique differs slightly than that used since we initiated this estimation method, in that this year we use a total count of wolves for those packs where we have a high degree of confidence that we observed all pack members and applying the mean pack size to the remaining packs (with incomplete counts), rather than using the mean pack size for all packs. Mathematically this technique is represented as:

$$\text{Minimum Wolf Population Estimate} = [\# \text{ Wolves counted in documented packs with complete count} + (\# \text{ Documented packs lacking complete count} * \text{mean pack size}) + (\# \text{ Wolves in other documented wolf groups of size } \geq 2)] * (\text{lone wolf factor})$$

where;

**# Wolves counted in documented packs with complete count = 142**

**# Documented packs lacking complete count = 67**

the number of documented packs that were extant at the end of 2010 was 87, complete pack size counts were obtained on 20 of them, leaving 67 packs with counts that were presumed incomplete,

**Mean pack size = 7.1**

mean pack size (7.1) was calculated using only those packs ( $n = 20$ ) for which biologists presumed complete pack counts were obtained in 2010,

**# Wolves in other documented wolf groups of size  $\geq 2 = 9$**

“total count” for those radiocollared wolves in groups of 2-3 wolves that were not considered packs under Idaho’s definition,

**lone wolf factor = 12.5%**

a mid value from a range derived from 5 peer-reviewed studies and 4 non-reviewed papers from studies that occurred in North America and were summarized and reported in 2003 (Mech and Boitani 2003, page 170).

Using this technique, the 2010 wolf population estimate is 705 wolves and represents a decrease of ~19% over 2009’s corrected wolf population estimate:

$$\begin{aligned} & ((142 + (67 * 7.1) + (9)) * 1.125 \\ & (142 + (476) + (9)) * 1.125 \\ & (627) * 1.125 = 705 \end{aligned}$$

It is important to recognize this estimate represents only the minimum number of wolves estimated to be present in Idaho. The actual number of wolves in Idaho is likely more than the 'estimated minimum number,' as we did not include suspected packs (packs for which we did not have verified evidence) in the estimator. Also, changes in the estimate from year to year are not adjusted to differing amounts of effort put forth to document wolf activity. Nine packs were dropped as documented packs per Program protocols due to lack of verified activity during the past 2 years; most of these packs are without radiocollared wolves and located in wilderness or other remote areas that make it very difficult to gather data on them. However, we are comfortable that this estimate is a good representation of packs that have been reported by the public and agency professionals and verified by wolf specialists, and thus a defensible estimate of the minimum population.

## APPENDIX B. CONTACTS FOR IDAHO WOLF MANAGEMENT

### **The Nez Perce Tribe's Idaho Wolf Recovery Program:**

Telephone: (208) 634-1061  
Mail: P.O. Box 1922  
McCall, ID 83638-1922  
Email: cmack@nezperce.org  
jholyan@nezperce.org

For information about the Nez Perce Tribe's Wildlife Program and to view Recovery Program Progress Reports, please visit the following website:

[http://www.nezperce.org/programs/wildlife\\_program.htm](http://www.nezperce.org/programs/wildlife_program.htm)

### **U.S. Fish and Wildlife Service Northern Rocky Mountain Wolf Recovery:**

For information about wolf recovery in the Northern Rocky Mountains, please visit the USFWS website at the following:

<http://www.westerngraywolf.fws.gov/>

Idaho State Office (wolf mortality and sighting reports, wolf management questions):  
(877) 661-1908

### **To report livestock depredations within Idaho:**

USDA/APHIS/Wildlife Services

State Office, Boise, ID	(208) 378-5077
District Supervisor, Boise, ID	(208) 378-5077
District Supervisor, Gooding, ID	(208) 934-4554
District Supervisor, Pocatello, ID	(208) 236-6921
Wolf Specialist, Arco, ID	(208) 681-3127

### **To report information regarding the illegal killing of a wolf or a dead wolf within Idaho:**

U.S. Fish and Wildlife Service Senior Agent, Boise, ID	(208) 378-5333
Citizens Against Poaching (24hr) or any IDFG Office	1-800-632-5999

**Idaho Fish and Game Headquarters Wildlife Bureau:** (208) 334-2920

For information about wolves in Idaho and IDFG involvement or to report wolf sightings:

<http://fishandgame.idaho.gov/cms/wildlife/wolves/>  
<http://fishandgame.idaho.gov/wildlife/wolves/report.cfm>