

2013 IDAHO WOLF MONITORING PROGRESS REPORT



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EXECUTIVE SUMMARY

During January 1995 and January 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*) in the northern Rocky Mountain states of Idaho, Montana, and Wyoming. In May 2011, the USFWS removed (delisted) gray wolves in the Northern Rocky Mountain Distinct Population Segment, excluding Wyoming, from the protections of the Endangered Species Act, and wolf management responsibility was transferred to the Idaho Department of Fish and Game and Montana Fish, Wildlife and Parks. Wolves were subsequently delisted in September 2012 in Wyoming.

The Idaho Legislature adopted the *Idaho Wolf Conservation and Management Plan* (2002 Wolf Plan) in March 2002. The 2002 Wolf Plan guides management of wolves in Idaho. The Idaho Fish and Game Commission set wolf hunting and trapping seasons for 2013-2014 in March 2013.

Wolves range in Idaho from the Canadian border south to the Snake River Plain, and from the Washington and Oregon borders east to the Montana and Wyoming borders. Dispersing wolves were occasionally reported in previously unoccupied areas.

The State of Idaho and Nez Perce Tribe monitored wolves cooperatively in 2013 through a Memorandum of Agreement signed in 2005. Biologists documented 107 packs within the state at the end of 2013. In addition, there were 28 documented border packs counted by Montana, Wyoming, and Washington that had established territories overlapping the Idaho state boundary. Additional packs are presumed but not included due to lack of documentation. Reproduction was confirmed for 49 of the 107 documented Idaho packs. Of these, 20 qualified as breeding pairs at the end of the year. Known reproductive packs produced a minimum of 166 pups. The year-end population for documented packs, other documented groups not qualifying as packs, and lone wolves was estimated at 659 wolves (Appendix A).

We documented the mortalities of 473 wolves in Idaho during 2013. Human-caused mortality comprised 466 of 473 (99%) documented wolf mortalities (harvest = 356; control [agency removal, and legal take] = 94; other human causes = 16). The remaining 7 mortalities were attributed to unknown causes.

USDA APHIS Wildlife Services agents classified 39 cattle, 404 sheep, 4 dogs, and 1 horse as confirmed wolf depredations in 2013. Seven cattle, 9 sheep, and 1 dog were classified as probable wolf depredations.

ACKNOWLEDGEMENTS

Wolf monitoring and management in Idaho is a cooperative effort between the State of Idaho, Nez Perce Tribe (NPT), USDA APHIS Wildlife Services (WS), and the U.S. Fish and Wildlife Service. The NPT's Executive Committee and Wildlife Management Division Director Keith Lawrence provided support and input. Dustin Miller, Administrator of the Governor's Office of Species Conservation, provided valuable administrative support. Todd Grimm, George Graves, and all WS field personnel worked to resolve wolf-livestock conflicts. U.S. Fish and Wildlife Service personnel Mike Jimenez, Brian Kelly, and Hilary Cooley provided support and assistance with wolf monitoring. IDFG Regional Supervisors took on the additional responsibility for authorizing control actions in response to wolf depredations.

We would like to recognize NPT wildlife biologist Jim Holyan and IDFG State Game Manager Jon Rachael for their exceptional contributions to the wolf monitoring program throughout the year, and to this report. We would like to thank IDFG personnel Jeff Ashmead, Scott Bergen, Pam Bond, Crystal Christensen, Mike Elmer, Debbie Hribik, Craig Parker, Lacy Robinson, David Smith, Kathleen Trever, Craig White, Jack Whitman, and Rick Williamson for their superb contributions. Bryan Aber, Bruce Ackerman, Regan Berkley, Ben Cadwallader, Summer Crea, Jay Crenshaw, Tim Ferguson, Lee Garwood, Jim Hayden, Dave Koehler, Michelle Kemner, Jake Powell, Steve Roberts, Tom Schrempp, David Spicer, and Laura Wolf contributed greatly to wolf monitoring efforts in addition to their regular responsibilities. Dr. Mark Drew provided training and valuable advice. Tricia Hebdon and Stacey Dauwalter provided laboratory support and technical assistance. IDFG Wildlife Research staff Lindsey Bischoff, Jon Horne, Mark Hurley, Katie Oelrich, and Pete Zager provided collaborative assistance both in the field and the office.

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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). The USFWS released 35 wolves in central Idaho and 31 wolves in Yellowstone National Park during winters of 1995 and 1996. Biological recovery goals were met in the NRM states in 2002.

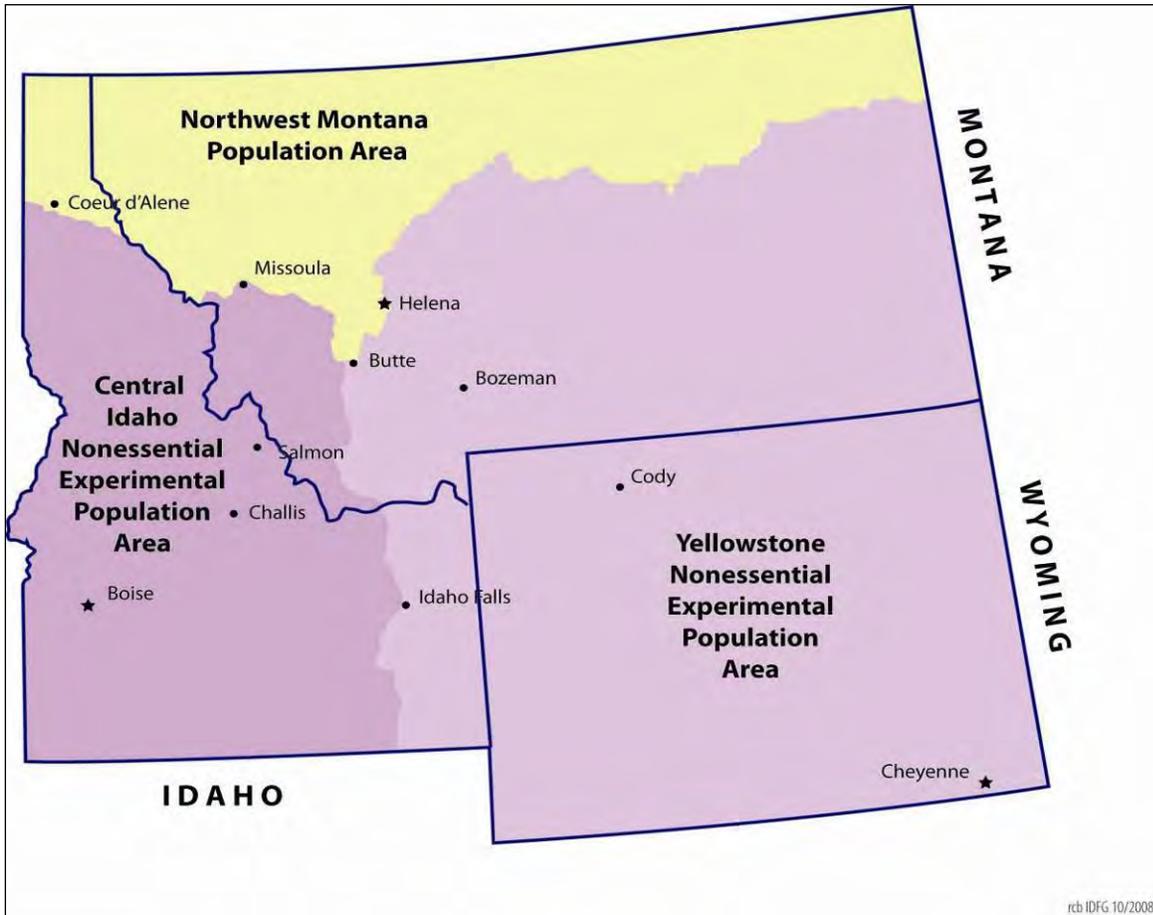


Figure 1. Recovery areas established by the U.S. Fish and Wildlife Service to restore gray wolf populations in the northern Rocky Mountains of Idaho, Montana, and Wyoming.

In March 2002 the Idaho Legislature adopted the *Idaho Wolf Conservation and Management Plan* (2002 Wolf Plan; Idaho Legislative Wolf Oversight Committee 2002). The USFWS approved the 2002 Wolf Plan in January 2004.

The State of Idaho became the designated agent of the USFWS in January 2006, and assumed day-to-day monitoring and management authority for wolves in Idaho.

In February 2008, the USFWS initiated the process to delist wolves by creating an 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 boundaries established by the U.S. Fish and Wildlife Service in 2008 and 2009.

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 groups and in July 2008, a ruling returned Endangered Species Act (ESA) protections to wolves in the NRM DPS. The State of Idaho continued as the designated agent.

The USFWS published a second delisting rule in the federal register in January 2009. 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. Idaho held its first regulated wolf hunting season from fall 2009-spring 2010.

A federal judge ordered in August 2010 that the rule to delist wolves be vacated, which restored ESA protections to wolves (USFWS 2010). Subsequently, on April 15, 2011, President Obama signed the 2011 federal appropriations bill that included language that directed the Secretary of the Interior to reissue the 2009 delisting rule. As a result of this action, wolves were again delisted in Idaho, Montana, eastern Washington, eastern Oregon, and north-central Utah. Wolf management responsibility returned to the State of Idaho on May 5, 2011.

For a more comprehensive chronology of events related to wolf recovery, conservation, and management in Idaho and the NRM, see:

<http://fishandgame.idaho.gov/public/wildlife/wolves/?getPage=161>

Wolf monitoring and management activities have been reported by Wolf Management Zone (WMZ or Zone), since 2008. The Idaho Department of Fish and Game (IDFG) divided the Southern Mountains Zone into 2 zones in 2011 (Southern Mountains, Beaverhead) and the Upper Snake Zone was renamed the Island Park Zone. There are currently 13 WMZs (Figure 3).

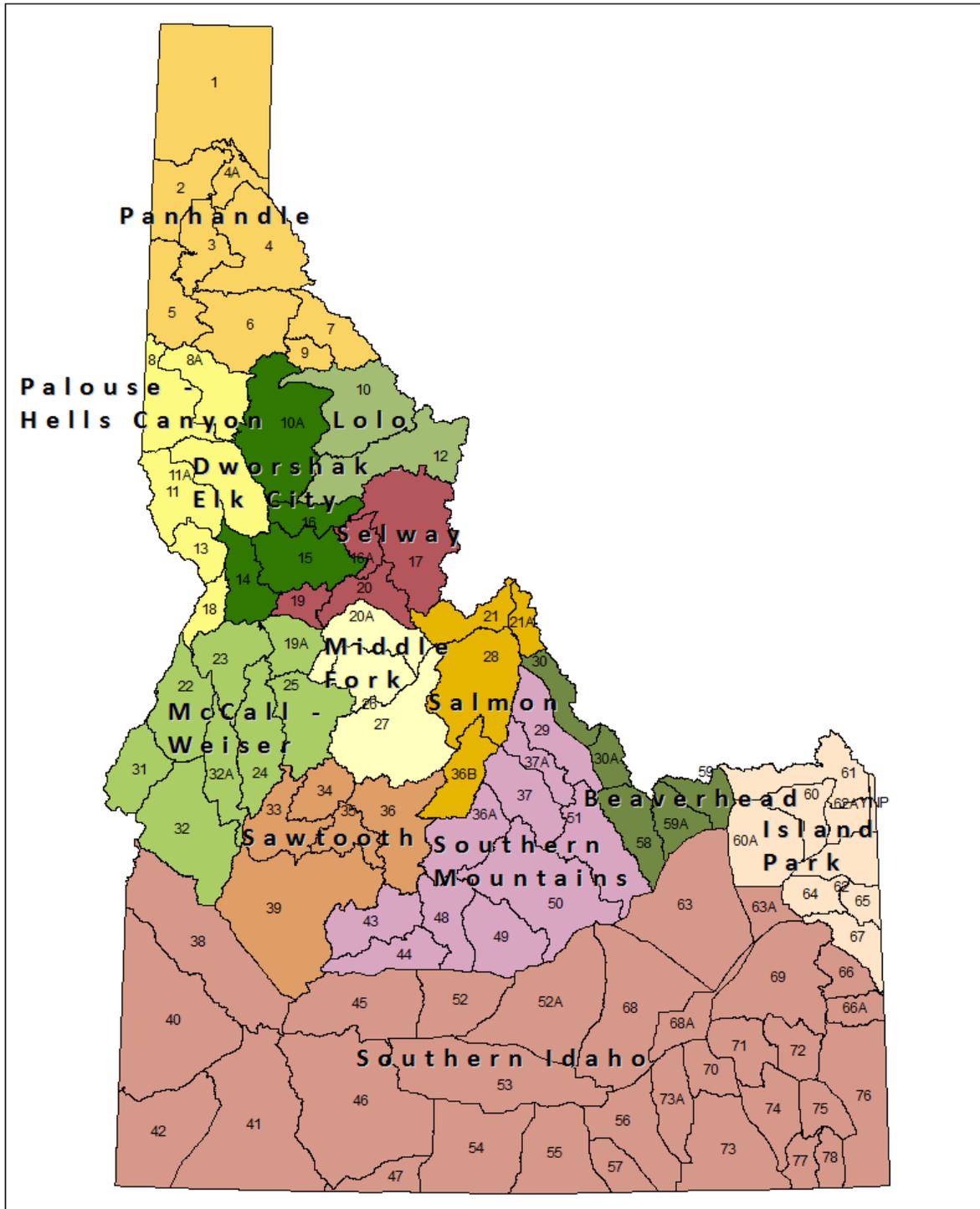


Figure 3. Idaho Wolf Management Zones. Wolf Management Zones were created by combining one or more elk management zones with similarity in wolf population, prey base, and current or potential conflicts with livestock and ungulates.

STATEWIDE SUMMARY

Idaho has a diverse landscape comprised of large expanses of varied habitats which support populations of elk (*Cervus elaphus*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), moose (*Alces alces*), and other wolf prey species. Central Idaho includes 3 contiguous Wilderness areas: the Selway-Bitterroot, Frank Church-River of No Return, and Gospel Hump Wildernesses. These Wilderness areas encompass almost 4 million acres (1.6 million ha), the largest block of 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 intersect these very different landscapes, 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- western hemlock (*Thuja plicata*, *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 across the state varies from less than 8 inches (20 cm) to almost 100 inches (254 cm).

Wolf Population Monitoring

Monitoring the wolf population in Idaho presents challenges requiring integration of many sources of information. Information presented in this report is obtained primarily from a concerted undertaking by State and Tribal biologists collecting important demographic information (reproduction, mortality, pack size, breeding pair status, etc.) through intensive field surveys, capture and radiocollaring, and monitoring wolves and wolf packs. Challenges presented by difficult and remote terrain inhabited by wolves, their wide-ranging movements and broad distribution across the state, difficulty maintaining radiocollared wolves in a managed population, and constraints of limited Agency budgets and personnel have necessitated integration of additional data sources. Supplemental sources of data have and continue to be developed to provide insight into the wolf population that would otherwise be unavailable through State-implemented efforts.

A number of supplemental sources of information have provided information facilitating wolf monitoring across the state. Wolf observations from hunters afield have proven to be a reliable means of enumerating wolf packs and number of wolves when analyzed in a patch occupancy modeling framework (Ausband et al. 2014). Data collected from harvested wolves have provided confirmation of new packs via evidence of reproduction from harvested juveniles (identified from physical age determination, or tooth cementum analysis), distribution of previously unknown packs of wolves (or continued presence of existing packs), and pack sizes from verified hunter observations at the time of harvest. This information has been particularly useful for remote locations not being monitored through traditional methods due to access difficulties. DNA sampling (tissue or scat) provided information on summer pack sizes, verification of reproduction, apparent survival, and other relevant demographic information. Public sightings and confirmed depredations also facilitate the confirmation of wolf activity by directing agency personnel to areas for further investigation. In 2013, 155 wolf observations were reported

through the IDFG online wolf reporting system. Combining these sources of information has allowed for a greater understanding of the wolf population than would have been achieved otherwise.

Population Status

The Idaho wolf population increased steadily since reintroductions in 1995 and 1996 through 2009 (Idaho's first wolf hunting season), after which data suggest the population has declined (Figure 4).

The number of documented packs increased from 1995 through 2012, but declined in 2013 (Figure 5). During 2013, 128 Idaho wolf packs were documented at some point during the year. Nine new packs were documented and 21 packs were removed because either control actions or harvest were believed to have removed all members of the pack, or there was a lack of documentation that the pack remained extant.

The current number of documented packs (107, Table 1) is higher than the 3-year unweighted average (81 packs) documented immediately prior to the onset of hunting (2006 – 2008). Mean December 31st pack size (5.4 wolves per pack, $n = 21$) is approximately 32% lower than the 3-year pre-hunt period (8.1 wolves per pack), providing evidence that harvest and increased control have decreased pack size.

Of the 9 new packs, 4 were retroactively added to 2012 totals based on evidence of multiple adults. Evidence was also obtained that 3 packs previously removed (Battle Ridge, Eagle Mountain, Indian Creek) were also extant during 2012, and these were added to 2012 totals as well. Based on this retroactively corrected pack count, the 2012 population estimate for documented packs, other documented groups, and lone wolves was corrected from 683 to 722 wolves (Figure 4).

Not all wolf packs in Idaho are presumed to be documented. The 2013 year-end estimate for documented packs, other documented groups of wolves, and associated lone wolves was 659 wolves at the end of 2013 (Appendix A).

Reproduction

Estimates of wolf numbers and packs, pup production, and breeding pairs are conservative because not all packs in the state are documented, not all documented packs could be surveyed and complete pup and/or pack counts could not always be obtained.

Breeding pair status was evaluated considering all data collected for a pack from spring through winter. Breeding pairs were determined by either: harvest or capture of ≥ 2 pups after Dec 31, 2013 from a documented pack with 2 adults of opposite sex present at end of year, or summer verification (via visual/aural/remote camera observations or DNA analysis) of ≥ 2 pups and 2 adults of opposite sex and one or more of the following: late fall/winter aerial, ground or trail camera observations by IDFG/NPT or cooperating agency biologists consistent with the persistence of ≥ 2 pups and 2 adults of opposite sex; late fall/winter verified public observations

consistent with existing pack information and indicating the persistence of ≥ 2 pups and 2 adults of opposite sex; and/or no documented mortality indicating < 2 pups or < 2 adults of opposite sex.

A minimum of 49 packs were confirmed to have produced a minimum of 166 wolf pups. Litter sizes ranged from 1-11. Twenty packs qualified as breeding pairs at the end of 2013 (Table 1). The number of documented breeding pairs increased from 1995 through 2009, but has dropped since, coincident with harvest seasons and despite the increase in the total number of packs documented (Figure 5). Explanations for reductions in breeding pairs include fewer packs qualifying as breeding pairs, and fewer packs examined for breeding pair status from loss of collared wolves through higher harvest and control actions. Nine reproductive packs (18% of all documented reproductive packs) were eliminated from consideration as breeding pairs due to control actions or harvest that left fewer than 2 pups or 2 adults of opposite sex in the pack.

Distribution

Wolf distribution was assessed through monitoring radiocollared wolves, field investigations, and wolf observation reports received from the public. We monitored 112 radiocollared wolves that originated from, or had established residence within Idaho, at least once during 2013, including 70 wolves captured and radiocollared during the year. Thirty-six radiocollared wolves died or were suspected to have died during the year, and 18 were either missing or had non-functioning collars at year-end. Twenty-two wolves with functioning radiocollars were removed by harvest during 2013. Loss of radiocollars during harvest seasons has increased the challenge of monitoring wolves.

Wolves were 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). In addition to the 107 documented packs present in Idaho at the end of 2013, there were 28 documented border packs counted by Montana, Wyoming, and Washington that had established territories overlapping the Idaho state boundary. Territories of most wolf packs were predominantly on public lands managed by the U.S. Forest Service (USFS).

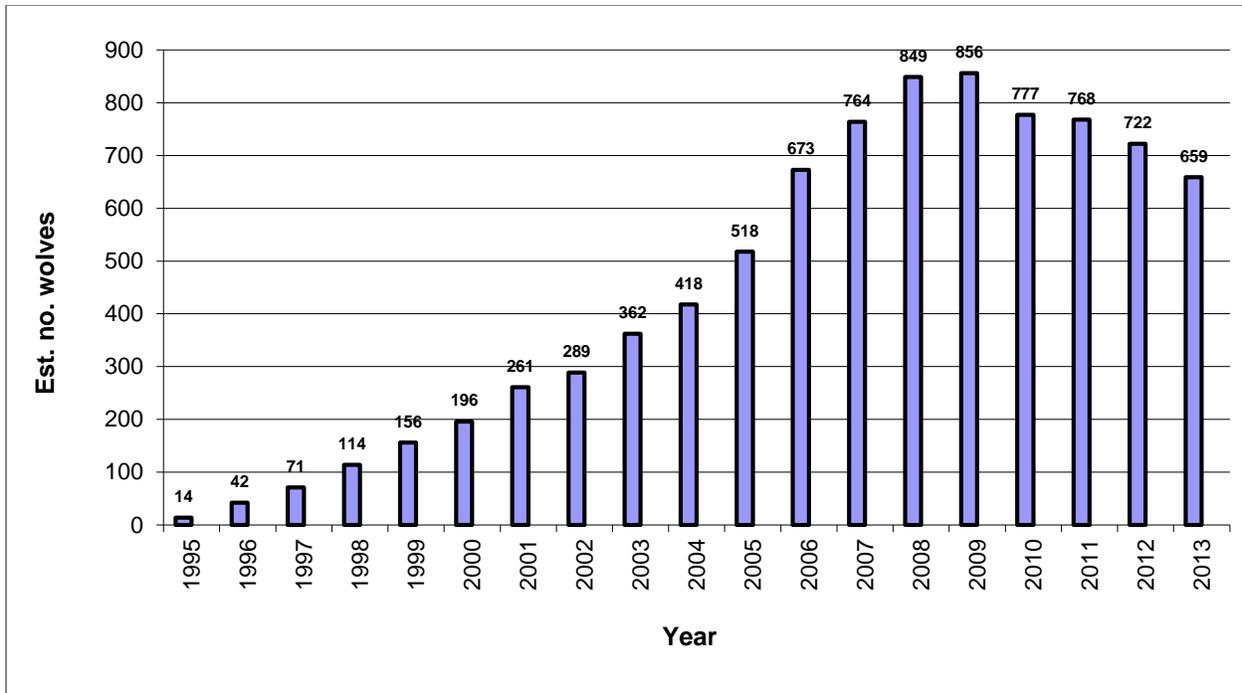


Figure 4. Estimated number of wolves in documented packs, other documented groups, and lone wolves in Idaho at year-end, 1995-2013. Not all packs were presumed documented. Annual numbers were based on best information available and were retroactively updated as new information was obtained. See Appendix A for population estimation method.

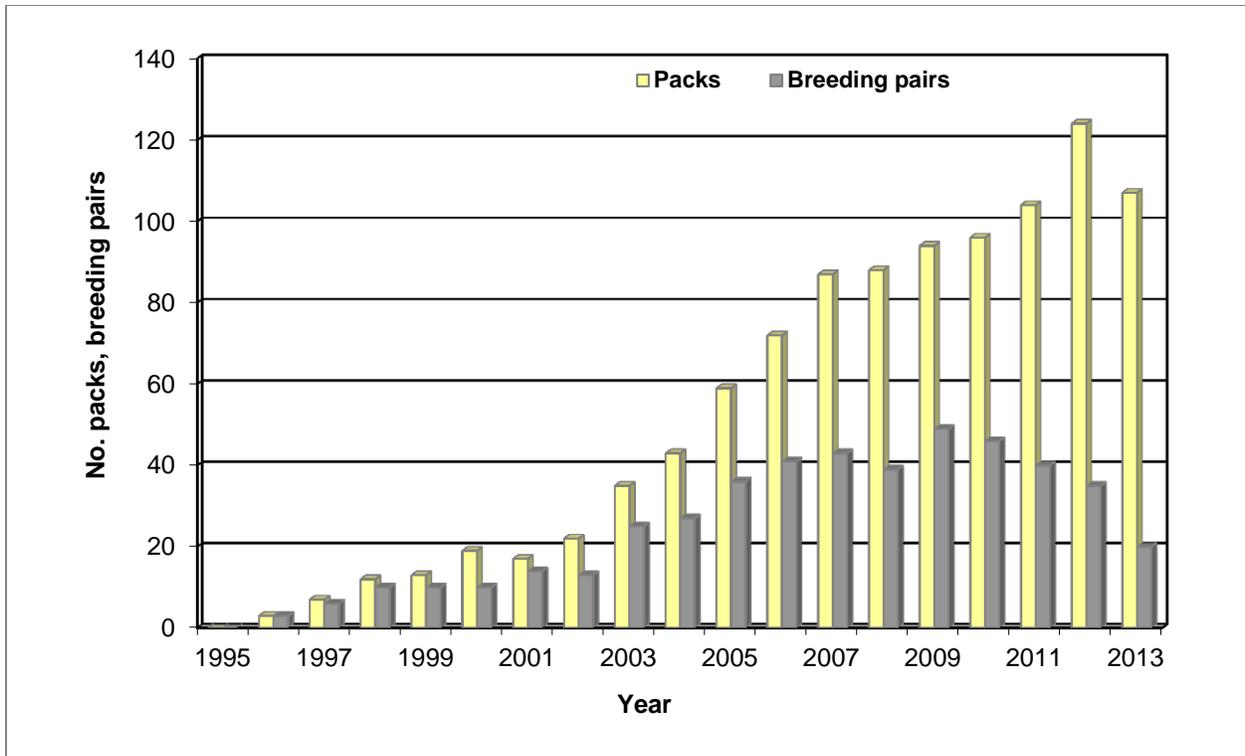


Figure 5. Number of documented wolf packs and documented breeding pairs in Idaho, 1995-2013. Annual numbers were based on best information available and were retroactively updated as new information was obtained. Not all packs were presumed documented and reproductive status was not investigated for all documented packs.

Table 1. Number of wolves detected, documented packs, and other documented wolf groups, pack reproductive status, known dispersal, documented mortality by cause, and wolf-caused depredations within Idaho Wolf Management Zones, 2013.

	Panhandle	Palouse-Hells Canyon	Dworshak-Elk City	Lolo	Selway	McCall-Weiser	Middle Fork	Salmon	Sawtooth	Southern Mtns	Beaver-head	Island Park	Southern Idaho	Total
Minimum number wolves detected ^a	49	9	36	28	6	23	9	24	45	28	0	36	2	295
Documented packs														
No. during year	21	4	15	9	5	14	8	11	19	11	3	7	1	128
No. removed ^b	1	0	0	1	0	5	1	3	6	2	1	1	0	21
No. at end of year ^c	20	4	15	8	5	9	7	8	13	9	2	6	1	107
Other documented groups ^d														
No. during year	2	0	1	2	0	2	1	0	5	0	0	0	0	13
No. removed ^b	0	0	1	1	0	0	1	0	2	0	0	0	0	5
No. at end of year ^c	2	0	0	1	0	2	0	0	3	0	0	0	0	8
Reproductive status														
Minimum no. pups produced(died)	30(10)	8(1)	26(14)	7	2(2)	4(4)	6(6)	16(2)	27(4)	23(15)	0	17(14)	0	166(72)
No. of reproductive packs detected	8	2	5	2	2	2	3	5	8	8	0	4	0	49
No. of breeding pairs ^e	4	1	3	2	0	0	0	3	6	0	0	1	0	20
Known dispersal	0	0	0	1	0	1	0	0	6	0	0	0	0	8
Documented mortalities														
Natural	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Control ^f	7	0	10	3	1	11	7	0	4	30	1	20	0	94
Harvest	110	9	60	24	13	35	25	15	31	21	2	9	2	356
Other human-caused ^g	1	0	5	2	0	1	0	0	3	3	0	1	0	16
Unknown	2	0	0	2	0	0	0	0	3	0	0	0	0	7
Total mortalities	120	9	75	31	14	47	32	15	41	54	3	30	2	473
Confirmed (probable) wolf-caused losses														
Cattle	0	0(1)	4(1)	0	0	5	0	3(1)	3(1)	23(1)	1	0(1)	0(1)	39(7)
Sheep	1	0	2	0	0	47(5)	0	0	0	146(4)	0	208	0	404(9)
Dogs	0	0	0	0	0	1	0	0	0	0(1)	0	3	0	4(1)
Other	0	0	0	0	0	0	0	0	0	1	0	0	0	1

^a Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^b Includes documented packs/other documented groups removed via agency control, other human-related, or natural causes.

^c Number remaining extant at end of 2013 after subtracting those removed via agency control, other human-related, or natural cause, and those removed due to lack of verified evidence for the preceding 2 years.

Table 1 Continued

- ^d Other documented wolf groups include known and suspected mated pairs or verified groups of wolves that do not meet Idaho's definition of a documented pack.
- ^e 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 least 2 pups that survive until December 31 of the year of their birth...".
- ^f Includes agency lethal control and legal or State-authorized take by landowners.
- ^g Includes all other human-related deaths exclusive of control and harvest.

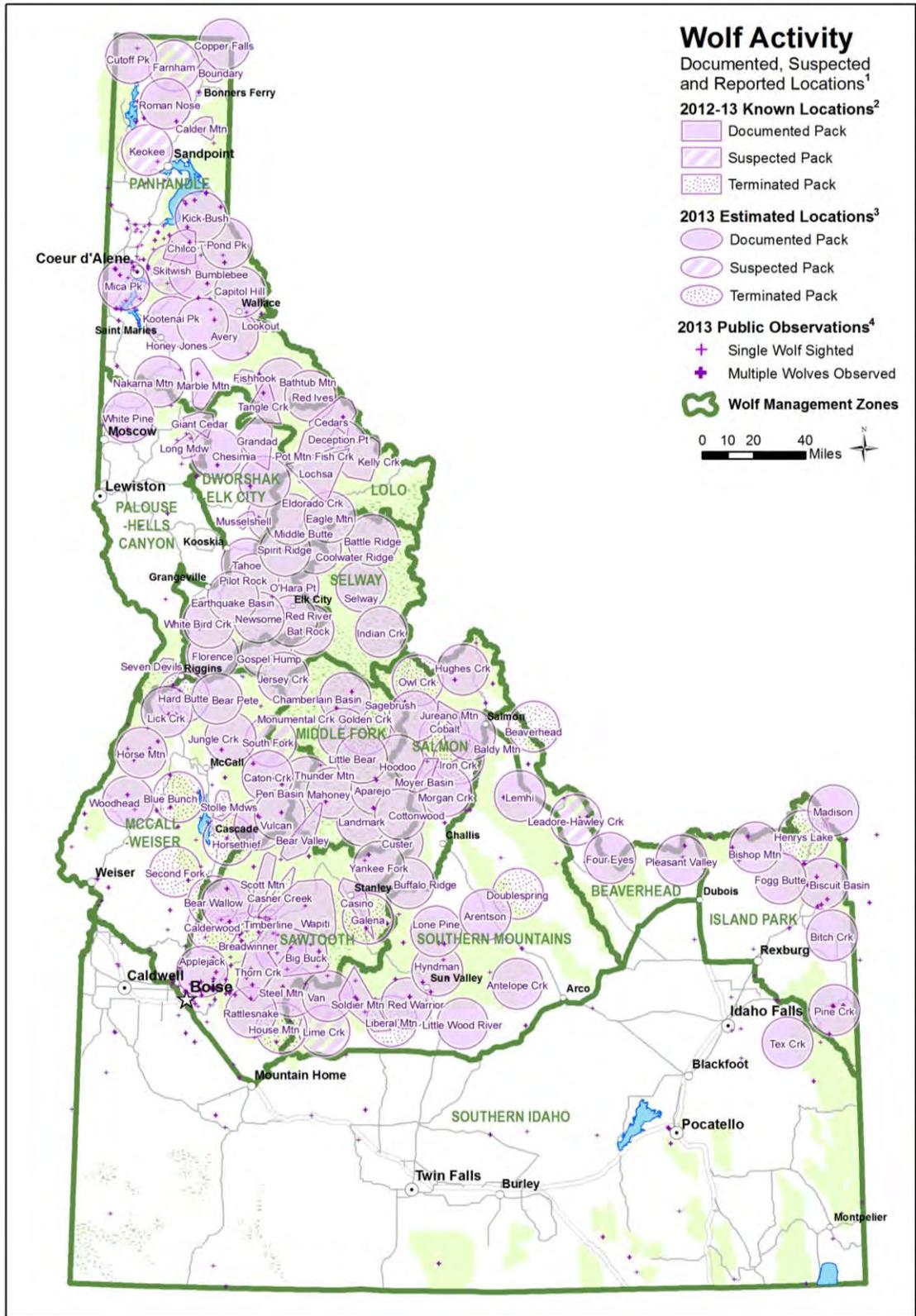


Figure 6. Distribution of documented and suspected wolf packs in Idaho, 2013.

Mortality

We documented 473 wolf mortalities in 2013, an 11% increase from 2012 (Table 1, Figure 7). Virtually all documented mortalities were human-caused ($n = 466$; 99%). Of the 466 confirmed human-caused mortalities, 356 wolves were harvested legally by hunters and trappers (an 8% increase from 2012), 94 wolves were lethally controlled, and the remaining 16 wolf mortalities were attributed to other human-caused sources (illegal take = 8; vehicle = 4; non-target = 2; wounding loss/illegal take = 1; capture-related = 1). Eighty of 94 wolves lethally controlled were removed by USDA APHIS Wildlife Services (WS) or IDFG-authorized agents in response to depredations or were killed by livestock producers/landowners in defense of property. The remaining 14 were killed by IDFG to benefit prey species. Wolf mortality not associated with human causes was attributed to unknown causes ($n = 7$). More wolves were lethally removed by WS and livestock producers in Idaho in 2013 than in 2012 ($n = 80$ and $n = 59$, respectively), representing a 36% increase (Figure 8). These mortality figures are intended to demonstrate patterns in known mortality, and do not represent all mortality.

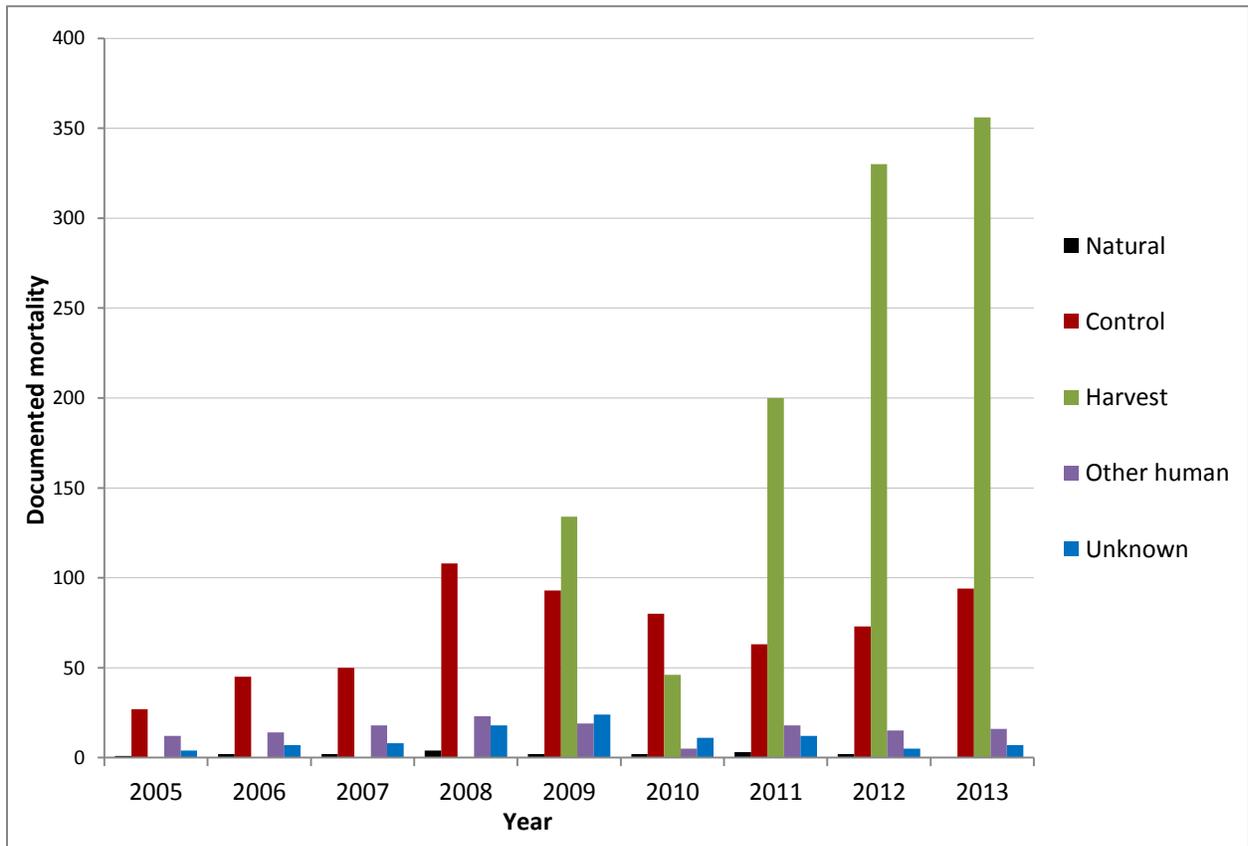


Figure 7. Annual documented wolf mortality by cause, 2005-2013.

Wolf Depredations

USDA APHIS Wildlife Services agents recorded 46 cattle, 413 sheep, 5 dogs, and 1 horse that were classified as confirmed or probable wolf depredations (killed by wolves) during the 2013 calendar year (Table 1; T. Grimm, USDA APHIS Wildlife Services, personal communication). Confirmed and probable wolf depredations on cattle declined 50% in 2013 compared to 2012 ($n = 46$ and $n = 92$, respectively; Figure 8). Similarly, the number of incidents in 2013 where confirmed or probable cattle losses occurred declined by 45% from 2012 ($n = 43$ and $n = 78$, respectively; Figure 8). Wolf depredation incidents and cattle losses were highest in the Southern Mountains Zone (Figure 9). Confirmed and probable wolf depredations on sheep increased 23% in 2013 compared to 2012 ($n = 413$ and $n = 337$, respectively; Figure 8); a decline in sheep losses similar to that seen in cattle would have occurred with the exception of a single incident involving the loss of 176 sheep. The number of incidents of confirmed or probable wolf depredations on sheep in 2013 declined by 30% from 2012 ($n = 40$ and $n = 57$, respectively). Wolf depredation incidents and losses for sheep occurred primarily within the Southern Mountains, Sawtooth, and McCall-Weiser zones, although the greatest losses occurred within the Island Park Zone due to the aforementioned incident involving 176 sheep (Figure 10). During 2013, 80 wolves were killed by WS or killed legally by livestock producers or private citizens to resolve wolf conflicts with livestock or dogs (Figure 8).

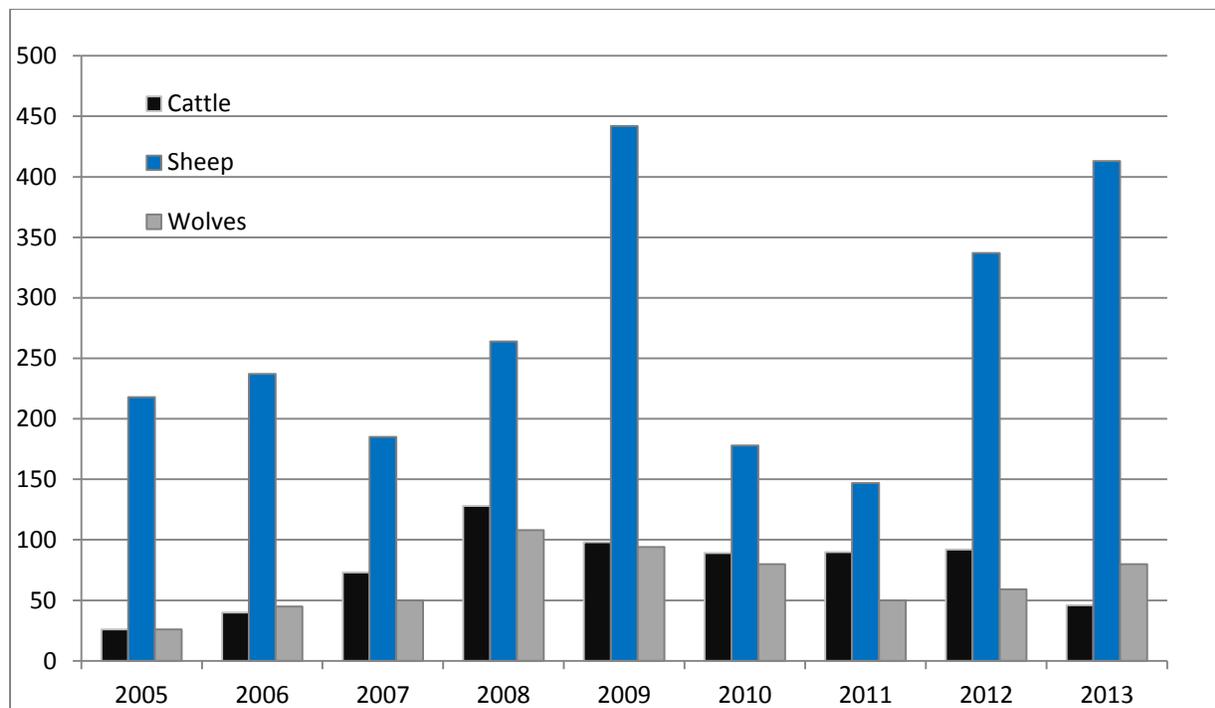


Figure 8. Number of confirmed and probable cattle and sheep killed by wolves, and corresponding number of wolves removed through agency control and legal take by private citizens, 2005-2013.

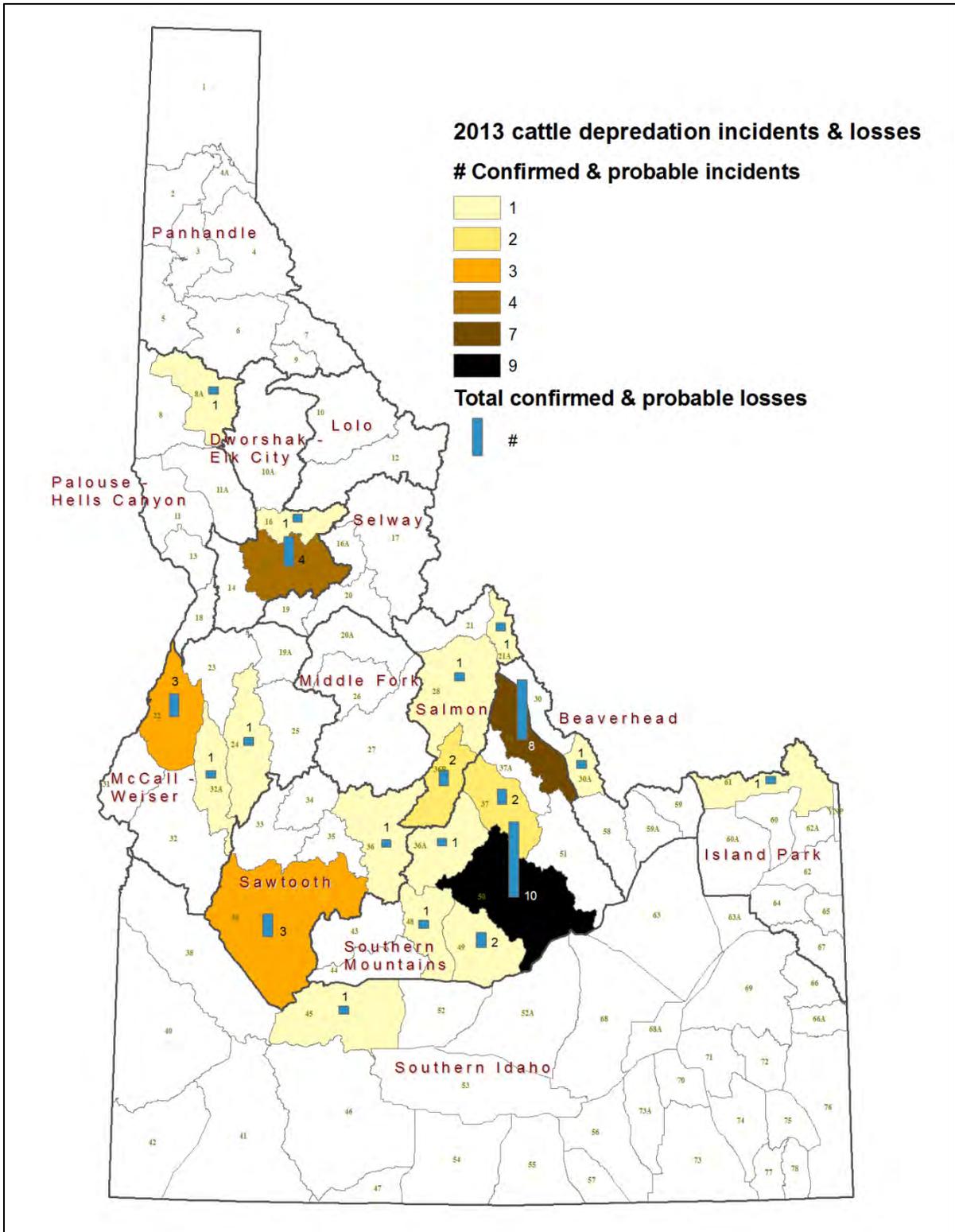


Figure 9. Number of confirmed and probable cattle depredation incidents and corresponding losses in Idaho attributed to wolves by Game Management Unit and Wolf Management Zone, 2013.

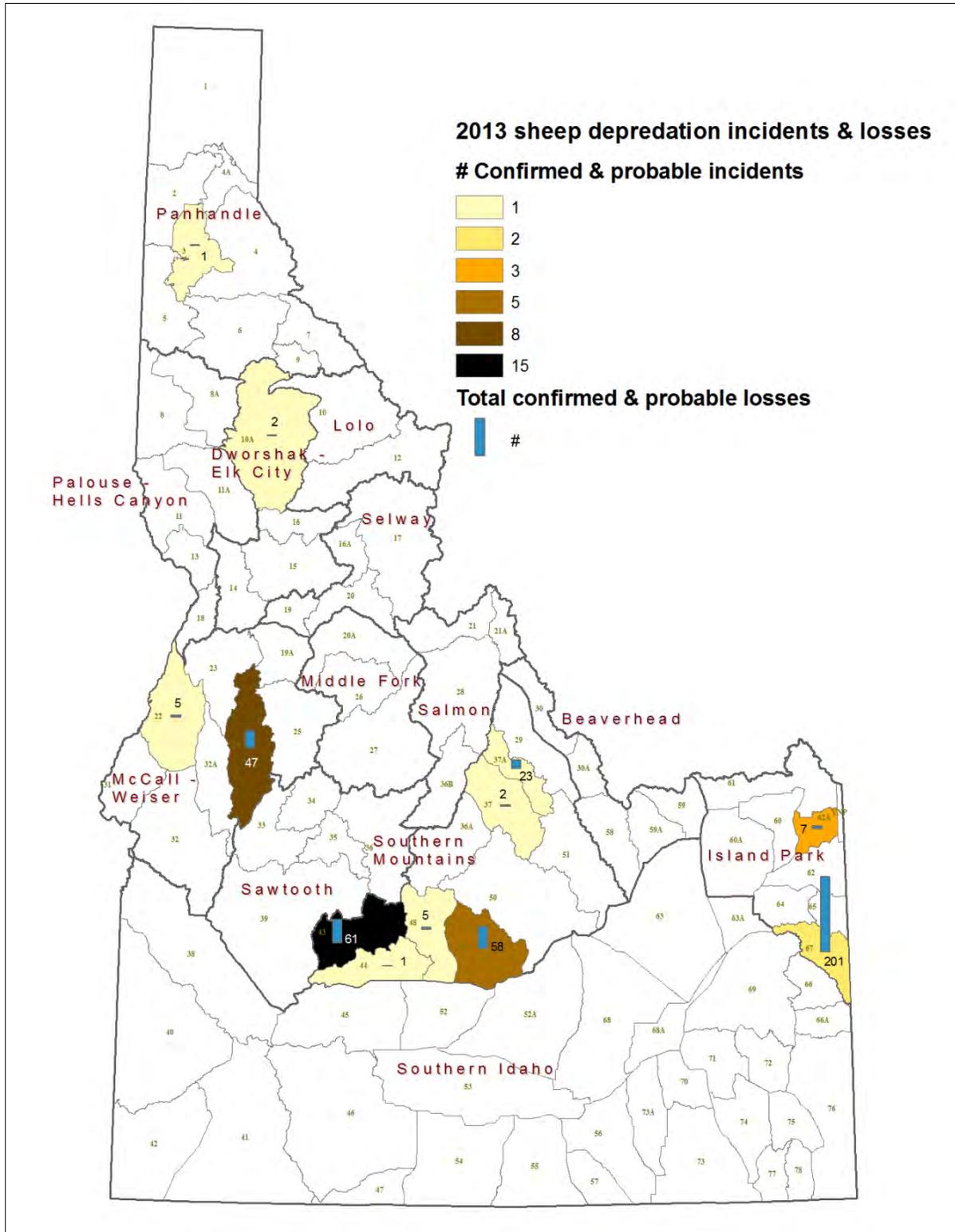


Figure 10. Number of confirmed and probable sheep depredation incidents and corresponding losses in Idaho attributed to wolves by Game Management Unit and Wolf Management Zone, 2013.

Research

IDFG, NPT, and other organizations continue to coordinate and support scientific research assisting in long-term wolf monitoring efforts, conservation, and management.

Elk/Wolf Ecology Study

During 2013 IDFG continued long-term efforts to measure the effects of wolf predation and habitat on elk populations within Idaho. Project objectives include: 1) determining survival, cause-specific mortality, pregnancy rates, and body condition for radiocollared animals; 2) monitoring wolf distribution and abundance within study 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. This project is focused on 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 radiocollars. Data collection began in the Lowman study area in 2008 and in the North Fork of the Clearwater River study area in 2009. Data collection was completed in the Lowman area in 2013, when satellite radiocollars were recovered. The North Fork of the Clearwater River study area continues to collect data as satellite radiocollars are deployed on wolves and ungulates. These data will improve our understanding of predator/prey dynamics 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 and prescribe ungulate population objectives.

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

Collaborators with the University of Montana and Montana Cooperative Wildlife Research Unit 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, collaborators evaluated a variety of survey methods that have demonstrated strong relationships to wolf abundance and distribution. Methods tested were hunter surveys, rendezvous site surveys, howl boxes, and rub stations.

Results of these efforts were published February 2014 in *The Journal of Wildlife Management* (Ausband et al. 2014). Collaborators 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.

Occupancy Analysis for Gray Wolves in Idaho

IDFG staff, in collaboration with private contractor Lindsey Rich, used a patch occupancy model (Miller et al. 2013) with hunter surveys and locations from radiocollared wolves as methods of detection, to accomplish the following objectives: 1) estimate statewide occupancy and distribution of wolf packs in 2012, 2) estimate the total area occupied by wolf packs in Idaho in 2012, and 3) estimate abundance of wolf packs and wolves in Idaho in 2012 (Rich 2013). IDFG

mailed surveys to 9,374 hunters in 2012, of whom 49.7% ($n = 4,656$) responded. There were 5,962 usable reports of hunters seeing ≥ 1 wolf during the 3-month survey period (Sept-Nov); of these, $\sim 50\%$ ($n = 3,006$) were reports of observations of ≥ 2 wolves. Personnel from IDFG located 21 radiocollared wolf packs during the 3-month survey period, collecting a total of 502 locations from live wolves that were a member of a pack.

Collaborators estimated 52.8% ($114,254 \text{ km}^2$; $SE = 9,736 \text{ km}^2$) and 49.1% ($106,140 \text{ km}^2$; $SE = 10,873 \text{ km}^2$) of Idaho was occupied by wolf packs in 2012 when including observations of ≥ 1 and ≥ 2 wolves, respectively. Overall, occupancy estimates of the distribution of wolf packs appeared to be consistent with the known distribution of wolf packs in Idaho.

Using observations of ≥ 2 wolves, the patch occupancy model estimated 155 (95% $CI = 124 - 187$) wolf packs in Idaho in 2012. One hundred and seventeen packs were reported in Idaho in the 2012 Wolf Monitoring Progress Report (IDFG and NPT 2013), retroactively updated to 124 packs in this report. The median size of wolf packs in Idaho in 2012 was 5 (IDFG and NPT 2013). Using the product of the patch occupancy-estimated pack numbers and the reported 2012 median pack size, collaborators estimated 775 wolves (95% $CI = 620 - 935$) in Idaho as of December 31, 2012. IDFG and NPT estimated there were 683 wolves in Idaho at the end of 2012 (IDFG and NPT 2013), retroactively updated to 722 wolves in this report. Differences between the two estimates may be due in part to differences in the definition of a pack. The patch occupancy model uses a minimum of 2 wolves to meet pack status, compared to a minimum of 4 wolves (or confirmed reproduction if fewer than 4 wolves) to meet pack status in this report. This methodology will be further refined during 2014.

Human-caused mortality of wolves

Wolves live in family groups comprised of a breeding male and female, their offspring, and several related helper wolves. Mortality, however, can affect this family group structure and result in smaller packs with adopted, unrelated individuals. Little is known about how characteristics of groups (i.e. size, composition, tenure) affect population growth, individual behavior, group stability, or reproduction. States in the Rocky Mountains recently initiated public hunting and trapping seasons for gray wolves. Collaborators with the University of Montana and Montana Cooperative Wildlife Research Unit are attempting to determine how this new source of mortality might affect gray wolf pack composition and reproduction. Additionally, they are using population modeling of vital rates based on groups to give insight into how differences in group size and composition affect population growth.

Three focal study areas (southwest Alberta, central Idaho, and Yellowstone National Park [YNP], Wyoming) represent a range of human-caused mortality from heavily harvested and agency-controlled (southwest Alberta and central Idaho) to fully protected (YNP). Collaborators have intensively sampled 8-10 wolf packs in central Idaho since 2007 and recently began sampling 6-8 wolf packs in YNP and 3-8 wolf packs in southwest Alberta in summer 2012. Impacts of human-caused mortality on wolf packs will be assessed by examining pack pedigrees generated via genetic samples collected from surveyed rendezvous sites in the three focal study areas. DNA analysis of collected samples is underway. Homesite attendance of satellite-radiocollared wolves from the three study areas will also be examined to explore facets of

helping behavior. Field sampling will continue through 2014 and analyses will be completed in 2015.

Testing Methods to Monitor Wolf Pack Reproduction

Post-delisting monitoring requirements for gray wolves include documentation of wolf pack reproduction and the survival of pups to the end of the year they were born. IDFG evaluated the feasibility of meeting these monitoring requirements via radiocollaring pups at den sites.

IDFG staff collaborated with Advanced Telemetry Systems, Inc. (ATS) to develop a lightweight, expandable pup radiocollar. This collar is designed to be placed on 2-4 week old pups in dens, and worn through the end of the year. Eleven pups from 2 litters were captured during May 2013. All 11 pups were fitted with expandable radiocollars, and implanted with intraperitoneal radiotransmitters (ATS), with the assistance of a team of veterinarians. Five expandable collars remained on the animal until death (mortalities occurred between August 2013 and February 2014). Five collars eventually slipped off, most between late December 2013 and February 2014. One collar slipped shortly after capture (~2 weeks). These expandable pup radiocollars may provide an efficient means to document breeding pair status in packs at the end of the year. IDFG staff will continue to use these radiocollars to monitor pups in Panhandle packs in 2014, and will expand the effort to include wolf packs in other zones.

Evaluation of Wolf Impacts on Cattle Productivity and Behavior

Oregon State University and the USDA Agricultural Research Service initiated a research project in 2008 to evaluate the effects of gray wolf presence on rangeland cattle production systems in western Idaho and northeastern Oregon (Clark et al. 2009, 2010). This ongoing project instruments mature beef cows with custom-made Global Positioning System (GPS) collars (Clark et al. 2006) to monitor cattle resource selection and activity budget responses to spatiotemporal variability in wolf presence levels. Ten instrumented cows in each of 8 study areas were GPS-tracked at 5-minute intervals throughout 5-8 month grazing seasons. Four study areas occurring in western Idaho were ecologically and managerially-paired with 4 study areas in northeastern Oregon. The study areas were USFS grazing allotments ranging from about 39 mi² (10,000 ha) to 320 mi² (83,000 ha) in size. Study area minimum elevations range from about 1,804 to 4,101 ft (550 to 1,250 m) and maximum elevations from about 5,249 to 8,530 ft (1,600 to 2,600 m). Wolf presence on these study areas is monitored during the grazing season using a number of complementary approaches including GPS and VHF radiocollaring of wolves, wolf scat sampling routes, trail cameras, direct observation, and depredation reporting. Wolf presence levels were classified among and within grazing seasons using these data.

The project is being implemented in 2 phases. The first phase used a Before-After/Control-Impact Pairing (BACIP) experimental design to contrast cattle responses between Oregon and Idaho study areas during 2008 and 2009 when wolf presence on the Oregon study areas was generally quite low and much higher on Idaho study areas. In 2010, with wolf population expansion in Oregon, the project transitioned to the second phase which uses a longitudinal design contrasting cattle responses between time periods of low and high wolf presence in each of the 8 study areas.

At the end of the 2013 season, all 80 cow GPS collars deployed among the 8 study areas had been recovered. As in all previous years, each study area contained a viable sample ($n > 3$) of collar data sets spanning the entire grazing season.

A parent study to this project continued on study areas in central Idaho. This earlier study, initiated in 2005, has compiled 8 years of GPS-based beef cattle resource selection response data relative to wolf presence on these study areas. A preliminary report summarizing results from data acquired 2005-2007 appeared in the October 2012 issue of the peer-reviewed journal, *Rangelands* (Breck et al. 2012). Analyses have been initiated on existing GPS tracking data sets to contrast resource-selection patterns of cattle during time periods of high and low wolf presence levels.

Development of Transmitter Snares for Radiocollaring Wolves

During 2012 and 2013, IDFG staff collaborated with WS and a private contractor (Jeff Ashmead, JAWS) to develop and evaluate the use of transmitter snares for radiocollaring wolves. The transmitter snare is comprised of a standard cable snare with a radiotransmitter attached to the exterior of the cable. The snare device is designed so that when an animal passes its head through the loop, the cable tightens and closes around the neck. A stop mechanism prevents tightening beyond a pre-determined size. The cable breaks away from its anchor point as the animal exerts force on the closed loop. Our goal is to develop an efficient, lightweight, cost effective technique for radiocollaring wolves. Several prototypes have been developed. During limited field testing in 2013, one wolf was successfully outfitted with a transmitter snare. This wolf was monitored for approximately 9 months. We will continue to develop and field test this monitoring tool in 2014.

Outreach

IDFG, NPT and cooperating agency biologists provided wolf-specific information and education programs to high school and college students, community and professional groups, wildlife biologists, cooperating agency personnel, the Idaho Fish and Game Commission, the Idaho Legislature, the Western Association of Fish and Wildlife Agencies, Idaho Master Naturalists, sportsmen's clubs, and outfitters and guides. Additionally, program staff participated in a televised webinar on wolf and ungulate management and wolf and ungulate hunting with the Washington Department of Fish and Wildlife and Montana Fish, Wildlife and Parks, and participated on a panel discussion on state wolf monitoring and management with wolf managers from 5 other western and Great Lakes states at the International Wolf Symposium in Duluth, Minnesota. We also participated in dozens of interviews with local radio, newspaper, and TV outlets and talked to members of the public via telephone, email, and in person. Also, news articles were released by IDFG regularly that summarized 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.

As part of the 2013-2014 wolf harvest season, the Fish and Game Commission established wolf trapping seasons. Those wishing to participate in the trapping seasons were required to attend a wolf trapper education class before purchasing wolf trapping tags. Program biologists, in collaboration with regional staff and volunteers, developed and delivered a curriculum for the

classes. Classes focused on trapping ethics, trapping regulations, wolf biology and conservation, avoiding non-target captures, equipment selection, and trapping and snaring techniques. IDFG held 27 8-hour classes, for the 2012-2013 season and certified approximately 566 individuals to trap wolves. Another 26 classes were held for the 2013-2014 season and approximately 550 trappers were certified.

PANHANDLE WOLF MANAGEMENT ZONE (GAME MANAGEMENT UNITS [GMUs] 1, 2, 3, 4, 4A, 5, 6, 7, 9)

Background

The Panhandle Zone is predominantly timbered and consists 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, elk, mule deer, and moose occur throughout the zone. Livestock grazing is minimal on public properties but exists on many private lands. 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 (IDFG 2007).

Monitoring Summary

The Panhandle Zone was occupied by 20 documented packs (including 4 Idaho border packs), and 2 other documented groups at the conclusion of 2013 (Figure 11, Table 2); one pack was no longer considered extant by the end of 2013. Three suspected packs were attributed to this zone. Ten border packs reported for Washington and Montana were presumed to spend some time in this zone. One new pack (Mica Peak) was documented in 2013 and was retroactively added to the 2012 pack count. Eight packs were confirmed to have produced litters, and 4 qualified as breeding pairs (Table 2). The reproductive status of 12 packs was unknown. One pup was harvested whose natal pack was unknown. No wolves were known to have dispersed in 2013. Documented mortalities ($n = 120$) were attributed to harvest ($n = 110$), control (agency removal and legal take; $n = 7$), other human, ($n = 1$), and unknown causes ($n = 2$; Table 3). No confirmed or probable wolf-caused cattle or dog depredations occurred in this zone during 2013; one domestic sheep loss to wolves was confirmed in this zone in 2013 (Table 3).

Panhandle Wolf Activity

Documented, Suspected and Reported Locations¹

2012-13 Known Locations²

- Documented Pack
- Suspected Pack
- Terminated Pack

2013 Estimated Locations³

- Documented Pack
- Suspected Pack
- Terminated Pack

2013 Public Observations⁴

- Single Wolf Sighted
- Multiple Wolves Observed



Notes
 1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
 2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animal. Locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.

3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
 4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

Figure 11. Distribution of documented and suspected wolf packs in the Panhandle Wolf Management Zone, 2013.

Table 2. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Panhandle Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Avery	?	1(1)	NO	0
Bathtub Mountain	?	?	NO	0
Boundary	4	8(6)	YES	0
Bumblebee	4	2	YES	0
Calder Mountain (ID) ^e	8	7(1)	YES	0
Capitol Hill	4	?	NO	0
Chilco	3	5	NO	0
Copper Falls (ID) ^e	?	?	NO	0
Cutoff Peak (ID) ^e	?	?	NO	0
DeBorgia (MT) ^e				
Diamond (WA) ^e				
Fishhook	7	4	YES	0
Honey Jones	?	?	NO	0
Kick Bush	?	?	NO	0
Kootenai Peak	?	1	NO	0
Lookout (ID)^e	0			
Lost Peak (MT) ^e				
Marble Mountain	4	?	NO	0
Mullan (MT) ^e				
Mica Peak	?	?	NO	0
Nakarna Mountain	?	?	NO	0
Pond Peak (ID) ^e	7	?	NO	0
Preacher (MT) ^e				
Red Ives	?	?	NO	0
Roman Nose	?	?	NO	0
Salmo (WA) ^e				
Silver Lake (MT) ^e				
Solomon Mountain (MT) ^e				
Tangle Creek	4	1(1)	NO	0
Twilight (MT) ^e				
Wiggletail (MT) ^e				
Unknown		1(1)		
Subtotal	45	30(10)		0
Suspected Pack				
Farnham	?			
Keokee	?			
Skitwish	?			
Subtotal	0			
Other Documented Group				
B517	1			
ID634	3			
Subtotal	4			
WMZ Total	49	30(10)		0

^a 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.).

Table 2 Continued

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 3.

^d 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...".

^e Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2013 Annual Report.

Table 3. Documented wolf mortality and wolf-caused depredations by GMU within the Panhandle Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
1	0	0	27	1	2	0	0	0	0
2	0	0	0	0	0	0	0	0	0
3	0	3	3	0	0	0	1	0	0
4	0	0	40	0	0	0	0	0	0
4A	0	1	6	0	0	0	0	0	0
5	0	0	5	0	0	0	0	0	0
6	0	0	22	0	0	0	0	0	0
7	0	3	6	0	0	0	0	0	0
9	0	0	1	0	0	0	0	0	0
WMZ Total	0	7	110	1	2	0	1	0	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

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. Dry-land agriculture began in this zone in the 1880s and, until the 1930s, large areas of native grassland existed. Currently, virtually all non-forested land has been tilled, and only small, isolated patches of native perennial vegetation remain. Timber harvest in the corporate timber, private timber, state land, and federal land areas of GMU 8A increased dramatically through the 1980s and 1990s, creating vast acreages of early successional ungulate habitat (IDFG 2007). Non-forested habitat was 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 one-third 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).

Monitoring Summary

The Palouse-Hells Canyon Zone was occupied by 4 documented packs at the conclusion of 2013 (Figure 12, Table 4). One new pack (White Pine) was documented in 2013. Two packs were confirmed to have produced litters, one of which qualified as a breeding pair (Table 4). The reproductive status of 2 packs was unknown. No wolves were known to have dispersed in 2013. All wolf mortalities ($n = 9$) were attributed to harvest (Table 5). One probable cattle loss was attributed to wolves within the zone in 2013 (Table 5).

Palouse - Hells Canyon Wolf Activity

Documented, Suspected and Reported Locations¹

2012-13 Known Locations²

- Documented Pack
- Suspected Pack
- Terminated Pack

2013 Estimated Locations³

- Documented Pack
- Suspected Pack
- Terminated Pack

2013 Public Observations⁴

- Single Wolf Sighted
- Multiple Wolves Observed



Notes
 1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
 2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animal locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.

3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
 4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

Figure 12. Distribution of documented and suspected wolf packs in the Palouse-Hells Canyon Wolf Management Zone, 2013.

Table 4. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Palouse-Hells Canyon Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Giant Cedar	?	?	NO	0
Long Meadow	?	?	NO	0
Seven Devils	5	4	NO	0
White Pine	4	4(1)	YES	0
Subtotal	9	8(1)		0
Suspected Pack				
Subtotal	0			
Other Documented Group				
Subtotal	0			
WMZ Total	9	8(1)		0

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 5.

^d 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...".

Table 5. Documented wolf mortality and wolf-caused depredations by GMU within the Palouse-Hells Canyon Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
8	0	0	1	0	0	0	0	0	0
8A	0	0	5	0	0	0(1)	0	0	0
11	0	0	0	0	0	0	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	3	0	0	0	0	0	0
WMZ Total	0	0	9	0	0	0(1)	0	0	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

DWORSHAK-ELK CITY WOLF MANAGEMENT ZONE (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 and fir due to fire suppression during the past 40 years (IDFG 2007). A small segment of this zone is federally-designated Wilderness.

Major river and creek 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.

Monitoring Summary

The Dworshak-Elk City Zone was occupied by 15 documented packs at the conclusion of 2013 (Figure 13, Table 6). One new pack (Newsome) was documented in 2013; evidence indicated this pack was extant the previous year and was retroactively added to the 2012 pack count. Three of 5 confirmed reproductive packs qualified as breeding pairs (Table 6). The reproductive status of 10 packs was unknown. A dispersing wolf from Oregon attempted to establish a territory within this zone, but was killed before the end of the year. No wolves were known to have dispersed in 2013. Documented mortalities ($n = 75$) included harvest ($n = 60$), control (agency removal and legal take; $n = 10$), and other human causes ($n = 5$; Table 7). Four confirmed and 1 probable wolf-caused cattle losses occurred within the zone (Table 7). Two confirmed wolf-caused domestic sheep losses occurred within the zone.

Dworshak - Elk City Wolf Activity

Documented, Suspected and Reported Locations¹

- | 2012-13 Known Locations ² | 2013 Estimated Locations ³ | 2013 Public Observations ⁴ |
|--------------------------------------|---------------------------------------|---------------------------------------|
| Documented Pack | Documented Pack | + Single Wolf Sighted |
| Suspected Pack | Suspected Pack | + Multiple Wolves Observed |
| Terminated Pack | Terminated Pack | |



Notes
 1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
 2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animals; locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.

3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
 4. 2013 Public Observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

Figure 13. Distribution of documented and suspected wolf packs in the Dworshak-Elk City Wolf Management Zone, 2013.

Table 6. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Dworshak-Elk City Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Bat Rock	?	?	NO	0
Chesimia	?	9(7)	NO	0
Coolwater Ridge	?	?	NO	0
Earthquake Basin	4	7(4)	YES	0
Eldorado Creek	?	?	NO	0
Florence	?	?	NO	0
Grandad	4	?	NO	0
Hemlock Ridge	5	?	NO	0
Musselshell	4	4	YES	0
Newsome	5	?	NO	0
O'Hara Point	?	?	NO	0
Pilot Rock	?	?	NO	0
Red River	9	5(2)	YES	0
Tahoe	5	?	NO	0
White Bird Creek	?	1(1)	NO	0
Subtotal	36	26(14)		0
Suspected Pack				
Subtotal	0			
Other Documented Group				
OR 10	0			
Subtotal	0			
WMZ Total	36	26(14)		0

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 7.

^d 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...".

Table 7. Documented wolf mortality and wolf-caused depredations by GMU within the Dworshak-Elk City Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
10A	0	2	30	1	0	0	2	0	0
14	0	0	13	0	0	0	0	0	0
15	0	8	7	4	0	3(1)	0	0	0
16	0	0	10	0	0	1	0	0	0
WMZ Total	0	10	60	5	0	4(1)	2	0	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

LOLO WOLF MANAGEMENT ZONE (GMUs 10, 12)

Background

The Lolo Zone is primarily forested and land ownership is almost entirely publicly-owned national forests 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 one-third of the zone provides good access for motorized vehicles with medium road densities. The remaining portion has low road densities, but contains good hiking trails. In 1964, most of the southern portion of GMU 12 was designated as part of the Selway-Bitterroot Wilderness (IDFG 2007).

Monitoring Summary

The Lolo Zone was occupied by 8 documented packs (including 2 Idaho border packs), and 1 other documented wolf group at the conclusion of 2013; one pack and 1 other documented wolf group were no longer considered extant by the end of the year (Figure 14, Table 8). Seven border packs reported for Montana were presumed to spend some time in this zone. One previously terminated pack (Eagle Mountain) was reinstated in 2013 and retroactively counted towards 2012; one pack (Middle Butte) was newly documented in 2013. Both confirmed reproductive packs qualified as breeding pairs; the reproductive status of 6 packs was unknown (Table 8). One wolf dispersed in 2013. Documented mortalities ($n = 31$) included harvest ($n = 24$), control (agency removal and legal take; $n = 3$), other human ($n = 2$), and unknown causes ($n = 2$; Table 9). There were no confirmed or probable wolf-caused losses to domestic livestock or dogs.

Lolo Wolf Activity

Documented, Suspected and Reported Locations¹

2012-13 Known Locations²

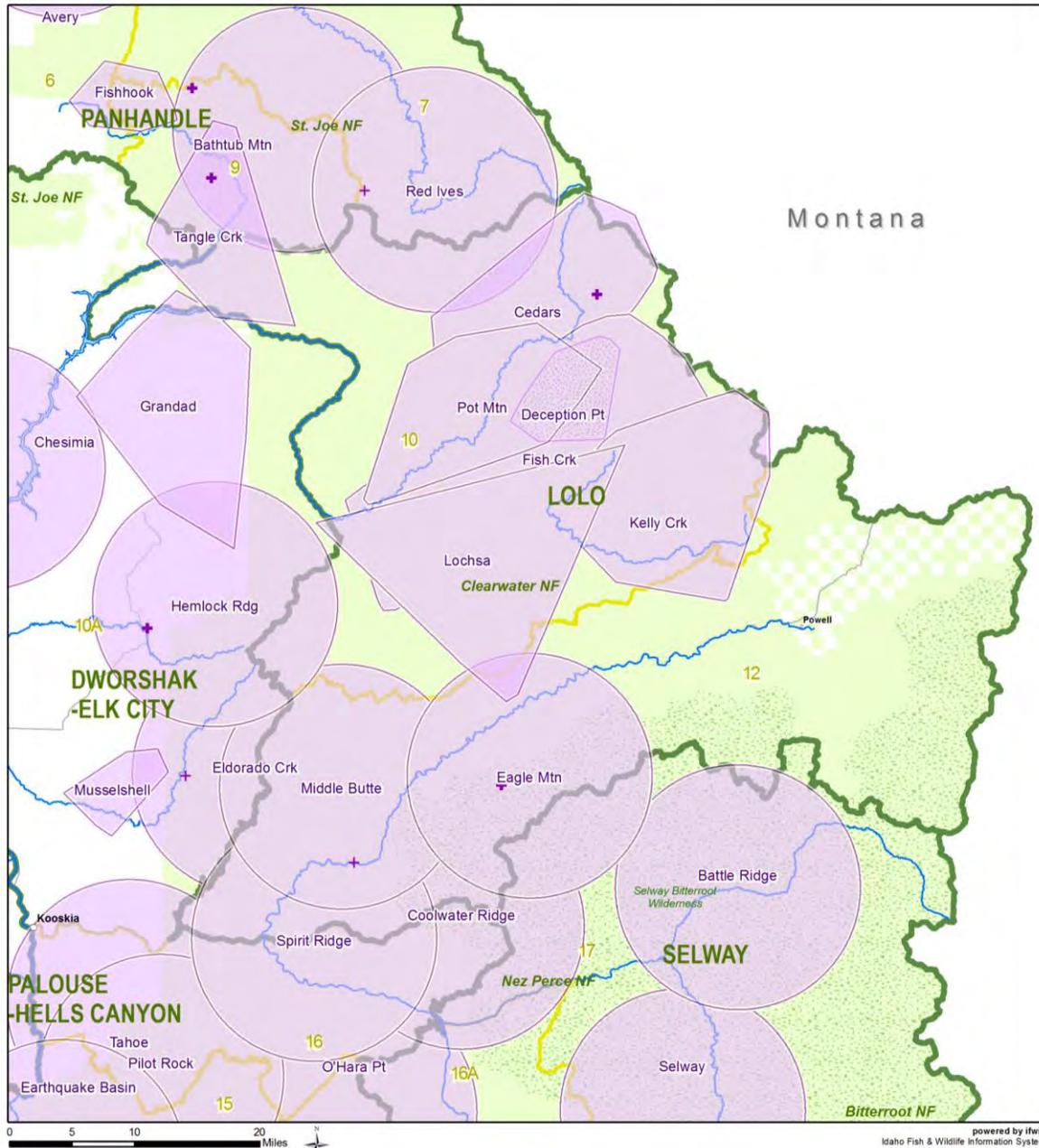
2013 Estimated Locations³

2013 Public Observations⁴

- Documented Pack
- Suspected Pack
- Terminated Pack

- Documented Pack
- Suspected Pack
- Terminated Pack

- Single Wolf Sighted
- Multiple Wolves Observed



Notes
 1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
 2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animal locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.

3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.

4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

Figure 14. Distribution of documented and suspected wolf packs in the Lolo Wolf Management Zone, 2013.

Table 8. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Lolo Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Big Hole (MT) ^e				
Cache Creek (MT) ^e				
Cedars (ID) ^e	8	4	YES	0
Deception Point (ID)^e	0			
Eagle Mountain	?	?	NO	0
Fish Creek (ID) ^e	9	3	YES	0
Gash Creek (MT) ^e				
Kelly Creek	5	?	NO	1
Lochsa	?	?	NO	0
Lolo (MT) ^e				
Middle Butte	?	?	NO	0
One Horse (MT) ^e				
Pot Mountain	5	?	NO	0
Quartz Creek (MT) ^e				
Spirit Ridge	?	?	NO	0
Sunrise Mountain (MT) ^e				
Subtotal	27	7		1
Suspected Pack				
Subtotal	0			
Other Documented Group				
B535	0			
B557	1			
Subtotal	1			
WMZ Total	28	7		1

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 9.

^d 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...".

^e Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2013 Annual Report.

Table 9. Documented wolf mortality and wolf-caused depredations by GMU within the Lolo Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
10	0	3	12	2	2	0	0	0	0
12	0	0	12	0	0	0	0	0	0
WMZ Total	0	3	24	2	2	0	0	0	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

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

Background

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, have encroached upon many low-elevation areas (Idaho Department of Fish and Game 2007). Due to the rugged and remote nature of this zone, human impacts have been limited. 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 (Idaho Department of Fish and Game 2007).

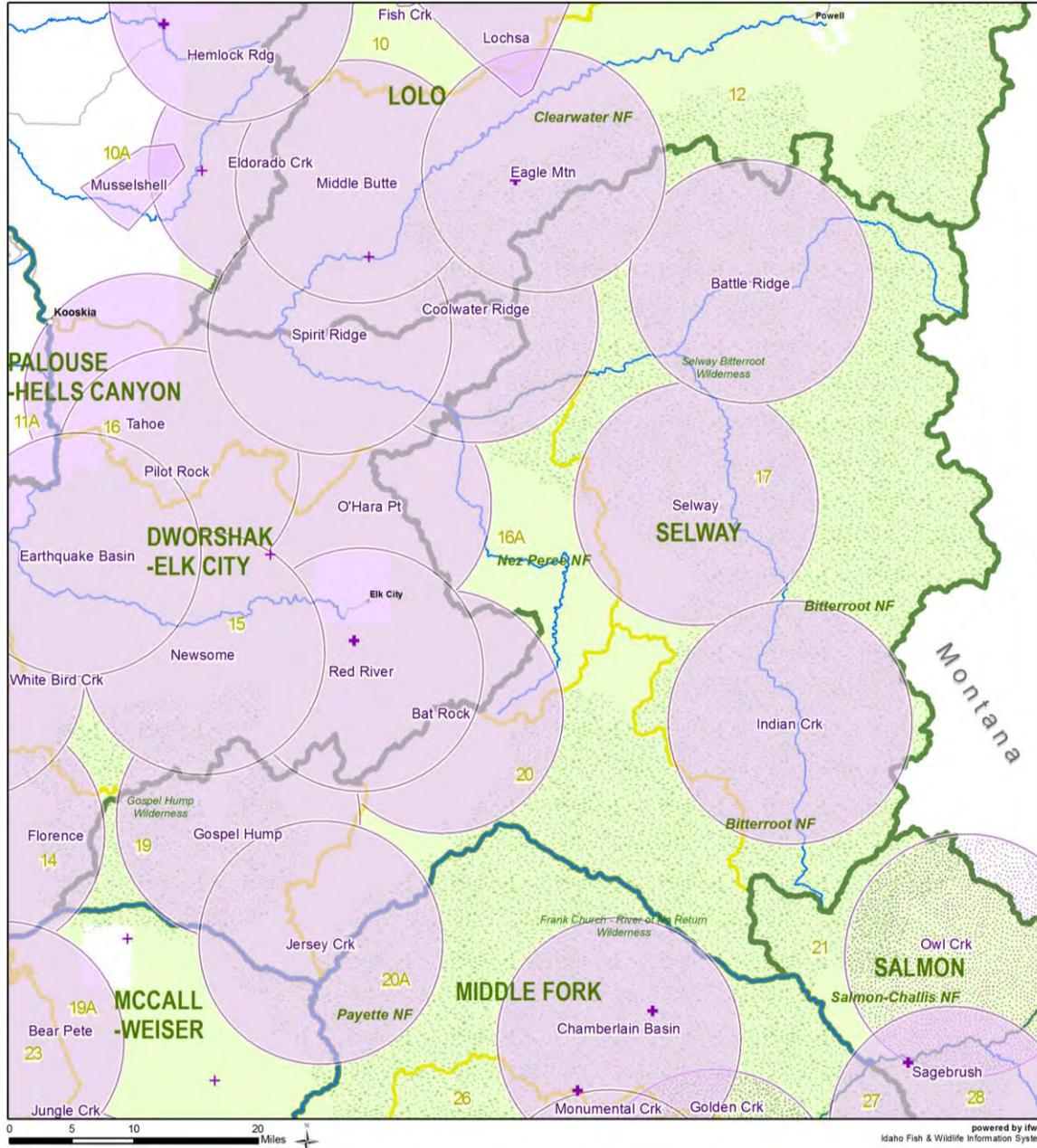
Monitoring Summary

The Selway Zone was occupied by 5 documented packs (including 2 Idaho border packs) in 2013 (Figure 15, Table 10). One border pack reported for Montana was presumed to spend some time in this zone. Two previously removed packs (Battle Ridge, Indian Creek) were reinstated in 2013 and retroactively counted towards 2012. Reproduction was verified for 2 packs within this zone, but neither met breeding pair criteria (Table 10). No wolves were known to have dispersed in 2013. Wolf mortalities ($n = 14$) were attributed to harvest ($n = 13$) and control ($n = 1$; Table 11). This predominantly wilderness zone contained few domestic livestock and no losses were reported.

Selway Wolf Activity

Documented, Suspected and Reported Locations¹

- | | | |
|--|---|---|
| 2012-13 Known Locations² | 2013 Estimated Locations³ | 2013 Public Observations⁴ |
| Documented Pack | Documented Pack | Single Wolf Sighted |
| Suspected Pack | Suspected Pack | Multiple Wolves Observed |
| Terminated Pack | Terminated Pack | |



Notes
 1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
 2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animal locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.

3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
 4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

Figure 15. Distribution of documented and suspected wolf packs in the Selway Wolf Management Zone, 2013.

Table 10. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Selway Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Battle Ridge (ID) ^e	?	?	NO	0
Gospel Hump	?	?	NO	0
Indian Creek (ID) ^e	?	1(1)	NO	0
Jersey Creek	?	?	NO	0
Selway	6	1(1)	NO	0
Watchtower (MT) ^e				
Subtotal	6	2(2)		0
Suspected Pack				
Subtotal	0			
Other Documented Group				
Subtotal	0			
WMZ Total	6	2(2)		0

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 11.

^d 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...".

^e Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2013 Annual Report.

Table 11. Documented wolf mortality and wolf-caused depredations by GMU within the Selway Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
16A	0	0	1	0	0	0	0	0	0
17	0	1	7	0	0	0	0	0	0
19	0	0	3	0	0	0	0	0	0
20	0	0	2	0	0	0	0	0	0
WMZ Total	0	1	13	0	0	0	0	0	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

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 subdivision in nature. Timber harvest and livestock grazing are prevalent. Several large fires have burned in this zone in the last decade. Road densities are relatively low in GMUs 19A and 25. Road densities in GMUs 23 and 24 are moderate to high. Active timber harvest programs are anticipated to dramatically increase these road densities in the near future (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. Timber harvest and livestock grazing are prevalent. Most forested habitat is in the early- to mid-successional stage. Andrus Wildlife Management Area in the southwest portion of GMU 22 is managed for elk and mule deer winter range and encompasses about 8,000 acres (3,237 ha). Active timber harvest programs are anticipated to increase already high road densities in the near future (IDFG 2007).

About 50% of GMU 31 is in public ownership and management. Privately-owned land comprises 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. Active timber harvest programs are anticipated to increase road densities in the near future (IDFG 2007).

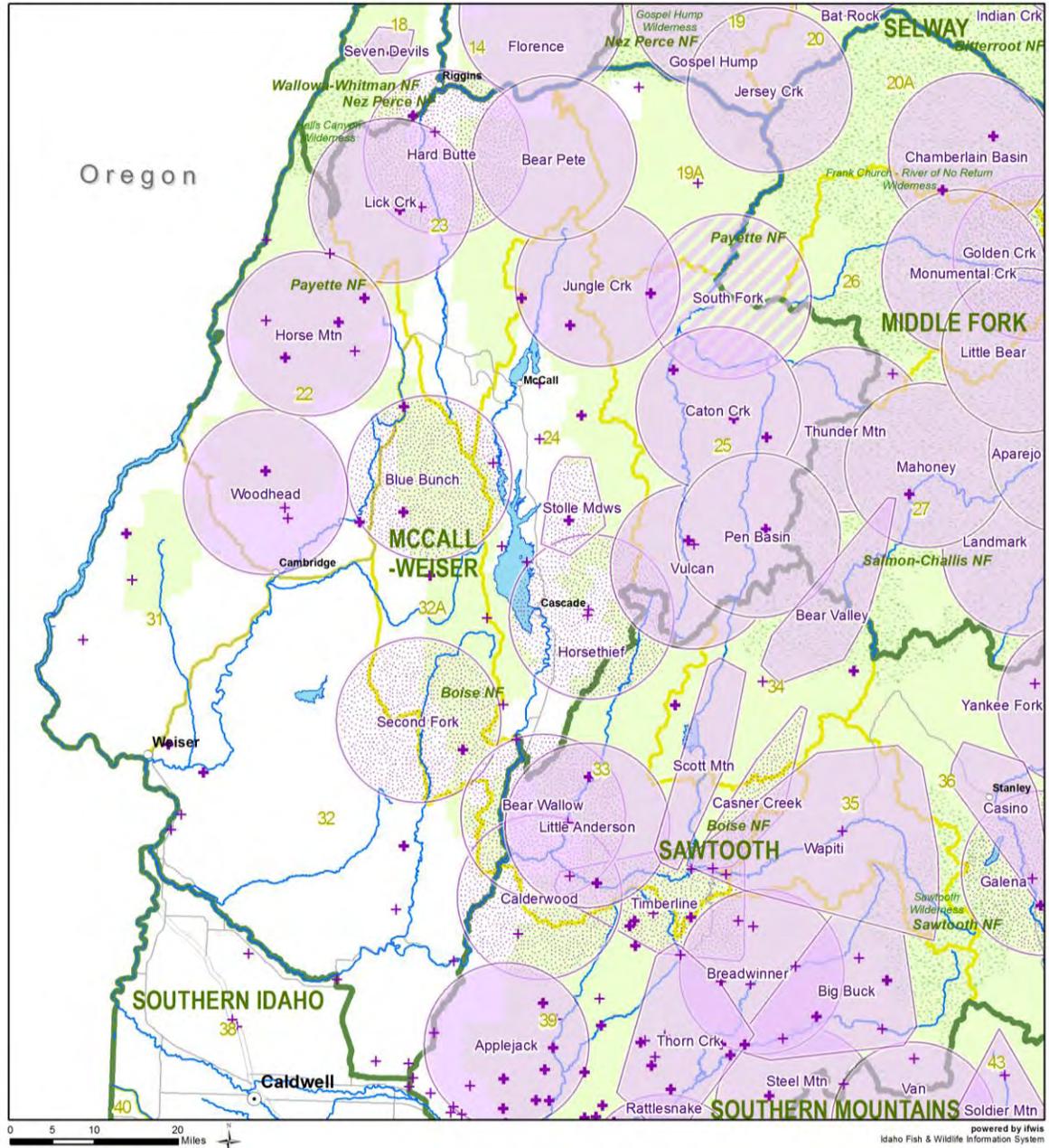
Monitoring Summary

The McCall-Weiser Zone was occupied by 9 documented packs and 2 other documented groups at the conclusion of 2013; five packs were no longer considered extant by the end of the year (Figure 16, Table 12). One suspected pack was attributed to this zone. One new pack (Horse Mountain) was documented in 2013 and retroactively counted towards 2012. Two packs were confirmed to have produced litters but did not qualify as breeding pairs; the reproductive status of 7 packs was unknown (Table 12). One wolf dispersed in 2013. Documented mortalities ($n = 47$) included harvest ($n = 35$), control (agency removal and legal take; $n = 11$), and other human causes ($n = 1$; Table 13). Five confirmed wolf-caused cattle losses occurred within the zone (Table 13). Forty-seven confirmed and five probable wolf-caused domestic sheep losses occurred within the zone. One dog was confirmed killed.

McCall - Weiser Wolf Activity

Documented, Suspected and Reported Locations

- | 2012-13 Known Locations ² | | 2013 Estimated Locations ³ | | 2013 Public Observations ⁴ | |
|--------------------------------------|-----------------|---------------------------------------|-----------------|---------------------------------------|--------------------------|
| | Documented Pack | | Documented Pack | | Single Wolf Sighted |
| | Suspected Pack | | Suspected Pack | | Multiple Wolves Observed |
| | Terminated Pack | | Terminated Pack | | |



Notes

- This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
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- Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
- 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

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Figure 16. Distribution of documented and suspected wolf packs in the McCall-Weiser Wolf Management Zone, 2013.

Table 12. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the McCall-Weiser Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Bear Pete	?	?	NO	0
Blue Bunch	0			
Caton Creek	7	?	NO	0
Hard Butte	0			
Horse Mountain	4	2(2)	NO	1
Horsethief	0			
Jungle Creek	?	?	NO	0
Lick Creek	?	?	NO	0
Pen Basin	?	?	NO	0
Second Fork	0			
Stolle Meadows	0			
Thunder Mountain	?	?	NO	0
Vulcan	5	2(2)	NO	0
Woodhead	4	?	NO	0
Subtotal	20	4(4)		1
Suspected Pack				
South Fork	?			
Subtotal	0			
Other Documented Group				
B585	2			
ID640	1			
Subtotal	3			
WMZ Total	23	4(4)		1

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 13.

^d 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...".

Table 13. Documented wolf mortality and wolf-caused depredations by GMU within the McCall-Weiser Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
19A	0	0	9	0	0	0	0	0	0
22	0	4	5	1	0	3	0(5)	0	0
23	0	0	4	0	0	0	0	0	0
24	0	7	3	0	0	1	47	1	0
25	0	0	12	0	0	0	0	0	0
31	0	0	1	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0
32A	0	0	1	0	0	1	0	0	0
WMZ Total	0	11	35	1	0	5	47(5)	1	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

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).

Monitoring Summary

The Middle Fork Zone was occupied by 7 documented wolf packs at the conclusion of 2013; one pack and 1 other documented group were no longer considered extant at the end of the year (Figure 17, Table 14). Two new packs (Cottonwood, Little Bear) were documented in 2013, one of which (Little Bear) was retroactively counted as a documented pack for 2012. Lack of radiocollared wolves in conjunction with the remote nature of this zone precluded efforts to conduct reproductive surveys; reproduction was verified for 3 packs based on the harvest of juvenile wolves, although none met breeding pair criteria (Table 14). No wolves were known to have dispersed in 2013. Documented mortalities ($n = 32$) were attributed to harvest ($n = 25$) and control (agency removal and legal take; $n = 7$; Table 15). This predominantly wilderness zone contains few domestic livestock and no losses were reported.

Middle Fork Wolf Activity

Documented, Suspected and Reported Locations¹

2012-13 Known Locations²

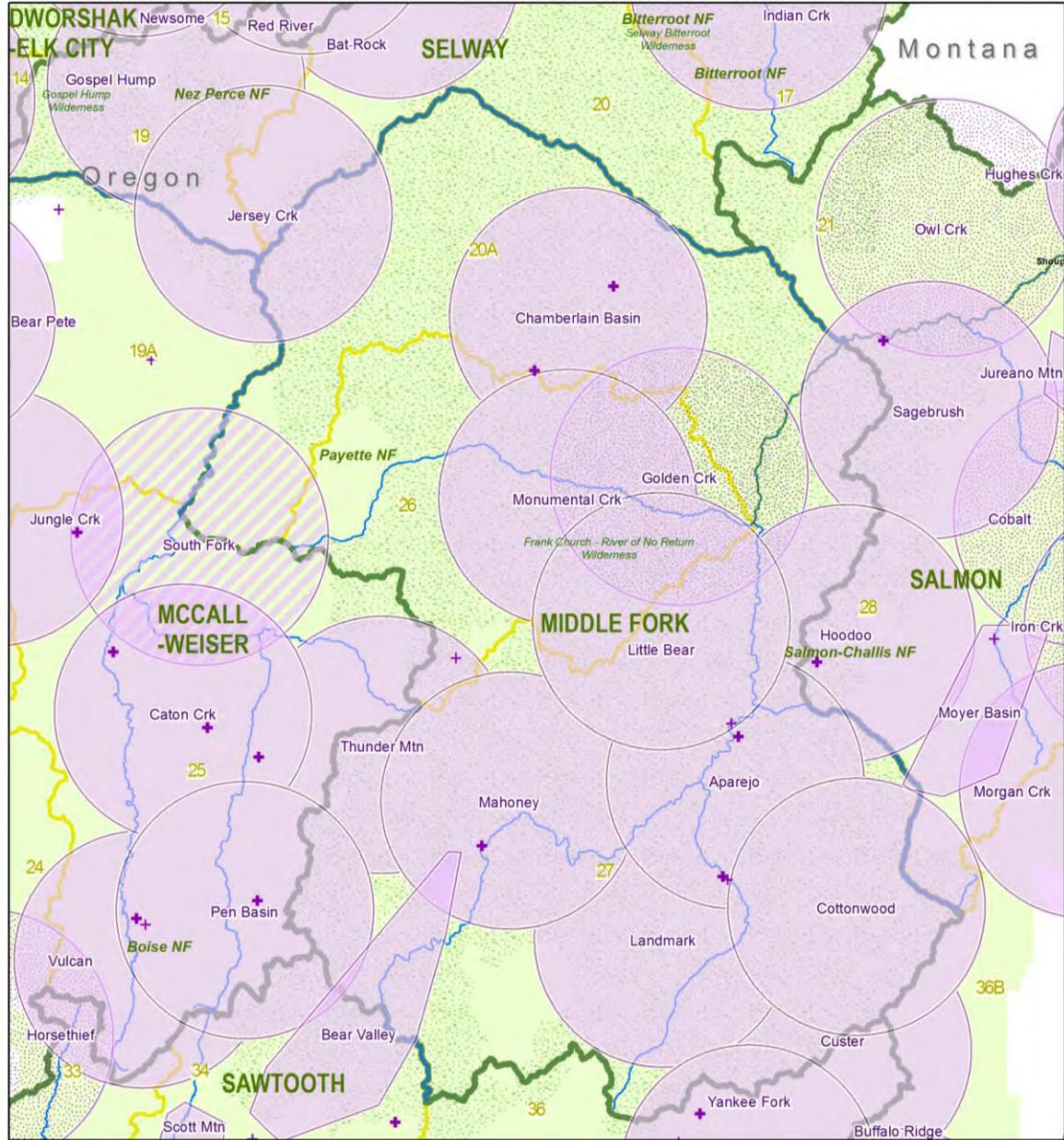
2013 Estimated Locations³

2013 Public Observations⁴

- Documented Pack
- Suspected Pack
- Terminated Pack

- Documented Pack
- Suspected Pack
- Terminated Pack

- Single Wolf Sighted
- Multiple Wolves Observed



Notes

1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animal locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.
3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

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Figure 17. Distribution of documented and suspected wolf packs in the Middle Fork Wolf Management Zone, 2013.

Table 14. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Middle Fork Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Aparejo	?	?	NO	0
Chamberlain Basin	9	?	NO	0
Cottonwood	?	3(3)	NO	0
Golden Creek	0	2(2)		
Landmark	?	?	NO	0
Little Bear	?	?	NO	0
Mahoney	?	1(1)	NO	0
Monumental Creek	?	?	NO	0
Subtotal	9	6(6)		0
Suspected Pack				
Subtotal	0			
Other Documented Group				
B534	0			
Subtotal	0			
WMZ Total	9	6(6)		0

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 15.

^d 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...".

Table 15. Documented wolf mortality and wolf-caused depredations by GMU within the Middle Fork Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
20A	0	0	3	0	0	0	0	0	0
26	0	6	0	0	0	0	0	0	0
27	0	1	22	0	0	0	0	0	0
WMZ Total	0	7	25	0	0	0	0	0	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

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 and bunchgrass vegetation. Land ownership is primarily public, with approximately 95% under USFS, Bureau of Land Management (BLM), or State ownership. Cattle ranching, livestock grazing, mining, timber harvesting, and recreation are the dominant human uses in this zone.

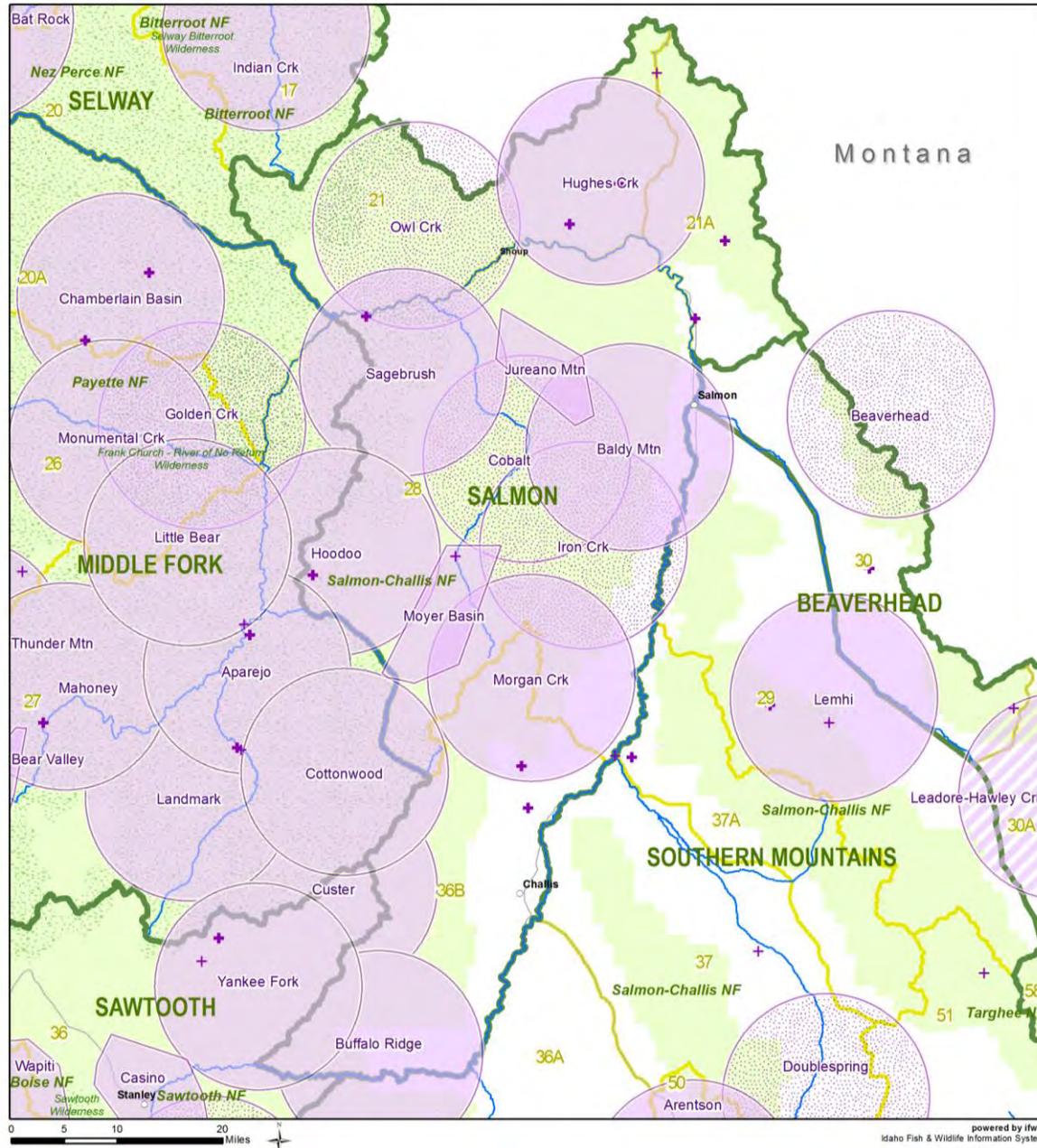
Monitoring Summary

The Salmon Zone was occupied by 8 documented packs (including 1 Idaho border pack) at the conclusion of 2013; 3 packs were no longer considered extant at the end of the year (Figure 18, Table 16). Five border packs reported for Montana were presumed to spend some time in this zone. One border pack previously attributed to Idaho (Pyramid) likely denned in Montana in 2013 and was counted towards the Montana population. Five packs were confirmed to have produced litters, three of which qualified as breeding pairs (Table 16). Field surveys indicated one pack did not reproduce, and the reproductive status of the remaining 2 packs was unknown. No wolves were known to have dispersed in 2013. All documented mortalities were attributed to harvest ($n = 15$; Table 17). Three confirmed and 1 probable wolf-caused cattle losses occurred in the zone (Table 17).

Salmon Wolf Activity

Documented, Suspected and Reported Locations¹

- | | | |
|--|---|---|
| 2012-13 Known Locations² | 2013 Estimated Locations³ | 2013 Public Observations⁴ |
| Documented Pack | Documented Pack | Single Wolf Sighted |
| Suspected Pack | Suspected Pack | Multiple Wolves Observed |
| Terminated Pack | Terminated Pack | |



Notes
 1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
 2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animal locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.

3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
 4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

Figure 18. Distribution of documented and suspected wolf packs in the Salmon Wolf Management Zone, 2013.

Table 16. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Salmon Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Alta (MT) ^e				
Baldy Mountain	?	?	NO	0
Buffalo Ridge	?	?	NO	0
Cobalt	0			
Hoodoo	?	0	NO	0
Hughes Creek (ID) ^e	7	5(1)	YES	0
Iron Creek	0			
Jureano Mountain	8	4	YES	0
Morgan Creek	5	3	YES	0
Moyer Basin	4	3	NO	0
Overwhich (MT) ^e				
Owl Creek	0			
Pyramid (MT) ^e				
Sagebrush	?	1(1)	NO	0
Sula (MT) ^e				
Trail Creek (MT) ^e				
Subtotal	24	16(2)		0
Suspected Pack				
Subtotal	0			
Other Documented Group				
Subtotal	0			
WMZ Total	24	16(2)		0

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 17.

^d 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...".

^e Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2013 Annual Report.

Table 17. Documented wolf mortality and wolf-caused depredations by GMU within the Salmon Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
21	0	0	3	0	0	0	0	0	0
21A	0	0	2	0	0	1	0	0	0
28	0	0	8	0	0	1	0	0	0
36B	0	0	2	0	0	1(1)	0	0	0
WMZ Total	0	0	15	0	0	3(1)	0	0	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

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

Background

The Sawtooth Zone is comprised of 2 elk management zones: Sawtooth and Boise River. 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 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).

Monitoring Summary

The Sawtooth Zone was occupied by 13 documented packs and 3 other documented groups at the conclusion of 2013; 6 packs and 2 other documented groups were considered no longer extant at the end of the year (Figure 19, Table 18). Eight packs were known to have produced litters (one of which was no longer extant at the end of the year), and 6 packs were counted as breeding pairs (Table 18). Field surveys indicated 2 packs did not reproduce (one of which was no longer extant by the end of the year), and the reproductive status of 5 packs was unknown. Six wolves dispersed from the packs from which they were originally captured. Documented mortalities ($n = 41$) included harvest ($n = 31$), control (agency removal and legal take; $n = 4$), other human ($n = 3$), and unknown causes ($n = 3$; Table 19). Three confirmed and 1 probable wolf-caused cattle losses occurred in this zone (Table 19). There were no confirmed or probable wolf-caused domestic sheep losses in this zone in 2013.

Sawtooth Wolf Activity

Documented, Suspected and Reported Locations¹

2012-13 Known Locations²

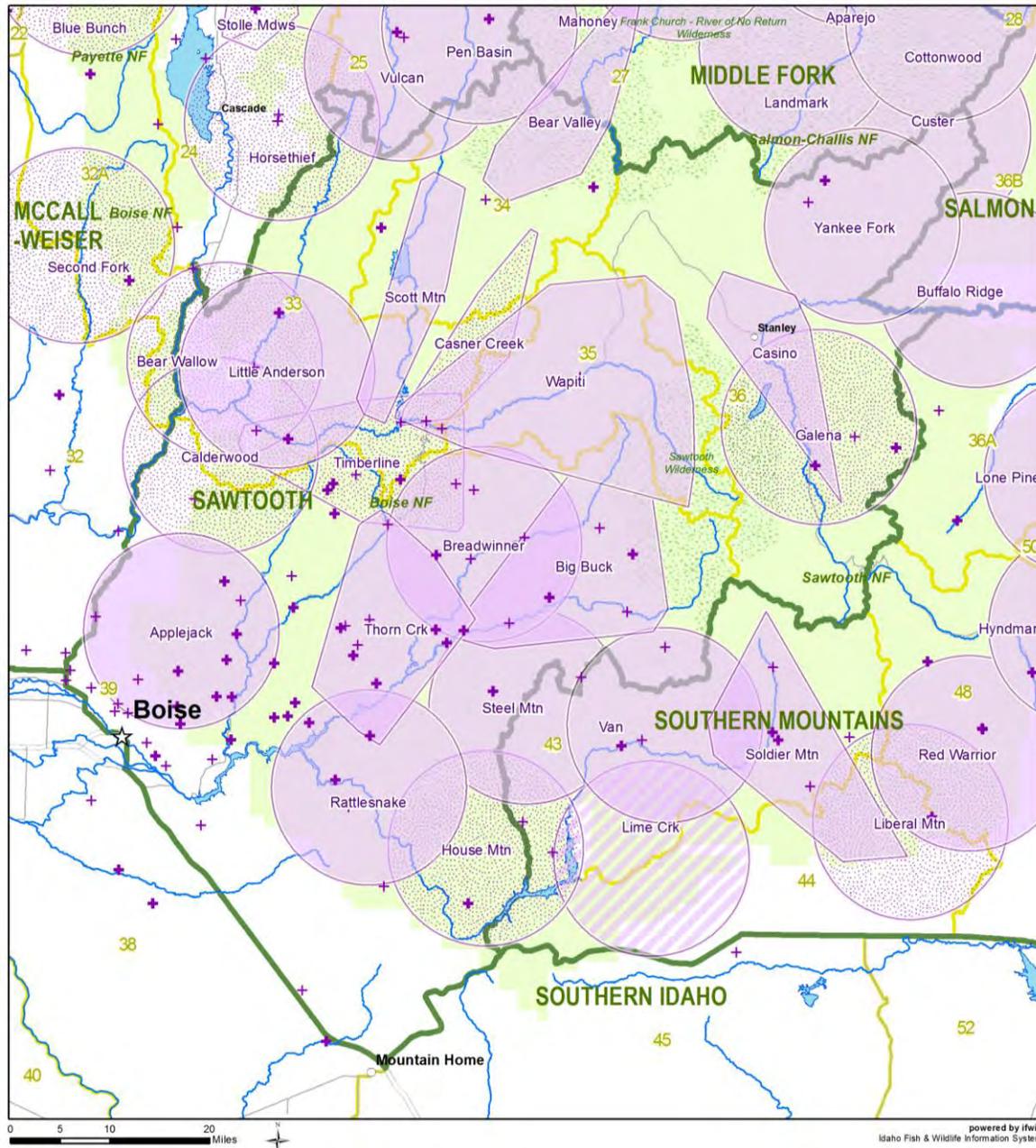
- Documented Pack
- Suspected Pack
- Terminated Pack

2013 Estimated Locations³

- Documented Pack
- Suspected Pack
- Terminated Pack

2013 Public Observations⁴

- Single Wolf Sighted
- Multiple Wolves Observed



Notes
 1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
 2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animal locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.

3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
 4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

Figure 19. Distribution of documented and suspected wolf packs in the Sawtooth Wolf Management Zone, 2013.

Table 18. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Sawtooth Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Applejack	4	?	NO	0
Bear Valley	2	0	NO	0
Bear Wallow	0			
Big Buck	4	5	YES	2
Breadwinner	?	?	NO	0
Calderwood	0			
Casino	5	5	YES	0
Casner Creek	0	0		2
Custer	4	3	YES	0
Galena	0			
House Mountain	0			
Little Anderson	4	?	NO	0
Rattlesnake	?	?	NO	0
Scott Mountain	4	2	YES	2
Steel Mountain	2	?	NO	0
Thorn Creek	7	5(3)	YES	0
Timberline	0	1		
Wapiti	4	5	YES	0
Yankee Fork	?	1(1)	NO	0
Subtotal	40	27(4)		6
Suspected Pack				
Subtotal	0			
Other Documented Group				
B533	0			
B591	1			
B595	2			
B596	2			
OR16/B594	0			
Subtotal	5			
WMZ Total	45	27(4)		6

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 19.

^d 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...".

Table 19. Documented wolf mortality and wolf-caused depredations by GMU within the Sawtooth Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
33	0	0	5	0	2	0	0	0	0
34	0	0	2	1	0	0	0	0	0
35	0	0	4	0	1	0	0	0	0
36	0	3	2	1	0	1	0	0	0
39	0	1	18	1	0	2(1)	0	0	0
WMZ Total	0	4	31	3	3	3(1)	0	0	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

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 zones: The Smoky Mountains, Pioneer, Lemhi, and Beaverhead zones. 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 include 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, BLM) within this zone. Cattle ranching, livestock grazing, and recreation were the dominant activities on the landscape within the Southern Mountains Zone.

Monitoring Summary

The Southern Mountains Zone was occupied by 9 documented packs at the conclusion of 2013; 2 packs were no longer considered extant at the end of the year (Figure 20, Table 20). One suspected pack was attributed to this zone. One new pack (Arentson) was documented in 2013. Eight packs were known to have produced litters, none of which qualified as a breeding pair in 2013 (Table 20); the reproductive status of 1 pack was unknown. No wolves were known to have dispersed in 2013. Documented mortalities ($n = 54$) included control (agency removal and legal take; $n = 30$), harvest ($n = 21$), and other human causes ($n = 3$; Table 21). Twenty-three confirmed and 1 probable wolf-caused cattle losses occurred in the zone (Table 21). One hundred forty-six confirmed and 4 probable wolf-caused domestic sheep losses occurred in the zone. One probable dog and 1 confirmed horse loss occurred in the zone.

Southern Mountains Wolf Activity

Documented, Suspected and Reported Locations¹

2012-13 Known Locations²

2013 Estimated Locations³

2013 Public Observations⁴

- Documented Pack
- Suspected Pack
- Terminated Pack

- Documented Pack
- Suspected Pack
- Terminated Pack

- Single Wolf Sighted
- Multiple Wolves Observed



Notes
 1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
 2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animals. Locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.

3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
 4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

Figure 20. Distribution of documented and suspected wolf packs in the Southern Mountains Wolf Management Zone, 2013

Table 20. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Southern Mountains Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Antelope Creek	?	7(3)	NO	0
Arentson	5	1(1)	NO	0
Doublespring	0			
Hyndman	4	1(1)	NO	0
Lemhi	?	1(1)	NO	0
Liberal Mountain	0			
Little Wood River	4	4(4)	NO	0
Lone Pine	4	2(1)	NO	0
Red Warrior	4	?	NO	0
Soldier Mountain	4	3(1)	NO	0
Van	3	4(3)	NO	0
Subtotal	28	23(15)		0
Suspected Pack				
Lime Creek	?			
Subtotal	0			
Other Documented Group				
Subtotal	0			
WMZ Total	28	23(15)		0

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 21.

^d 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...".

Table 21. Documented wolf mortality and wolf-caused depredations by GMU within the Southern Mountains Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
29	0	0	0	1	0	8	0	0	0
36A	0	1	2	0	0	1	0	0	1
37	0	0	0	0	0	2	2	0	0
37A	0	0	0	0	0	0	23	0	0
43	0	13	6	1	0	0	57(4)	0	0
44	0	1	2	0	0	0	1	0(1)	0
48	0	0	1	0	0	1	5	0	0
49	0	7	1	0	0	1(1)	58	0	0
50	0	8	9	1	0	10	0	0	0
51	0	0	0	0	0	0	0	0	0
WMZ Total	0	30	21	3	0	23(1)	146(4)	0(1)	1

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

BEAVERHEAD WOLF MANAGEMENT ZONE (GMUs 60, 60A, 61, 62, 62A, 64, 65, 67)

Background

The Beaverhead Zone is dominated by the Beaverhead Mountains, a sub-range of the Bitterroot Mountains. The Beaverhead Mountains are characterized by steep, rocky peaks intersected by numerous steep-gradient creek drainages. The northern portion of this zone is bounded to the south by the Lemhi River and its relatively flat, productive pastureland transitioning to lodgepole (*Pinus contorta*) forest and steep, mountainous terrain. The central and southern portions of the Beaverhead Zone are comprised of high elevation shrub-steppe habitat transitioning to lodgepole forest and mountainous terrain. Land ownership is primarily Federal (BLM and USFS; 85%). Dominant land use activities include livestock production and agriculture.

Monitoring Summary

The Beaverhead Zone was occupied by 2 documented Idaho border packs at the conclusion of 2013; one pack was no longer considered extant at the end of the year (Figure 21, Table 22). One suspected pack was attributed to this zone. Three border packs reported for Montana were presumed to spend some time in this zone. The reproductive status of both packs was unknown (Table 22). No wolves were known to have dispersed in 2013. Documented mortalities ($n = 3$) resulted from harvest ($n = 2$) and control (agency removal and legal take; $n = 1$; Table 23). One confirmed wolf-caused cattle loss occurred within the zone (Table 23).

Beaverhead Wolf Activity

Documented, Suspected and Reported Locations¹

2012-13 Known Locations²

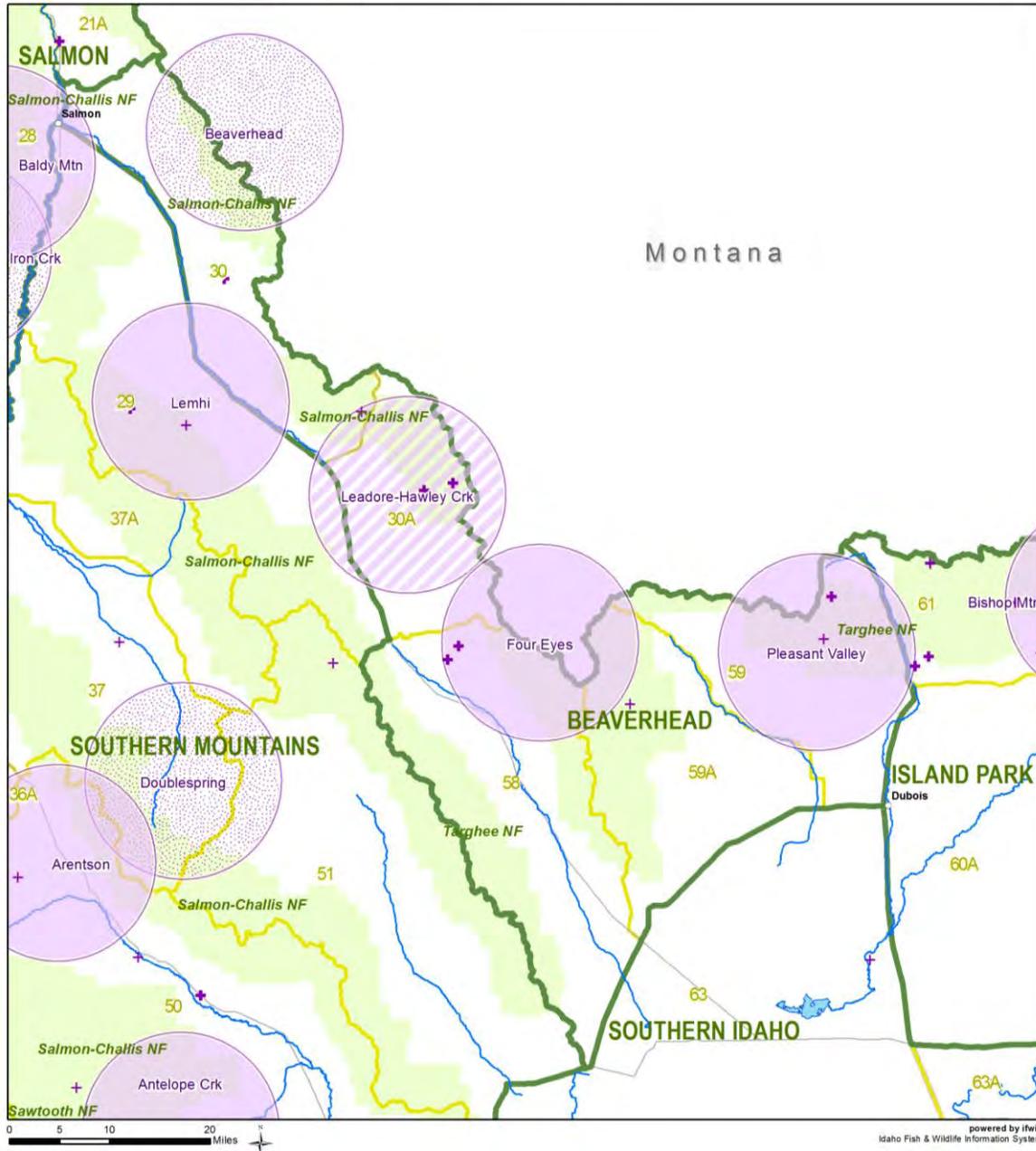
- Documented Pack
- Suspected Pack
- Terminated Pack

2013 Estimated Locations³

- Documented Pack
- Suspected Pack
- Terminated Pack

2013 Public Observations⁴

- Single Wolf Sighted
- Multiple Wolves Observed



Notes
 1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
 2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animals. Locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.

3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
 4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

Figure 21. Distribution of documented and suspected wolf packs in the Beaverhead Wolf Management Zone, 2013.

Table 22. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Beaverhead Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Beaverhead (ID) ^e	0			
Bloody Dick (MT) ^e				
Four Eyes (ID) ^e	?	?	NO	0
Jeff Davis (MT) ^e				
Pleasant Valley (ID) ^e	?	?	NO	0
Price Creek (MT) ^e				
Subtotal	0	0		0
Suspected Pack				
Leadore-Hawley Creek	?			
Subtotal	0			
Other Documented Group				
Subtotal	0			
WMZ Total	0	0		0

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 23.

^d 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...".

^e Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2013 Annual Report.

Table 23. Documented wolf mortality and wolf-caused depredations by GMU within the Beaverhead Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
30	0	0	0	0	0	0	0	0	0
30A	0	1	1	0	0	1	0	0	0
58	0	0	0	0	0	0	0	0	0
59	0	0	1	0	0	0	0	0	0
59A	0	0	0	0	0	0	0	0	0
WMZ Total	0	1	2	0	0	1	0	0	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

ISLAND PARK WOLF MANAGEMENT ZONE (GMUs 60, 60A, 61, 62, 62A, 64, 65, 67)

Background

Topography in the Island Park 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 one half being under federal/state ownership. Dominant land use activities include timber harvest, livestock production, and agriculture.

Monitoring Summary

The Island Park Zone was occupied by 6 documented packs (including 4 Idaho border packs) at the conclusion of 2013; one pack was no longer considered extant at the end of the year (Figure 22, Table 24). Two border packs reported for Wyoming were presumed to spend some time in this zone. Four packs were known to have produced litters, one of which qualified as a breeding pair for 2013 (Table 24). The reproductive status for 2 packs was unknown. No wolves were known to have dispersed in 2013. Documented mortalities ($n = 30$) resulted from control (agency removal and legal take; $n = 20$), harvest ($n = 9$), and other human causes ($n = 1$; Table 25). One probable wolf-caused cattle loss occurred in the zone (Table 25). Two hundred eight confirmed wolf-caused domestic sheep losses occurred in the zone. Three confirmed dog losses occurred in the zone.

Island Park Wolf Activity

Documented, Suspected and Reported Locations¹

2012-13 Known Locations²

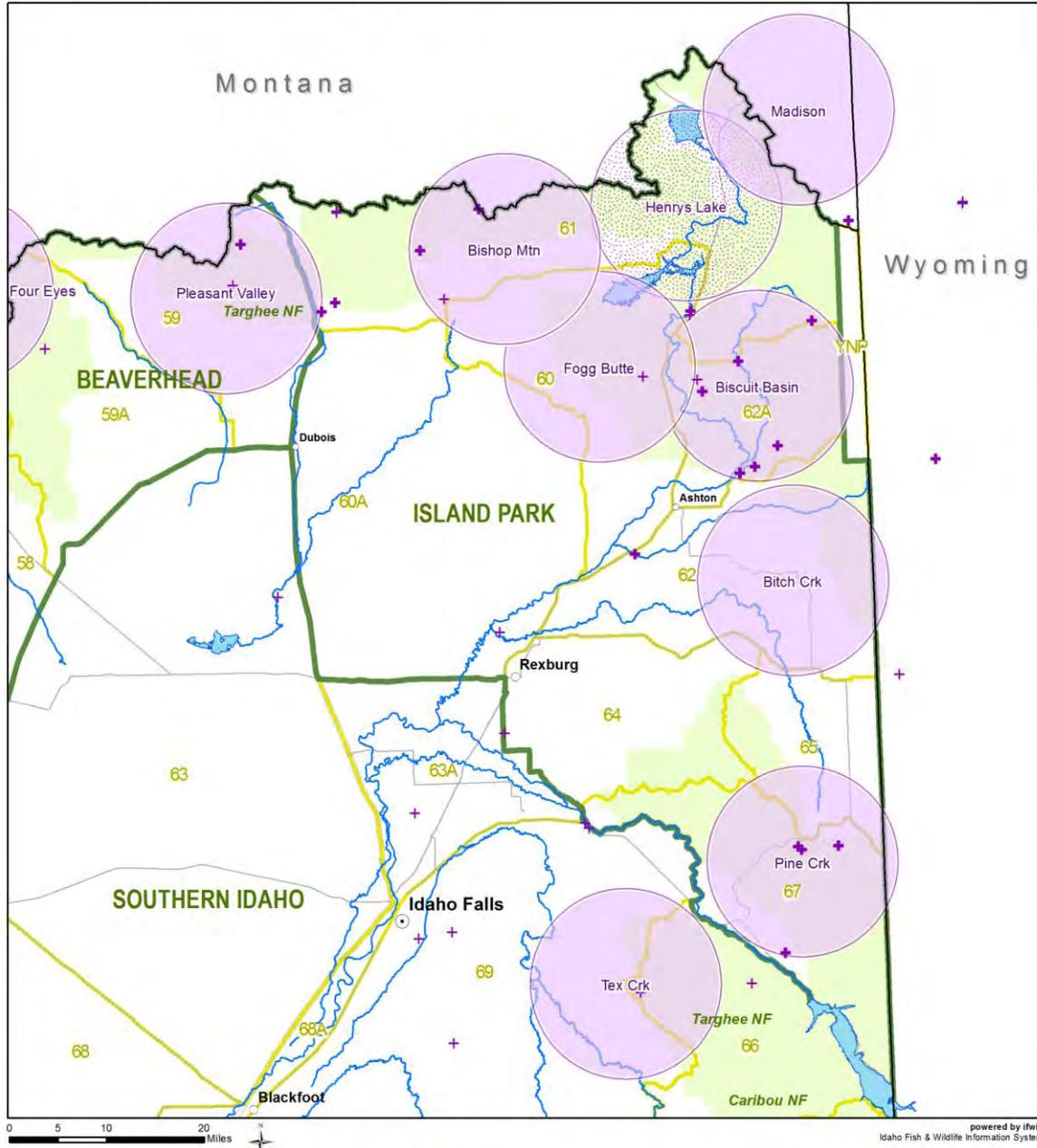
- Documented Pack
- Suspected Pack
- Terminated Pack

2013 Estimated Locations³

- Documented Pack
- Suspected Pack
- Terminated Pack

2013 Public Observations⁴

- Single Wolf Sighted
- Multiple Wolves Observed



Notes

1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animal locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.
3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

Idaho Fish & Wildlife Information System

Figure 22. Distribution of documented and suspected wolf packs in the Island Park Wolf Management Zone, 2013.

Table 24. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Island Park Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Bechler (WY) ^e				
Biscuit Basin	4	?	NO	0
Bishop Mountain (ID) ^e	6	1(1)	NO	0
Bitch Creek (ID) ^e	5	?	NO	0
Chagrin River (WY) ^e				
Fogg Butte	9	3(3)	NO	0
Henry's Lake (ID)^e	0			
Madison (ID) ^e	8	2	YES	0
Pine Creek (ID) ^e	4	11(10)	NO	0
Subtotal	36	17(14)		0
Suspected Pack				
Subtotal	0			
Other Documented Group				
Subtotal	0			
WMZ Total	36	17(14)		0

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 25.

^d 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...".

^e Border packs officially tallied to (STATE); territory known/likely shared with ID. Data on these packs can be found in Rocky Mountain Wolf Recovery 2013 Annual Report.

Table 25. Documented wolf mortality and wolf-caused depredations by GMU within the Island Park Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	Cattle	Sheep	Dogs	Other
60	0	2	0	0	0	0	0	0	0
60A	0	0	0	0	0	0	0	0	0
61	0	0	3	1	0	0(1)	0	0	0
62	0	0	3	0	0	0	0	0	0
62A	0	5	1	0	0	0	7	3	0
64	0	0	1	0	0	0	0	0	0
65	0	0	1	0	0	0	0	0	0
67	0	13	0	0	0	0	201	0	0
WMZ Total	0	20	9	1	0	0(1)	208	3	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

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

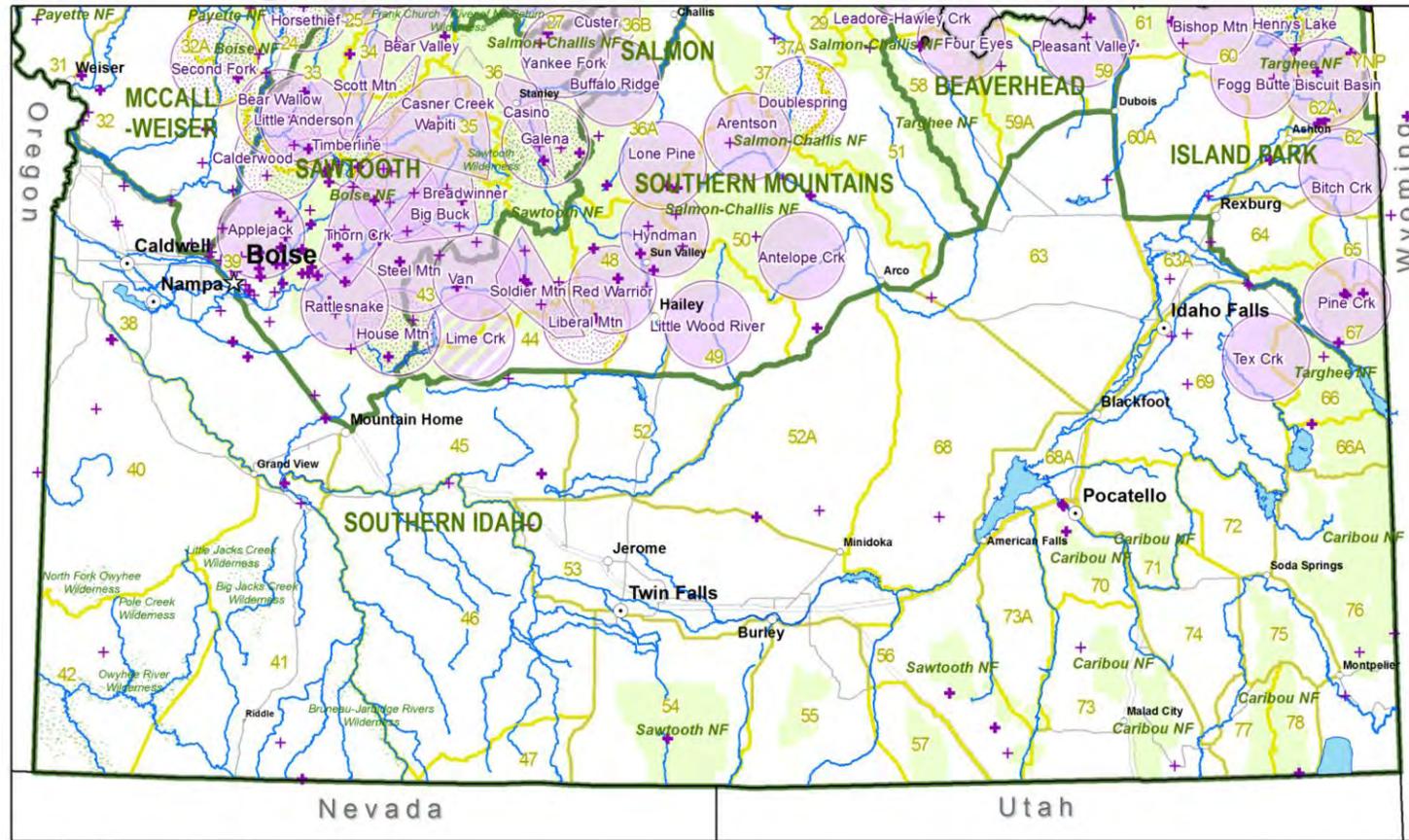
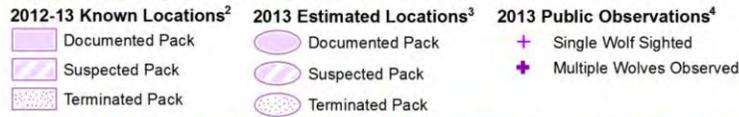
The Southern Idaho Zone includes the Snake River Plain, which comprises an area of heavy agricultural use with a metropolitan corridor along U.S. Interstate 84. The zone includes several mountain ranges spanning from the Owyhees in the west to the Portneufs in the east. These ranges might act as corridors 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.

Monitoring Summary

One documented pack occupied the Southern Idaho Zone in 2013 (Figure 23, Table 26). The reproductive status of this pack was unknown. No wolves were known to have dispersed in 2013. Documented mortalities were due to harvest ($n = 2$; Table 27). One probable wolf-caused cattle loss occurred in this zone (Table 27). No domestic sheep or domestic dog losses were documented in this zone in 2013.

Southern Idaho Wolf Activity

Documented, Suspected and Reported Locations



Notes

1. This map is provided for management purposes and should not be used for data analysis. Do not release these data to third parties without first contacting the Idaho Department of Fish and Game or the Nez Perce Tribe.
2. Known Locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services, the University of Montana Cooperative Wildlife Research Unit and the National Park Service. Known pack location polygons are minimum convex polygons created from the top 95% GPS, telemetry, research observations and wolf mortalities for collared and uncollared animal locations with the highest fixed kernel density estimation values. Data was used from 1/1/2012-12/31/2013 with outliers removed. If the pack did not have any observations in 2012, it is not depicted on this map.
3. Estimated Pack Activity determined by biologists from research locations, public observations, and incidental observations from 1/1/2012 - 12/31/2013. These are displayed as 9.8 mile radius circles consistent with pack territories in Idaho.
4. 2013 Public observations collected on the Idaho Fish and Game website and reviewed by staff biologists. Confirmed and possible observations from 1/1/2012 - 12/31/2013 are displayed.

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Figure 23. Distribution of documented and suspected wolf packs in the Southern Idaho Wolf Management Zone, 2013

Table 26. Minimum number of wolves detected, reproductive status, and known dispersal for documented and suspected wolf packs and other documented wolf groups within the Southern Idaho Wolf Management Zone, 2013.

Wolf group ^a	Min. no. wolves detected ^b	Reproductive status		Known dispersal
		Min. no. pups prod. (died) ^c	Breeding pair ^d	
Documented Pack				
Tex Creek	2	?	NO	0
Subtotal	2	0		0
Suspected Pack				
Subtotal	0			
Other Documented Group				
Subtotal	0			
WMZ Total	2	0		0

^a 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.).

^b Number of wolves detected by qualified agency personnel from monitoring flights or ground observations conducted during winter 2013/2014, documented late fall/early winter harvest mortality data, or verified observations; represents end of year (2013) data. Summing this row does not equate to number of wolves estimated to be present in the population.

^c Number in parentheses indicates known pup mortality; pup mortalities tallied in the appropriate row/column in Documented Mortality in Table 27.

^d 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...".

Table 27. Documented wolf mortality and wolf-caused depredations by GMU within the Southern Idaho Wolf Management Zone, 2013.

GMU	Documented mortality					Confirmed (probable) wolf-caused losses			
	Natural	Control ^a	Harvest	Other human ^b	Unk.	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)	0	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	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	0	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	1	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
73	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
WMZ Total	0	0	2	0	0	0(1)	0	0	0

^a Includes agency lethal control and legal or State-authorized take by landowners.

^b Includes all other human-related deaths exclusive of control and harvest.

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

From 1996 until 2005, the Idaho wolf population was estimated using a total count technique that was appropriate and feasible when wolf numbers were low and a substantial number of wolves were radiocollared. Since then, as the wolf population increased in size and distribution, we have used an estimation technique that is more feasible for a larger population that is more difficult to monitor. In 2006 we began using an estimation technique that has been peer reviewed by the University of Idaho and northern Rocky Mountain wolf managers. This technique relies on documented packs, mean or median pack size (mean or median of the sample pool of packs where pack counts are considered complete), number of wolves documented in small groups not considered packs, and an estimated percentage (12.5%; Mech and Boitani 2003, p. 170) of the population presumed to be lone wolves. The calculation uses a total count of wolves for those packs where we have a high degree of confidence that we observed all pack members, and applies the mean or median pack size to the remaining documented packs with incomplete counts. We use the statistical mean when number of packs with complete year-end counts is ≥ 20 , otherwise median pack size is applied. Lastly, a multiplication factor of 1.125 is applied to account for lone wolves not associated with packs or smaller groups. Although this technique is feasible given the types of data we are able to collect, no measure of precision is available for this estimate. Mathematically this technique is represented as:

$$(D + (P * M) + G) * L$$

Where for 2013:

- D = 113** The number of wolves counted in documented packs with a complete count.
P = 86 Documented packs without a complete count. Number of documented packs extant at the end of 2013 was 107, complete pack size counts were obtained for 21 of those, leaving 86 packs with presumed incomplete counts.
M = 5.4 Mean (or median) pack size.
G = 9 Total count of wolves in radiocollared groups of 2-3 wolves that were not considered packs under Idaho's definition.
L = 1.125 Lone wolf factor. A middle value from a range derived from 5 peer-reviewed studies and 4 non-reviewed papers from studies that occurred in North America (Mech and Boitani 2003).

Using this technique, the 2013 wolf population estimate is 659 wolves:

$$\begin{aligned} & (113 + (86 * 5.4) + 9) * 1.125 \\ & (113 + (464) + 9) * 1.125 \\ & 586 * 1.125 = 659 \end{aligned}$$

APPENDIX B. CONTACTS FOR IDAHO WOLF MANAGEMENT

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/public/wildlife/wolves/>

<https://fishandgame.idaho.gov/ifwis/observations/wolf/>

The Nez Perce Tribe's Idaho Wolf Recovery Program:

Telephone: (208) 634-1061

Mail: 14054 Burr Road
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

To report livestock depredations within Idaho:

USDA APHIS Wildlife Services State Director, Boise, ID
(866) 4US-DAWS or (208) 373-1630

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

Citizens Against Poaching (24hr) 1-800-632-5999 or any IDFG Office

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

USFWS Idaho State Office: (877) 661-1908