WOLF CONSERVATION AND MANAGEMENT

IN IDAHO

PROGRESS REPORT 2007

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EXECUTIVE SUMMARY

In January 2005, the U.S. Fish and Wildlife Service (USFWS) published and adopted new regulations (10(j) Rule) governing wolf management within the Nonessential Experimental Population Areas of Idaho south of Interstate Highway 90 (Endangered and Threatened Wildlife and Plants; Regulation for Nonessential Experimental Populations of the Western Distinct Population Segment of the Gray Wolf [50 CFR Part 17.84]). The new 10(j) Rule allowed states, with USFWS-approved wolf management plans, to petition the Secretary of Interior for certain wolf management authorities as an interim measure to delisting. In January 2006, the Secretary of Interior and the Governor of Idaho signed a Memorandum of Agreement (MOA), which transferred most wolf management responsibilities to the State of Idaho. The Idaho Department of Fish and Game (IDFG) is the primary state agency responsible for carrying out wolf management activities in Idaho. In April 2005, the Governor of Idaho and the Nez Perce Tribe (NPT) signed an MOA that outlined responsibilities between the State of Idaho and the NPT in regards to wolf conservation and management. The USFWS published a draft delisting rule in February 2007 and a final is scheduled for February 2008. This annual progress report is a cooperative effort between the IDFG and the NPT with contributions from U. S. Department of Agriculture Wildlife Services (WS) summarizing wolf activity and related management in Idaho during 2007.

During 2007, biologists documented 83 resident wolf packs in Idaho and all of those remained by the end of the year. A minimum of 489 wolves was observed, and the minimum population was estimated at 732 wolves (Appendix A). In addition, there were 13 documented border packs counted for Montana and Wyoming that established territories straddling the Idaho state boundary and likely spent some time in Idaho. Of the 59 packs known to have reproduced, 43 packs qualified as breeding pairs by the end of the year. These 59 reproductive packs produced a minimum 200 pups.

In Idaho, wolf packs ranged from the Canadian border south to Interstate Highway 84, and from the Oregon border east to the Montana and Wyoming borders. Dispersing wolves were occasionally reported in previously unoccupied areas. Seventeen previously unknown packs were documented for the first time during 2007. Three hundred eighty-two wolf observations were reported on IDFG's online website report form during 2007.

Seventy-eight wolves were confirmed to have died in Idaho in 2007. Of known mortalities, agency control and legal landowner take in response to wolf-livestock depredation accounted for 50 deaths, other human causes (including illegal take) 18 deaths, 8 unknown causes, and 2 wolves died of natural causes.

During the 2007 calendar year, 73 cattle, 185 sheep, and 14 dogs were classified by WS as confirmed or probable kills by wolves.

ACKNOWLEDGEMENTS

Wolf management in Idaho is a cooperative effort between the State of Idaho, NPT, WS, and the USFWS. The Governor's Office of Species Conservation directors Jim Caswell and Nate Fisher, and especially program advisor Jeff Allen provided insight, assistance, and oversight. The NPT's Executive Committee and Wildlife Program Director Keith Lawrence provided support and input. Mark Collinge, George Graves, Todd Grimm, Rick Williamson, and other WS field personnel helped resolve wolf depredations on livestock. Ed Bangs, Jeff Foss, Steve Duke, Robert Romero, Scott Bragonier, Scott Kabasa, and Scott Winkler with the USFWS provided support and assistance in wolf management responsibilities. Jim Unsworth and Brad Compton provided support and input and numerous strategy sessions along with making some wolf control calls. We would also like to thank all the Outfitters and Guides for their information and assistance in the backcountry.

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Cover photo shot by Laura Robinson during winter capture of alpha female B109 of the Warm Springs pack.

We especially recognize Mike Dorris, Rod Nielson, and John Ugland, McCall Aviation; Gene Mussler, Sawtooth Aviation; Jon Blakely and Jonas Doherty, AV Center; Sam Kocherhans and Joe Dory, WS; Pete Nelson, Middle Fork Aviation; Arnold Aviation; Steve Davidson, Selway Aviation; and Doug Gadwa, Joe Myers, and Brandon Startin, Inter-State Aviation for their expertise and flying safety.

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INTRODUCTION

In 1973, the gray wolf (*Canis lupus*) was listed under the Endangered Species Act (ESA) and protected as an endangered species in the continental U. S. The USFWS is mandated to recover federally listed species, including gray wolves. In the early 1980s, individual wolves, naturally dispersing from Canada, recolonized portions of northwest Montana near Glacier National Park. The first USFWS wolf recovery plan was developed through interagency cooperation in 1987 (USFWS 1987). The 1987 plan called for establishing 3 northern Rocky Mountain wolf recovery areas: northwest Montana (NWMT), the greater Yellowstone Area (GYA) predominantly in Wyoming, and central Idaho (CID). The plan called for natural recovery in northwestern Montana and reintroductions of wolves into Yellowstone National Park and central Idaho. Following the guidelines of the 1987 plan, the USFWS developed an Environmental Impact Statement (EIS) for the reintroduction of gray wolves into Yellowstone National Park and central Idaho (USFWS 1994). The EIS designated the GYA and CID recovery areas as Nonessential Experimental Population Areas and called for reintroductions of wolves as nonessential experimental populations, a lesser protective classification under section 10(j) of the ESA, to facilitate wolf management and conflict resolution. The Secretary of Interior approved the final EIS in 1994. In 1995 and 1996, 66 wolves were captured in Alberta and British Columbia, Canada, respectively; 31 of which were reintroduced into Yellowstone National Park and 35 into central Idaho.

Also in 1994, the USFWS developed a Final Rule, which provided management guidelines for recovering nonessential experimental wolf populations in the GYA and CID recovery areas. These guidelines differed somewhat from federal guidelines for fully endangered wolves in the NWMT recovery area. The state of Idaho contains portions of all 3 northern Rocky Mountain recovery areas (Figure 1). Wolves south of Interstate Highway 90 (I-90) are classified as nonessential experimental and are managed according to the provisions of the Final Rule. Wolves north of I-90 are classified and managed under a fully endangered ESA classification.

Efforts between the State of Idaho and the USFWS to develop a state wolf recovery plan were terminated in 1995 when the state legislature rejected a draft plan and prevented the IDFG from engaging in wolf recovery activities. In 1995, the NPT completed, and the USFWS approved, the "Wolf Recovery and Management Plan for Idaho", providing the mechanism for the USFWS to enter into a Cooperative Agreement with the NPT to recover and manage wolves in the CID recovery area. Wildlife Services (WS) also became partners with the USFWS to assist in investigating depredations and implementing wolf control actions in response to wolf-livestock conflicts.

In March 2002, the Idaho Legislature accepted and passed the Idaho Wolf Conservation and Management Plan (http://fishandgame.idaho.gov/cms/wildlife/wolves/wolf_plan.pdf). In April 2003, the Legislature passed House Bill 294, allowing the state to participate in wolf management, and IDFG to assist the Governor's Office of Species Conservation in implementing the State of Idaho's Wolf Conservation and Management Plan as well as participate in wolf management with the USFWS and the NPT.

In 2003 and 2004, IDFG participated in wolf management in cooperation with other governments and agencies. The IDFG also started to develop a statewide program in preparation for overseeing wolf management in Idaho. Wolves were monitored and managed under cooperative agreements and work plans between cooperating governments and agencies.

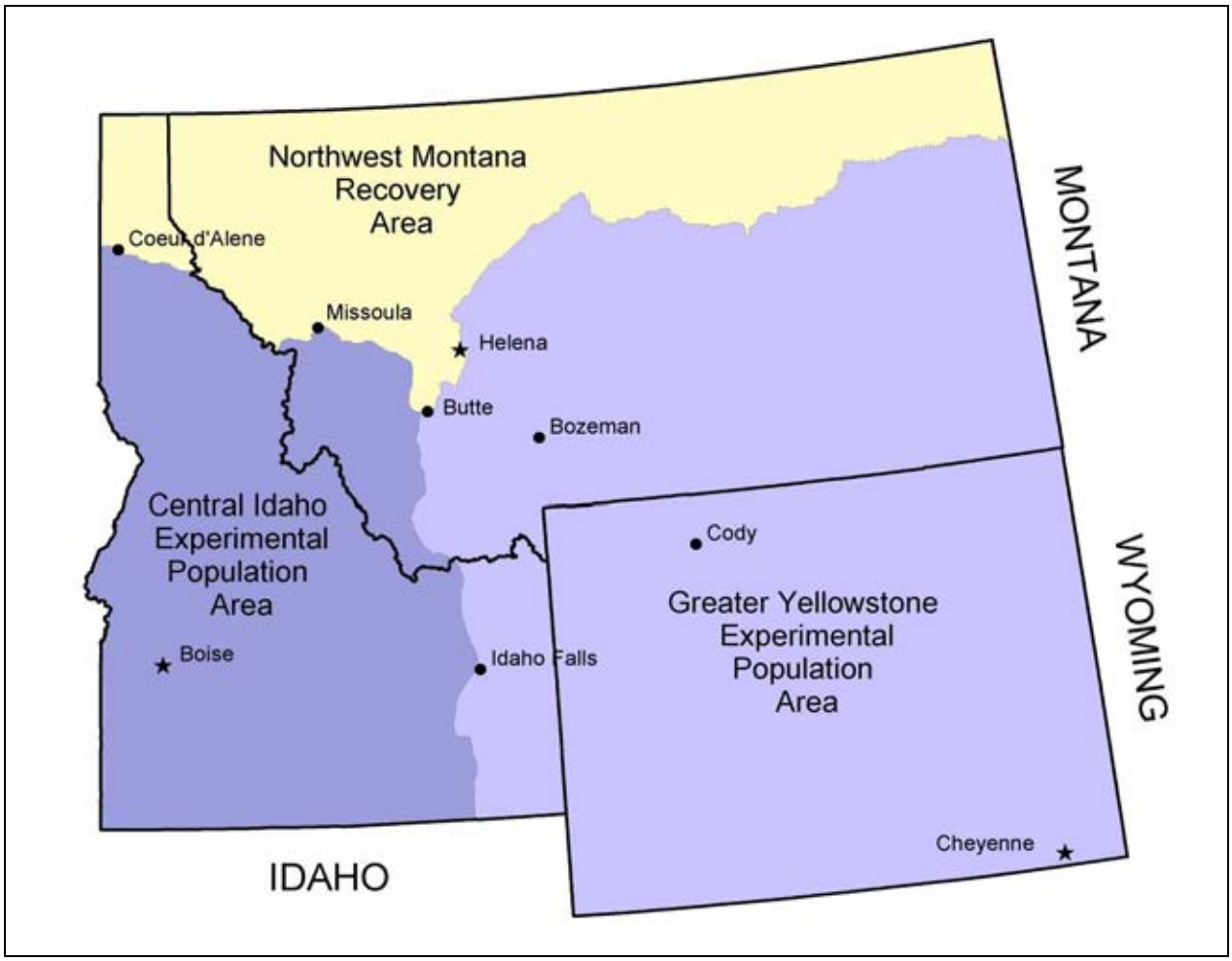


Figure 1. Recovery areas established by the U.S. Fish and Wildlife Service to restore gray wolf populations in the northern Rocky Mountains of Idaho, Montana, and Wyoming. Wolves are naturally recovering in the Northwest Montana Recovery Area, while wolves were reintroduced into the Central Idaho and Greater Yellowstone Experimental Population Areas.

The established northern Rocky Mountain population recovery goal of 30 breeding pairs of wolves well distributed throughout the 3 states of Idaho, Montana, and Wyoming for 3 consecutive years was achieved in December 2002 (USFWS et al. 2003). In 2003, the USFWS adopted regulations that reclassified, or down-listed, wolves from endangered to threatened in Idaho north of I-90; however, in early 2005, a federal court judge remanded these regulations. Consequently, wolves north of I-90 remained classified as fully endangered.

The ultimate goal of federal, state, and tribal governments is to recover and remove wolves from the protections of the ESA (delisting process). The USFWS initiated the delisting process when the northern Rocky Mountain wolf population met or exceeded established population goals, and the 3 states of Idaho, Montana, and Wyoming each had USFWS-approved wolf management plans and other legislation and regulations in place to ensure long-term conservation of wolves. By 2003, most federal delisting requirements had been met. Wolf population recovery goals were met in 2002 and the states of Idaho and Montana had USFWS-approved wolf management

plans and adequate state laws in place. Wyoming's wolf management plan, however, was not approved by the USFWS. In response, Wyoming sued the federal government requesting court approval of their plan. Consequently, delisting was delayed until Wyoming made USFWS-requested adjustments to its plan, which occurred in late 2007.

In response to this delay, in February 2005, the USFWS revised the Final Rule (10(j) Rule). The new 10(j) Rule (Endangered and Threatened Wildlife and Plants; Regulation for Nonessential Experimental Populations of the Western Distinct Population Segment of the Gray Wolf [50 CFR Part 17.84]) applies only within the Nonessential Experimental Population Areas for states with USFWS-approved wolf management plans; currently Idaho and Montana (Figure 2). The 10(j) Rule is an interim measure to provide Idaho and Montana with more local wolf management authorities until wolves can be delisted.

The 10(j) Rule allowed the states of Idaho and Montana to petition the Department of Interior to assume many day-to-day wolf management authorities. In January 2006, a MOA between the Secretary of Interior and the Governor of Idaho was signed that transferred most management authorities previously held by the USFWS to Idaho. The State of Idaho currently oversees daily management of wolves in Idaho and coordinates between agencies to fulfill obligations under the 10(j) Rule, the ESA, and the state wolf management plan. The USFWS developed a new 10j rule and filed it in the Federal Register in January 2008. It will take effect in February 2008. The primary changes in the rule allow: 1) the public to kill a wolf attacking their dog or livestock on public land, and 2) more flexibility for states or tribes to kill wolves that are impacting big game populations.

In May 2005, an MOA was signed between the NPT and State of Idaho that outlined wolf monitoring and management responsibilities shared between the 2 governments. Under the MOA, the NPT is responsible for monitoring wolves within IDFG Clearwater Region and McCall Subregion, while the State of Idaho is responsible for monitoring wolves across the rest of the state and management statewide.

In February 2007, the USFWS proposed a delisting rule that would provide 2 alternate tracks to delisting. If Wyoming's plan was made acceptable and court cases resolved, the 3 states would be delisted simultaneously. Alternatively, if Wyoming did not provide adequate regulatory mechanisms including an acceptable plan, the USFWS would delist wolves in Montana, Idaho and most of Wyoming, but leave them listed in northwest Wyoming surrounding Yellowstone and Grand Teton National Parks. Wyoming and USFWS agreed upon a final plan in late 2007 and delisting is proceeding with a posting date of February 28, 2008 anticipated. Litigation is also anticipated that may delay implementation of state plans.

In preparation for delisting, IDFG prepared a Wolf Population Management Plan which aims to stabilize the wolf population between 2005 and 2007 levels and is designed to manage conflicts between wolves and human interests. It also provides for wolf harvest opportunities and non-consumptive enjoyment of wolves. The final version of this plan is expected to be approved by the IDFG commission in March 2008.

This report fulfills annual USFWS requirements to summarize and report wolf status and management activities in Idaho. The goal of the State of Idaho, NPT, USFWS, and WS is to continue to maximize knowledge of wolves in Idaho while reducing conflicts and continuing toward eventual delisting of wolves in the northern Rocky Mountains.

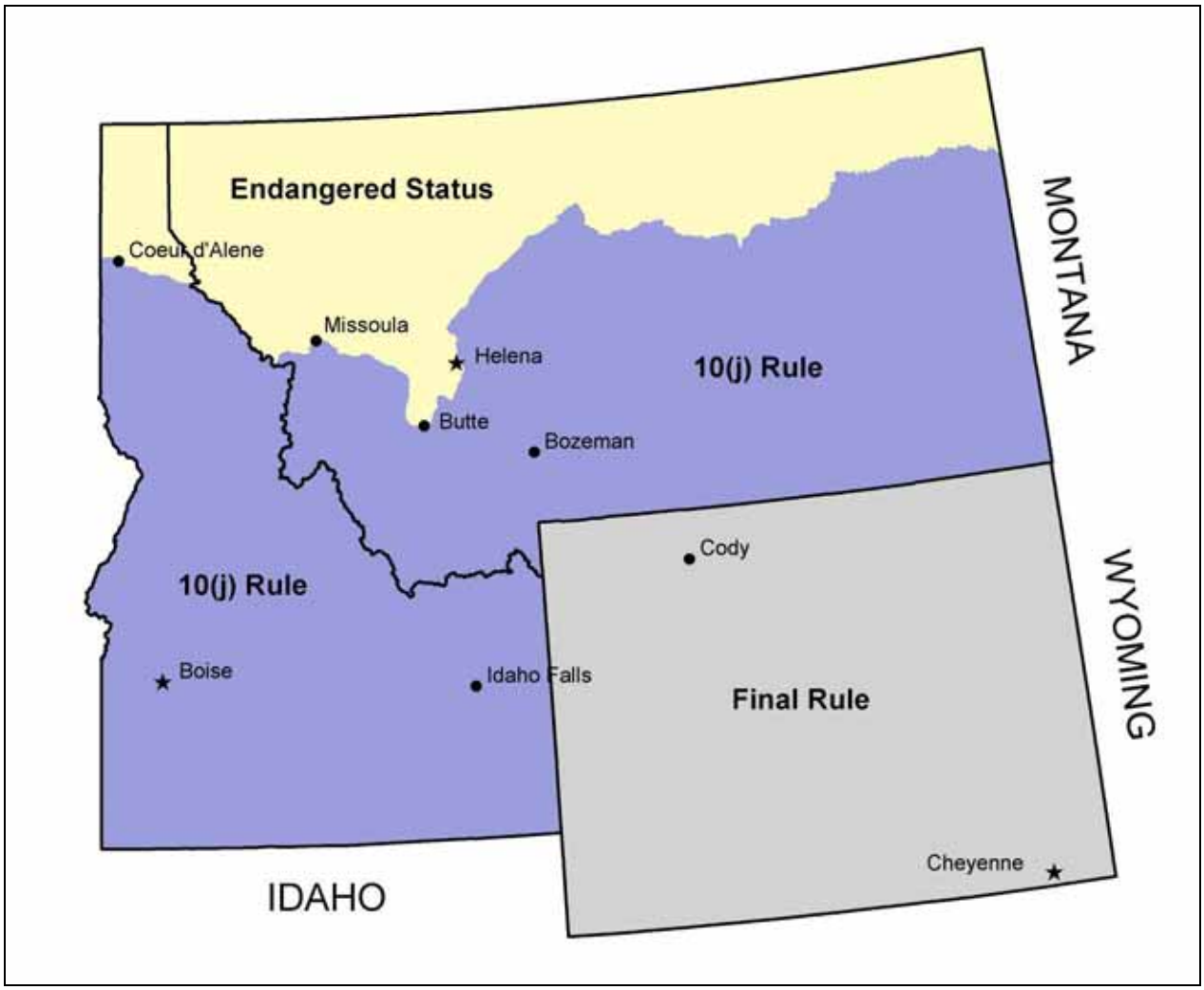


Figure 2. Management areas established by the U.S. Fish and Wildlife Service under the 10(j) Rule to restore gray wolf populations in the northern Rocky Mountains of Idaho, Montana, and Wyoming.

STATEWIDE SUMMARY

Previous progress reports by the NPT and the USFWS summarized wolf status within the CID recovery area including central Idaho and portions of southwestern Montana. However, this report summarizes the status of wolves and wolf management within the borders of the State of Idaho, including portions of all 3 northern Rocky Mountain recovery areas; endangered wolves in the NWMT recovery area north of I-90, and nonessential experimental wolves within Idaho portions of the CID and GYA recovery areas south of I-90.

Central Idaho, a vast, mountainous, and remote area, is one of the largest remaining undeveloped blocks of public land in the conterminous U. S. Central Idaho includes 3 contiguous Wilderness Areas, the Selway-Bitterroot, Frank Church River-of-No-Return, and Gospel Hump, encompassing almost 4 million acres (1.6 million ha), which represents the largest block of federally-designated Wilderness in the lower 48 states. Three major mountain chains and 2 large river systems create a very diverse landscape, ranging from sagebrush-covered flatlands in the

southern part of Idaho, to extremely rugged peaks in the central and northern parts. A moisture gradient also influences the habitats of both wolves and their prey, with wetter maritime climates in the north supporting western red cedar (*Thuja plicata*)-western hemlock (*Tsuga heterophylla*) vegetation types, grading into continental climates of Douglas-fir (*Pseudotsuga menziesii*) and Ponderosa pine (*Pinus ponderosa*) to the south. Elevations vary from 1,500 feet (457 m) to just over 12,000 feet (3,657 m). Annual precipitation varies from less than 8 inches (20 cm) at lower elevations to almost 100 inches (254 cm) at upper elevations.

Wolf Population Status

The Idaho wolf population has continued to expand in both numbers and packs since initial reintroductions in 1995 (Figures 3 and 4). By the end of 2007, 83 documented wolf packs remained extant in Idaho, including 17 newly documented packs, and a minimum of 489 wolves was observed or monitored by wolf program personnel. The minimum population estimate was 732 (Appendix A).

Distribution, Reproduction, and Population Growth

Wolves were well distributed in the state from the Canadian border, south to the Snake River Plain, and east to the Montana and Wyoming borders (Figure 5). Of the 83 documented packs during 2007, territories of all were predominantly on U.S. Forest Service (USFS) public lands.

Of 83 documented packs, a minimum of 59 produced litters and 43 qualified as breeding pairs (Table 1). A minimum of 200 wolf pups was documented in 2007. Wolf pup counts were conservative estimates because not all pups were observed from packs that were monitored, and some documented packs were not visited. Minimum documented litter sizes ranged from 1-8 pups. Average minimum litter size for those packs where counts were believed complete (n = 35) was 4.1 pups per litter. Ten new breeding pairs were documented and the reproductive status of 24 documented packs was either not verified or believed to be non-reproductive during 2007. Many areas typically visited to count pups were not available to field crews due to extensive forest fires and subsequent area closures this year.

The estimated wolf population increased 9% between 2006 (n = 673) and 2007 (n = 732) (Fig. 3). The social carrying capacity for wolves will likely be below the biological carrying capacity as wolves are managed in concert with other wildlife values, livestock concerns, and management objectives. Ultimately the citizens of Idaho, not habitat, will determine the number of wolves that will persist in the state.

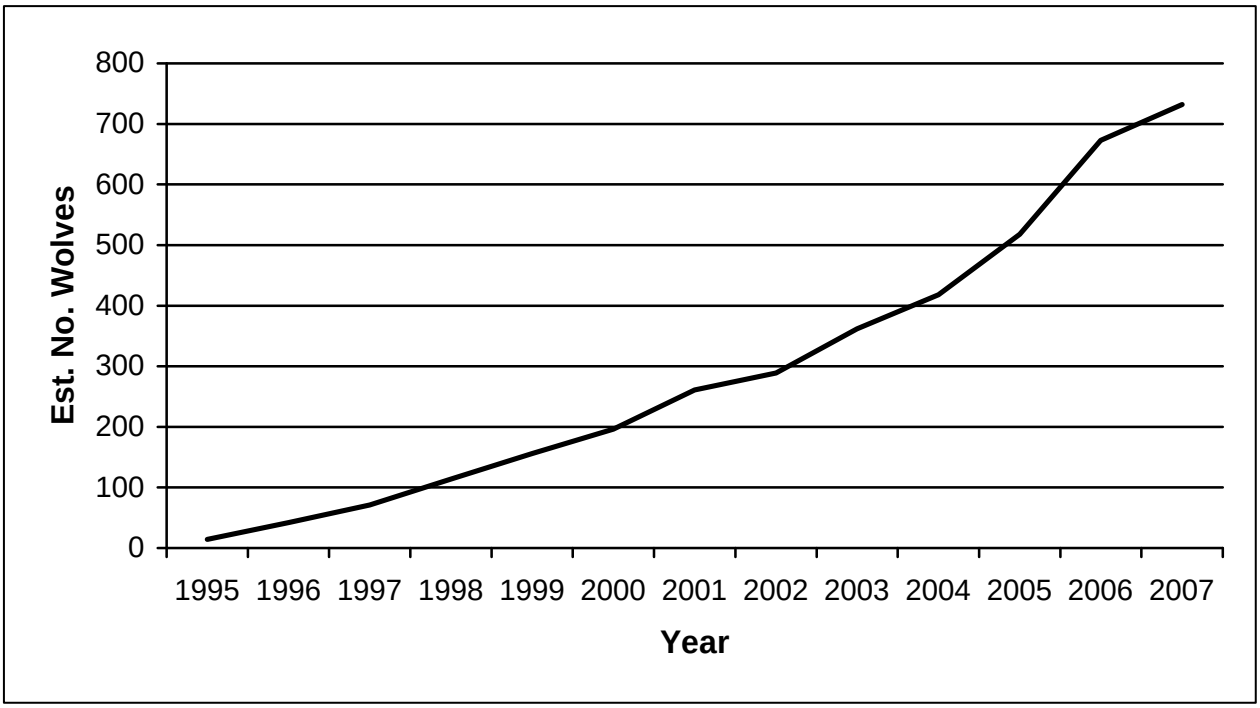


Figure 3. Estimated number of wolves in Idaho, 1995-2007. Annual numbers were based on best information available and were retroactively updated as new information became available.

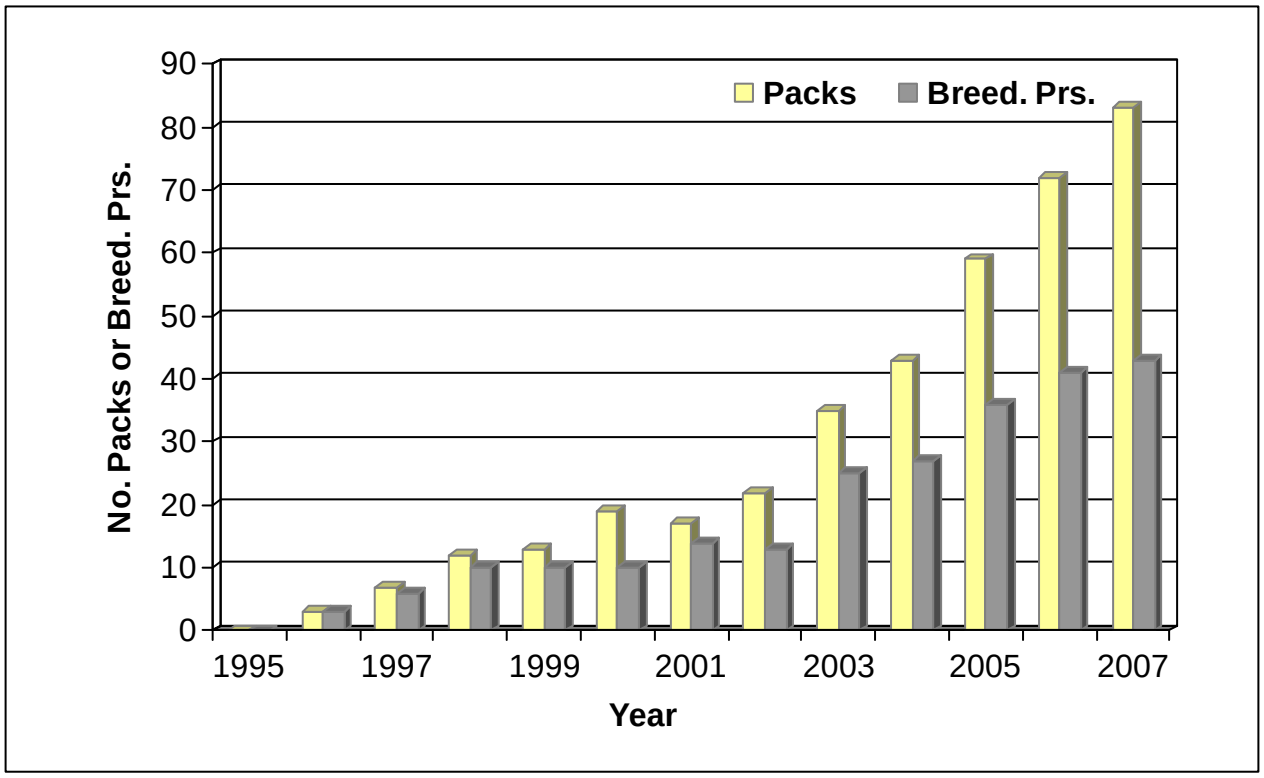


Figure 4. Number of documented wolf packs and breeding pairs in Idaho, 1995-2007. Annual numbers were based on best information available and were retroactively updated as new information became available.

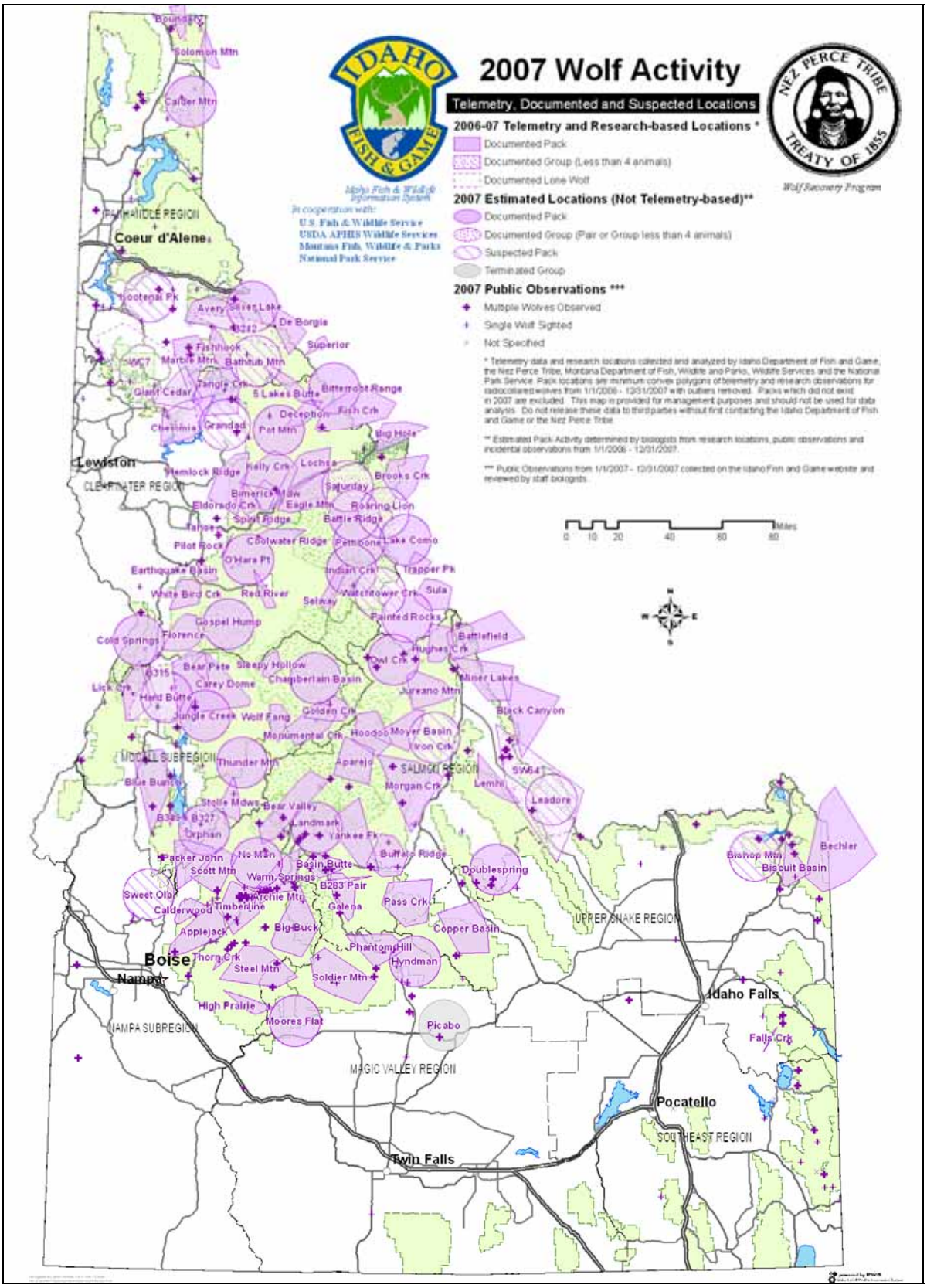


Figure 5. Distribution of documented and suspected wolf packs, other documented groups, and public wolf reports in Idaho, 2007.

Table 1. Number of wolves observed, documented packs, and other documented wolf groups; reproductive status; mortality; dispersal; monitoring status; and wolf-caused livestock depredations within Idaho Department of Fish and Game management regions, 2007.

	Management Region								
	Panhandle	Clearwater	McCall	Nampa	Magic Valley	Southeast	Upper Snake	Salmon	Total
Minimum number wolves detected[a]	37	148	84	85	9	0	10	116	489
Documented packs									
No. packs beginning of year[b]	8	26	14	13	4	0	3	15	83
No. packs removed[b]	0	0	0	0	0	0	0	0	0
No. packs end of year	8	26	14	13	4	0	3	15	83
Other documented groups[c]									
No. other groups beginning of year[c]	3	5	4	1	1	0	1	6	21
No. other groups removed[c]	0	0	0	0	1	0	0	1	2
No. other groups end of year	3	5	4	1	0	0	1	5	19
Reproductive status									
Minimum no. pups produced	5(1)	72	40	32	9(5)	0	3	39(1)	200(7)
No. reproductive packs	4	19	8	13	2	0	2	11	59
No. breeding pairs[d]	1	17	7	8	1	0	1	8	43
Documented mortalities									
Natural	0	2	0	0	0	0	0	0	2
Control[e]	0	3	10	5	12	0	8	12	50
Other human-caused[f]	3	5	2	1	0	0	1	6	18
Unknown	2	4	1	0	0	0	1	0	8
Known dispersal	2	0	0	2	0	0	0	1	5
Monitoring status									
Active radiocollars	7	30	14	13	3	0	3	16	86
No. wolf captures[g]	2	16	6	10	3	0	2	11	50
No. wolves missing[h]	1	2	0	2	1	0	0	5	11
Confirmed (probable) wolf-caused livestock losses									
Cattle	0	1(2)	8(2)	3	9(4)	0	14(5)	18(7)	53(20)
Sheep	0	0	60(3)	56(5)	41(7)	0	2	11	170(15)
Dogs	0	0	4(3)	(2)	3	0	1(1)	0	8(6)

[a] Number of wolves observed by wolf program personnel in 2007. Sum of this column does not equate to number of wolves estimated to be present in the population.

[b] Does not include documented packs removed due to lack of verified evidence for the preceding 2 years. Includes documented border packs tallied for Idaho.

[c] Other documented wolf groups include suspected packs and known and suspected mated pairs; verified groups of wolves that do not meet the definition of a documented pack.

[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] Includes agency lethal control and legal take by landowners.

[f] Includes all other human-related deaths.

[g] Includes wolves captured for monitoring purposes during 2007. Most, but not all, were radiocollared.

[h] Radiocollared wolves that became missing in 2007.

Mortality

Seventy-eight documented wolf mortalities were recorded in 2007 (Table 1). Sixty-eight of the confirmed mortalities were human caused, eight were unknown, and two were natural. Of 68 confirmed human-caused mortalities, 43 wolves were controlled for livestock depredations by WS, nine were illegally taken, nine were from other human causes, and seven were legally taken (shot by landowners while harassing or attacking livestock). These figures are underestimates of the true amount of overall mortality occurring within the wolf population, as documenting mortalities of uncollared wolves that are not controlled by agencies is difficult. Only 2 wolf deaths due to natural causes were recorded, another indication that mortality was underestimated, as more individuals likely succumbed to non human-related factors. There were no means to estimate deaths of pups that occurred prior to our visits.

More wolves (n = 43) were lethally controlled by WS in Idaho in 2007 than in any previous year. This mortality stemmed from removals in 15 packs: the Buffalo Ridge pack (2 wolves) near Clayton, Idaho; the Carey Dome pack (2 wolves) north of McCall; the Copper Basin pack (6 wolves) northwest of Mackay, Idaho; the Falls Creek pack (1 wolf); the Galena pack (1 wolf) near Stanley, Idaho; the Hard Butte pack (1 wolf) northeast of New Meadows, Idaho; the High Prairie pack (2 wolves) near Prairie, Idaho; the Jungle Creek pack (4 wolves) north of McCall, Idaho; the Jureano Mountain pack (3 wolves) west of Salmon, Idaho; the Lemhi pack (1 wolf) northwest of Leadore, Idaho; the Moores Flat pack (9 wolves) south of Pine, Idaho; the Morgan Creek pack (2 wolves) northwest of Challis, Idaho; the Packer John pack (1 wolf) east of Smith's Ferry, Idaho; the Pilot Rock pack (1 wolf) east of Clearwater, Idaho; and the Steel Mountain pack (2 wolves) near Trinity Lakes, Idaho. An additional 5 wolves were lethally removed from paired or unknown groups of wolves. Finally, 7 wolves were taken in the act of attacking livestock on private property by landowners under the 10(j) Rule.

Livestock and Dog Mortalities

During 2007, WS conducted 127 depredation investigations involving reported wolf-killed livestock and dogs. Of those, 86 (68%) involved confirmed wolf depredations, 21 (17%) involved probable wolf depredations, 17 (13%) were possible/unknown wolf depredations, and 3 (2%) were due to causes other than wolves. During the calendar year, WS reported 73 cattle, 185 sheep, and 14 dogs that were classified as confirmed or probable wolf kills (Table 1). Non-lethal techniques were used where appropriate to reduce wolf-livestock conflicts.

Law Enforcement

During 2007, USFWS Special Agents and IDFG Conservation Officers cooperatively investigated and reported 38 incidents of known or suspected wolf mortalities. Of the 38 incidents investigated, 9 were illegally killed, 8 were legally killed, 1 died of natural causes, 5 from other human causes, and the cause of death for 9 was unknown. For the remaining 6 incidents, either a carcass could not be found or the report or incident was not wolf-related. The number of investigations detailed here represents a minimum, as some cases were still pending or undisclosed for investigative purposes and not reported in this text.

Research

Agencies continued to coordinate and support scientific research assisting in long-term wolf conservation and management.

Statewide Elk and Mule Deer Ecology Study

During 2007, the IDFG continued its effort to measure the effects of wolf predation, habitat condition, and forage nutrition on elk and mule deer populations across Idaho. Goals were met to radiocollar adult female elk and mule deer, 6-month-old elk calves and deer fawns, and newborn elk calves and deer fawns. Action is on-going to meet research objectives which include 1) determine survival, cause-specific mortality, pregnancy rates, and body condition for radiocollared animals; 2) monitor wolf distribution and abundance within project areas; 3) develop habitat condition and trend maps for Idaho; and 4) manipulate predator populations in project areas and monitor ungulate population responses. This research is providing contemporary estimates of non-hunting mortality, survival, and productivity of elk and deer populations for determining appropriate harvest levels. Further, this research will help identify and evaluate specific predator and habitat management actions necessary to achieve ungulate population objectives.

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

Gray wolf recovery efforts in the northern Rocky Mountains (Idaho, Montana, and Wyoming) have met with much success, as all 3 states support wolf populations. Monitoring and estimating recovering wolf populations in the northern Rocky Mountains has, to date, relied on time-intensive and expensive radiotelemetry techniques. Although this approach worked well in Idaho with initial small population sizes, these techniques are no longer appropriate or cost-effective given the current, much larger recovered population size and nearly statewide distribution.

The NPT, University of Montana Cooperative Wildlife Research Unit, USFWS, IDFG, and the University of Idaho are collaborating on a multi-year research effort to develop less intensive and more cost-effective approaches for estimating wolf population numbers across the varied landscapes of Idaho. Primary funding for this effort was provided by USFWS through their Tribal Wildlife Grants Program. A 3.5-year research effort will develop standardized wolf monitoring protocols for estimating wolf population parameters appropriate for meeting post-delisting monitoring and management needs, help implement wolf management plans, address wolf management goals and objectives, and ensure long-term conservation and management of the species.

Research began in earnest in 2007 by mailing a hunter survey to 2,000 hunters across 4 study areas in Idaho. In the summer of 2007, field technicians conducted scat surveys at 480 sites in the 4 study areas and collected over 250 genetic samples without the aid of radiotelemetry. Genetic samples are currently being analyzed by the University of Idaho. In addition, project researchers have invented an automated remote sensing tool that broadcasts a howl, records responses, and then shuts down until the next scheduled broadcast. This remote sensing tool can be particularly useful for detecting wolves in roadless areas and will be tested on wolf packs in summer 2008. Data obtained from each of these methods are designed to be incorporated into a

statistical model (occupancy model) that will provide the framework for statewide population monitoring. Initial results from an occupancy model demonstrated promise for using this model to estimate wolf pack abundance. In part, due to these encouraging results, Montana Fish, Wildlife and Parks (MTFWP) is funding a graduate study to apply a similar occupancy model approach to use for wolf population monitoring in Montana.

Standardized monitoring protocols will be important in satisfying the USFWS' 5-year post-delisting monitoring requirements and will be crucial to ensure sustainability of the population through effective post-delisting conservation and management of wolves. Our results should be useful to other states developing monitoring protocols for wolves.

Outreach

Program personnel presented 46 information and education programs to a minimum of 1,876 people. Audiences included school students, agency personnel, livestock associations, community groups, sportsmen and outfitters, and legislators. In addition to organized presentations, program personnel talked to numerous members of the public via telephone, email, and in person. Also, news articles were often released by IDFG summarizing wolf-related livestock mortalities, as well as wolf mortalities and other noteworthy items about wolves on a weekly basis. Program personnel talked with reporters from across Idaho and the nation regularly. Wolves continued to be an interesting topic for the public and television, radio, and print media contacted the program leaders often to obtain wolf information and agency perspective. Thus, thousands more people were contacted regularly by program personnel about wolves through radio, television, and print media.

The IDFG online wolf reporting system provided an opportunity for the public and professionals to record wolf observations in Idaho. During 2007, 382 wolf observations were reported on the web site. The online reporting system is a tool which assists biologists in identifying areas of possible wolf activity and allows the public a means to communicate wolf concerns to the appropriate agency.

The Wolf Population Management Plan was submitted for public comment in December. At least 1 open house was held in each IDFG administrative region during November and December 2007, ten in all; 452 citizens listened to presentations and provided input on the plan. The public comment period that ended 31 December 2007 drew 1,287 comments from groups and individuals which were analyzed for content and opinion.

REGIONAL SUMMARIES

Panhandle Region

Wolves found north of I-90 in this region are part of the NWMT Recovery Area and are classified as endangered. Wolves south of I-90 along the southern boundary of this region are within the CID recovery area and are classified as nonessential experimental animals.

There were 5 documented resident, 2 suspected resident, and 6 documented border packs (three tallied for Idaho and three tallied for Montana) in the Panhandle Region in 2007 (Figure 6; Table 2). Four of the 8 documented Idaho packs (Avery, Calder Mountain, Fishhook, and Marble Mountain) produced litters, but only the Fishhook pack qualified as breeding pair. Litter

production and breeding pair estimates were minimums as manpower and field season timing were insufficient to adequately survey all known Panhandle Region packs. The Calder Mountain and Solomon Mountain border packs shared time between Idaho and Montana, and were counted as Idaho packs, while the De Borgia, Silver Lake, and Superior packs were counted by Montana. The Boundary pack moved between Idaho and Canada.

Numerous observations of wolves or wolf sign have been reported in areas of the Panhandle Region where known wolf packs have not been documented. Reports indicated the recurring presence of wolves in the Coeur d'Alene Mountains, the eastern (near Priest Lake) and western (Pack River & southern Purcell Mountain ranges) portions of Big Game Management Unit 1. Observation reports have been received from additional areas of the Panhandle Region though not in a recurring fashion that would lead investigators to believe the persistent presence of wolves. Future monitoring will be conducted to determine the status of wolf activity in these areas of the Panhandle Region.

No documented or probable wolf-caused livestock losses occurred, although 1 domestic calf was confirmed to have been injured.

Law Enforcement Summary

Conservation Officers investigated or responded to 7 reports involving wolves. The carcasses of 2 dead wolves were recovered for which the causes of death were not determined. A road-killed wolf was recovered from I-90 approximately 3 miles (5 km) east of the city of Wallace, Idaho, and another reported road-killed wolf turned out to be a domestic dog. Regional IDFG staff recovered the radio-collars of 2 wolves that appeared to have been illegally killed. An IDFG Officer investigated the death of a domestic dog that was traveling with its owner in a remote area known to have significant wolf activity. The dog's death was later determined to have been caused by strychnine poisoning.

Documented Resident Packs

Avery
Four adults and 1 pup were observed by IDFG personnel in September 2007. In April 2007, an IDFG Conservation Officer recovered the carcass of a dead wolf in Hammond Creek that was likely a member of the Avery pack. The cause of death was unknown. Trapping efforts in September 2007 resulted in the radiocollaring of 1 gray pup, B357, which was discovered on mortality mode in late October and determined to have been illegally killed. Adult male B234 was the only marked wolf in this pack. The Avery pack was likely responsible for the deaths of 2 mountain lion pursuit hounds along the eastern edge of their home range and 2 pet Pyrenees pups on the southern edge of their range during 2007; none of these were verified or reported by WS personnel and therefore are not reported here. While reproduction was verified, this pack did not qualify as a breeding pair.

Fishhook
Program personnel determined the presence of 4 adults and 2 pups during September 2007 while investigating rendezvous sites. An aerial survey in November observed 8 wolves (official pack count). Two radiocollared wolves, female B217 and male B294, remained in this pack. This pack was considered a breeding pair for 2007.

Female B217 of the Fishhook pack sleeping near the pack's rendezvous site. *Nate Borg*

Five Lakes Butte

The sole radiocollared member of this pack, female B212 was monitored outside of the pack's normal home range during 2007 and was considered a disperser. B212 was located in the North Fork St. Joe River (approximately 35 miles [56 km] northeast of Five Lakes Butte) in September. There were reports of wolf sign in upper Chamberlin Creek and upper Vanderbilt Creek, areas within the traditional Five Lakes Butte home range, over summer 2007, but the status of this pack was unknown. The carcass of 1 wolf that died of unknown causes was recovered. This pack was not considered a breeding pair and there was no estimate of pack size.

Marble Mountain

Program personnel captured and collared an adult female wolf (B314) in September 2006 bringing the number of marked wolves in this pack to two, including previously marked male B216. In 2007, female B360 was instrumented with a radiocollar as well. During trapping operations, a minimum of 4 adult gray wolves and 1 gray pup were observed. This reproductive pack was not counted as a breeding pair for 2007.

Tangle Creek

The Tangle Creek pack was considered a Panhandle Region pack despite spending some time in the Clearwater Region as well. At the beginning of 2007, the Tangle Creek pack contained 2 radiocollared wolves, males B310 and B311. Monitoring efforts throughout the summer were unsuccessful with the exceptions of locations of B310 in July and September in upper Floodwood Creek in the Clearwater Region. In late October the signal from B311 was discovered on mortality mode in the upper reaches of Dworshak Reservoir. The collar was recovered in November by the Clearwater County Sheriff's dive team and was determined to be an illegal kill. The signal from B310 was found on live mode approximately 0.25 mile (0.4 km) southeast from the mortality signal. An abundance of additional wolf sign was noted adjacent to the mortality site. Two wolves, the official pack count, were observed from an aerial survey of the area in December 2007. This pack was not counted as a breeding pair.

Documented Border Packs

Boundary (ID)
This border pack was tallied to Idaho for 2007. In spring 2007, the only marked member of the Boundary pack (female B296) was discovered with the newly documented Solomon Mountain pack. Program personnel surveyed the traditional Boundary pack area in September 2007 and determined the presence of at least 2 wolves, but were unable to mark any animals or quantify the pack size. In May 2007, a domestic calf was injured near Hall Mountain and designated "probable wolf related" by WS, but the calf survived its injuries and did not constitute a wolf depredation. In early December 2007, WS' personnel found the remains of a domestic calf (cause of death undetermined) that had been consumed by wolves and noted tracks indicating the presence of 5 wolves in the vicinity of Hall Mountain. The Boundary pack was considered a documented border pack (US/Canada border) but was not counted as a breeding pair.

Calder Mountain (ID)
This border pack was tallied for Idaho in 2007. This pack was first documented in 2005; however, to date no wolves have been radiocollared. The Calder Mountain pack was considered a Panhandle Region border pack based on den and rendezvous site locations and spent time in both Idaho and Montana. Program personnel discovered rendezvous sites and tracks indicating at least 3 adults and 1 pup in September (official counts), although a report of 4 pups was unverified. The Calder Mountain pack was not counted as a breeding pair for 2007.

De Borgia (MT)
This documented border pack was tallied by Montana in 2007. See the respective State's annual report for information on this pack.

Silver Lake (MT)
This documented border pack was tallied by Montana. See the respective State's annual report for information on this pack.

Solomon Mountain (ID)
This border pack was tallied for Idaho in 2007. The Solomon Mountain pack was discovered by monitoring female B296, originally a member of the Boundary pack. Program personnel monitored the radio signal at a likely den site in spring 2007 although no verification was accomplished. During summer, fall, and early winter 2007, the Solomon Mountain pack was located numerous times on both sides of the Idaho/Montana border by a MTFWP bear researcher. He had several visual observations of the pack, as many as 8 wolves, but could not determine the presence of pups. In December 2007, the signal from B296 was discovered on mortality mode. This wolf was originally captured by black bear research personnel in August 2006 and fitted with a radiocollar that incorporated a cotton spacer designed to decompose and release the collar. It was assumed that the radiocollar was detached as designed in December. The site was not investigated due to its remote location and heavy snowfall. The Solomon Mountain pack was considered an Idaho pack but was not counted as a breeding pair for 2007.

Superior (MT)
This documented border pack was tallied by Montana in 2007. See the respective State's annual report for information on this pack.

Suspected Resident Packs

Bathtub Mountain
Persistent observations and reports by IDFG personnel, outfitters, and sportsmen indicated the presence of a wolf pack in the vicinity of Bathtub Mountain along the divide between the upper St. Joe River and the Little North Fork Clearwater River. Bathtub Mountain is approximately 5 miles (8 km) northeast of Snow Peak, the identifying landmark of the Snow Peak wolf pack that existed in the late 1990s. Future monitoring will be required to determine the status of this suspected pack.

Kootenai Peak
Persistent observations and reports by IDFG personnel, Bureau of Land Management and WS' personnel, and sportsmen indicate the presence of a wolf pack in the vicinity of Kootenai Peak, approximately 10 miles (16 km) northeast of St. Maries, Idaho, along the divide between the South Fork Coeur d'Alene River and the St. Joe River. Hunters reported observing wolf sign in Pine Creek, Latour Creek, Rochat Creek, and near Boise Peak. Personnel from the Bureau of Land Management reported, and IDFG personnel verified, wolf sign in Latour and Rochat Creeks. Wildlife Services' personnel observed 2 wolves in Hells Gulch and wolf sign in Willow Creek. Future monitoring will be required to determine the status of this suspected pack.

Other Documented Wolf Groups

B212
Lone wolf B212 (dispersing female from the Five Lakes Butte pack) was last located in September near Shefoot Mountain along the North Fork St. Joe River. Future monitoring will be required to determine the status of this radio-marked wolf.

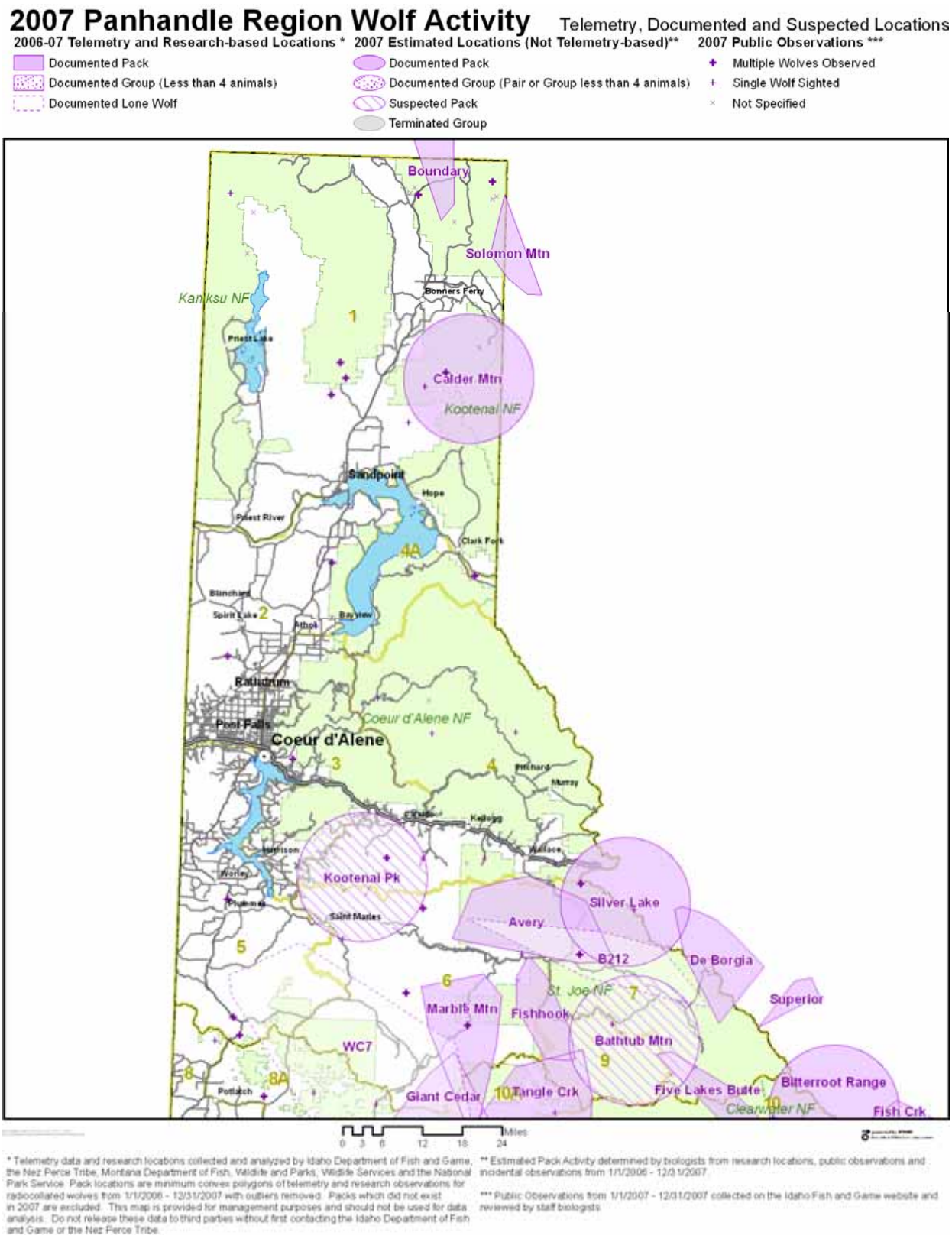


Figure 6. Wolf pack activity and observations in the Panhandle Region, 2007.

Table 2. Minimum number of wolves detected, reproductive status, mortality, dispersal, monitoring status, and livestock depredation for documented and suspected wolf packs and other wolf groups within Idaho Department of Fish and Game Panhandle Region, 2007.

Wolf group[a]	Min. no. wolves detected[b]	Reproductive status			Documented mortalities				Known dispersal	Monitoring status			Confirmed & (probable) wolf-caused livestock losses		
		Min. no. pups prod. (died)[c]	Reported as		Natural	Control[e]	Other human[f]	Unknwn[g]		Active radio collars	No. wolf captures[h]	No. wolves missing[i]	Cattle	Sheep	Dogs
			reprod. pack	breeding pair[d]											
DOCUMENTED PACK															
Avery	5	1(1)	YES	NO	0	0	1	1	0	1	1	0	0	0	0
Boundary (ID)[j]	5	?	NO	NO	0	0	0	0	1	0	0	0	0	0	0
Calder Mtn (ID)[j]	4	1	YES	NO	0	0	0	0	0	0	0	0	0	0	0
De Borgia (MT)[j]															
Fishhook	8	2	YES	YES	0	0	0	0	0	2	0	0	0	0	0
Five Lakes Butte	?	?	NO	NO	0	0	0	1	1	0	0	0	0	0	0
Marble Mountain	5	1	YES	NO	0	0	0	0	0	3	1	0	0	0	0
Silver Lake (MT)[j]															
Solomon Mtn (ID)[j]	8	?	NO	NO	0	0	0	0	0	0	0	0	0	0	0
Superior (MT)[j]															
Tangle Creek	2	?	NO	NO	0	0	1	0	0	1	0	0	0	0	0
SUBTOTAL	37	5(1)			0	0	2	2	2	7	2	0	0	0	0
SUSPECTED PACK															
Bathtub Mountain	?				0	0	0	0	0	0	0	0	0	0	0
Kootenai Peak	?				0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0			0	0	0	0	0	0	0	0	0	0	0
OTHER DOCUMENTED GROUP															
B212[k]	?				0	0	0	0	0	0	0	1	0	0	0
SUBTOTAL	0	0			0	0	0	0	0	0	0	1	0	0	0
UNKNOWN															
	?				0	0	1	0	0	0	0	0	0	0	0
SUBTOTAL	0	0			0	0	1	0	0	0	0	0	0	0	0
REGIONAL TOTAL	37	5(1)			0	0	3	2	2	7	2	1	0	0	0

[a] Documented pack = 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 pack = 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.). Unknown = geographic areas where wolf presence was previously unverified and/or no data on group status was known.

[b] Summing this column 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 column in DOCUMENTED MORTALITIES.

[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] Includes agency lethal control and legal take.

Table 2. Continued.

[f] Includes all other human-related deaths.
[g] Does not include pups that disappeared before winter.
[h] Includes wolves captured for monitoring purposes during 2007. Most, but not all, were radiocollared.
[i] Radiocollared wolves that became missing in 2007.
[j] Border pack officially tallied to (STATE); territory known/likely shared with Idaho. Data on these packs can be found in Rocky Mountain Wolf Recovery 2007 Annual Report; data for mortalities and/or depredations by non-Idaho border packs that occurred within Idaho are presented here.
[k] B212 moved into the Panhandle Region from the Clearwater Region and was monitored in the former until October 2007.

Clearwater Region

The Clearwater Region maintained the highest pack total of all IDFG Regions, with 24 documented resident and 6 (two tallied for Idaho and four for Montana) documented border packs (Figure 7; Table 3). The non-radiocollared Magruder pack was removed from the list of documented packs due to lack of evidence of pack persistence in that area over the past 2 years. Nineteen reproductive packs, including Idaho's Bitterroot Range and Fish Creek border packs, produced 72 pups; seventeen of these qualified as breeding pairs. Fourteen documented wolf mortalities were recorded: five from other human causes, four from unknown causes, three from control, and two from natural causes. Livestock losses from wolf depredation in the Clearwater Region during 2007, as verified by WS, included 1 confirmed and 2 probable cattle killed. Sixteen wolves were captured (1 Selway pack pup was caught twice) in this region and 12 were fitted with radiocollars.

Law Enforcement Summary

Conservation Officers, in consultation with USFWS Special Agents, investigated 11 incidents involving wolf mortalities in the Clearwater Region. In 4 cases the cause of death was unknown, 2 wolves were legally killed, 2 deaths were verified or suspected illegal kills, 2 mortalities were attributed to other human causes, and one was deemed a natural death.

Documented Resident Packs

Battle Ridge
Biologists verified a rendezvous site and counted 2 pups (1 gray, 1 black) along with 1 black adult. A trapping effort was initiated, but was cut short due to fire danger, and further capture efforts were not possible due to fire closures. This first-year pack remains uncollared and had a minimum of 4 wolves (2 black, 1gray, 1 unknown) and counted as a breeding pair for 2007.

Bimerick Meadow
Suspected breeding male B247 was not located after the May monitoring flight and his status since was unknown. Radio locations from female B289 led to the discovery of a rendezvous site where 4 gray pups were observed in mid-June. Minimum pack size, based upon aerial and field observations, was estimated at 7 wolves. This pack was a breeding pair for the third consecutive year.

Chesimia
After lethal control removed the alpha female and 3 other wolves in 2005, this pack did not display denning behavior in 2007 based upon telemetry locations of sole radiocollared wolf, 2-year-old female B222. In addition, the livestock operator in this pack's territory noted significantly less evidence of wolves in 2007 near her field camp, which was near the 2005 den site, and in the area in general, although in September she reported wolves harassing her herding dogs. By the end of 2007, B222 was located within traditional Chesimia pack territory, but it was unknown how many wolves were present in this pack. The Chesimia pack was not considered a breeding pair for 2007.

Cold Springs
Following the death of the alpha female, B206, in October 2005, there were no radiocollared individuals in this pack. Tracks of 2-3 individuals were located in late winter 2006/2007 in the

Race Creek drainage, but investigations of areas previously used by this pack failed to detect further presence. The Cold Springs pack was not considered a breeding pair for 2007.

Coolwater Ridge
Multiple pups were heard howling in early August, but no visual pup count was obtained. Two subadult males, B344 and B346, were captured and radiocollared to retain telemetry contact with the pack; suspected alpha female B163's radiocollar was believed to have expired. A minimum of 6 wolves including 2 pups was detected in this pack based on field efforts. The Coolwater Ridge pack was a breeding pair in 2007.

Deception
Female B213, captured and radiocollared as a member of the Five Lakes Butte pack in 2004, was last located in that territory in September 2005. She was not detected again until January 2006, at which time she was located in the Kelly Creek drainage. She subsequently was located north of Lolo Pass before returning to the area adjacent to the southern edge of the Five Lakes Butte pack's territory, along the North Fork Clearwater River. Aerial telemetry locations during spring 2007 suggested B213 might have localized at a potential den site. Field investigations in mid-August led to detection of a rendezvous site where 4 gray pups were observed. A trapping effort resulted in the capture of 3 pups, one of which (female B352) was radiocollared, and the alpha male (B354) that was also radiocollared. B213's signal was detected on mortality mode during a monitoring flight in early December; her radio signal was located in the North Fork Clearwater River and it was believed that she was dead. Pack size at the end of the year was enumerated at 5 individuals. This first-year pack was not a breeding pair for 2007 because only a single adult remained.

Eagle Mountain
Two radiocollared wolves**,** suspected alpha male B136 and adult female B295, assisted biologists in locating this pack's den site in the Selway-Bitterroot Wilderness where 3 pups (1 black, 2 gray) were observed. Pack size for 2007 was estimated at a minimum of 8 wolves, based upon ground and aerial observations. This pack was a breeding pair for 2007.

Earthquake Basin
Radio tracking of wolves B274 and B275 led biologists to a den site where 2 black and 6 gray pups were observed, which equaled the Monumental Creek pack as the largest litters recorded for 2007. An uncollared pack member was killed in a vehicle collision in May. Based upon field observations, this pack was estimated to contain a minimum of 10 wolves. The Earthquake Basin pack was a 2007 breeding pair.

Eldorado Creek
Radio tracking of adult male B281 and possible alpha female B301 led a biologist to a rendezvous site where 4 gray pups were observed. Field observations indicated a minimum of 6 wolves in this pack. The Eldorado Creek pack was a breeding pair for 2007.

Florence
Males B200 and B201, captured in 2004, continued their membership with the pack. A den site area was investigated in May, at which time 7 gray pups were documented. Based upon field observations, a minimum of 10 wolves was present, similar to aerial sightings in both 2004 and 2005. Two wolves in this pack's territory were inadvertently killed during coyote lethal control efforts. Breeding pair status was attained by the Florence pack for 2007.

Giant Cedar
Localized aerial and ground locations during spring of radiocollared wolves B256 (adult) and B308 (yearling) indicated a probable den site. A litter of 5 gray pups was observed at a rendezvous site in mid-July. Two uncollared adult-sized wolves were also observed at that time. Pack size was estimated at a minimum of 6 individuals. B307, a pup captured in 2006, was found dead in April near Bovill, Idaho; necropsy revealed a deformed spine, so cause of death was determined as natural. The Giant Cedar pack was a breeding pair in 2007.

Gospel Hump
Contact with both radiocollared wolves, females B138 and B139, was lost during 2004, making monitoring of this pack difficult. A USFS trail crew reported persistent howling and tracks near the traditional den site in 2006, but no reports were received of wolf activity in this pack's home range and there was no field effort made to locate the pack during 2007. The status of this pack was unknown at the end of the year. The Gospel Hump pack was not reported as a breeding pair in 2007 and there was no estimate of pack size.

Hemlock Ridge
This pack produced its fifth documented litter in 2007. Based upon howling, a minimum of 2 pups was detected. At least 5 adults were accounted for based upon radiocollared animals and howling, which resulted in a minimum pack size estimate of 7 wolves for 2007. In addition to existing radiocollared wolves B207 and B210, another 2 adult wolves B329 (male) and B330 (female), were radiocollared in 2007. The Hemlock Ridge pack was a 2007 breeding pair.

Indian Creek
Five wolves were observed during an IDFG winter ungulate survey in 2004. In 2007, biologists documented tracks of at least 2 wolves and observed 1 black wolf in this area. One natural mortality of an uncollared wolf occurred in this pack's territory. This fourth-year pack did not count as a breeding pair for 2007.

Kelly Creek
Suspected alpha male B220 and female B237 were present at a rendezvous site in early August. One gray pup and 4 gray adult-sized wolves, including B220, were observed. B220's radio signal was detected on mortality mode during a November monitoring flight; the carcass was recovered in early December and will be necropsied to determine cause of death. Pack size, derived from ground efforts, was estimated at 5 wolves. The longstanding Kelly Creek pack was not a breeding pair in 2007 because just a single pup was detected.

Lochsa
Female wolf B232, the sole radiocollared member of this pack, was not located after December 2006, but biologists were able to locate a rendezvous site in early August, where 4 gray pups were observed. One pup, B345, was captured and radiocollared. Two to 3 adults were heard howling, so pack size was estimated at a minimum of 6 individuals in 2007. B345 was aerially located in November approximately 25 miles (40 km) southwest of the rendezvous site; it was unknown whether other pack members were present at this time or if this was a dispersal movement. The Lochsa pack was a breeding pair for 2007.

Magruder
Suspected alpha male B110 has not been located since June 2004, probably due to expiration of his radiocollar, and female B219 not since late May 2005. One effort to investigate this pack's previously used rendezvous sites was made, but it was hindered by wildfire-related closures, and little wolf sign was found. Status of this pack has been unknown for the past 2 years. Due to this lack of information, the Magruder pack was no longer considered a documented pack by the end of 2007.

O'Hara Point
This pack did not use their traditional denning area for the second consecutive year in 2007, complicating efforts to document reproduction and conduct capture operations. Tracks from at least 3 wolves, possibly including a pup(s), were located within this pack's territory, suggesting that a litter may have been produced; however, no additional evidence was collected to verify this. The O'Hara Point pack was not a breeding pair in 2007 because reproduction was not verified.

Pettitbone Creek
Five wolves were observed during an IDFG winter ungulate survey in 2004. In 2007, biologists verified a rendezvous site with at least 2 pups (based on pup tracks and scats) and 2 adults (based on howling), resulting in a minimum pack size estimate of 4 wolves. Due to fire danger, biologists were evacuated from the area the day after the rendezvous site was discovered, thus traps were not set. Biologists could not access the area again that season due to fire closures. This fourth-year pack was counted as a breeding pair for 2007.

Pilot Rock
In late July, WS captured and radiocollared an adult female wolf, B342, and killed another in this pack's territory after 1 domestic calf was confirmed killed. In mid-August, while attempting to track B342, a biologist opportunistically observed a wolf pup cross the road in front of his vehicle. He was able to elicit a howling response from 4 pups at that time. The following day, 2 pups were observed (1 black, 1 gray). A second field effort resulted in a visual of 2 gray pups and estimated a minimum of 2-3 adult-sized wolves based upon howling. Minimum pack size was estimated at 6 wolves. This newly documented pack qualified as a breeding pair for 2007.

Pot Mountain
Five wolves were observed on a slope of Pot Mountain during a winter ungulate survey conducted by IDFG in spring 2005, so this group was added as a documented pack for 2005. No field effort was conducted in this area during 2007. No estimate of pack size was available and this pack was not a 2007 breeding pair.

Red River
In early February, a coyote trapper inadvertently captured a black wolf near Elk City, Idaho. Before Program personnel could reach the scene to radiocollar the animal, it suffered a broken leg; the wolf was radiocollared (male B318) and released despite its injury. Subsequent aerial telemetry indicated that the wolf was sufficiently mobile enough to travel throughout the pack's territory. Ground-tracking of B318 in early June led biologists to a rendezvous site where 3-4 pups were heard howling. From ground efforts, minimum pack size was estimated at 5 individuals. The Red River pack was considered a breeding pair for 2007.

Selway
One of the first packs to form in Idaho following the 1995 translocations from Canada, the Selway pack was returned to active monitoring status with the capture and radiocollaring of 2 pups in 2007. Investigation of a traditional rendezvous site in August led to the detection of the pack and the successful capture effort. Six black pups and 1 gray pup were observed, as well as 2 black adult-sized wolves; this pack had been composed solely of black wolves in the past. During a September monitoring flight, 13 black and 2 gray (1 adult, 1 pup) wolves were observed. The Selway pack was a breeding pair in 2007 and received its first radiocollared members (male pup B355 [captured twice] and female pup B356) since founding wolf B5's death in 2004.

Spirit Ridge
This newly documented pack was fortuitously located while a capture operation was underway for the neighboring Coolwater Ridge pack. Subadult female B339 was trapped and radiocollared in July; B339 is gray and all previously known individuals in the Coolwater Ridge pack were black, creating suspicion about this wolf's pack membership. A rendezvous site was located where 2 gray adult-sized wolves were observed and a third was heard howling, and a minimum of 4 pups was detected from howling (2 gray pups were seen). Minimum pack size was estimated to be 7 wolves. The Spirit Ridge pack qualified as a breeding pair for 2007.

White Bird Creek
Alpha female B284 was legally killed while the pack was harassing cattle in early April; she was pregnant and her death was believed to preclude this pack from reproducing in 2007. The remaining radiocollared wolf, male B285, was ground-tracked in late August and was seemingly alone both days he was observed. One domestic calf, probably killed by wolves, was attributed to this pack. A gray wolf was found dead in this pack's territory in early December; it was recorded as a mortality for this pack, although circumstances of its death suggested it may have been a dispersing wolf from another pack. Pack size was estimated at 4 wolves. The White Bird Creek pack was not considered a breeding pair in 2007.

Documented Border Packs

Big Hole (MT)
This documented border pack was tallied for Montana for 2007. See the respective State's annual report for information on this pack. One adult wolf died in Idaho as a result of capture-related activities.

Bitterroot Range (ID)
This documented border pack was tallied for Idaho in 2007. This newly documented and uncollared pack was located by MTFWP personnel in the Goose Creek drainage on the Idaho side of the Idaho/Montana border southeast of Hoodoo Pass. Three gray adults and 2 gray pups were observed, making this pack an Idaho breeding pair for 2007.

Brooks Creek (MT)
This documented border pack was tallied for Montana for 2007. See the respective State's annual report for information on this pack.

Fish Creek (ID)
This documented border pack was tallied for Idaho in 2007. The Fish Creek pack denned in Idaho for the second consecutive year in 2007. Ground-tracking of radiocollared wolves B235 (suspected alpha female) and B236 (adult male) in the Kelly Creek drainage led to the discovery of a rendezvous site where 4 pups (3 gray, 1 possibly black) and 7-8 adults were observed. Approximately 1 week later, an aerial observation by MTFWP substantiated the pup count. This 9-member border pack, based upon a December aerial observation, was considered an Idaho breeding pair for 2007.

Lake Como (MT)
This documented border pack was tallied for Montana for 2007. See the respective State's annual report for information on this pack.

Trapper Peak (MT)
This documented border pack was tallied for Montana for 2007. See the respective State's annual report for information on this pack.

Suspected Resident Packs

Grandad
During 2006, a survey/trapping effort during the latter half of August detected 4 sets of wolf tracks and 1 wolf was temporarily captured, but managed to pull free from the trap. In July 2007, investigation of this area yielded 1 set of wolf tracks. A report was received from mid-September that indicated a possible location of a rendezvous site and 2 gray wolves were reportedly observed there. This site will be searched next year to determine this pack's status, and to possibly conduct capture efforts.

Tahoe
Female B320 was captured in May during a control action initiated by WS where 1 domestic calf was probably killed and 2 others were confirmed injured by wolves. B320 was aerially monitored until August, at which time her signal was detected on mortality mode. Her remains were recovered and an investigation was undertaken by USFWS Law Enforcement. Local residents reported observing 5 wolves in February, though ground efforts following B320's death were unable to document presence or wolf sign in the areas she had frequented. Further efforts to determine wolf pack status in this area will be made in 2008.

Suspected Border Packs

Watchtower Creek (MT)
This suspected border pack was tallied for Montana for 2007. See the respective State's annual report for information on this pack.

Other Documented Wolf Groups

Roaring Lion (ID)
Biologists verified at least 2 wolves in this group based on track evidence. Multiple trapping efforts were unsuccessful.

Saturday
Biologists verified at least 2 wolves in this group based on track evidence. Trapping efforts were unsuccessful.

WC7
On 31 October 2006, male wolf WC7 was captured near Nanton, Canada (approximately 58 miles [94 km] south of Calgary, Alberta), and fitted with a GPS radiocollar. This wolf emigrated to the U.S. on 31 March 2007 (first location south of the international border). Satellite locations provided by Alberta Sustainable Resource Development indicated the wolf generally followed the Flathead River to Flathead Lake before making its way along the Clark Fork River in late April. It first was located in Idaho on 9 May 2007, north of Lookout Pass. Since 26 May 2007 it roamed an area encompassed by the towns of Santa, Elk River, and De Smet, Idaho, suggesting that it may have settled into a home range. Ground and aerial searches failed to detect this wolf's radio signal, thwarting efforts to ascertain whether WC7 was affiliated with other wolves. The GPS radiocollar was scheduled to automatically detach from around the wolf's neck at the end of October, but widely scattered fixes were obtained until late November that indicated the radiocollar may not have functioned as programmed. No further GPS fixes were obtained, suggesting the radiocollar expired or was otherwise no longer able to communicate with tracking satellites.

Monitoring Wolves in the Selway-Bitterroot Wilderness

Due to difficulty in monitoring wolves in the wilderness areas of central Idaho, IDFG began intensively pursuing wolf capture efforts in the Selway-Bitterroot Wilderness Area in 2007 in addition to ongoing efforts being conducted by the NPT. Initially, the IDFG requested permission from the USFS to helicopter-dart wolves in the Wilderness Area incidental to big game winter monitoring. Due to expense of conducting a National Environmental Policy Act analysis for landing in the wilderness, IDFG and the USFS instead provided matching funds and cooperated in an increased ground monitoring effort.

The main goal of the project was to capture and radiocollar wolves in the Selway-Bitterroot Wilderness. The IDFG crews were unable to capture a wolf during the first summer of this project. However, they did document 2 breeding pairs, 2 other wolf groups, and 1 suspected pack (Table 3). This information will be used to focus capture efforts in 2008. Nez Perce Tribe crews were able to capture 2 uncollared wolf packs adjacent to the Wilderness Area. These packs will likely use the Wilderness Area for at least part of each year. Two other packs (Eagle Mountain and Coolwater Ridge) continued to be monitored via radiocollars.

In addition to trapping attempts, the IDFG surveyed 575 miles of trails for wolf sign. The IDFG collected Global Positioning System (GPS) locations of wolf and elk sign along these trails and are using that dataset to test and further develop a model that predicts areas of high wolf use. Being able to accurately predict areas of high wolf use will be an important aspect of the standardized monitoring protocols.

Currently, there are 10 known or suspected groups of wolves that use the Selway-Bitterroot Wilderness Area for all or part of each year: the radiocollared, documented Coolwater Ridge, Eagle Mountain, Selway, and Spirit Ridge packs; the uncollared documented Battle Ridge, Indian Creek, and Pettibone Creek packs; the uncollared suspected Watchtower Creek pack; and

2 other wolf groups (Roaring Lion, Saturday) without radiocollared members. Six of the radiocollared and documented resident packs qualified as breeding pairs for 2007 (Table 3).

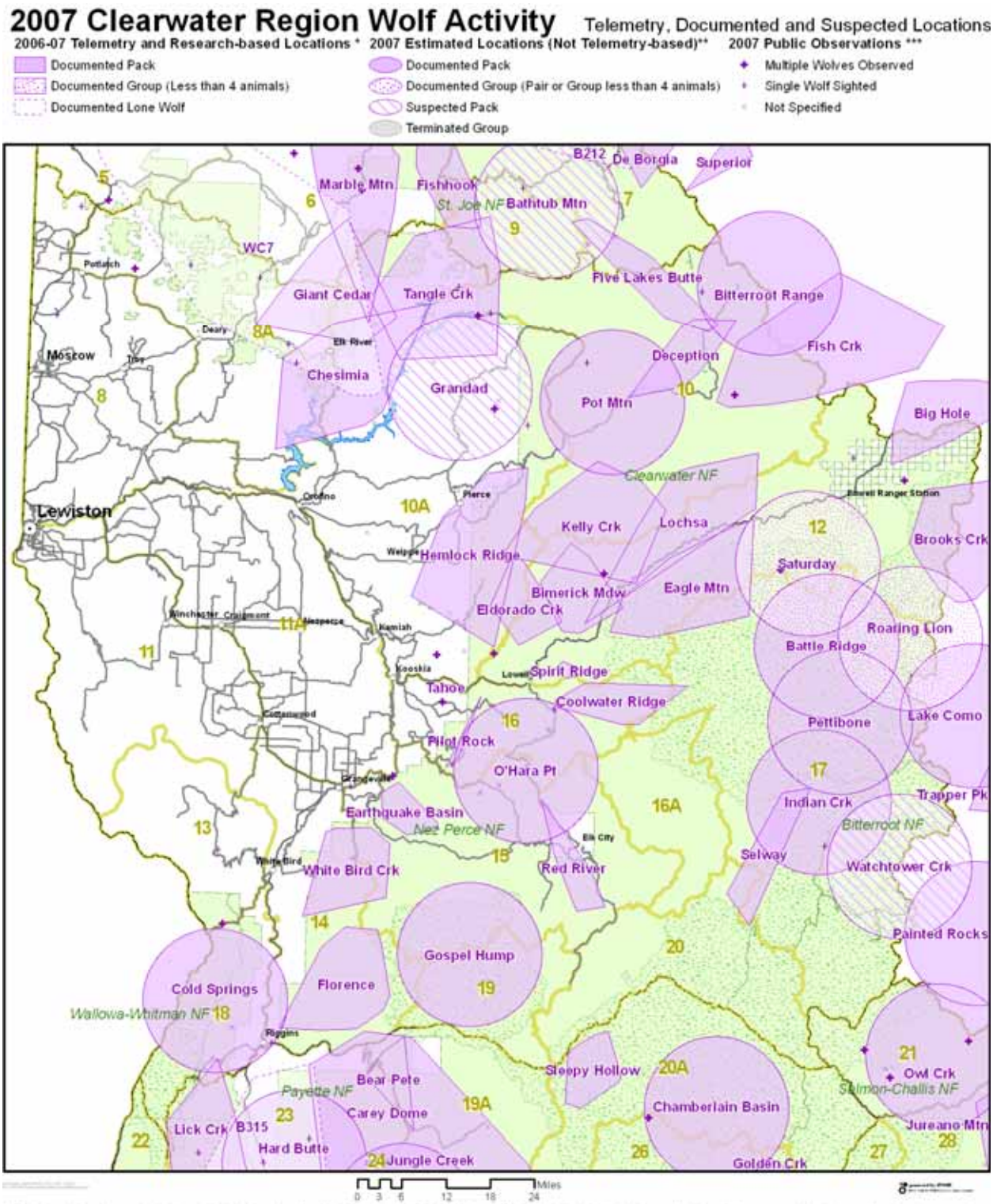


Figure 7. Wolf pack activity and observations in the Clearwater Region, 2007.

Table 3. Minimum number of wolves detected, reproductive status, mortality, dispersal, monitoring status, and livestock depredation for documented and suspected wolf packs and other wolf groups within Idaho Department of Fish and Game Clearwater Region, 2007.

Wolf group[a]	Min. no. wolves detected[b]	Reproductive status			Documented mortalities				Known dispersal	Monitoring status			Confirmed & (probable) wolf-caused livestock losses		
		Min. no. pups prod. (died)[c]	Reported as		Natural	Control[e]	Other human[f]	Unknwn[g]		Active radio collars	No. wolf captures[h]	No. wolves missing[i]	Cattle	Sheep	Dogs
			reprod. pack	breeding pair[d]											
DOCUMENTED PACK															
Battle Ridge	4	2	YES	YES	0	0	0	0	0	0	0	0	0	0	0
Big Hole (MT)[j]							1								
Bimerick Meadow	7	4	YES	YES	0	0	0	0	0	1	0	1	0	0	0
Bitterroot Rge (ID)[j]	5	2	YES	YES	0	0	0	0	0	0	0	0	0	0	0
Brooks Crk (MT)[j]															
Chesimia	?	?	NO	NO	0	0	0	0	0	1	0	0	0	0	0
Cold Springs	2	?	NO	NO	0	0	0	0	0	0	0	0	0	0	0
Coolwater Ridge	6	2	YES	YES	0	0	0	0	0	2	2	0	0	0	0
Deception	5	4	YES	NO	0	0	0	1	0	2	4	0	0	0	0
Eagle Mountain	8	3	YES	YES	0	0	0	0	0	2	0	0	0	0	0
Earthquake Basin	10	8	YES	YES	0	0	1	0	0	2	0	0	0	0	0
Eldorado Creek	6	4	YES	YES	0	0	0	0	0	2	0	0	0	0	0
Fish Creek (ID)[j]	9	4	YES	YES	0	0	0	0	0	2	0	0	0	0	0
Florence	10	7	YES	YES	0	0	2	0	0	2	0	0	0	0	0
Giant Cedar	6	5	YES	YES	1	0	0	0	0	2	0	0	0	0	0
Gospel Hump	?	?	NO	NO	0	0	0	0	0	0	0	0	0	0	0
Hemlock Ridge	7	2	YES	YES	0	0	0	0	0	4	2	0	0	0	0
Indian Creek	2	?	NO	NO	1	0	0	0	0	0	0	0	0	0	0
Kelly Creek	5	1	YES	NO	0	0	0	1	0	1	0	0	0	0	0
Lake Como (MT)[j]															
Lochsa	6	4	YES	YES	0	0	0	0	0	1	1	1	0	0	0
~~Magruder~~[k]															
O'Hara Point	3	?	NO	NO	0	0	0	0	0	0	0	0	0	0	0
Pettibone	4	2	YES	YES	0	0	0	0	0	0	0	0	0	0	0
Pilot Rock	6	4	YES	YES	0	1	0	0	0	1	1	0	1	0	0
Pot Mountain	?	?	NO	NO	0	0	0	0	0	0	0	0	0	0	0
Red River	5	3	YES	YES	0	0	0	0	0	1	1	0	0	0	0
Selway	15	7	YES	YES	0	0	0	0	0	2	3	0	0	0	0
Spirit Ridge	7	4	YES	YES	0	0	0	0	0	1	1	0	0	0	0
Trapper Peak (MT)[j]															
White Bird Creek	4	0	NO	NO	0	1	0	1	0	1	0	0	(1)	0	0
SUBTOTAL	142	72			2	2	4	3	0	30	15	2	1(1)	0	0

Table 3. Continued.

Wolf group[a]	Min. no. wolves detected[b]	Reproductive status			Documented mortalities				Known dispersal	Monitoring status			Confirmed & (probable) wolf-caused livestock losses		
		Min. no. pups prod. (died)[c]	Reported as		Natural	Control[e]	Other human[f]	Unknwn[g]		Active radio collars	No. wolf captures[h]	No. wolves missing[i]	Cattle	Sheep	Dogs
			reprod. pack	breeding pair[d]											
SUSPECTED PACK															
Grandad	1				0	0	0	0	0	0	0	0	0	0	0
Tahoe	?				0	0	0	1	0	0	1	0	(1)	0	0
Watchtower Crk (MT)[j]															
SUBTOTAL	1	0			0	0	0	1	0	0	1	0	(1)	0	0
OTHER DOCUMENTED GROUP															
Roaring Lion (ID)[j]	2				0	0	0	0	0	0	0	0	0	0	0
Saturday	2				0	0	0	0	0	0	0	0	0	0	0
WC7	1				0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	5	0			0	0	0	0	0	0	0	0	0	0	0
UNKNOWN															
	?				0	1	1	0	0	0	0	0	0	0	0
SUBTOTAL	0				0	1	1	0	0	0	0	0	0	0	0
REGIONAL TOTAL	148	72			2	3	5	4	0	30	16	2	1(2)	0	0

[a] Documented pack = 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 pack = 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.). Unknown = geographic areas where wolf presence was previously unverified and/or no data on group status was known.

[b] Summing this column 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 column in DOCUMENTED MORTALITIES.

[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] Includes agency lethal control and legal take.

[f] Includes all other human-related deaths.

[g] Does not include pups that disappeared before winter.

[h] Includes wolves captured for monitoring purposes during 2007. Most, but not all, were radiocollared.

[i] Radiocollared wolves that became missing in 2007.

[j] Border pack officially tallied to (STATE); territory known/likely shared with Idaho. Data on these packs can be found in Rocky Mountain Wolf Recovery 2007 Annual Report; data for mortalities and/or depredations by non-Idaho border packs that occurred within Idaho are presented here.

[k] Group no longer considered extant due to agency lethal removal, lack of verified evidence for the preceding 2 years, or other cause.

McCall Subregion of the Southwest Region

The McCall Subregion was occupied by 14 documented packs during 2007 (Figure 8; Table 4). Due to lethal control conducted in 2004 and 2005 and the documentation of new packs within their former home ranges, the Hazard Lake and Partridge Creek packs were removed as documented packs in 2007. The two new packs inhabiting this area (Hard Butte verified in 2007, Carey Dome verified in 2005) may consist of remnant members of the former resident packs, but because continuous monitoring was not possible due to loss of radiocollared wolves, new names were given to the packs now occupying those territories. The Oxbow pack was removed from the list of suspected packs due to lack of evidence of continued wolf presence in that area. Seven of 8 reproductive packs qualified as breeding pairs; the Carey Dome pack was disqualified because it was believed that only 1 adult wolf was present at the end of 2007. Documented mortalities (n = 13) included control (agency removal and legal take; n = 10), other human causes (illegal take, vehicle collision, etc.; n = 2), and unknown (n = 1). Confirmed (n = 8) and probable (n = 2) wolf-caused losses of cattle were attributed to the Blue Bunch and Hard Butte packs, and wolves believed affiliated with B327 and B349. Confirmed (n = 60) and probable (n = 3) wolf-caused losses of domestic sheep were attributed to the Blue Bunch, Carey Dome, Hard Butte, Jungle Creek, and Lick Creek packs. Confirmed (n = 4) and probable (n = 3) wolf-caused losses of domestic dogs were attributed to the Blue Bunch and Hard Butte packs. Six wolves were captured by Program personnel that resulted in the placement of 5 new radiocollars (1 radiocollar was shed by a Carey Dome pack pup), and replacement of 1 existing radiocollar.

Law Enforcement Summary

Conservation Officers, in consultation with USFWS Special Agents, investigated 4 incidents involving wolf mortalities in the McCall Subregion. One wolf was recovered along Highway 95, having died of unknown cause. A second wolf carcass was recovered west of Riggins, Idaho, and was determined to have been struck by a vehicle. The third incident involved the shooting of a wolf harassing livestock, and it was determined to be a legal take under the 10(j) Rule. A fourth wolf was located on mortality mode during a monitoring flight, and the resulting investigation indicated the wolf was illegally killed.

Documented Resident Packs

Bear Pete
Male wolf B157, formerly a member of the Jungle Creek pack, began using areas outside of that pack's home range after September 2006. It was unknown whether the entire Jungle Creek pack had shifted winter use, as they did in 2005, or if B157 had separated from the pack (he was aerially observed in early March 2007 with 1 other wolf). A capture effort in mid-July resulted in the replacement of B157's radiocollar and his new mate, B331, receiving her initial radiocollar. Six pups were observed within approximately 0.5 miles (0.8 km) of the capture site. B157, B331, and 6 gray pups were observed during the August monitoring flight in a meadow west of Marshall Lake; minimum pack size was 8 individuals. This first-year pack was a breeding pair for 2007.

Blue Bunch
Founded by alpha female B218 and an unknown male, this pack produced its third litter of pups in 2007. The den site was located near their namesake ridge, where 3 gray pups were observed in late June. Field and aerial observations indicated the minimum estimated pack size was 7

individuals. This pack was implicated in livestock depredations where 3 domestic sheep were confirmed killed and 1 calf was listed as a probable wolf-kill. Three domestic dogs were also confirmed killed by this pack, and another was classified as a probable wolf kill. The Blue Bunch pack was a breeding pair for 2007.

Carey Dome
During control actions in 2006, females B309 and B315 (see Other Documented Wolf Groups), were captured and radiocollared; they were believed to be members of the Carey Dome pack, although the actual number of packs and wolf membership was not certain in this area due to disruption of wolf social structure from continued wolf-livestock conflicts and attendant lethal wolf removals. Four pups were observed during mid-July, though additional pups were likely present based upon howling. Three wolves from this pack were known to have died in 2007. Two adult males were lethally controlled (WS attributed 7 confirmed and 1 probable wolf-killed domestic sheep to this pack) and another wolf was killed by a vehicle on the fringe of the pack's home range. Based upon aerial sightings, ground efforts, and lethal control activities, it was believed that by the end of 2007, this pack was minimally comprised of alpha female B309 and her 4+ pups. The Carey Dome pack was not a breeding pair in 2007 because only 1 adult wolf was present in this pack at the end of the year.

Chamberlain Basin
Five gray pups were observed and a sixth was heard howling in mid-July. In addition, 5 adults were observed. The carcass and radiocollar of the pack's original alpha female, B16, was discovered by a hiker near the mouth of Sabe Creek on the north side of the Salmon River. Based upon level of decomposition, it was likely that B16 died during 2006. Minimum estimated pack size was 11 wolves. The Chamberlain Basin pack was a 2007 breeding pair.

Golden Creek
Researchers from the University of Idaho's Taylor Ranch field station observed 4 gray pups near the suspected den area. Possible alpha male B319 was captured in early April, joining suspected alpha female B229 as radiocollared individuals. Pack size was estimated at a minimum of 7 individuals. The Golden Creek pack was a breeding pair for 2007.

Hard Butte
This pack occupied at least part of the former Hazard Lake pack's territory (*see* Hazard Lake). Following up on reports from hunters during bow-hunting season, biologists were able to document the presence of at least 3 pups and multiple adults based upon howling. A capture effort was initiated, but pack mobility and the presence of sheep herding/guarding dogs limited the scope of the operation, and no wolves were caught. The origin of this pack was unknown; they may be remnants of the Hazard Lake pack, which was heavily controlled in 2004 (including removal of all radiocollared individuals), or they may have derived from wolves that recolonized this area following the elimination of the previous pack. This pack was involved in 8 confirmed and 1 probable wolf-killed sheep plus 1 confirmed calf depredation. One pet dog was killed and 2 others were categorized as probable wolf-kills by this pack. An adult male wolf, probably a member of this pack, was lethally controlled in late November northeast of New Meadows, Idaho. Minimum estimated pack size was 5 wolves. The Hard Butte pack was considered a breeding pair in 2007.

Hazard Lake
This pack has been removed from the list of documented packs and the Hard Butte pack occupied this territory.

Jungle Creek
All previously documented rendezvous sites for this pack were investigated in June, but none of them were in use and very little wolf sign was seen in those areas. A University of Montana research crew heard multiple wolves howling near the Twentymile Creek drainage prior to the rendezvous site searches, but with the departure of B157 (*see* Bear Pete), monitoring of this uncollared group was difficult. Reports of black and gray wolves were received during summer from Victor and Pearl Creeks, drainages known to have been used by the pack in the past, but all previously known wolves in this pack were gray individuals. In mid-August, wolves were confirmed to have killed 41 sheep near Josephine Lake north of McCall, Idaho; another 15 sheep were injured. Wildlife Services' personnel opportunistically killed 4 wolves during depredation investigation/control activities over 2 days: 2 adult, black females; 1 adult, black male; and 1 adult, gray male. Multiple wolves were heard howling by the WS field agent the following day. Based upon the coincidence of pelage colors reported from sightings and the wolves lethally removed, it was believed that wolves reported from Victor/Pearl Creeks were responsible for the depredations. A second incidence of sheep depredation occurred in September, at which time WS attempted to radiocollar the first individual captured, but no wolves were caught. Pack size was estimated at a minimum of 4 individuals at the end of 2007. This pack was not reported as a breeding pair for 2007 as there was no information pertaining to their reproductive status.

Lick Creek
The Lick Creek pack's den area was located in late May, but due to heavy vegetative cover only 2 gray pups were observed at that time. A second field effort in early July was able to document 6 gray pups and the presence of 2 adult-sized wolves, including suspected alpha female B288. Minimum pack size was estimated at 8 wolves. This pack was implicated in the loss of 1 confirmed and 1 probable sheep killed by wolves. The Lick Creek pack was a breeding pair for 2007.

Monumental Creek
Females B250 and B287 remained with the pack, though B287 was located only sporadically throughout the year. The minimum pack estimate was 15 gray wolves (8 pups, 7 adults) based upon an observation at the den/rendezvous site. This pack qualified as a 2007 breeding pair.

Orphan
With no radiocollared wolves to assist biologists, this pack was difficult to monitor. Sightings during spring suggested that wolves were present, but the number of wolves was undetermined. Residents of a fire camp in Scott Valley, where the pack's rendezvous site was found in 2005, reported hearing and observing what they believed to be multiple wolves howling, including pups. Several survey efforts failed to reveal wolf activity or evidence of reproduction. Male wolf B327 (see Other Documented Wolf Groups) was captured in the former Gold Fork pack's territory, but was often located in the Orphan pack's home range. Pack and reproductive status of the Orphan pack was unknown at the end of 2007, so it was not considered a breeding pair.

Partridge Creek
This pack has been removed from the list of documented because the Carey Dome and Bear Pete packs occupied this territory.

Sleepy Hollow
Male B148, captured as a member of the Big Hole pack, and male B181, captured as a member of the Partridge Creek pack, have adjacent radio frequencies. Both of these wolves dispersed from their respective packs and radio contact was lost for a time on B148 (from late October 2003 until January 2005). A signal from one of these wolves was detected in what became the Sleepy Hollow pack's home range, but due to frequency drift, Program personnel were unable to identify which of these wolves was being monitored. Spring telemetry locations were inconclusive as to the denning status of this pack, and it was hoped that the pack would move to a more readily accessible location where reproductive status could be assessed. Wildfires prevented any survey efforts, but an aerial observation in October spotted only 3 wolves, though this was likely an incomplete count compared with 2006 data. During a November monitoring flight, the radiocollared individual was detected on mortality mode. An attempt to recover the carcass/radiocollar was initiated, but no further radio signal was heard, suggesting the radiocollar's battery expired before it could be recovered; this was recorded as a suspected mortality. The Sleepy Hollow pack was not considered a breeding pair in 2007 and a minimum of 2 wolves remained.

Stolle Meadows
Aerial telemetry locations suggested that suspected alpha female B249 had denned in spring 2007. Investigation of this area indicated prolonged wolf use, but no evidence of pups or a den was found. Ground and aerial observations from 2006 suggested that perhaps only the 2 radiocollared wolves, B249 and male B259 were present. Wildfires prevented access for much of the field season, but prior to area restrictions, a University of Montana research crew located a minimum of 3 sets of wolf tracks and a recreationist reported observing 5-8 wolves along the South Fork Salmon River. An aerial observation in October spotted 3 black and 1 gray wolves, while B259 (white) was likely not seen. Based upon an aerial observation and reports, minimum estimated pack size was 4 individuals. The Stolle Meadows pack was not counted as a breeding pair for the second consecutive year.

Thunder Mountain
Program efforts to document continued wolf occupancy of this pack's territory were successful when wolf tracks and scats were located in the Indian Creek drainage; however, subsequent wildfires in the area thwarted plans for a capture operation and no further field efforts were undertaken. A hunting outfitter with a camp at Riordan Lake reported multiple sightings of 7 wolves there in 2006, but this information could not be verified. No evidence of reproduction was obtained, so the Thunder Mountain pack was not recorded as a breeding pair for 2007. Additional monitoring efforts will be made to determine this packs status in 2008.

Wolf Fang
Suspected alpha female B282, radiocollared in June 2006, was not located from October 2006 through March 2007; this pack's whereabouts were unknown during this time. In April, a ground crew detected B282's radio signal in the Big Creek drainage near where this pack's pups were observed in 2006. Five gray wolves were observed, but no evidence of reproduction was found and the wolves moved extensively at a time when they should have been localized if pups were present. Three gray wolves were observed during an October monitoring flight, but based upon field efforts the minimum pack size estimate was 5 wolves. This pack was not considered a breeding pair for 2007.

Suspected Resident Packs

Oxbow
Due to a lack of information for the past 2 years, the Oxbow pack was no longer considered a suspected pack by the end of 2007.

Other Documented Wolf Groups

B219
During a September monitoring flight, B219's radio signal was located on mortality mode near Rainbow Lake in the Boise National Forest. She was initially captured and radiocollared as a member of the Magruder pack in 2004, and had not been located since May 2005. Skeletal remains and her radiocollar were retrieved at a site approximately 55 miles (88 km) from the Magruder pack's home range and based upon the condition of the remains, it was estimated that B219 likely died prior to 2007; an investigation was opened by USFWS Law Enforcement division.

B315
Female B315 was captured and radiocollared during a control action in October 2006 south of Hartley Meadows (north of McCall, Idaho). She remained in the vicinity of her capture until December 2006, at which time she was aerially located along the Salmon River. In January 2007, she was aerially located a few miles south of Riggins, Idaho, along the Little Salmon River. B315's signal was not detected again until September 2007, when she was located in the headwaters of Rapid River on the west side of the Little Salmon River drainage. Pack affiliation, if any, and reproductive status were unknown.

B327
Male wolf B327 was captured by WS during a control action and fitted with a GPS radiocollar. B327 was trapped in the former Gold Fork pack's home range, but was also located within the Orphan pack's territory, including their 2005 rendezvous site. Ground-tracking efforts to determine his affiliation with other wolves were unsuccessful; B327 appeared to be alone each time he was located. Six confirmed calf losses and 1 probable calf loss occurred during the time span preceding B327's capture, during the control action, and also following his capture.

B349
Male wolf B349 was captured and radiocollared in mid-August by WS. Two other wolves were lethally removed during this control action. Following these removals, tracks of at least 2 wolves were found near a recent aerial location of B349. During the October monitoring flight B349's signal was detected on mortality mode; USFWS Law Enforcement agents investigated the following day, collected the carcass, and opened an active case. The loss of B349 will make determination of wolf status in this area more difficult to ascertain.

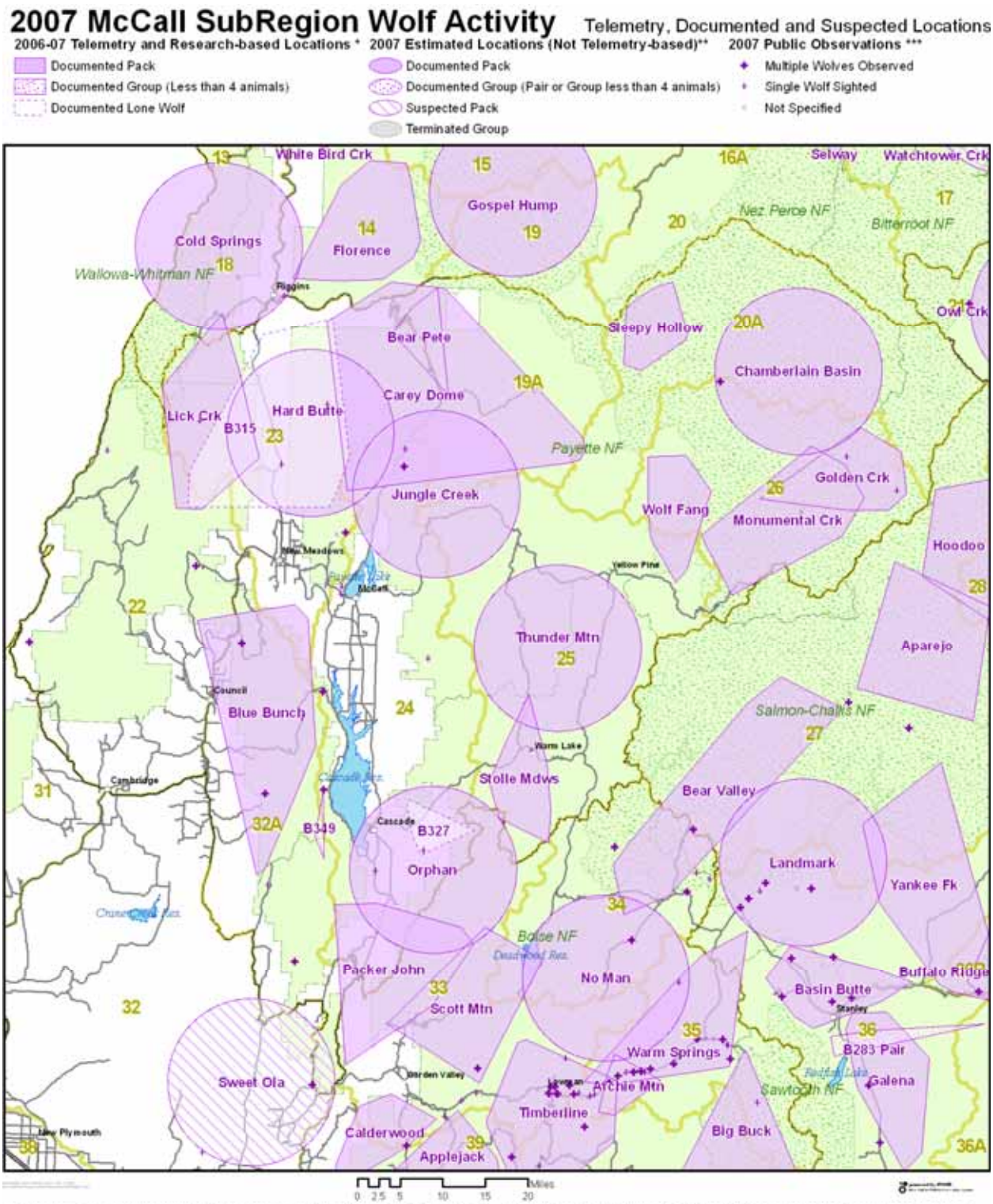


Figure 8. Wolf pack activity and observations in the McCall Subregion, 2007.

Table 4. Minimum number of wolves detected, reproductive status, mortality, dispersal, monitoring status, and livestock depredation for documented and suspected wolf packs and other wolf groups within Idaho Department of Fish and Game McCall Subregion, 2007.

Wolf group[a]	Min. no. wolves detected[b]	Reproductive status			Documented mortalities				Known dispersal	Monitoring status			Confirmed & (probable) wolf-caused livestock losses		
		Min. no. pups prod. (died)[c]	Reported as		Natural	Control[e]	Other human[f]	Unknwn[g]		Active radio collars	No. wolf captures[h]	No. wolves missing[i]	Cattle	Sheep	Dogs
			reprod. pack	breeding pair[d]											
DOCUMENTED PACK															
Bear Pete	8	6	YES	YES	0	0	0	0	0	2	2	0	0	0	0
Blue Bunch	7	3	YES	YES	0	0	0	0	0	1	0	0	(1)	3	3(1)
Carey Dome	5	4	YES	NO	0	2	1	0	0	1	1	0	0	7(1)	0
Chamberlain Basin	11	6	YES	YES	0	0	0	0	0	0	0	0	0	0	0
Golden Creek	7	4	YES	YES	0	0	0	0	0	2	1	0	0	0	0
Hard Butte	5	3	YES	YES	0	1	0	0	0	0	0	0	1	8(1)	1(2)
~~Hazard Lake~~[j]															
Jungle Creek	4	?	NO	NO	0	4	0	0	0	0	0	0	0	41	0
Lick Creek	8	6	YES	YES	0	0	0	0	0	1	0	0	0	1(1)	0
Monumental Creek	15	8	YES	YES	0	0	0	0	0	2	0	0	0	0	0
Orphan	?	?	NO	NO	0	0	0	0	0	0	0	0	0	0	0
~~Partridge Creek~~[j]															
Sleepy Hollow	2	?	NO	NO	0	0	0	0	0	0	0	0	0	0	0
Stolle Meadows	4	?	NO	NO	0	0	0	0	0	2	0	0	0	0	0
Thunder Mountain	?	?	NO	NO	0	0	0	0	0	0	0	0	0	0	0
Wolf Fang	5	0	NO	NO	0	0	0	0	0	1	0	0	0	0	0
SUBTOTAL	81	40			0	7	1	0	0	12	4	0	1(1)	60(3)	4(3)
SUSPECTED PACK															
~~Oxbow~~[j]															
SUBTOTAL	0	0			0	0	0	0	0	0	0	0	0	0	0
OTHER DOCUMENTED GROUP															
B219	0				0	0	0	0[k]	0	0	0	0	0	0	0
B315	1				0	0	0	0	0	1	0	0	0	0	0
B327	1				0	0	0	0	0	1	1	0	6(1)	0	0
B349	1				0	2	1	0	0	0	1	0	1[l]	0	0
SUBTOTAL	3	0			0	2	1	0	0	2	2	0	7(1)	0	0
UNKNOWN															
	?				0	1	0	1	0	0	0	0	0	0	0
SUBTOTAL	0	0			0	1	0	1	0	0	0	0	0	0	0
REGIONAL TOTAL	84	40			0	10	2	1	0	14	6	0	8(2)	60(3)	4(3)

[a] Documented pack = 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 pack = 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

Table 4. Continued.

status (e.g., lone wolves, potential mated pairs, etc.). Unknown = geographic areas where wolf presence was previously unverified and/or no data on group status was known.

[b] Summing this column 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 column in DOCUMENTED MORTALITIES.

[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] Includes agency lethal control and legal take.

[f] Includes all other human-related deaths.

[g] Does not include pups that disappeared before winter.

[h] Includes wolves captured for monitoring purposes during 2007. Most, but not all, were radiocollared.

[i] Radiocollared wolves that became missing in 2007.

[j] Group no longer considered extant due to agency lethal removal, lack of verified evidence for the preceding 2 years, or other cause.

[k] B219's remains were located in 2007, but condition of the remains suggested wolf likely died in 2006.

[l] Depredation occurred in Nampa Subregion.

Nampa Subregion of the Southwest Region

During 2007, the Nampa Subregion portion of the Southwest Region was home to13 documented and 1 suspected wolf packs (Figure 9; Table 5). Eight documented packs were counted as breeding pairs. All 6 documented mortalities were human caused. Confirmed sheep losses were attributed to the Applejack, High Prairie, Packer John, Steel Mountain, and Timberline packs, and unknown wolves. Confirmed cattle losses were attributed to the documented High Prairie pack, the suspected Sweet Ola pack, and unknown wolves. Five wolves were removed in total from the High Prairie, Packer John, and Steel Mountain packs. Ten wolves were captured and radiocollared.

Law Enforcement Summary

Conservation Officers, in consultation with USFWS Special Agents, investigated 1 report of a dead wolf. This was a radiocollared wolf which was detected on mortality signal. It was determined to be illegally shot.

Documented Resident Packs

Applejack
Female B306 remained the sole radiocollared member of this pack throughout the year. She was captured during a control action resulting from 4 confirmed sheep losses during 2 depredation incidents. She was released unharmed as the control action called for removal of uncollared wolves only. Four gray pups were produced. This first-year pack had a minimum of 5 gray wolves and was counted as a breeding pair for 2007.

Archie Mountain
This pack was newly documented with the capture of B341 in the summer. Five gray pups were subsequently counted. This first-year pack had a minimum of 7 gray wolves and was counted as a breeding pair for 2007.

Archie Mountain pack on a winter day. *Michael Lucid*

Bear Valley
One wolf was captured in this pack, resulting in a total of 2 radiocollared wolves, female B215 and male B332. The Bear Valley pack produced 4 gray pups. This fourth-year pack had a minimum of 14 gray wolves and was counted as a breeding pair for 2007.

Big Buck
Alpha female B255 remained the sole radiocollared member of this pack throughout the year. In the spring, IDFG personnel responded to citizens who were concerned because this pack was localized near a horse pasture. Hazing with cracker shells was successful at pushing the wolves from the area. The citizens were provided with a Radio-Activated Guard box, which is used for non-lethal hazing of wolves. Based on tracking evidence, biologists estimated at least 2 pups were produced. This second year pack had a minimum of 4 wolves and was counted as a breeding pair for 2007.

Big Buck pack at a stand off with an elk. *Michael Lucid*

Calderwood
Alpha female B141 remained the sole radiocollared wolf in this pack. Ground monitoring led to an observation of 1 gray pup. This fourth-year pack contained a minimum of 4 gray wolves and was not counted as a breeding pair for 2007.

High Prairie
In April, a coyote trapper contacted IDFG to report he had incidentally captured a wolf. The wolf was female B170, a disperser from the Galena pack; she had last been detected as a member of the Galena pack in 2005. She appeared to have lactated in the past, suggesting her status as an alpha (breeder) in the High Prairie pack. She was fitted with a new radiocollar and released. In 2007, she produced at least 1 pup and two of her pack mates were removed in a control action that resulted from 8 confirmed sheep losses, 1 confirmed cattle depredation, and 1 probable dog

depredation. This newly documented pack had a minimum of 3 gray wolves and was not counted as a breeding pair for 2007.

B170 recovering nicely after capture.
Michael Lucid

No Man
This newly documented pack produced a minimum of 1 pup and contained a minimum of 2 adults. Multiple trapping attempts were unsuccessful. This pack was not counted as a breeding pair for 2007.

Packer John
Suspected alpha male B262's radio signal was detected on mortality in April. The cause of death was determined to be illegal take. This left alpha female B205 as the remaining radiocollared individual. B205 was recaptured in the summer and fitted with a GPS radiocollar. This pack produced a minimum of 3 pups. The Packer John pack was implicated in 21 confirmed sheep losses resulting in a control action which removed 1 uncollared wolf. This fourth-year pack had a minimum of 3 wolves (2 gray, 1 black) and was not counted as a breeding pair for 2007.


Packer John pack pups in the den. *Nate Borg*

Scott Mountain
Multiple trapping attempts were unsuccessful in returning this pack to active monitoring status. Personnel conducting howling surveys heard a minimum of 2 pups and 2 adults respond to them while surveying an area near a historic rendezvous site. This seventh-year pack had a minimum of 4 wolves and counted as a breeding pair for 2007.

Steel Mountain
Alpha wolves B189 and R241 were being monitored at the onset of 2007. Subordinate male B271 had last been detected in late December 2006. He was not found in Idaho again, but was eventually observed in Yellowstone National Park in November 2007. At the end of 2007, he appeared to have paired with a dispersing female from the Slough Creek pack. During summer 2007, B325 was captured and fitted with a GPS radiocollar. This radiocollar automatically detached from the wolf's neck in the fall so it could be collected for data retrieval. Biologists counted a minimum of 2 pups in this pack. Two wolves were killed during a control action in response to livestock depredation of 9 confirmed sheep and 1 probable losses. B189 was also recaptured during the control action and was re-collared and released. This fifth-year pack had a minimum of 9 wolves (6 gray, 3 black) and was counted as a breeding pair for 2007.

Thorn Creek
This newly documented pack had 1 active radiocollared wolf, female B340. A minimum of 4 gray pups was produced. Pack size and prior tracking evidence indicated this pack may have been in existence since at least 2006. This pack contained a minimum of 12 gray wolves and was counted as a breeding pair for 2007.

Timberline
Two Timberline pack wolves, B265 and B266, were being monitored at the onset of 2007. However, both of these wolves were missing by the end of April. In June, a GPS radiocollar was fitted on B322. The Timberline pack produced at least 2 gray pups and was implicated in 9 confirmed and 4 probable sheep losses. This sixth-year pack had a minimum of 11 gray wolves and was counted as a breeding pair for 2007.

Warm Springs
Female B283 was the sole radiocollared member of this pack at the beginning of the year. In the fall, B283 was apparently disassociating from the pack. In November, she was seen with another wolf east of Stanley, Idaho, far from the Warm Springs pack's territory. A minimum of 1 pup was produced by the Warm Springs pack. In December, alpha female B109 was recaptured. Her non-functioning radiocollar was removed and she was fitted with a GPS radiocollar. This pack had a minimum of 5 gray wolves and did not count as a breeding pair for 2007.

Suspected Packs

Sweet Ola
Multiple reports indicated there may be an undocumented pack in this area. There were 2 confirmed cattle depredations and 1 probable dog depredation in this area.

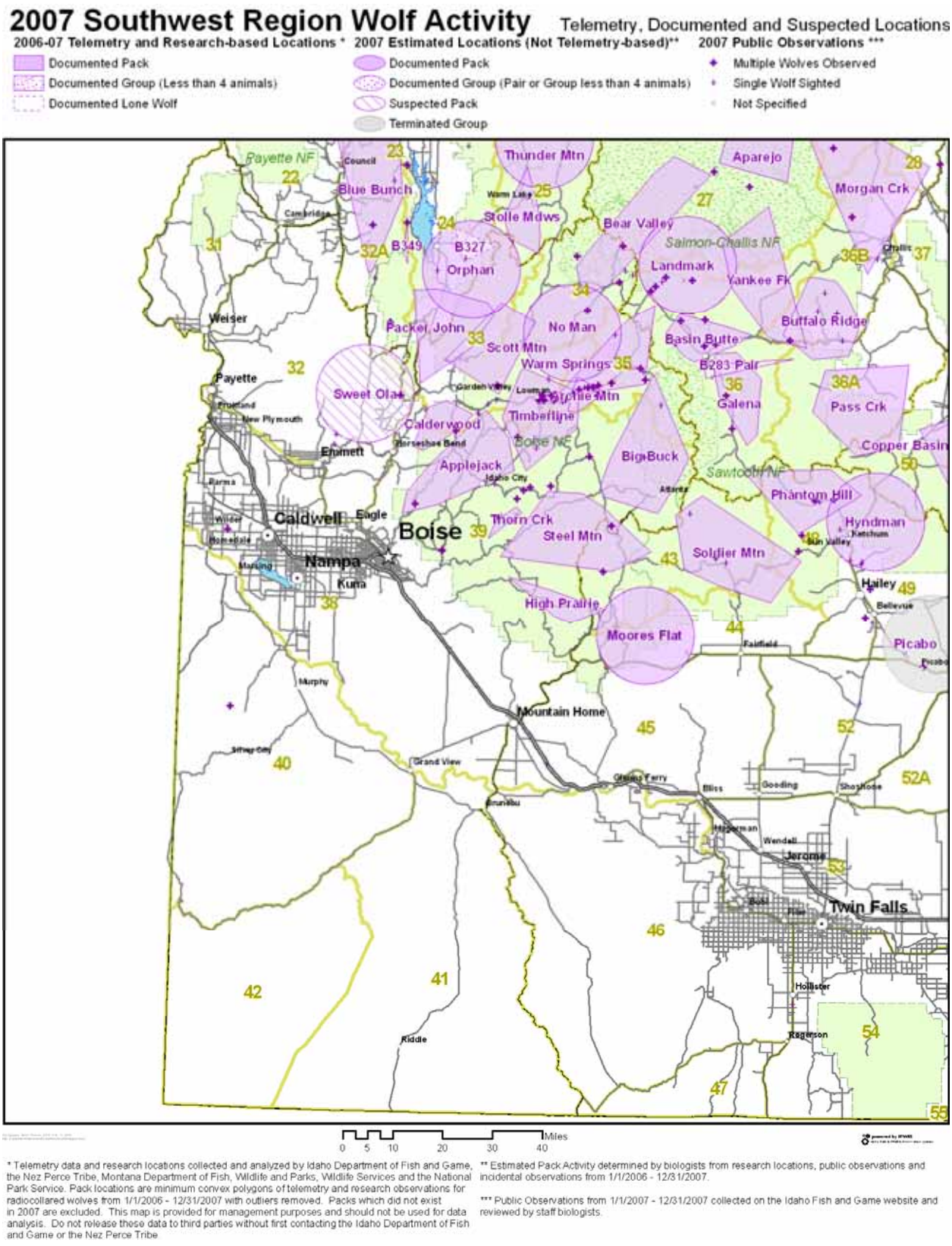


Figure 9. Wolf pack activity and observations in the Nampa Subregion, 2007.

Table 5. Minimum number of wolves detected, reproductive status, mortality, dispersal, monitoring status, and livestock depredation for documented and suspected wolf packs and other wolf groups within Idaho Department of Fish and Game Nampa Subregion, 2007.

Wolf group[a]	Min. no. wolves detected[b]	Reproductive status			Documented mortalities				Known dispersal	Monitoring status			Confirmed & (probable) wolf-caused livestock losses		
		Min. no. pups prod. (died)[c]	Reported as		Natural	Control[e]	Other human[f]	Unknwn[g]		Active radio collars	No. wolf captures[h]	No. wolves missing[i]	Cattle	Sheep	Dogs
			reprod. pack	breeding pair[d]											
DOCUMENTED PACK															
Applejack	5	4	YES	YES	0	0	0	0	0	1	1	0	0	4	0
Archie Mountain	7	5	YES	YES	0	0	0	0	0	1	1	0	0	0	0
Bear Valley	14	4	YES	YES	0	0	0	0	0	2	1	0	0	0	0
Big Buck	4	2	YES	YES	0	0	0	0	0	1	0	0	0	0	0
Calderwood	4	1	YES	NO	0	0	0	0	0	1	0	0	0	0	0
High Prairie	3	1	YES	NO	0	2	0	0	0	1	1	0	1	8	(1)
No Man	3	1	YES	NO	0	0	0	0	0	0	0	0	0	0	0
Packer John	3	3	YES	NO	0	1	1	0	0	1	1	0	0	21[j]	0
Scott Mountain	4	2	YES	YES	0	0	0	0	0	0	0	0	0	0	0
Steel Mountain	9	2	YES	YES	0	2	0	0	1	2	2	0	0	9(1)	0
Thorn Creek	12	4	YES	YES	0	0	0	0	0	1	1	0	0	0	0
Timberline	11	2	YES	YES	0	0	0	0	0	1	1	2	0	9(4)	0
Warm Springs	5	1	YES	NO	0	0	0	0	1	1	1	0	0	0	0
SUBTOTAL	84	32			0	5	1	0	2	13	10	2	1	51(5)	(1)
SUSPECTED PACK															
Sweet Ola	1				0	0	0	0	0	0	0	0	2	0	(1)
SUBTOTAL	1	0			0	0	0	0	0	0	0	0	2	0	(1)
UNKNOWN															
	?				0	0	0	0	0	0	0	0	0	5	0
SUBTOTAL	0	0			0	0	0	0	0	0	0	0	0	5	0
REGIONAL TOTAL	85	32			0	5	1	0	2	13	10	2	3	56(5)	(2)

[a] Documented pack = 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 pack = 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.). Unknown = geographic areas where wolf presence was previously unverified and/or no data on group status was known.

[b] Summing this column 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 column in DOCUMENTED MORTALITIES.

[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] Includes agency lethal control and legal take.

[f] Includes all other human-related deaths.

[g] Does not include pups that disappeared before winter.

Table 5. Continued.

[h] Includes wolves captured for monitoring purposes during 2007. Most, but not all, were radiocollared.
[i] Radiocollared wolves that became missing in 2007.
[j] Depredation occurred in McCall Subregion.

Magic Valley Region

During 2007, the Magic Valley Region was home to 4 documented wolf packs and 1 other documented wolf group. One documented pack counted as a breeding pair (Figure 10; Table 6). Eleven documented mortalities were the result of control actions, and 1 wolf was shot legally under the 10(j) Rule. Confirmed (n = 9) and probable (n = 4) cattle losses were attributed to the Moores Flat pack, and the Picabo group, which was subsequently removed. Confirmed (n = 41) and probable (n = 7) sheep losses were attributed to the Moores Flat, Phantom Hill, and Soldier Mountain packs, and unknown wolves. The Steel Mountain pack also killed sheep in the Magic Valley Region; however, these losses are recorded in the Nampa Subregion section (Table 5). Dog losses were attributed to the Moores Flat and Phantom Hill packs. Three wolves were captured and radiocollared in 2007.

Law Enforcement Summary

Conservation Officers investigated the shooting of a wolf harassing livestock; the take was considered a legal shooting under the 10(j) Rule. There was no documented illegal take in this region in 2007.

Documented Resident Packs

Hyndman
In 2005, agency personnel documented this pack as reproductive. Multiple reports indicated wolves may still be using this area in 2007, however, pack status could not be confirmed.

Moores Flat
This newly documented pack produced a minimum of 6 gray pups. One wolf was captured and radiocollared, but was subsequently lethally removed due to multiple livestock depredations. This pack was implicated in 4 confirmed cattle, 4 probable cattle, 27 confirmed sheep, and 1 confirmed dog depredations. A total of 9 wolves were removed. At the end of 2007, at least 2 wolves were believed to remain. This first-year pack was not counted as a breeding pair for 2007.

Phantom Hill
This pack began making its appearance in the Hailey, Idaho, area in late winter. One female (B326) and 1 male (B333) were captured during summer. This pack was confirmed to have killed 14 sheep and probably killed 3 additional sheep. They were confirmed to have killed 2 dogs. Biologists observed 3 black pups. This first-year pack had a minimum of 5 black wolves and was counted as a breeding pair for 2007.

Soldier Mountain
Subordinate female B192 and alpha male B149 were being monitored at the onset of 2007. B192 was last located during a June monitoring flight and has not been found since. Late winter flights indicated 2 gray wolves in this pack. Since a black wolf was not observed, black wolf B192 had likely either dispersed or was killed and her radiocollar destroyed. Biologists were unable to document reproduction despite repeated efforts. The Soldier Mountain pack was implicated in 3 probable sheep depredations. This sixth-year pack had a minimum of 2 gray wolves and was not counted as a breeding pair for 2007.

Other Documented Wolf Groups

Picabo

This previously undocumented group was discovered when they depredated upon cattle (*n* = 5 confirmed) in the Picabo, Idaho, area. All 3 known wolves were removed (one shot legally under the 10(j) Rule and two removed by WS) from the area including Buffalo Ridge disperser B270. B270 had been missing since late December 2006. He was not found again until his death in 2007.

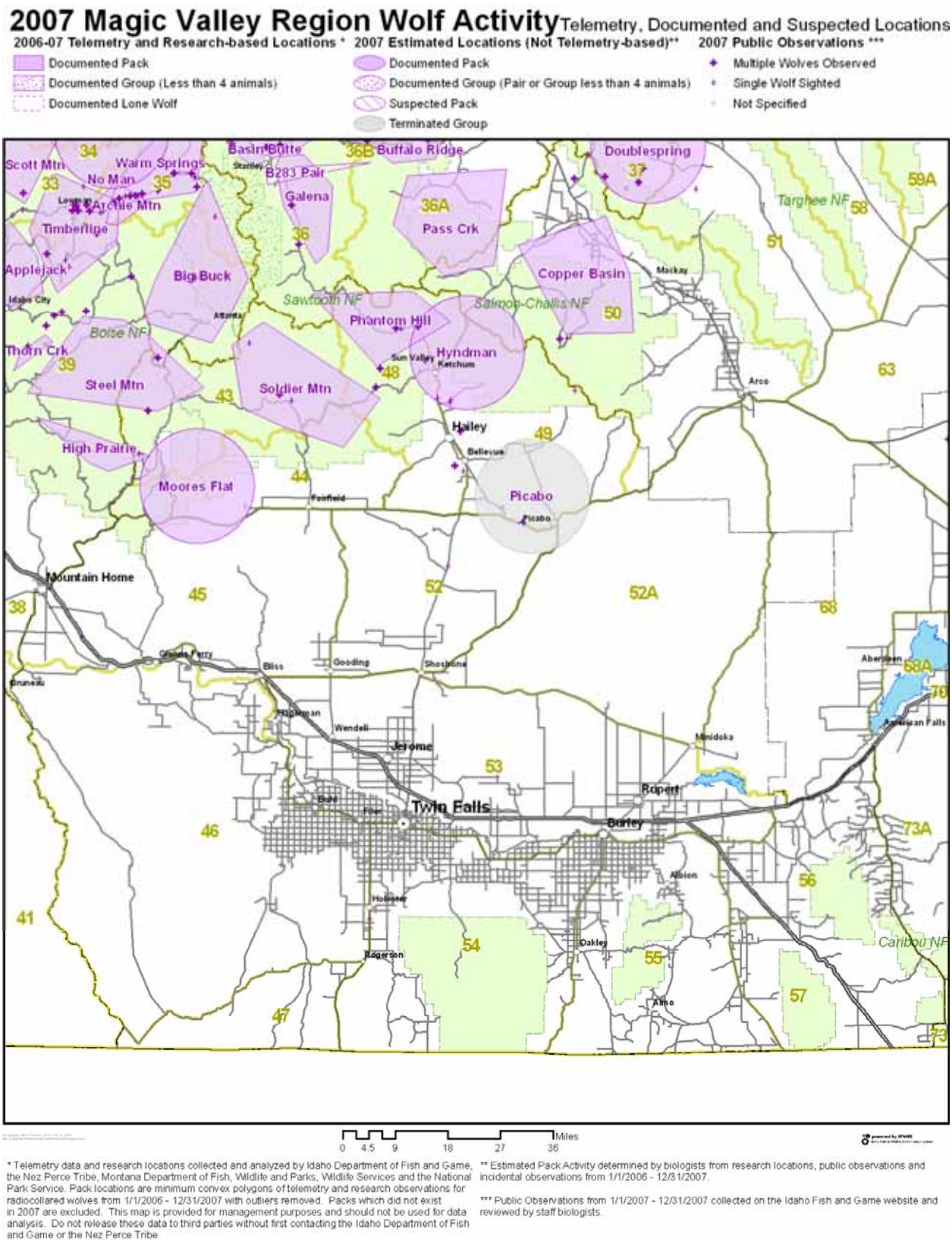


Figure 10. Wolf pack activity and observations in the Magic Valley Region, 2007.

Table 6. Minimum number of wolves detected, reproductive status, mortality, dispersal, monitoring status, and livestock depredation for documented and suspected wolf packs and other wolf groups within Idaho Department of Fish and Game Magic Valley Region, 2007.

Wolf group[a]	Min. no. wolves detected[b]	Reproductive status			Documented mortalities				Known dispersal	Monitoring status			Confirmed & (probable) wolf-caused livestock losses		
		Min. no. pups prod. (died)[c]	Reported as							Active radio collars	No. wolf captures[h]	No. wolves missing[i]			
			reprod. pack	breeding pair[d]	Natural	Control[e]	Other human[f]	Unknwn[g]					Cattle	Sheep	Dogs
DOCUMENTED PACK															
Hyndman	?	?	NO	NO	0	0	0	0	0	0	0	0	0	0	0
Moores Flat	2	6(5)	YES	NO	0	9	0	0	0	0	1	0	4(4)	27	1
Phantom Hill	5	3	YES	YES	0	0	0	0	0	2	2	0	0	14(3)	2
Soldier Mountain	2	?	NO	NO	0	0	0	0	0	1	0	1	0	(3)	0
SUBTOTAL	9	9(5)			0	9	0	0	0	3	3	1	4(4)	41(6)	3
OTHER DOCUMENTED GROUP															
~~Picabo~~[j]	0	0			0	3	0	0	0	0	0	0	5	0	0
SUBTOTAL	0	0			0	3	0	0	0	0	0	0	5	0	0
UNKNOWN															
	?				0	0	0	0	0	0	0	0	0	(1)	0
SUBTOTAL	0				0	0	0	0	0	0	0	0	0	(1)	0
REGIONAL TOTAL	9	9(5)			0	12	0	0	0	3	3	1	9(4)	41(7)	3

[a] Documented pack = 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 pack = 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.). Unknown = geographic areas where wolf presence was previously unverified and/or no data on group status was known.

[b] Summing this column 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 column in DOCUMENTED MORTALITIES.

[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] Includes agency lethal control and legal take.

[f] Includes all other human-related deaths.

[g] Does not include pups that disappeared before winter.

[h] Includes wolves captured for monitoring purposes during 2007. Most, but not all, were radiocollared.

[i] Radiocollared wolves that became missing in 2007.

[j] Group no longer considered extant due to agency lethal removal, lack of verified evidence for the preceding 2 years, or other cause.

Southeast Region

There were no established packs documented in the Southeast Region during 2007 (Figure 11). Observations of lone wolves have been reported over several years and a wolf was killed along the Utah border near Weston in 2003.

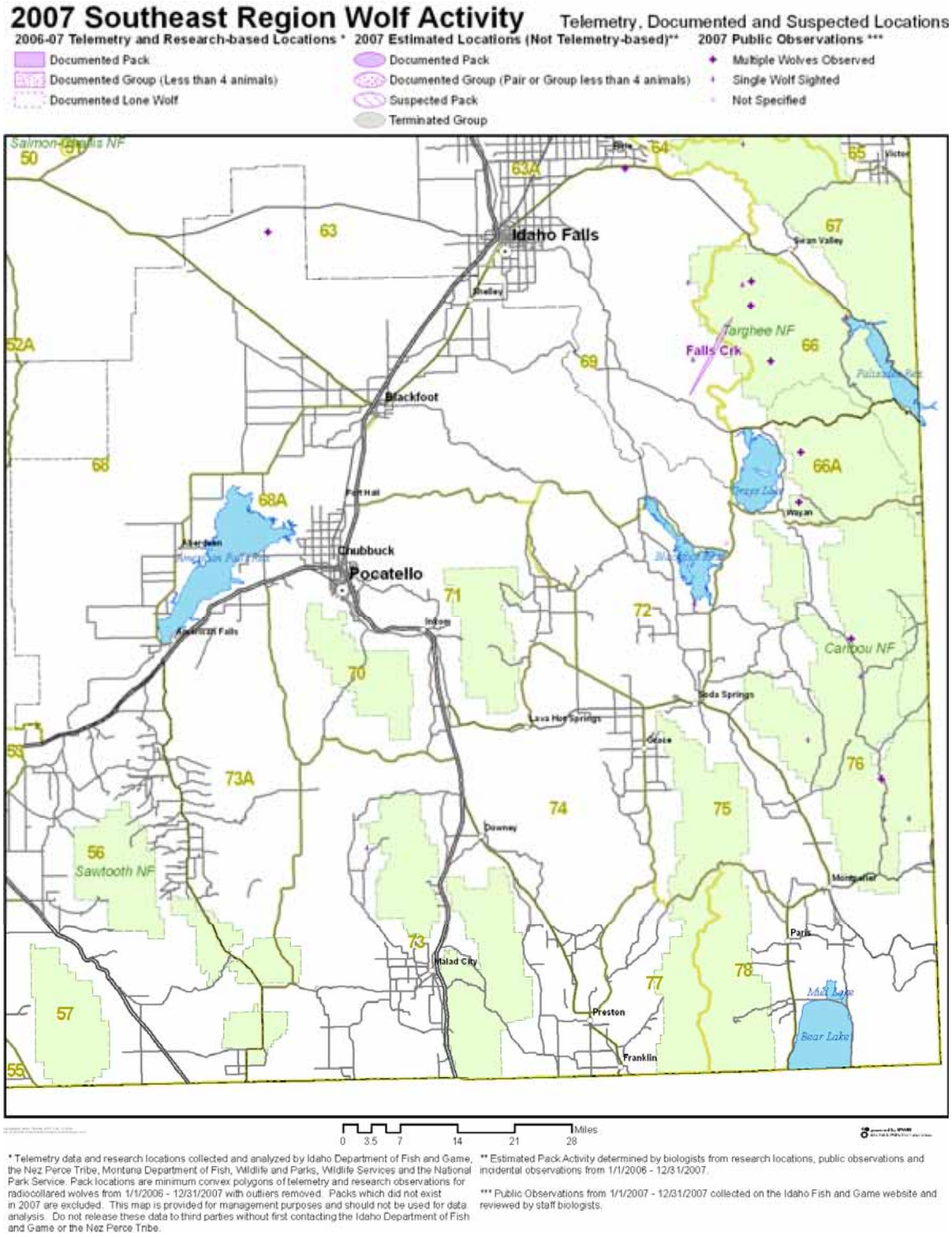


Figure 11. Wolf pack activity and observations in the Southeast Region, 2007.

Upper Snake Region

The Upper Snake Region was occupied by 3 documented resident packs, 1 documented border pack, and 1 suspected resident pack during 2007 (Figure 12; Table 7). While both the Biscuit Basin and Falls Creek packs reproduced, only the Biscuit Basin pack qualified as a breeding pair. The primary source of mortality was lethal control (n = 8), followed by other human (n = 1) and unknown (n = 1) causes. Confirmed and probable cattle and sheep losses were attributed to the Copper Basin and Falls Creek packs. One dog was confirmed killed by the Falls Creek pack. The Biscuit Basin pack was implicated in the wounding of 1 guard dog and the disappearance of another, but these could not be confirmed. There were also several other confirmed/probable depredations on cattle attributed to unknown groups of wolves. Two wolves were captured, resulting in the deployment of 1 radiocollar and 1 GPS collar.

Law Enforcement Summary

Conservation Officers investigated or assisted in investigating 2 wolf-related incidents. One wolf carcass was collected east of Ashton, Idaho, and determined to have been struck by a vehicle. A wolf radiocollar located on mortality during a monitoring flight was retrieved in March, but because the carcass was nearly entirely scavenged, cause of death was not determined.

Documented Resident Packs

Biscuit Basin
Consisting of 6 wolves in early winter 2006/2007, the radiocollared breeding female 340F was intermittently located from the air during spring and early summer. However, ground telemetry failed to locate the collared animal during the denning period, and several searches of the 2006 den location indicated the pack was no longer using the area. In July, a livestock producer reported 1 sheep guarding dog was injured and another was missing (later listed as probably wolf-killed); WS confirmed wolf involvement, and during the investigation detected the radiocollared wolf in the vicinity. Additional attempts were made to determine the reproductive status during July, and while multiple adults were observed on 1 occasion, no pups were seen. In August, a WS pilot located 340F and observed her with 2 pups, qualifying this pack as a breeding pair. Aerial observations in December indicated this pack consisted of a minimum of 5 wolves.

Copper Basin
Lethal control resulted in the removal of all known adults by September 2006, leaving only a subadult wolf and pups. In December, adult male B253 joined this pack, presumably assuming the role as the pack's breeding male. However, that position was short-lived when B253 and a pup were lethally controlled in February after 2 calves were confirmed killed by this pack. Another pup, male B305, was found dead of unknown causes in late winter. Confirmed livestock depredations in spring, 3 confirmed and 2 probable cattle losses, initiated efforts to determine whether this pack had reproduced, as it was unknown whether or not any other breeding-aged wolves had joined with the pack. Because no pups or indication of denning was found, and given this pack's history of chronic depredations, the decision was made to remove the pack. In May, 4 wolves were removed, leaving only a radiocollared subadult, wolf B304. Collaboration with local livestock producers resulted in the consensus opinion that a radiocollared wolf should be left in the area to monitor future wolf activity. As such, B304 was

recaptured in May and fitted with a GPS radiocollar so that aerial observations might indicate if new wolves were attempting to establish themselves in the area, as well as to investigate wolf-livestock interactions. An aerial observation during winter counts found 3 wolves in this group, resulting in the Copper Basin pack being maintained on the regional pack list.

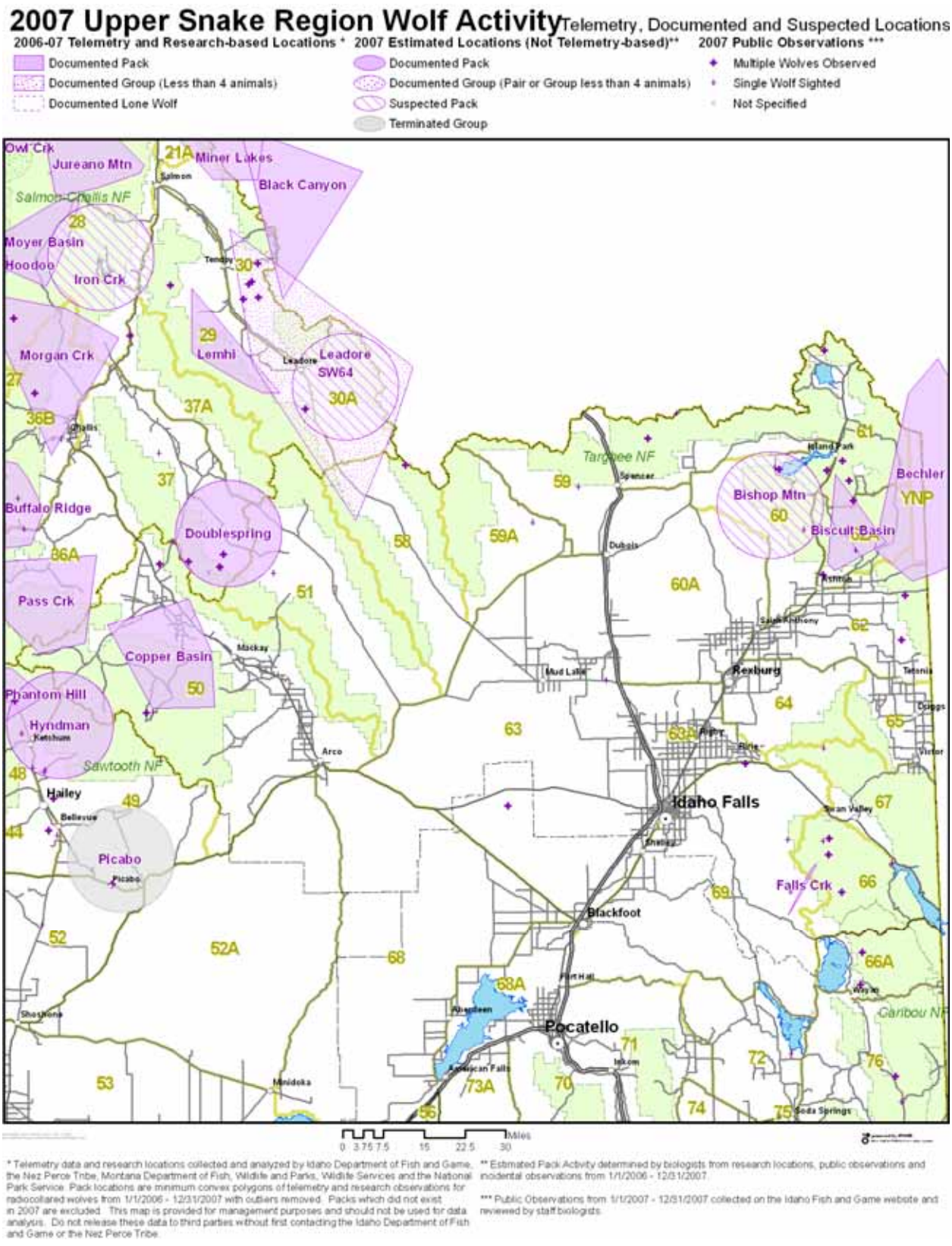
Falls Creek
Newly documented in 2007, this pack's presence was suspected, but remained unconfirmed until a dog that had been tied up near a camp trailer was killed by wolves. Wildlife Services initiated a trapping effort, which resulted in the capture of an apparently reproductive female. While processing the wolf, a single pup was observed. In August, the suspected breeding male was opportunistically killed by a WS' agent at a depredation site where 2 sheep were confirmed killed. After the initial observation of the single pup, sporadic ground and aerial observations turned up only adult wolves. A December telemetry flight again indicated only 2 adult wolves, thus precluding this pack from qualifying as a breeding pair.

Documented Border Packs

Bechler (WY)
This documented border pack was tallied for Wyoming for 2007. See the respective State's annual report for information on this pack.

Suspected Resident Packs

Bishop Mountain
Bishop Mountain was a suspected pack that appeared to be derived from the Nez Perce pack of Yellowstone National Park. The only radiocollared wolf in this group was last located in September 2005. There were no radiocollared wolves in this group during 2007, and therefore reproduction was not verified. Sightings of multiple wolves have been reported in the range thought to be occupied by this pack, indicating their continued presence.



* Telemetry data and research locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services and the National Park Service. Pack locations are minimum convex polygons of telemetry and research observations for radiocollared wolves from 1/1/2006 - 12/31/2007 with outliers removed. Packs which did not exist in 2007 are excluded. 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.

** Estimated Pack Activity determined by biologists from research locations, public observations and incidental observations from 1/1/2006 - 12/31/2007.

*** Public Observations from 1/1/2007 - 12/31/2007 collected on the Idaho Fish and Game website and reviewed by staff biologists.

Figure 12. Wolf pack activity and observations in the Upper Snake Region, 2007.

Table 7. Minimum number of wolves detected, reproductive status, mortality, dispersal, monitoring status, and livestock depredation for documented and suspected wolf packs and other wolf groups within Idaho Department of Fish and Game Upper Snake Region, 2007.

Wolf group[a]	Min. no. wolves detected[b]	Reproductive status			Documented mortalities				Known dispersal	Monitoring status			Confirmed & (probable) wolf-caused livestock losses		
		Min. no. pups prod. (died)[c]	Reported as							Active radio collars	No. wolf captures[h]	No. wolves missing[i]			
			reprod. pack	breeding pair[d]	Natural	Control[e]	Other human[f]	Unknwn[g]					Cattle	Sheep	Dogs
DOCUMENTED PACK															
Bechler (WY)[j]															
Biscuit Basin	5	2	YES	YES	0	0	0	0	0	1	0	0	0	0	(1)
Copper Basin	3	0	NO	NO	0	6	0	1	0	1	1	0	5(2)	0	0
Falls Creek	2	1	YES	NO	0	1	0	0	0	1	1	0	0	2	1
SUBTOTAL	10	3			0	7	0	1	0	3	2	0	5(2)	2	1(1)
SUSPECTED PACK															
Bishop Mountain	?				0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	0	0			0	0	0	0	0	0	0	0	0	0	0
UNKNOWN															
	?				0	1	1	0	0	0	0	0	9(3)	0	0
SUBTOTAL	0	0			0	1	1	0	0	0	0	0	9(3)	0	0
REGIONAL TOTAL	10	3			0	8	1	1	0	3	2	0	14(5)	2	1(1)

[a] Documented pack = 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 pack = 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.). Unknown = geographic areas where wolf presence was previously unverified and/or no data on group status was known.

[b] Summing this column 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 column in DOCUMENTED MORTALITIES.

[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] Includes agency lethal control and legal take.

[f] Includes all other human-related deaths.

[g] Does not include pups that disappeared before winter.

[h] Includes wolves captured for monitoring purposes during 2007. Most, but not all, were radiocollared.

[i] Radiocollared wolves that became missing in 2007.

[j] Border pack officially tallied to (STATE); territory known/likely shared with Idaho. Data on these packs can be found in Rocky Mountain Wolf Recovery 2007 Annual Report. Data for mortalities and/or depredations by non-Idaho border packs that occurred within Idaho are presented here.

Salmon Region

The Salmon Region was occupied by 14 documented resident, 6 documented border (one tallied to Idaho and five to Montana), and 2 suspected packs during 2007 (Figure 13; Table 8). Of the 11 packs confirmed to have reproduced, 8 qualified as breeding pairs. Lethal control (n = 12) and other human-related (n = 6) causes were the only documented sources of mortality. Five resident packs were responsible for 11 confirmed and 4 probable cattle losses. An additional 10 cattle were categorized as confirmed (n = 7) and probable (n = 3) wolf-kills by suspected packs or unknown wolves. The Lemhi and Galena packs were confirmed to have killed nine and two sheep, respectively. Eleven wolves were captured, resulting in the deployment of 6 VHF and 4 GPS radiocollars.

Law Enforcement Summary

Conservation Officers, in consultation with USFWS Special Agents, investigated or responded to 12 reports involving wolves. Three wolves investigated were determined to be legally shot under provisions of the 10(j) Rule. A fourth wolf was legally shot in self defense after approaching a hunter to within 10 feet. Four wolves were determined to be illegally killed. One wolf was investigated and determined to have been struck by a vehicle. Officers also investigated 3 additional reports of dead wolves, but no carcasses were found.

Documented Resident Packs

Aparejo
Aerial locations in spring 2007 indicated this pack denned near where 2 wolves were captured and radiocollared in 2006. However, due to the remoteness of the location, the suspected den area was not surveyed to confirm reproduction. As such, this pack was not counted as a breeding pair. Winter aerial counts indicated a minimum of 13 wolves in this pack.

Basin Butte
The Basin Butte pack once again denned in the foothills northeast of Stanley, Idaho, raising a litter of 5 pups. Despite numerous cattle in the area, this pack was not implicated in any livestock depredations, which may be due to extensive monitoring and hazing by volunteers over the course of the spring and summer. One wolf was illegally killed (female B313) in June, resulting in an individual being ticketed for the offense. Aerial observations in winter indicated at least 13 wolves in this pack, which qualified as a breeding pair.

Buffalo Ridge
Consisting of at least 6 wolves in early 2007, this pack was decreased by one with the disappearance of radiocollared wolf B270 sometime in early winter. Wolf B270's whereabouts was later discovered after multiple depredations by unknown wolves near Picabo, Idaho, resulted in the lethal removal of B270 and 2 others in March. The Buffalo Ridge pack denned in the vicinity of their 2006 den location. Concurrent with a capture effort, 7 pups were observed. Trapping resulted in the capture and radiocollaring of a black yearling male, bringing to two the number of wolves being monitored in the pack. The Buffalo Ridge wolves were implicated in 1 probable and 1 confirmed depredation in spring; another 2 calves were confirmed killed in 2 incidents by the pack in December. As a result, 2 wolves were lethally removed. Aerial counts indicated a minimum of 6 wolves by the end of 2007, and this pack was counted as a breeding pair.

Castle Peak
The status of this pack has been unknown since the disappearance of B195, the only radiocollared wolf in the pack, in March 2004. After the disappearance of this pack, another pack (*see* Pass Creek) has since been radiocollared and located within the East Fork Salmon River drainage, an area that was traversed by the Castle Peak pack. The possibility remains that the 2 packs are one and the same. However, it seems unlikely that the question will ever be resolved, and given the unlikely probability of 2 packs residing so closely together, the Castle Peak pack is being dropped from the regional list and replaced by the Pass Creek pack.

Doublespring
Numerous sightings of wolves and wolf sign in the upper Pahsimeroi River Valley in fall resulted in the addition of this newly verified pack to the Salmon Region. In October, reputable observers reported seeing 8 wolves, one of which was a pup. Future attempts to place a radiocollar in this pack will facilitate determining if these wolves reside primarily in the Salmon Region, or if they also cross the boundary into the Upper Snake Region. As only 1 pup was counted, this pack was not counted as a breeding pair.

Galena
This pack's status was unknown for much of 2007, as the sole radiocollared wolf was located only once in May before going missing entirely. However, 8 pups were observed opportunistically at a traditional rendezvous site. Trapping was initiated after depredations of cattle and sheep (1 probable cattle, 2 confirmed sheep) indicated their presence at another known rendezvous site, and 2 male pups were captured and fitted with radiocollars (1 radiocollared wolf subsequently went missing shortly after it was instrumented). One wolf was later lethally removed as a result of the livestock depredations. This pack consisted of a minimum of 12 wolves by the end of 2007, and was counted as a breeding pair.

Hoodoo
Similar to 2006, aerial locations indicated the Hoodoo pack denned in their traditional location along the Middle Fork Salmon River, but the site's remoteness made it infeasible to survey for reproduction. With only 1 radiocollared wolf being monitored in the pack, several attempts were made during summer to locate the pack with the intent of trapping and radiocollaring, with limited success; while reproduction was verified during one of these efforts (a minimum of 3 pups counted), the wolves moved off before traps could be set. A minimum of 13 wolves was counted in the pack during winter counts, and was listed as a breeding pair.

Jureano Mountain
The disappearance of wolf B223 in spring left this pack without a radiocollared member, prompting efforts to locate this pack for trapping and radiocollaring. Searches for wolf presence at traditional den and rendezvous site locations in early summer eventually resulted in the successful location of the pack, and trapping was immediately initiated. Unfortunately, 2 pups were inadvertently trapped, causing the pack to move from the area. However, a subadult male was trapped near the abandoned rendezvous site and fitted with a GPS radiocollar to provide data for a research project investigating alternative wolf population monitoring techniques. In August, the Jureano Mountain pack was involved in 4 WS' investigations of depredations that resulted in the confirmation of 5 dead cattle. Three wolves were lethally controlled in response. Other mortality included an adult female wolf killed illegally in January. Although 2 pups were verified, temporarily fulfilling the breeding pair requirement, a pup was lethally removed during

control efforts. This could conceivably have reduced the number of pups in the pack to one, and without verification there were additional pups beyond the two initially observed, this pack was not counted as a breeding pair. The radiocollared wolf could not be located during winter aerial counts, and thus a pack size was not determined.

Landmark

The Landmark pack has not been monitored via radiocollared wolves since 2003. However, due to the fidelity this pack exhibits for den/rendezvous site locations, their continued presence has been confirmed in the past via ground surveys at these locations. A survey in September of a previously used rendezvous site revealed ample evidence that the Landmark pack reproduced. However, since no pups were observed, it was not possible to determine whether or not there were at least 2 pups produced to fulfill the breeding pair requirement; as such, this pack was considered as reproductive, but not a breeding pair.

An adult wolf from an unknown pack poses for a picture in a frosty meadow near Cape Horn.
Jason Husseman

Lemhi

In their second year as a documented pack, the Lemhi pack was reduced to 2 individuals due to mortality attributed to lethal control, legal and illegal take. In January, a pup was illegally killed after being caught inadvertently in a bobcat trap. In May, another wolf was legally shot among a landowner's sheep; the livestock owner had lost 6 sheep to wolves the previous day. After another confirmed sheep depredation (1 loss), WS lethally removed a black female from this pack. A third depredation in June resulted in 2 more confirmed sheep kills. This pack did not appear to reproduce, and was not a breeding pair in 2007.

Morgan Creek

The Morgan Creek pack was without radiocollared individuals and its status was unknown for most of 2007. In February, 2 calves were investigated by WS and listed as probable wolf kills, presumably by the Morgan Creek pack. After another confirmed calf kill in April, WS attempted to trap and radiocollar a wolf; 1 wolf was temporarily caught, but managed to pull out of the trap before it could be anesthetized. Reports of wolf activity in the Morgan Creek drainage in July initiated efforts to locate, capture, and radiocollar members of this pack. In July, 2 wolves were captured and fitted with GPS (*see* Research section) and VHF radiocollars. On the morning of the first capture, several adults and a minimum of 2 pups were heard howling nearby, substantiating reports by a range rider that the pack had reproduced and had a rendezvous site in an adjacent tributary. Due to livestock conflicts, the radiocollared animals were short-lived; female wolf B334 was legally shot by the range rider 2 weeks later when seen harassing cattle. The second radiocollared wolf was killed by WS along with another uncollared wolf in August after this pack's second confirmed cattle depredation of the year. Although no year-end aerial counts could be obtained, this pack was estimated to contain at least 5 individuals and was verified as a breeding pair for 2007.

Moyer Basin

This longstanding pack in the Salmon Region was targeted for helicopter capture concurrent to winter elk surveys, and in January, an adult male was successfully darted and fitted with a radiocollar. In spring, the pack denned near their 2006 den site, raising a litter of 5 pups. In June, a subadult female was captured and fitted with a GPS radiocollar. Unfortunately, the radiocollar failed shortly after deployment, necessitating the capture of another wolf. In a second effort, a pup too small for radiocollaring was captured, causing the pack to abandon their rendezvous site. Several weeks later, another attempt was made at the pack's new rendezvous site, resulting in the capture of the same pup previously caught. However, the pup had grown sufficiently large enough to justify placing a GPS radiocollar on the animal. The Moyer Basin pack was responsible for wounding a domestic calf in September, which later died from its wounds. This pack consisted of a minimum of 10 wolves by the end of 2007 and was a documented breeding pair.

Pups from the Moyer Basin pack playing on a warm summer afternoon. *Jason Husseman*

Owl Creek
The uncollared Owl Creek pack was slated to be removed from the regional list due to the lack of any verified wolf activity since their discovery in 2005. Due to reports from the public, however, tracks of multiple wolves were confirmed by IDFG personnel in the area believed to be occupied by this pack. While the Owl Creek pack's status as a breeding pair remained unknown, they continued to count as a verified pack for the region.

Pass Creek
In January, the suspected breeding female from this pack was darted from a helicopter concurrent to ungulate capture operations for an IDFG elk research project (see Research section). Aerial telemetry indicated this pack denned in a tributary of the East Fork Salmon River, and reproduction was verified when 3 pups were observed from the air during an August monitoring flight. Aerial telemetry collected over the course of the year indicated this pack ranged over an area used in years previous by the Castle Peak pack, prompting them to be dropped from the regional list (*see* Castle Peak). One wolf was found in January that had been illegally killed within the Pass Creek pack's territory, presumably as a member of this pack. By year's end, a minimum of 8 wolves resided in this pack, which also qualified as a breeding pair.


An uncommon color phase, white female wolf B317 of the Pass Creek pack recuperates from anesthesia after being captured and fitted with a radiocollar.
Jason Husseman

Twin Peaks
Due to lack of verified wolf activity for 2 consecutive years, the Twin Peaks pack was dropped from the regional pack list.

Yankee Fork
The Yankee Fork pack was located intermittently in winter 2006/2007, but the radiocollared wolf, male B240, was missing for most of the summer and fall. Although several attempts were

made over the course of the field season to locate and determine the reproductive status of this pack, all efforts were unsuccessful. Without an aerial location for over 6 months, it seemed likely the radiocollared animal was either gone or its radiocollar had malfunctioned. Therefore, it came as somewhat of a surprise when B240's radio signal was detected loud and clear during a December monitoring flight, allowing IDFG personnel to observe 11 wolves in the pack. Because of their unknown reproductive status, the Yankee Fork pack was not considered a breeding pair.

Documented Border Packs

Battlefield (MT)
This documented border pack was tallied for Montana for 2007. See the respective State's annual report for information on this pack.

Black Canyon (MT)
This documented border pack was tallied for Montana for 2007. See the respective State's annual report for information on this pack.

Hughes Creek (ID)
Howling surveys conducted in July near this pack's previously known den/rendezvous site indicated the presence of a minimum of 2 pups. Another attempt to obtain a better pup count was unsuccessful, although visual confirmation of at least 2 pups was made. During fall, a hunter killed a wolf in self defense after it approached within 15 feet of him. Aerial counts indicated a minimum of 11 wolves in the pack, which also qualified as a breeding pair.

Miner Lakes (MT)
This documented border pack was tallied for Montana for 2007. See the respective State's annual report for information on this pack.

Painted Rocks (MT)
This documented border pack was tallied for Montana for 2007. See the respective State's annual report for information on this pack.

Sula (MT)
This documented border pack was tallied for Montana for 2007. See the respective State's annual report for information on this pack.

Suspected Resident Packs

Iron Creek
Numerous observations of wolves and confirmed wolf depredations over the past 2 years indicated the likely presence of a pack of wolves southwest of Salmon, Idaho. There were 3 confirmed and 1 probable cattle losses in this locale in 2007. With no confirmed activity from adjacent radiocollared packs near where these depredations or sightings have occurred, it appeared likely a pack has taken up residence in what was previously unoccupied territory along the west side of the Salmon River.

Leadore
Sporadic sightings of wolves and wolf sign continued to be reported from this location. However, reported wolf activity was reduced from 2006, when the suspected breeding pair of this unknown pack of wolves was killed near a ranch southeast of Leadore, Idaho. Three cattle were confirmed killed in September in the area thought to be inhabited by this suspected pack.

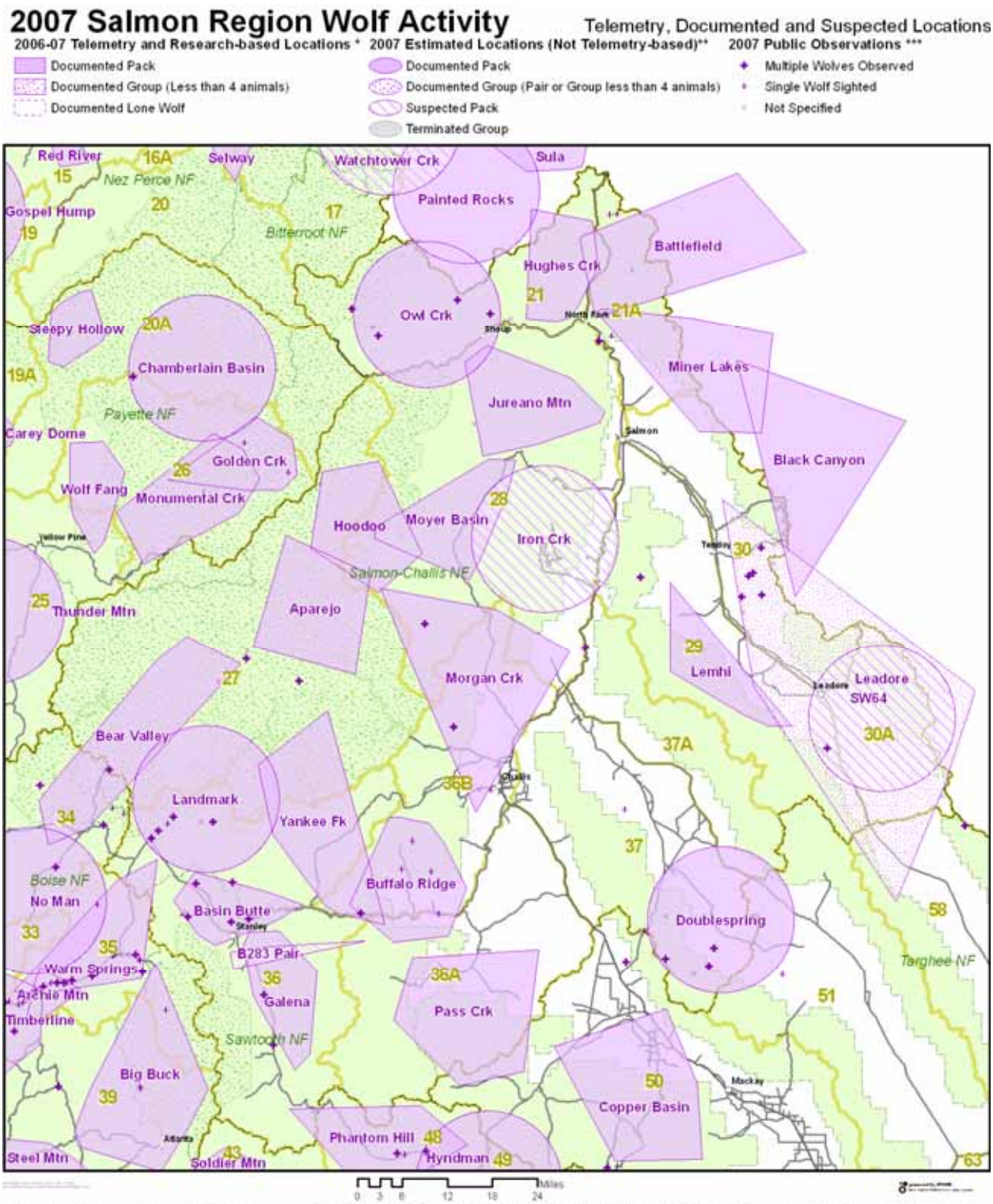
Other Documented Wolf Groups

B07
Thought to be one of the last surviving wolves of the original 35 that were released into Idaho in 1995 and 1996, B07 was found dead in January in a gulch next to the highway north of Salmon, Idaho. A necropsy of the carcass indicated the wolf was likely struck by a car. Because of the fact the wolf's teeth were so extensively worn, it's likely this animal was no longer able to capture prey and was subsisting on road-killed animals, thus potentially predisposing it to being hit by a vehicle. Wolf B07 and his mate B11were the founding pair of the Big Hole pack, first in the Big Hole of Montana, and then along the Idaho-Montana divide after he and B11 were relocated due to livestock conflicts. The radiocollar B07 was wearing failed some time in 2003 while still a member of the Big Hole pack, and his status was unknown (though it was likely he was observed there in 2005) until his carcass was eventually discovered by bird hunters. It was presumed that he was displaced as the breeding male of the pack by a younger wolf, and was roaming the mountains of Idaho and Montana as a lone wolf until his death.

B283
Female wolf B283 dispersed from the Warm Springs pack in fall, and was observed from the air with another uncollared wolf on several occasions in the vicinity of Stanley, Idaho. By winter, this pair appeared to be attempting to establish a territory within the Sawtooth National Recreation Area along the White Cloud Peaks range. Additional aerial locations will facilitate determining whether this pair is successful in locating unoccupied range within an area that already supports several packs.

B290
After being captured in summer 2006 as a member of the Morgan Creek pack, female B290 most likely dispersed some time in late fall or early winter 2006/2007. She was located in February near the Hughes Creek pack, well north of her natal pack's territory. B290's signal was not detected thereafter, and she is considered missing.

SW-64
A dispersing wolf from the Sage Creek pack of Montana, telemetry locations in 2007 indicated SW-64 was spending time in both Idaho and Montana in the upper Lemhi River drainage. Thought to be a lone wolf after the female he was traveling with was killed in November 2006, SW-64 was observed from the air in October with another wolf.



* Telemetry data and research locations collected and analyzed by Idaho Department of Fish and Game, the Nez Perce Tribe, Montana Department of Fish, Wildlife and Parks, Wildlife Services and the National Park Service. Pack locations are minimum convex polygons of telemetry and research observations for radiocollared wolves from 1/1/2006 - 12/31/2007 with outliers removed. Packs which did not exist in 2007 are excluded. 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.

** Estimated Pack Activity determined by biologists from research locations, public observations and incidental observations from 1/1/2006 - 12/31/2007.

*** Public Observations from 1/1/2007 - 12/31/2007 collected on the Idaho Fish and Game website and reviewed by staff biologists.

Figure 13. Wolf pack activity and observations in the Salmon Region, 2007.

Table 8. Minimum number of wolves detected, reproductive status, mortality, dispersal, monitoring status, and livestock depredation for documented and suspected wolf packs and other wolf groups within Idaho Department of Fish and Game Salmon Region, 2007.

Wolf group[a]	Min. no. wolves detected[b]	Reproductive status			Documented mortalities				Known dispersal	Monitoring status			Confirmed & (probable) wolf-caused livestock losses		
		Min. no. pups prod. (died)[c]	Reported as		Natural	Control[e]	Other human[f]	Unknwn[g]		Active radio collars	No. wolf captures[h]	No. wolves missing[i]	Cattle	Sheep	Dogs
			reprod. pack	breeding pair[d]											
DOCUMENTED PACK															
Aparejo	13	?	NO	NO	0	0	0	0	0	1	0	0	0	0	0
Basin Butte	13	5	YES	YES	0	0	1	0	0	2	0	0	0	0	0
Battlefield (MT)[j]															
Black Canyon (MT)[j]															
Buffalo Ridge	6	7	YES	YES	0	2	0	0	1	2	1	0	3(1)	0	0
~~Castle Peak~~[k]															
Doublespring	8	1	YES	NO	0	0	0	0	0	0	0	0	0	0	0
Galena	12	8	YES	YES	0	1	0	0	0	1	2	2	(1)	2	0
Hoodoo	13	3	YES	YES	0	0	0	0	0	1	0	0	0	0	0
Hughes Creek (ID)[j]	11	2	YES	YES	0	0	1	0	0	1	0	0	0	0	0
Jureano Mountain	?	2(1)	YES	NO	0	3	1	0	0	1	1	1	5	0	0
Landmark	?	1	YES	NO	0	0	0	0	0	0	0	0	0	0	0
Lemhi	2	?	NO	NO	0	2	1	0	0	1	0	0	0	9	0
Miner Lakes (MT)[j]															
Morgan Creek	5	2	YES	YES	0	3	0	0	0	0	2	0	2(2)	0	0
Moyer Basin	10	5	YES	YES	0	0	0	0	0	3	4	1	1	0	0
Owl Creek	?	?	NO	NO	0	0	0	0	0	0	0	0	0	0	0
Painted Rocks (MT)[j]															
Pass Creek	8	3	YES	YES	0	0	1	0	0	2	1	0	0	0	0
Sula (MT)[j]															
~~Twin Peaks~~[k]															
Yankee Fork	11	?	NO	NO	0	0	0	0	0	1	0	0	0	0	0
SUBTOTAL	112	39(1)			0	11	5	0	1	16	11	4	11(4)	11	0
SUSPECTED PACK															
Iron Creek	?				0	0	0	0	0	0	0	0	3(1)	0	0
Leadore	?				0	0	0	0	0	0	0	0	3	0	0
SUBTOTAL	0				0	0	0	0	0	0	0	0	6(1)	0	0
OTHER DOCUMENTED GROUP															
~~B7~~	0				0	0	1	0	0	0	0	0	0	0	0
B283	2				0	0	0	0	0	0	0	0	0	0	0
B290	?				0	0	0	0	0	0	0	1	0	0	0
SW-64	2				0	0	0	0	0	0	0	0	0	0	0
SUBTOTAL	4	0			0	0	1	0	0	0	0	1	0	0	0

Table 8. Continued.

Wolf group[a]	Min. no. wolves detected[b]	Reproductive status			Documented mortalities				Known dispersal	Monitoring status			Confirmed & (probable) wolf-caused livestock losses		
		Min. no. pups prod. (died)[c]	Reported as		Natural	Control[e]	Other human[f]	Unknwn[g]		Active radio collars	No. wolf captures[h]	No. wolves missing[i]	Cattle	Sheep	Dogs
			reprod. pack	breeding pair[d]											
UNKNOWN															
	?				0	1	0	0	0	0	0	0	1(2)	0	0
SUBTOTAL	0	0			0	1	0	0	0	0	0	0	1(2)	0	0
REGIONAL TOTAL	116	39(1)			0	12	6	0	1	16	11	5	18(7)	11	0

[a] Documented pack = 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 pack = 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.). Unknown = geographic areas where wolf presence was previously unverified and/or no data on group status was known.

[b] Summing this column 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 column in DOCUMENTED MORTALITIES.

[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] Includes agency lethal control and legal take.

[f] Includes all other human-related deaths.

[g] Does not include pups that disappeared before winter.

[h] Includes wolves captured for monitoring purposes during 2007. Most, but not all, were radiocollared.

[i] Radiocollared wolves that became missing in 2007.

[j] Border pack officially tallied to (STATE); territory known/likely shared with Idaho. Data on these packs can be found in Rocky Mountain Wolf Recovery 2007 Annual Report. Data for mortalities and/or depredations by non-Idaho border packs that occurred within Idaho are presented here.

[k] Group no longer considered extant due to agency lethal removal, lack of verified evidence for the preceding 2 years, or other cause.

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

From 1996 until 2005, wolf populations were counted using a total count technique that was quite accurate when wolf numbers were low and most had radiocollars. We have, for the past two years, used an estimation technique that is more applicable to a fully recovered population and types of data we are able to collect. In 2006 we began using an estimation technique that had been peer reviewed by University and NRM wolf managers. This technique bypasses the need to count pups in every pack, and instead relies on our documented packs, estimated pack size, number of wolves documented in small groups not considered packs, and a percentage of the population believed to be lone wolves. Mathematically this technique is represented as:

Minimum Wolf Population Estimate = ((Documented packs * mean pack size) + (Wolves in other documented wolf groups)) * (lone wolf factor)

Using this technique, the 2007 wolf population estimate is 732 wolves and represents an increase of 9% over 2006's estimated wolf population:

((83 * 7.7) + (12)) * 1.125
(639 + 12) * 1.125
651 * 1.125 =
732

The number of documented packs that were extant at the end of 2007 was 83.

Mean pack size (7.7) was calculated using only those packs (n = 34) for which biologists believed complete pack counts were obtained in 2007.

To account for wolves not classified as lone wolves and not associated with documented packs, we included a "total count" for those radiocollared wolves in groups of 2-3 wolves that were not considered packs under Idaho's definition. This resulted in the addition of 12 wolves from 8 groups.

A lone wolf factor (12.5%) was added to account for that component of the wolf population comprised of wolves not associated with packs or groups of 2-3 wolves. This was a mid value derived from 5 peer-reviewed, published studies and 4 non-reviewed papers from studies that occurred in North America and were summarized and reported in 2003 (Mech and Boitani 2003, page 170). For 2007, an estimated 81 lone wolves were in the Idaho population.

It is important to recognize this estimate is not corrected for survey effort and represents only the minimum number of wolves estimated to be present in Idaho. The actual number of wolves in Idaho is likely more than the 'estimated minimum number', as we did not include suspected packs (packs for which we did not have verified evidence) in the estimator. Also, changes in the estimate from year to year are not adjusted to differing amounts of effort put forth to document wolf activity. However, we are comfortable that this estimate is a good representation of packs that have been reported by the public and agency professionals and verified by wolf specialists, and thus a defensible estimate of the minimum population.

APPENDIX B. ESTIMATING BREEDING PAIRS BY USING PACK SIZE

The USFWS established a population recovery goal for wolves in the northern Rocky Mountains to maintain 30 "breeding pairs" of wolves for 3 consecutive years well distributed across the 3 states of Idaho, Wyoming, and Montana. A breeding pair is strictly defined by the USFWS as 2 adult wolves that have produced at least 2 pups that survived through December 31 of their birth year. Breeding pair status is determined at the end of each year and essentially represents a successful reproductive wolf pack. Not all wolf packs reproduce successfully each year or have pups that survive until the end of the year, so not all packs qualify as breeding pairs. Also, not all packs can be observed by project personnel to verify reproductive status. The reason for using this technique for the recovery goal is to provide a measure and estimator of the reproductive success and recruitment of wolves into the population the following year.

As part of the forthcoming Delisting Rule, the USFWS has established a post-delisting monitoring plan that is also based on monitoring breeding pairs. The post-delisting monitoring plan requires the 3 Northern Rocky Mountain (NRM) states to maintain a federally required minimum of $\geq$30 breeding pairs and $\geq$300 wolves well distributed among the 3 states, including $\geq$10 breeding pairs and $\geq$100 wolves within each state. During the first 5 years after delisting, federal law will require the 3 states to continue to monitor and report breeding pair status of wolves to insure wolf population levels do not fall below the federally required minimums.

The breeding pair definition places a significant burden on managers because it requires intensive monitoring and a high degree of certainty in assigning breeding pair status. For the past 10 years, during wolf recovery efforts within the NRM states, breeding pair status was determined using intensive and expensive monitoring methods relying on the use of radiotelemetry techniques. Wolves were captured, radiocollared, and tracked through the year from the air and ground. Intensive radiotracking efforts during spring and summer allowed field biologists to locate denning wolves, establish reproductive status of wolf packs, and determine litter sizes. Additional field efforts, including ground and aerial tracking and observations, were required through the fall and winter to determined pup and adult survival and breeding pair status by the end of the year.

This method of determining breeding pair status has become increasingly difficult through time as wolf populations grow and funding and personnel levels remain the same. Federal funding following delisting is in question, adding to this growing concern. In response to these concerns, NRM wolf managers, working through the University of Montana Cooperative Wildlife Research Unit, have developed a new and more efficient method for determining and monitoring breeding pair status of wolf populations. This new method will be used by all 3 NRM states and was evaluated, peer reviewed and approved by the USFWS to be used once wolves are delisted.

Recent development of a surrogate method for determining breeding pair status based on pack size may reduce the level of monitoring intensity required to verify minimum breeding pair status (M. S. Mitchell, U.S. Geological Survey, 2008). In essence, a historical record now exists that provides a correlation between pack size and the probability of that pack meeting the definition of a breeding pair. As pack size increases, the probability that the pack meets breeding pair status increases. For example, the probability that a pack consisting of 10 wolves constitutes a breeding pair is 0.95. Therefore, the model will allow managers to develop probabilistic estimates of breeding pairs on a statewide basis. Because pack size is more easily obtained than

actual pup survival data, monitoring levels needed to ensure minimum breeding pair goals may be reduced.

For Idaho wolves, the correlation between pack size and breeding pair status is presented in Table 1. By definition, there must be a minimum of 4 wolves within a pack to quality as a breeding pair. In Idaho, even small pack sizes ≥4 have fairly high probabilities of meeting the breeding pair definition as most packs in Idaho reproduce and recruit offspring into the population successfully.

Table 1. Probability by pack size of a wolf pack containing a successful breeding pair (1 adult male, 1 adult female, and ≥2 pups), Idaho, 1996-2005 (adapted from Mitchell et al. 2008).

	Pack size										
	4	5	6	7	8	9	10	11	12	13	≥14
Breeding pair probability	0.65	0.73	0.79	0.85	0.89	0.92	0.95	0.96	0.97	0.98	0.99

Application of this method is simple and straight forward. Once the number of documented packs and their pack sizes are determined for the year, each pack is assigned the probability that it will meet the definition of a breeding pair based on its pack size. Then all probabilities are summed for all packs to produce an estimate of the number of breeding pairs represented by those documented packs. This technique can be applied without any prior knowledge of breeding pair status as illustrated in Table 2. Most often, however, through regular monitoring activities and field work by wolf managers, breeding pair status for some packs may be known, while those of others may not. In this more typical case, those packs that are known to be breeding pairs are assigned a probability of 1.00, or 100%; those packs known not to be breeding pairs are assigned a probability of 0.00, or 0%; and those packs of unknown status are assigned the logistic regression model probabilities based on pack size as listed in Table 1. The procedure is then the same; all probabilities are summed for all packs to obtain an estimate of the number of breeding pairs (Table 3). The IDFG, NPT, and other NRM managers intend to use this new logistic model method post-delisting. The USFWS authorities have approved the technique.

One other advantage of this new technique is that confidence intervals can be developed to provide a measure of precision for this estimate. The logistic regression model was developed during the recovery phase when wolves were protected under the ESA. The correlation between pack size and breeding pair status should be reexamined post-delisting, as this relationship will likely change once wolves are delisted and are subject to regulated harvest.

Table 2. A hypothetical illustration of the logistic regression model of Mitchell et al. 2008 for estimating the number of breeding pairs, given unknown status of breeding pairs, for wolves in Idaho.

Pack	Pack Size	Known BP[a] Status	BP Probability
A	4	Unknown	0.65
B	4	Unknown	0.65
C	4	Unknown	0.65
D	6	Unknown	0.79
E	6	Unknown	0.79
F	6	Unknown	0.79
G	8	Unknown	0.89
H	8	Unknown	0.89
I	8	Unknown	0.89
J	10	Unknown	0.95
K	11	Unknown	0.96
L	11	Unknown	0.96
M	12	Unknown	0.97
N	13	Unknown	0.98
O	15	Unknown	0.99
Estimated number of breeding pairs			13

[a] BP = Breeding Pair(s)

Table 3. A hypothetical illustration of the logistic regression model of Mitchell et al. 2008 for estimating the number of breeding pairs, given both known and unknown status of breeding pairs, for wolves in Idaho.

Pack	Pack Size	Known BP[a] Status	BP Probability
A	4	Yes	1.00
B	4	No	0.00
C	4	Unknown	0.65
D	6	Yes	1.00
E	6	Yes	1.00
F	6	Unknown	0.79
G	8	Yes	1.00
H	8	Unknown	0.89
I	8	Unknown	0.89
J	10	Unknown	0.95
K	11	Yes	1.00
L	11	Yes	1.00
M	12	Unknown	0.97
N	13	Unknown	0.98
O	15	Yes	1.00
Estimated number of breeding pairs			13

[a] BP = Breeding Pair(s)

Technique derived from and published in:

Mitchell, M. S., D. A. Ausband, C. A. Sime, E. E. Bangs, J. A. Gude, M. D. Jimenez, C. M. Mack, T. J. Meier, M. S. Nadeau, and D. W. Smith. 2008. In press. Estimation of self-sustaining packs for wolves in the Rocky Mountains. Journal of Wildlife Management (used with permission)

APPENDIX C: CONTACTS FOR IDAHO WOLF MANAGEMENT

Idaho Fish and Game Regional Offices at:

Headquarters Wildlife Bureau	(208) 334-2920
Panhandle Region	(208) 769-1414
Clearwater Region	(208) 799-5010
Southwest Region	(208) 465-8465
McCall Subregion	(208) 634-8137
Magic Valley Region	(208) 324-4350
Southeast Region	(208) 232-4703
Upper Snake Region	(208) 525-7290
Salmon Region	(208) 756-2271

For information about wolves in Idaho and IDFG management:

http://fishandgame.idaho.gov/cms/wildlife/wolves/

To contact IDFG via email:

http://fishandgame.idaho.gov/inc/contact.cfm

The Nez Perce Tribe's Idaho Wolf Recovery Program:

Telephone: (208) 634-1061
Fax: (208) 634-4097
Mail: P.O. Box 1922
McCall, ID 83638-1922
Email: cmack@nezperce.org
jholyan@nezperce.org

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

http://www.nezperce.org/programs/wildlife_program.htm

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

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

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

To report wolf sightings within Idaho:

Report online: http://fishandgame.idaho.gov/wildlife/wolves/report.cfm

To report livestock depredations within Idaho:

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

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

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