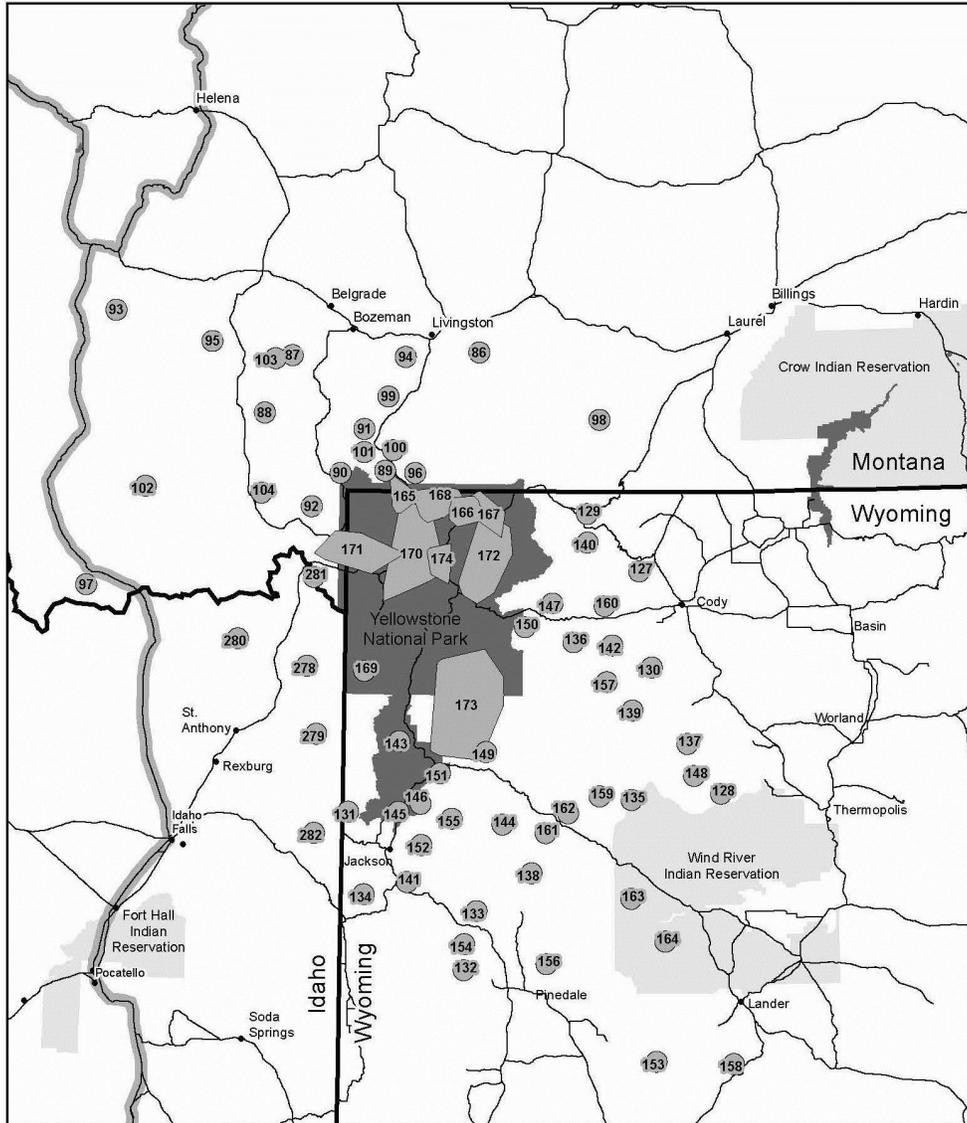


WYOMING WOLF RECOVERY 2015 ANNUAL REPORT

A cooperative effort by the U.S. Fish and Wildlife Service, National Park Service, Wyoming Game and Fish Dept., Wind River Indian Reservation, and USDA Wildlife Services



This cooperative report presents information on the status, distribution, and management of wolves in Wyoming, including Yellowstone National Park and the Wind River Reservation from January 1, 2015 through December 31, 2015.

This report may be copied and distributed as needed.

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Table 5a. Northern Rocky Mountain States confirmed wolf depredation and wolf management by recovery area: 1987-2015.

Table 5b. Northern Rocky Mountain States confirmed depredation and wolf management in Montana, Idaho, and Wyoming: 1987-2015.

Figure 1. Northern Rocky Mountain Gray Wolf Distinct Population Segment Area

Figure 3. Greater Yellowstone Wolf Recovery Area.

EXECUTIVE SUMMARY

After exceeding recovery goals for the Northern Rocky Mountains for 13 consecutive years, wolves (*Canis lupus*) were finally delisted in Wyoming (WY) in 2012. However, on September 23, 2014, the Federal District Court for the District of Columbia vacated the delisting rule and reinstated the Federal protections for wolves that were in place prior to our 2012 delisting. In 2015, gray wolves remained listed under the Endangered Species Act throughout all of WY and were managed by the U.S. Fish and Wildlife Service (USFWS). At least 382 wolves in ≥ 48 packs (including ≥ 30 breeding pairs) inhabited the state of WY, including Yellowstone National Park (YNP) and the Wind River Indian Reservation (WRIR).

WY (outside YNP and the WRIR): Hereafter WY (outside YNP and the WRIR) will be referred to as WYO. The wolf population in WYO was ≥ 264 wolves ≥ 36 packs including ≥ 21 breeding pairs in 2015 (Figure 2). Another ≥ 8 lone wolves were located throughout the western portion of the state. Average pack size was 7.1 wolves per pack. We documented 77 dead wolves (23% of the population). Causes of mortality included: agency control=54; under investigation or unknown=11; human caused=7; and natural=5.

YNP and the WRIR: YNP had 99 wolves in 10 packs, including 8 breeding pairs. The WRIR documented ≥ 19 wolves in 2 packs (including 1 breeding pairs). Seven mortalities were recorded in YNP (natural causes=6; human causes=1).

We managed wolf population growth and wolf distribution in WYO to minimize chronic loss of livestock from wolves and promote wolf conservation by maintaining the WYO wolf population well above recovery objectives. We recorded 134 livestock (72 cattle and 62 sheep) as confirmed wolf-kills. Nineteen packs (53% of WYO packs in 2015) were involved in ≥ 1 depredation and 17 packs (46%) were involved in ≥ 2 depredations. Three packs (8%) killed 43 sheep and 5 packs (14%) killed 38 cattle. Agency control efforts removed 54 depredating wolves (16% of the population) to reduce livestock losses due to wolves. The US Department of Agriculture APHIS WY Wildlife Services (WS) spent \$41,973.00 to remove 54 problem wolves in 2015. The State of WY paid \$330,667.00 to compensate cattle producers and wool growers who lost livestock to wolves in 2015.

WYOMING (WYO)

Personnel in WYO

In 2015, the USFWS monitored and managed wolves in WYO with assistance from the WS, the NPS, and the WRIR. USFWS personnel included Project Leader Mike Jimenez; biological technician Andy Johnson; law enforcement agents Terry Thibeault (Resident Agent-in-Charge, Billings, MT), Steve Stoinski (Special Agent, Lander), and Bo Stone (Special Agent, Cody).

National Park Service biologists Sarah Dewey and John Stephenson monitored wolves in Grand Teton National Park (GTNP).

WS personnel involved with wolf management in WYO during 2015 were: Mike Foster, Rod Kriskhke, Craig Acres, Rod Merrell, Mike Burrell, Grant Belden, Dan Braig, Arnold Debock, David Fowler, Tracy Frye, Jeff Hansen, Miles Hausner, Ted Jensen, Steve Richins, and Bob Wells.

MONITORING

Monitoring wolves in WYO

Population Status

We combined 3 census techniques to estimate the total number of wolves in WYO: 1) direct observations of wolves; 2) winter track counts of wolves traveling in snow; and 3) reports of repetitive wolf sightings from other agencies and the general public. Twenty-two wolves were radio collared and we maintained 68 collars in 26 packs (72% of the packs in WYO). We counted the number of wolves in known packs containing radio collared wolves using visual observations from the ground and aerial telemetry flights. Collared wolves were located, on average, 1-2 times a month by airplane, and more often by ground crews. We tracked wolves in winter and counted the different sets of wolf tracks in snow. In packs where local residents repeatedly saw and counted wolves, we attempted to verify those observations and incorporated them into our estimates.

We estimated that ≥ 264 wolves in ≥ 36 packs (≥ 21 breeding pairs) inhabited western WYO. Another 8 single wolves were located throughout the western portion of the state (Figure 1, Figure 2, and Table 1). Pack size ranged from 2 to 15 and averaged 7.1 wolves per pack (Figure 3).

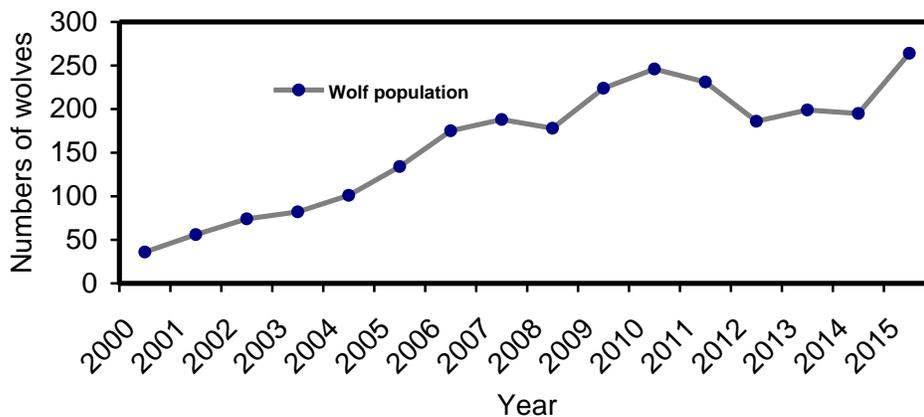


Figure 1. Wolf population growth in WYO: 2000 - 2015.

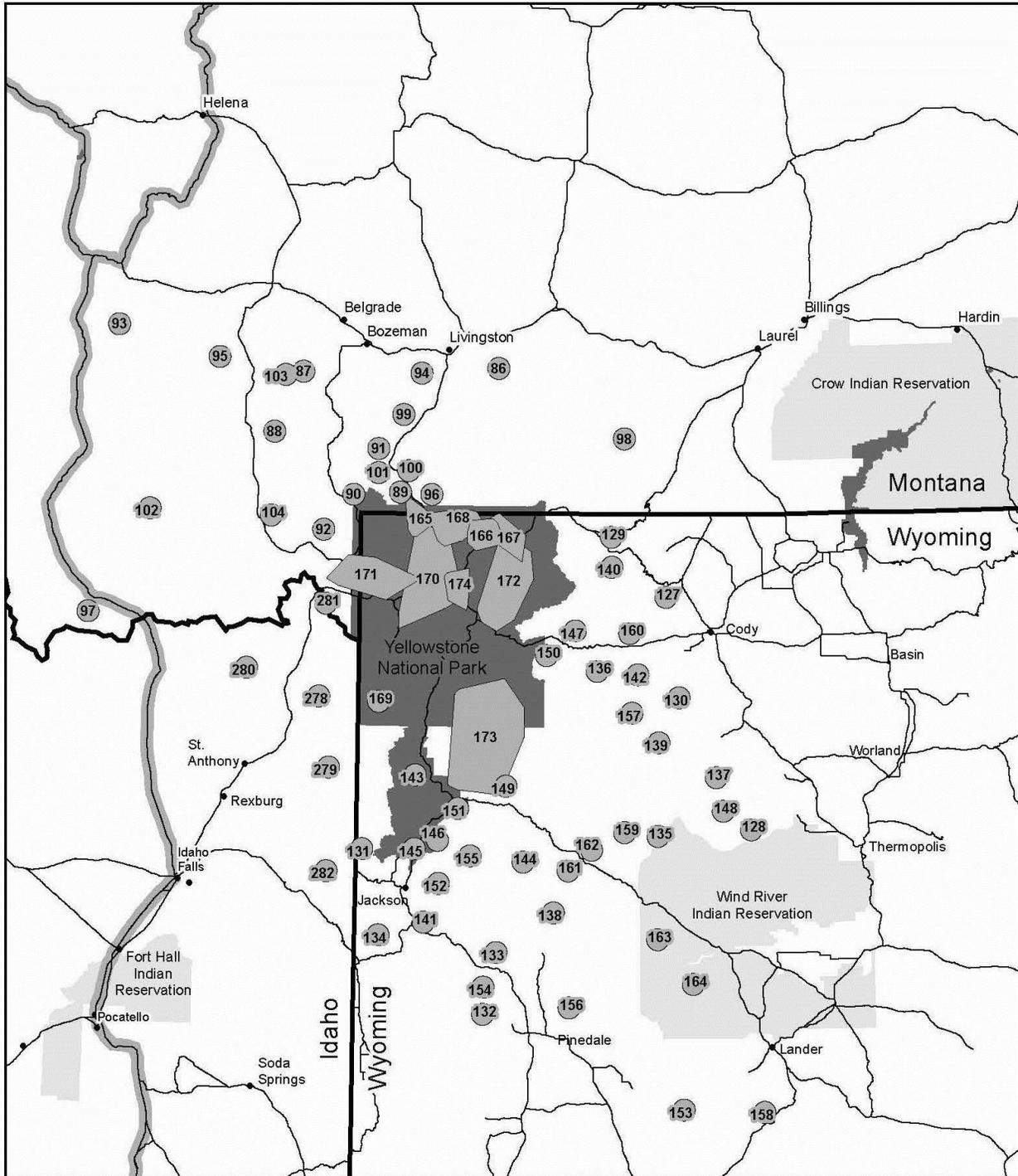


Figure 2. Home range centroids of wolf packs in the Greater Yellowstone Recovery Area, including 36 packs in WYO, 10 packs in YNP, and 2 packs in the WRIR: 2015.

Table 1. WYO wolf packs, population data, and depredation information: 2015.

REF #	WOLF PACK ^{1,2}	RECOV		MIN. ESTIMATED PACK SIZE DEC 2015	DOCUMENTED MORTALITIES				KNOWN		CONFIRMED LOSSES ⁸													
		AREA	STATE		NATURAL	HUMAN ³	UNKN ⁴	HARVEST ⁵	CONTROL ⁶	DISPERSED	MISSING ⁷	CATTLE	SHEEP	DOGS	OTHER									
Wyoming Outside Yellowstone National Park and the Wind River Reservation (WYO)																								
	<u>Absaroka</u>	GYA	WY	7			1		2				4											
	Anchor	GYA	WY	6										7										
	<u>Beartooth</u>	GYA	WY	14						1														
	<u>Blackrook</u>	GYA	WY	0	1																			
	Carter Mountain	GYA	WY	2					5				6											
	<u>Chagrin River</u>	GYA	WY	6			1							19										
	<u>Chaos Mountain</u>	GYA	WY	0			2																	
	Daniel	GYA	WY	5																				
	<u>Dell Creek</u>	GYA	WY	13	1								1											
	Dog Creek	GYA	WY	2											17									
	<u>East Fork</u>	GYA	WY	13									4											
	<u>Elk Fork Creek</u>	GYA	WY	8						1														
	<u>Gooseberry</u>	GYA	WY	7					2				2											
	<u>Green River</u>	GYA	WY	9					5				10											
	Greybull River	GYA	WY	5					3				4											
	High Island	GYA	WY	1					7				3											
	<u>Hoodoo</u>	GYA	WY	6						1			4											
	<u>Horse Creek</u>	GYA	WY	8			1			1														
	<u>Houlahan</u>	GYA	WY	7									5											
	<u>Huckleberry</u>	GYA	WY	10																				
	Ishawooa	GYA	WY	0					11				8											
	<u>Lava Mountain</u>	GYA	WY	17			1		6	2	2	1												
	<u>Lower Gros Ventre</u>	GYA	WY	5			1						2											
	Lower Slide Lake	GYA	WY	3																				
	<u>Needle Creek</u>	GYA	WY	0			1																	
	North Fork	GYA	WY	3								1												
	Owl Creek	GYA	WY	3																				
	Pacific Creek	GYA	WY	3								1												
	<u>Pahaska</u>	GYA	WY	9																				
	Phantom Springs	GYA	WY	3	1	3																		
	<u>Pinnacle Peak</u>	GYA	WY	14						2	1													
	Prospect Mtns.	GYA	WY	3																				
	<u>Rim</u>	GYA	WY	8			1	1																
	<u>Slate Creek</u>	GYA	WY	13								2	9											
	Soda Lake/Fall Creek	GYA	WY	3																				
	<u>South Fork</u>	GYA	WY	7					4				4											
	South Pass	GYA	WY	4																				
	<u>Spring Mountain</u>	GYA	WY	4	1	1			6				2											
	<u>Warm Springs</u>	GYA	WY	15																				
	Wapati	GYA	WY	4																				
	Washakie	GYA	WY	6						1														
	Misc/Lone wolves	GYA	WY	8	1	1	3		3				3	19										
	WYO Total	GYA	WY	264	5	7	11	0	54	9	7	72	62	0	0									

¹ Underlined packs are counted as breeding pairs toward recovery goals.

² Strikethrough packs were not documented during 2015 and/or did not exist on Dec. 31, 2015 and are not displayed in Figure 1.

³ Excludes wolves killed in control actions and legal harvest.

⁴ Includes wolves that died of unknown causes.

⁵ No harvest season existing in Wyoming in 2015.

⁶ Includes agency lethal control under federal regulations.

⁷ Collared wolves that became missing in 2015.

⁸ Includes domestic animals confirmed killed by wolves. Does not include 23 cattle, 6 sheep, 1 horse, and 1 dog that were injured but survived.

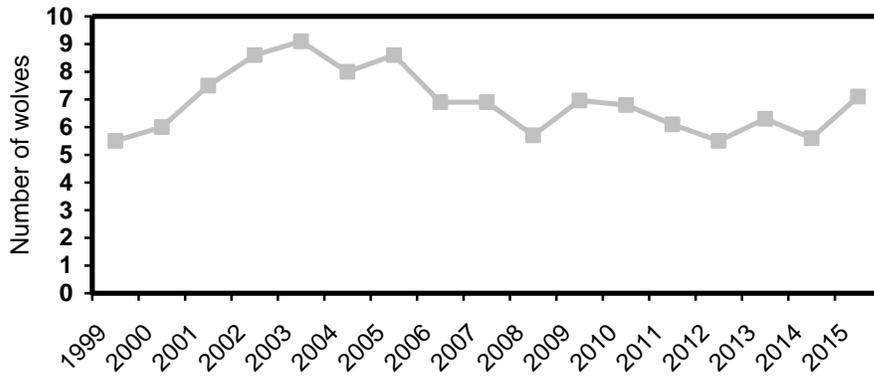


Figure 3. Mean pack size for wolves in WYO: 1999 - 2015.

Reproduction

A total of ≥ 21 packs produced pups and met the USFWS breeding pair definition (≥ 1 adult male and ≥ 1 adult female with ≥ 2 pups that survived through 31 December of that year) (Figures 3 and 4).

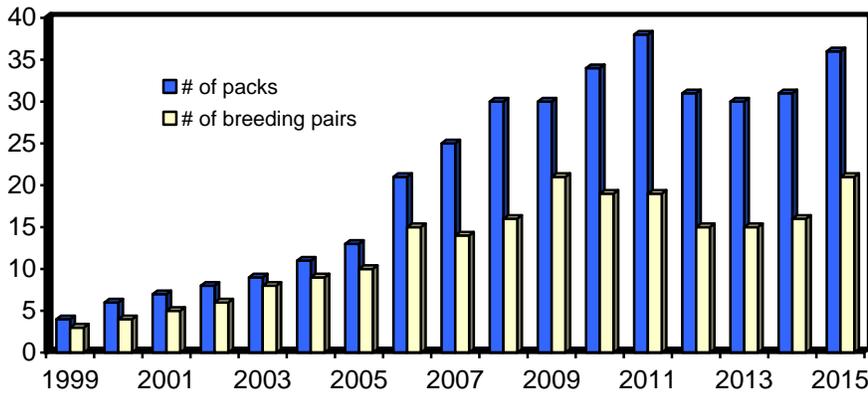


Figure 4. Number of wolf packs and breeding pairs in WYO: 1999 – 2015.

Mortalities

In 2015, 77 wolves (23% of the population) were known to have died in WYO. Causes of mortality included: agency control = 54 (70% of all documented mortality); unknown = 11 (14.3%); human = 7 (9.1%), and natural = 5 (6.5%). When only human-caused mortality (control and other human-caused mortality) was included, 61 wolves (~18% of the minimum WYO population) died due to humans.

MANAGEMENT

Management in WYO

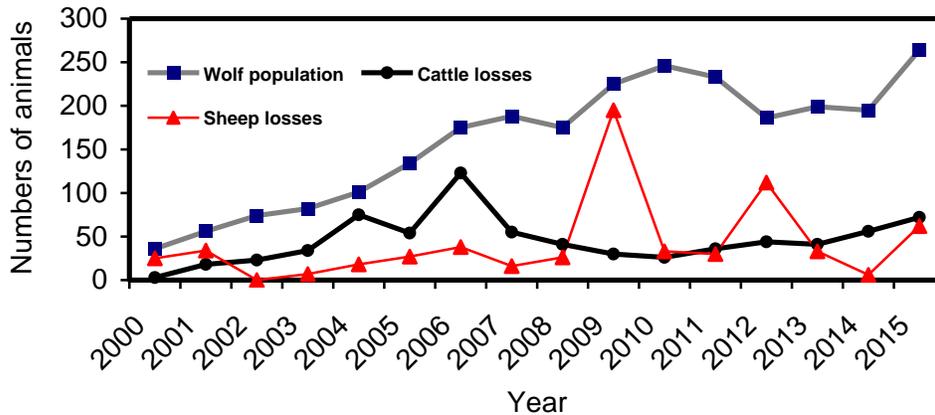
Livestock Depredations

Potential livestock depredations in WYO were investigated by WS, USFWS and WGFD. Depredations were classified as confirmed, probable, or other based on specific criteria agreed upon by the USFWS and WS. The following livestock depredation statistics were based on reported livestock losses and do not reflect lost or missing livestock. In 2015, wolves in WYO were responsible for killing ≥ 134 livestock. Confirmed livestock depredations included 72 cattle and 62 sheep (Table 2 and Figure 5) (Appendix Tables 2a, 5a, and 5b). In addition, 23 cattle, 6 sheep, 1 horse, and 1 dog were injured by wolves, but survived.

Table 2. Depredations in WYO: 2005 - 2015 (confirmed losses).

Depredations	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Cattle	54	123	55	41	20	26	35	44	41	56	72
Sheep	27	38	16	26	195	33	30	112	33	6	62
Dogs	1	1	2	0	7	0	1	3	1	0	0
Horses	1	0	1	0	0	1	1	1	1	0	0
Wolves Controlled	41	44	63	46	31	40	36	43	33	37	54

Figure 5. Annual wolf population size and number of confirmed cattle and sheep losses/year in WYO: 2000 - 2015.



Number of Packs Involved in Depredations

As the WYO wolf population has increased over the years, wolves have continued to recolonize new areas in northwest WYO. Wolves living in areas with relatively high native ungulate densities and relatively low exposure to domestic livestock have caused fewer conflicts than

wolves that recolonized areas where large numbers of livestock grazed on private and public lands.

We recorded 134 livestock (72 cattle and 62 sheep) as confirmed wolf-kills. Nineteen packs (53% of WYO packs in 2015) were involved in ≥ 1 depredation and 17 packs (46%) were involved in ≥ 2 depredations (Figure 6). Three packs (8%) killed 43 sheep (69% of the total number of sheep depredations) and 5 packs (14%) killed 38 cattle (53% of the total number of cattle depredations). Agency control efforts removed 54 depredating wolves (16% of the population) to reduce livestock losses due to wolves.

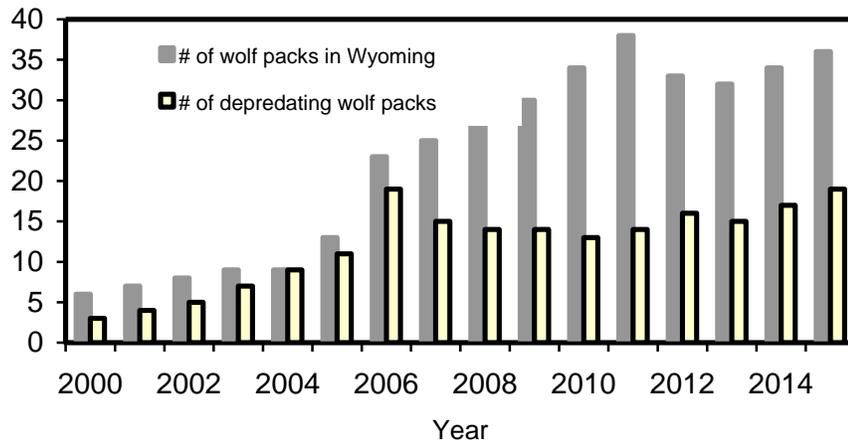


Figure 6. Annual number of wolf packs in WYO and number of wolf packs that were involved in at least 1 livestock depredation/given year.

Time of Year of Livestock Depredations

Cattle depredations followed a seasonal pattern in 2015 with the highest number of depredations occurring in summer/fall from August through October (Figure 7). Most sheep depredations occurred between May and August (Figure 8).

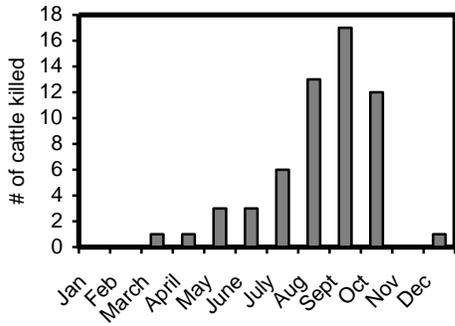


Figure 7. Number of confirmed cattle deprecations/month.

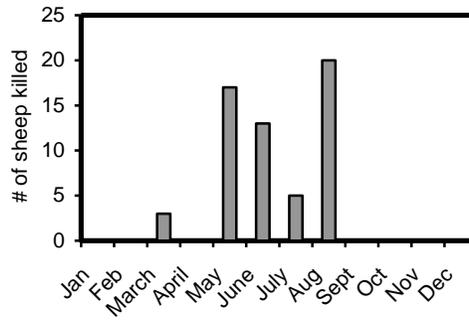


Figure 8. Number of confirmed sheep deprecations/month.

Location of Livestock Deprecations

Fifty percent of all confirmed cattle and sheep deprecations occurred on public land and 50% of all deprecations were on private land. Fifty-nine percent of cattle deprecations occurred on public land and 41% of cattle deprecations were on private property. Fifty-eight percent of sheep deprecations occurred on public land and 42% on private property (Figure 9).

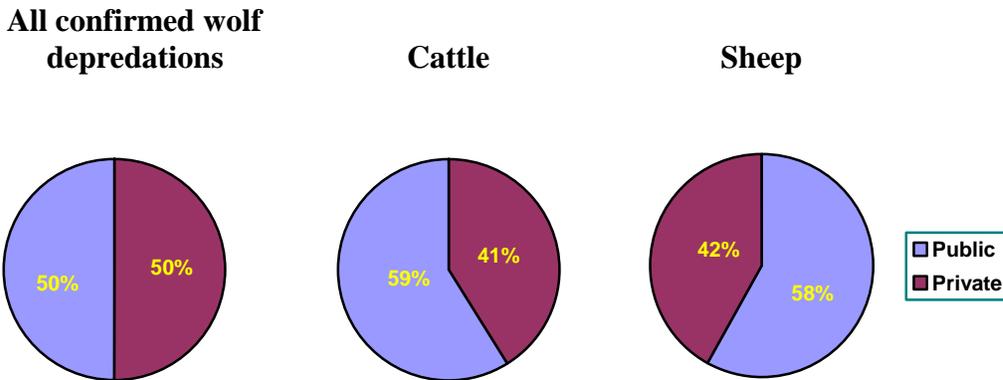


Figure 9. Land status where confirmed wolf deprecations occurred in 2015.

Counties

In 2015, confirmed cattle deprecations occurred in Park, Teton, Sublette, Fremont, Hot Springs, Big Horn, and Washakie counties. Wolves killed sheep in Teton, Sublette, Hot Springs, Lincoln, and Johnson counties (Table 3).

Table 3. Confirmed wolf-killed cattle and sheep killed by county in 2015.

County	Cattle	Sheep
Park	37	0
Teton	12	19
Sublette	12	5
Fremont	6	0
Hot Springs	3	7
Lincoln	0	25
Johnson	0	6
Big Horn	1	0
Washakie	1	0
Total livestock killed	72	62

Livestock Depredation Control Actions

We managed wolf population growth and wolf distribution to minimize chronic loss of livestock from wolves and promote wolf conservation by maintaining the WYO wolf population well above recovery objectives. In 2015, 54 depredating wolves (approximately 16% of the WYO wolf population) were removed to reduced livestock depredation.

Control actions in response to confirmed livestock depredations included trapping and radio collaring wolves, and intensive monitoring. Chronically depredating wolves were killed through agency control actions in an attempt to prevent further livestock depredations. Non-lethal control was routinely considered but was often not applicable or cost effective in many areas in WYO due to: 1) specific wolf packs chronically killing livestock year after year; 2) unpredictable travel patterns and movements by wolves; and 3) very large wolf home ranges that cover vast areas including public grazing allotments. USDA APHIS Wyoming Wildlife Services spent \$41,973.00 to remove 54 problem wolves in 2015.

Compensation for Livestock Depredations

The WGFD paid \$330,667.00 to compensate cattle producers and wool growers who lost livestock to wolves during the 2015 calendar year. Under Chapter 21 of the Wyoming Game and Fish Commission (WGFC) Regulations, compensation for confirmed livestock (horses, mules, and asses, rabbits, llamas, cattle, swine, sheep, goats, poultry, and guard animals) depredations by wolves was authorized only in the northwest corner (approx. 12% of the state) of WY where the WGFC classified wolves as trophy game animals.

(iii) “Sheep in areas set forth by Commission regulations where gray wolves are classified as trophy game animals. To determine the amount of compensation due to a claimant for sheep believed to be missing as a result of being damaged by gray wolves, in areas occupied by wolves, the Department shall utilize the following formula:

(A) Number of individual sheep confirmed by the Department or its representative killed by gray wolf multiplied by seven (7) multiplied by the value of livestock equals the amount of compensation.”

(iv) “Calves in areas set forth by Commission regulations.....the Department shall use the following formula:

(A) Number of individual calves confirmed by the Department or its representative killed by gray wolf multiplied by seven (7) multiplied by the value of livestock equals the amount of compensation.”

RESEARCH

Title: Comparative Demography of Two Moose Populations with Contrasting Predator Densities.
Collaborators: B. Oates, M. Kauffman, K. Monteith, University of Wyoming and Wyoming Cooperative Fish and Wildlife Research Unit; J. Goheen, University of Wyoming; G. Fralick, A. Courtemanch, S. Smith, WGFD; G. Hanvey, United States Forest Service-Bridger-Teton National Forest.

Description: Quantifying the relative influence of wolf and grizzly bear density on the demography of two moose herds (Sublette and Jackson) in the southern GYE, while accounting for the influence of winter severity, spring green-up of vegetation, summer drought, habitat quality, and the effect of the 1988 Yellowstone fires. Project is expected to be completed this year.

Title: Evaluating moose behavioral response to wolf presence in the southern Greater Yellowstone Ecosystem.

Collaborators: B. Oates, J. Goheen, M. Kauffman, and K. Monteith, Wyoming Cooperative Fish and Wildlife Research Unit; S. Dewey, S. Cain, and J. Stephenson, Grand Teton; M. Jimenez, USFWS.

Description: Planned research will use existing datasets to test how wolf presence influences Shiras moose habitat selection and movement rates. An enhanced understanding of such indirect risk effects will improve predictions about the potential demographic effects moose experience as a function of predation risk by wolves in the Greater Yellowstone Ecosystem (GYE). Project is expected to be completed this year.

OUTREACH

Outreach in WY

In 2015, the USFWS WY wolf recovery program continued to give numerous formal presentations to public schools, universities, wildlife symposiums, state and federal management agencies, livestock association meetings, state legislature committees, and environmental groups. We were also interviewed for numerous magazine, newspaper, and television feature stories.

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ACKNOWLEDGEMENTS

Numerous agencies and agency personnel have contributed to the recovery program and we thank Pat Hnilicka, and Laurie Connel (USFWS Lander); USFS Dale Deiter and Kerry Murphy at Bridger-Teton National Forest; Shoshone National Forest; Sarah Dewey and John Stephenson from Grand Teton National Park; Steve Kallin, and Eric Cole at the National Elk Refuge; Bureau of Land Management; and the Wyoming Game and Fish Department. We also appreciate safe piloting from Mark Packila, Dave Stinson, and Bob Hawkins of Sky Aviation, and Native Range Capture Services. We know that a successful program needs a strong base of support and to all of the above we are indebted.

YELLOWSTONE NATIONAL PARK 2015 WOLF REPORT

Summary

There were at least 99 wolves in 10 packs (8 breeding pairs) living primarily in Yellowstone National Park (YNP) through December 2015. Overall, wolf numbers have fluctuated between 83-104 wolves from 2009 to 2015 and 6-9 breeding pairs. Pack size ranged from 6 to 16 and averaged 9.7. Park-wide, 35 pups survived to year end, 21 in northern Yellowstone and 14 in the interior of the park, with an average of 4.4 per pack surviving for 8 of 10 packs with confirmed reproduction.

Wolf-Prey Relationships

Project staff detected 199 kills that were definite, probably, or possibly made by wolves in 2015: 137 elk (69%), 14 bison (7%), 14 deer of unknown species (7% probably mule deer), seven mule deer (3.5%), three coyotes (1.5%), three moose (1.5%), three wolves (1.5%), one badger (<1%), one otter (<1%), one pronghorn (<1%), and 15 unidentified animals (7.5%). The composition of elk kills was: 28.5% calves, 6.5% yearlings, 23% adult females, 30% adult males, 3.5% adults of unknown sex, and 8.5% of unknown sex and age. Like previous years, wolf predation was monitored intensively for five months of the year – one month in early winter (mid-November to mid-December), one month in late winter (March) and three months in spring-summer (May-July). The type of prey killed by wolves varies by time period and consists primarily of elk. However, predation on bison and mule deer appears to be increasing.

Winter Studies

During March 2015, our “late” winter study period, a total of 36 ungulate carcasses fed on by wolves were discovered by air and ground teams. Nineteen (53%) of these ungulates were killed by wolves, including 16 elk, two moose, and one unknown species. One of the elk (6%) was a calf, three (19%) were adult females, and twelve (75%) were adult males. Wolves also fed on 17 ungulates they did not kill, 14 of which were bison. In comparison to all other previous winter studies, the proportion of carcasses acquired by wolves that they did not kill was highest during this winter study. In addition, one badger was killed by wolves.

During November-December 2015, our “early” winter study period, a total of 19 ungulate carcasses fed on by wolves were discovered by air and ground teams. Eighteen (95%) of these ungulates were killed by wolves, which included 14 elk, two bison, one deer, and one unknown species. Five of the elk (36%) were calves, one (7%) was a yearling, four (29%) were adult females, three (21%) were adult males, and one (7%) was of unknown age and sex. The wolves also fed on one bison that they did not kill.

Summer Predation

The other portion of the year that wolf predation is assessed is May through July. This is achieved by searching clusters (a location other than a home site where a wolf spent 30 minutes or more) generated from satellite collars (e.g., GPS collars) for prey remains by hiking to them and searching. Only some of the wolves in each pack wear GPS collars, and not all GPS collars are used to search for clusters. We found 46 suspected kills or fresh carcasses of ungulate prey, which included 30 elk, 11 deer, two bison, and three unknown species.

Mortalities

Five radio-collared wolves died in 2015: one each was harvested outside of the park, kicked and killed by a bull elk, killed by other wolves, died of malnutrition, and died of unexplained naturally-caused internal hemorrhaging. One wolf was an old adult (>6 years old), two were adults (2-5 years old), and the other

two were yearlings. In addition, wolf project staff recorded five uncollared wolf deaths; four were natural (two intraspecific, two natural unknown), and one was hit by a vehicle.

Disease

There was no evidence of any major disease mortality. Mange was still present, and by the end of the year seemed to afflict most members of the Lamar Canyon pack.

Pack Longevity

With the disappearance of the Yellowstone Delta pack in 2015, the Mollie's pack (originally named the Crystal Creek pack) has the longest current duration of any park pack at nearly 21 years. The average pack persists for 5.8 years ($n = 41$; with 10 of these packs still in existence). The shortest pack durations were only a few months. In general, packs in northern Yellowstone had shorter durations ($n = 26$; mean = 4.6) compared to packs living in the interior of the park ($n = 15$; mean = 7.8) likely due to reduced risk of inter-pack conflict, disease transmission, and human encounters.

Wolf Capture

Nine wolves in four packs were captured and collared in 2015. In addition to marking them, a number of measurements and biological samples were taken. Three females and six males were captured; five were adults (2-5 years old), one was a yearling, and three were pups (<12months).

Wolf Management

Wolf management activities included den site closures and several hazing events. Staff continued to manage wolf viewing areas in Slough Creek, Lamar Valley, Hayden Valley, and other areas where wolves were frequently observed. Public outreach included giving 285 formal talks, participating in 94 interviews, helping 19,000 people view wolves, making 16,780 visitor contacts, and giving 573 informal talks in the field.

There was no wolf hunt in Wyoming because wolves were relisted in September 2014 due to ongoing litigation. Idaho and Montana conducted wolf hunts and one wolf (radio-collared) was legally harvested in Montana.

Publications

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Wolf Pack Summaries

8 Mile (13 wolves; 8 adults, 5 pups)

After the loss of their alpha male in late 2014, at least four males from the Cougar Creek pack (including 910M, 962M and a new uncollared alpha male) joined long-time 8 Mile alpha female 909F and several of her female offspring. Even with so many new pack members, the 8 Mile pack stayed faithful to their traditional territory. The pack produced a litter of five pups in 2015, all of which survived to the end of the year.

Prospect Peak (13 wolves; 8 adults; 5 pups)

Four young males from Prospect Peak dispersed in April to the Lamar Canyon pack, leaving Prospect with the alphas, six yearlings, and one adult female. The pack produced five pups which all survived the year. A yearling male may be taking over the alpha position as he was observed near the end of 2015 dominating 763M, who is seven years old and has had a thrice broken and fused front leg.

Junction Butte (14 wolves; 6 adults, 8 pups)

Former alpha male 911M, with his new mate 970F, took over the dominant positions in the Junction Butte pack in early 2015. His brother 890M was relegated to the beta position. Three females bred in 2015 and produced a total of 12 pups, eight of which survived the year. The pack has continued to center their territory around Specimen Ridge, but spent more time on the Mirror Plateau than previous years, even making a trip down to Pelican Valley—home of the alpha female's natal pack, the Mollie's.

Lamar Canyon (9 wolves; 6 adults, 3 pups)

In early 2015, alpha male 925M was killed by the Prospect Peak pack and several weeks later four members of Prospect joined pregnant 926F to raise the pack's five pups. Three of the pups survived, but by the end of 2015 many of the pack members had varying degrees of mange infection.

Mollie's (16 wolves; 10 adults, 6 pups)

In August, alpha male 980M was kicked by a bull elk while the pack was hunting and died from his injuries. This left alpha female 779F with six pups from 2015 and nine of her yearling and two year-old offspring. By the end of the year the pack still did not have a clear alpha male, echoing their situation from the winter of 2011-2012. With the disintegration of the Yellowstone Delta pack, the Mollie's are the only remaining reintroduced pack (originally called the Crystal Creek pack and released in 1995).

Wapiti Lake (6 wolves; 2 adults, 4 pups)

This pair took over the former Canyon pack territory in Hayden Valley, perhaps because the 4-5 year old female was born into the Canyon pack. Several young Canyon dispersers spent time with this pair and their four pups during the summer, but by the end of the year the pack was back to two adults and four pups.

Canyon (6 wolves; 4 adults, 2 pups)

Perhaps due to pressure from the newly-formed Wapiti Lake pack, the Canyon pack left their traditional summer territory and moved closer to the Old faithful geyser basin. The white alpha female localized near an old den and we confirmed the pack had at least two pups when they were observed in late October. The pack travelled widely at the end of 2015 and tracking became difficult when alpha 712M's collar battery ran out.

Cougar Creek (7 wolves; 5 adults, 2 pups)

Long-time alpha female, and oldest recorded wolf in Yellowstone, 478F, died in November at 12.6 years old. The pack produced at least two pups in 2015 and ended the year with at least five adults. Tracking this pack has been challenging because they travel widely and their territory includes thick lodgepole pine regrowth, making it difficult to observe them even when radio signals are located.

Snake River (estimated at 7 wolves; likely all adults)

It is unknown if the Snake River pack denned or successfully raised pups this year. The pack spent more time in the Yellowstone Delta and Thorofare areas, indicating they have taken over that territory from the now-defunct Yellowstone Delta pack.

Bechler (estimated at 6 wolves; unknown ages)

With no radio-collars in this pack, we rely on visitors and park staff reporting sightings and cases of howling and wolf tracks in the Bechler region. Reports were sparse in 2015, offering little information on pack size or reproduction. As a result, pack size was estimated.

Other wolves

Lone gray 965M began 2015 with the Prospect Peak pack and then dispersed with his male siblings to the Lamar Canyon pack. He was the lowest ranking male in the pack and by the end of the year had dispersed again, this time travelling alone.

Suggested citation: Smith, D., D. Stahler, E. Stahler, M. Metz, K. Cassidy, B. Cassidy, L. Koitzsch, Q. Harrison, and R. McIntyre. 2016. Yellowstone National Park Wolf Project Annual Report 2015. National Park Service, Yellowstone Center for Resources, Yellowstone National Park, WY, USA, YCR-2016-.

2015 Wind River Reservation's Gray Wolf Population Monitoring and Management Annual Report



This report is a cooperative effort between the Eastern Shoshone Tribe, Northern Arapaho Tribe, Tribal Fish and Game Department, and the Lander Fish and Wildlife Conservation Office, USFWS.

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Background: Since 1941, the Eastern Shoshone and Northern Arapaho Tribes of Wind River have been assisted by the Lander Fish and Wildlife Conservation Office (Lander FWCO) of the USFWS. The TFG and Lander FWCO are responsible for monitoring and management of wolves on Tribal lands within the exterior boundaries of Wind River. With wolves re-listed in Wyoming and on Wind River in fall 2014, management of wolves falls under the Amended 10J Rule of 2008 and can only be legally removed to defend life or property. The Wolf Management Plan for Wind River can be found at:

http://www.fws.gov/mountain-prairie/species/mammals/wolf/Wind_River_Res_Wolf_Plan_20070413.pdf

Population Monitoring – *Capture and Radio-collaring:* Radio-collaring is vital to effectively monitoring and conserving wolves throughout the Greater Yellowstone Ecosystem, of which Wind River is an important component. Between June 22 and June 28, 2015, traps were set to capture and collar wolves in the St. Lawrence pack. During 49 trap nights (11 traps set an average of 4.5 nights per trap), 9 visits by at least 1 wolf occurred at 6 different traps. Of these 9 visits, 6 traps were sprung. Three wolves were caught, but due to trap malfunction, each wolf was able to pull out. Due to the high pull-out rate, further investigations showed that trap springs were deficient. Stronger springs have subsequently been installed.

Ground monitoring of radio-collared wolves occurred from May through September. At the end of 2015, at least 8 radio-collared wolves occurred in 4 packs that have historically had a portion of their homerange on Wind River (2 radio-collars in East Fork, 1 in Owl Creek, 4 in Spring Mountain, and 1 in St. Lawrence).

Population Monitoring – *Population and Breeding Pairs:* Wolves have been present on the reservation for at least 14 years and are currently distributed across the Wind River and Owl Creek mountain portions of the reservation (Figure 1). No breeding pairs (defined as at least 1 adult male and 1 adult female wolf that raised at least 2 pups to December 31) were documented on Wind River. Breeding had occurred in the St. Lawrence pack, but pups were not verified at the end of 2015.

Assignment of packs by agency is determined by the percentage of a pack's homerange that occurs by jurisdiction. The 4 known packs listed above have historically spent at least a portion of time on the Reservation. However in 2015, of the 4, only the St. Lawrence pack had the majority of homerange occurring on Wind River. The East Fork, Owl Creek and Spring Mountain packs had either none or less than 50% of their homeranges occurring on Wind River. In the interest of providing information to Tribal council members and the general Tribal public, these 3 packs are

reported here as well. For more complete information on the East Fork, Owl Creek and St. Lawrence packs, please refer to the 2015 annual report provided by the WGFD.

East Fork Pack: The maximum number observed was 13 on November 23, 2015 located off of Wind River (aerial location of 13 black adults, though pups are difficult to distinguish from adults once 6 months old). Throughout 2015, this pack spent a portion of its time on Wind River in the East Fork and Crow Creek areas. At least 10 pups were documented for this pack on August 31 by aerial observation.

Owl Creek Pack: The maximum number observed was 1 on numerous dates (aerial location of 1 gray adult). This lone wolf occupied areas off of Wind River, though historically this pack used the area from Blondy Pass to the Wind River Canyon of the Reservation. No pups were documented for this pack.

Spring Mountain Pack: The maximum number observed was 6 on January 31, 2015 located off of Wind River (aerial location of 2 black adults, 4 gray adults, see note from East Fork Pack). No locations for this pack occurred on Wind River in 2015. At least 4 pups were documented for this pack on July 6.

St. Lawrence Pack: The maximum number observed was 10 on January 26, 2015 (aerial location of 10 gray adults, see note from East Fork Pack). These wolves were located solely on Wind River and ranged from Willow Creek to Washakie Park. Five pups were observed July 8. Since pups were not verified at the end of 2015, this pack did not meet the definition of a breeding pair.

Other observations: In February 2015, 1 adult was observed in the Mexican Pass area of the Owl Creek Mountains feeding on an elk calf. Additional reports of wolves throughout 2015 in the Bobs Creek area continue to confirm the presence of a pack there as well.

Population Monitoring – Mortalities: No wolf mortalities were documented on Wind River in 2015 (Table 1).

Wolf Management: Under Wind River's 2008 plan, wolves were defined as a trophy game animal; however the Tribes have elected not to allow hunting. Upon re-listing of wolves by court action in fall 2014, wolves are now managed under the Amended 10J Rule of 2008 which allows legal removal only for defense of life or property. No wolves were removed in management actions or by the Tribal public in 2015. Livestock conflicts or depredations are investigated by USDA's Wildlife Services, TFG or Lander FWCO. No livestock depredations or conflicts were reported during 2015.

Outreach: Personnel provided updates to the Eastern Shoshone Business Council and Northern Arapaho Business Councils throughout the year.

Financial Expenses: The Lander FWCO spent \$14,300 in USFWS funds on aerial surveys, personnel time, fuel, and trapping supplies during calendar year 2015. An additional \$4,700 was spent by USFWS personnel from other stations assisting with capture efforts on Wind River. TFG spent \$2,000 on personnel time and fuel.

Minimum Convex Polygons showing homeranges for wolf packs that were on or near the Wind River Reservation during 2015.

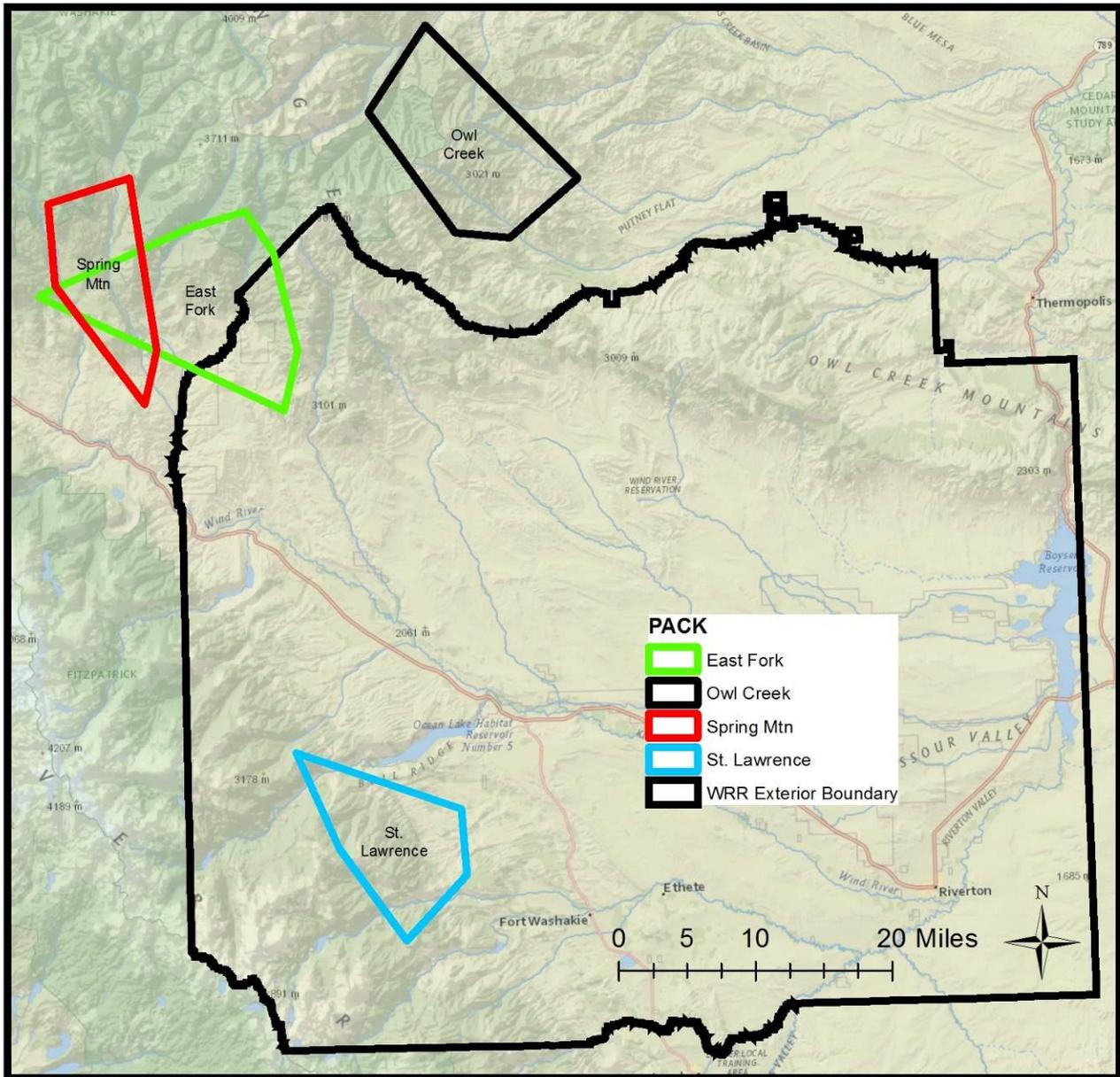


Figure 1.

Table 1. Wolf Packs and Population Data for Wind River Reservation's Portion of the Greater Yellowstone Recovery Area (Outside YNP), 2015.															
REF #	WOLF PACK	RECOV AREA	STATE	MIN. ESTIMATED PACK SIZE DEC 2015	DOCUMENTED MORTALITIES					CONFIRMED LOSSES ⁷					
					NATURAL	HUMAN ²	UNKN ³	HARVEST ⁴	CONTROL ⁵	KNOWN DISPERSED	MISSING ⁶	CATTLE	SHEEP	DOGS	OTHER
	St. Lawrence	GYA	WY	9 ¹	0	0	0	0	0	0	0	0	0	0	0
	WRR Total			9 ¹	0	0	0	0	0	0	0	0	0	0	0

¹ Nine wolves observed in Feb 2016.

² Excludes wolves killed in control actions and legal harvest.

³ Includes wolves that died of unknown causes.

⁴ No legal hunting was allowed in Wyoming or on Wind River in 2015 since wolves became a listed species in fall 2014.

⁵ Includes agency lethal control under federal/state regulations and wolves legally killed by private citizens to defend livestock or under terms of a lethal take permit.

⁶ Collared wolves that became missing in 2015.

⁷ Includes only domestic animals confirmed killed by wolves in 2015.