

Wolf Management Plan for the Wind River Reservation – 2nd Edition



**Eastern Shoshone and Northern Arapaho Tribes
Ft. Washakie and Ethete, WY**

**Shoshone and Arapaho Tribal Fish
and Game Department
Ethete, WY**

**Assisted by the U.S. Fish and Wildlife Service
Conservation Office
Lander, WY**

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Introduction

The gray wolf (*Canis lupus*) stirs debate like few other species of wildlife. Traditional Tribal views look upon wolves as kin, as helpers, as strong, as deserving of respect and placed here by the Creator for a purpose. Some contemporary views see wolves as competitors, livestock killers and in other negative ways. This plan looks neutrally upon wolves and considers them as a wildlife species for which management is needed due to tensions that will arise between the needs of wolves and the needs of people. Wolves have the potential to affect resources important to Tribal people such as big game and livestock. People have the potential to affect wolves by changing wolf habitat through development and harvesting big game. Our approach is to balance the needs of both people and wolves.

Wolves were designated as endangered under the Endangered Species Act (ESA) in 1974. Wolves were then redesignated as a nonessential experimental population in Idaho, Montana and Wyoming in 1994. This was done in order to initiate wolf reintroductions beginning in 1995 into central Idaho and Yellowstone National Park (YNP). Currently, the US Fish and Wildlife Service (FWS) is the lead agency for managing wolves on the WRR. Wolves that depredate livestock can be removed only by personnel from federal agencies that include FWS or APHIS Wildlife Services, or affected livestock owners with written permission from FWS. In addition, livestock owners can kill a wolf that is actively biting a cow, horse, sheep or mule on private land (Federal Register 2005).

Prior to managing wolves independently, states and tribes must develop management plans that are approved by the FWS. Tribes are self-governing, sovereign entities by which the federal government relates to on a government-to-government basis and have the capacity to develop their own wolf management plans independent of state jurisdiction (Federal Register 2005). Now that this plan has been approved by FWS, the Eastern Shoshone and Arapaho Tribes (Tribes) may sign a Cooperative Agreement (CA) with the FWS. The CA would allow the Shoshone and Arapaho Tribal Fish and Game Department (TFG) to act as “designated agents” of the FWS and conduct wolf management activities while the wolf is still listed as an endangered species. This plan follows the guidelines set forth in the Amended 10J Rule of 2005 by the Department of the Interior which relaxes restrictions on allowable wolf take related to livestock depredations. More details and further discussion can be found in the “Wolf Management Pre-delisting” section below.

Once the wolf is delisted, the Tribes can then manage wolves as they deem appropriate, without limitations imposed by the ESA or oversight by the FWS. Tribes are not subject to the number of packs required to be maintained for recovery in areas of Wyoming outside of YNP. This plan designates wolves as a game animal for which hunting and trapping seasons will be established by TFG under the direction of the Eastern Shoshone and Northern Arapaho Joint Business Council (JBC) and will apply to all lands within 1868 exterior boundary of the WRR, as modified by the Lander and Thermopolis agreements. More details and further discussion can be found in the “Wolf Management Post-delisting” section below.

The Lander Conservation Office (LCO) of the FWS has had a long and productive relationship assisting the Tribes in managing their fish and wildlife resources on the WRR since 1941. The JBC and TFG were assisted by the LCO in developing this plan.

Tribal Elder Views

Interviews of Shoshone and Arapaho Elders were conducted from August 2005 to February 2007. Visits were made to the Ft. Washakie, Ethete and Arapaho senior centers, Rocky Hall, individuals' homes, the Tribal College, and the Shoshone Cultural Center.

Traditional views recognize wolves as kin, as strong, as deserving of respect and placed here by the Creator for a purpose. The Shoshone word for wolf means “big coyote.” Wolves lived a long time, were very smart and observant, and listened well. When wolves appeared in a vision, one was to follow what the wolf showed you. The wolf was secretive and special and used to talk with people through telepathy. Wolves were helpers. One traditional story tells of wolves saving Shoshone people during a bad winter by feeding them deer. An Arapaho story tells of a young boy that was engrossed in playing and did not realize that his tribe was breaking camp. He was accidentally left behind, and then wandered in the wrong direction. As night fell he began to cry. A wolf appeared and told him not to be afraid – that he would help him. Three more wolves appeared. They gathered brush and used flint to start a fire. They raised the boy.

Wolves were strong and had the power to move from one place to another very quickly. Shoshones' had a traditional social Pow Wow dance where wolf hides were worn over the head - the dance signified bravery and wisdom. It was honorable to wear the skins of an animal that one was trying to emulate. Hunters would cover themselves in wolf skins and approach antelope in this manner in order to get closer before shooting. Skins were also worn to hunt buffalo and to scout for other Tribal groups. Wolves were sacred and to be left alone, however sometimes people had to kill them. People were to be careful around them. Wolves could teach virtuous things to people. They were an example of how to care for family members because they took good care of the young as well as the old. The packing behavior of wolves showed people that they should not go out hunting alone. Wolves also showed people to use the entire game animal (the meat, bones, hooves, marrow, skin, etc.) – not to waste any of it. Wolves wandered to wherever the food was, like earlier people did. They did not know boundaries. Now wolves are being confined to certain areas like Native Americans have been confined to Reservations.

Some Elders said that wolves should be protected; some said that wolves should be hunted and that ranchers should be able to protect their livestock; some said wolves were no good and dangerous and did not want them. Another mentioned that as long as wolves stayed away from her house, she was OK with them. One man wanted the Business Councils to talk with the elders directly and ask the elders themselves for their input. Many said that wolves have always been on the Reservation and were already here when Canadian wolves were released into YNP in 1995.

Current Status

As of 2007, there was an estimated minimum of 171 wolves in YNP, 188 wolves in Wyoming outside of YNP, 422 wolves in Montana and 732 wolves in Idaho (USFWS *et al.* 2008). In Wyoming outside of YNP, there were 25 packs with 14 breeding pairs. The number of wolves has steadily grown each year and increased annually at an average rate of 24% between 2003 and 2007; however, the increase between 2006 and 2007 dropped substantially to 7%. Seventy-five mortalities of wolves were documented in 2007 as follows: 63 control, 5 human-caused, 2 natural, 3 other, and 4 unknown. The control actions were related to livestock depredations. During the 11 year period from 1995 to 2005, confirmed wolf kills of livestock were as follows: 280 cattle, 569 sheep, 15 goats, llamas and horses, and 33 dogs in the Greater Yellowstone Recovery Area (includes YNP, and areas surrounding the park in Wyoming, Montana and Idaho). During that same period, 211 wolves were lethally removed related to these depredation incidents.

For this plan, packs that occur on the WRR are defined as a group of wolves that have a breeding pair and are contributing reproductively to the wolf population. Occasionally a group of wolves may not have a breeding pair due to a management removal.

Wolves have been observed on the WRR since reintroduction into YNP in 1995. At least 2 packs utilize the WRR and include the East Fork Pack and the Gooseberry/Owl Creek Pack (Jimenez *et al.* 2008). Both formed in 2004. These packs denned and had pups off of the WRR, but have territories that range on to the WRR. To date, there have been no documented breeding pairs on the Reservation since reintroduction.

The territories of both packs encompass portions of the Owl Creek Mountains on the WRR (see Figure 1). The East Fork Pack utilizes the East Fork of the Wind River area off the Reservation and the Crow Creek area in the northwest corner of the WRR. It is estimated at 4 adult wolves and 4 pups. The Gooseberry/Owl Creek Pack utilizes the Owl Creek drainages along the northern border of the WRR. It is estimated at 1 adult wolf and 5 pups. In addition, there has been wolf activity near Crowheart and Cold Springs. In April of 2006, wolf depredation of 2 livestock calves was confirmed. FWS and APHIS Wildlife Services personnel responded to the situation and removal of wolves was attempted, though unsuccessful.

Observations of Elk Between 2002 and 2007 and Areas of Wolf Activity Since 2004, Wind River Reservation.

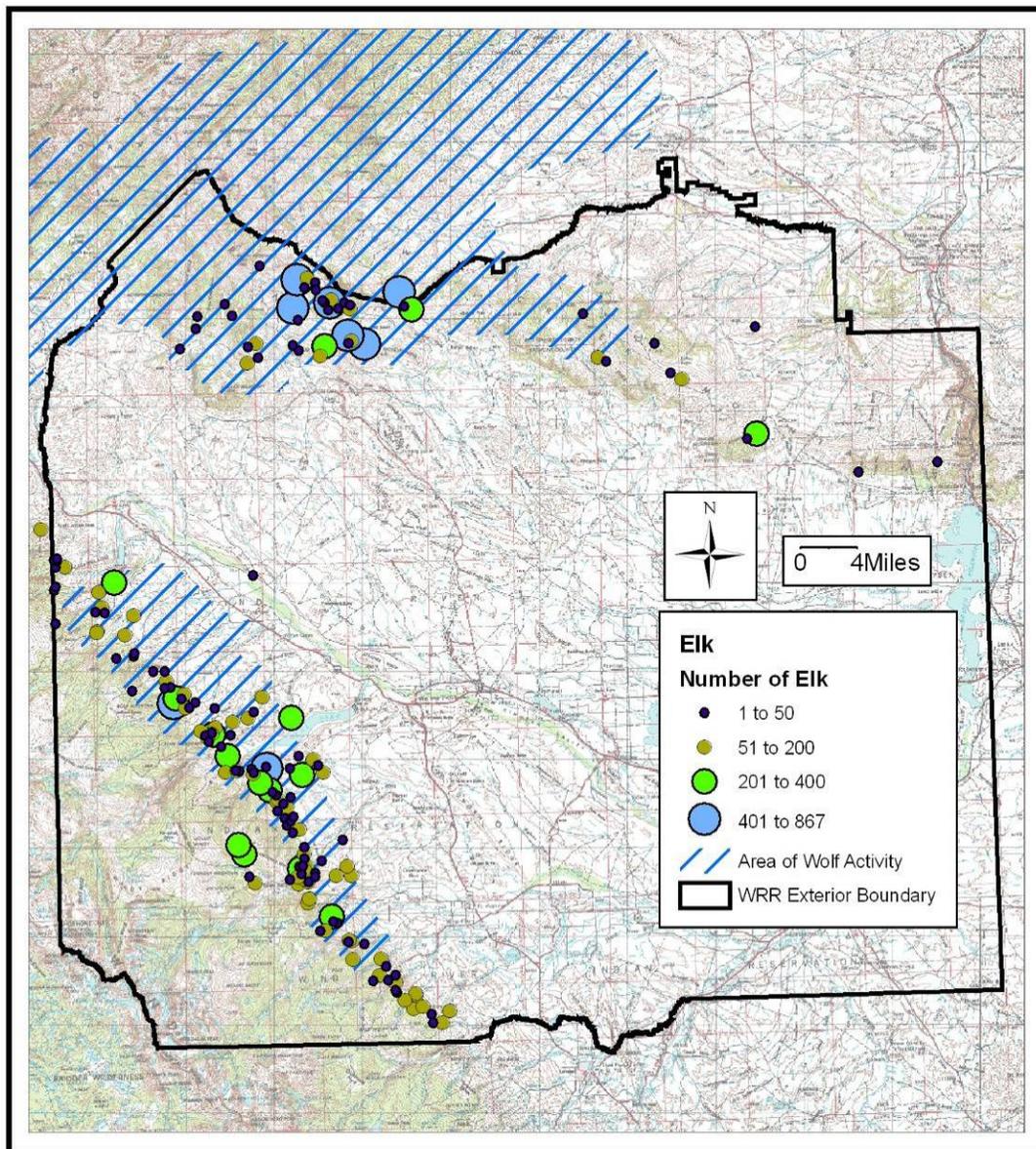


Figure 1. Cross-hatched areas show wolf activity based on radio-telemetered wolf locations (wolves from the East Fork and Owl Creek packs were captured off of the Reservation and radio-collared) and visual sightings from agency personnel and the public.

Interestingly, a report dating from 1907 indicated that wolf dens were located on WRR in the same general areas that wolves occupy today (Bailey 1907). A den was located in each of the following three areas: just west of Blondy Pass (coincides with Gooseberry/Owl Creek Pack territory), southwest of Black Mountain (coincides with East Fork Pack territory), and along Meadow Creek near Bold Mountain (coincides with livestock depredations near Crowheart).

The vast majority of the WRR is remote and sparsely populated and comprised of approximately 2,200,000 acres of habitat types that include desert, grassland, shrubland, montane, alpine, and agriculture lands. Specifically, 451,000 acres are forests, 1,135,000 acres are shrubland, and 124,000 acres are grassland. Of this, there is at least 500,000 acres of wolf habitat with prime habitat occurring in the Wind River and Owl Creek mountains. Elevations range from 4,500 to 12,250 feet. Estimates of wintering ungulates are: 2600 to 3100 antelope, 3200 to 4800 deer, 6,800 to 9,100 elk, 100 to 200 moose, and 350 to 450 bighorn sheep. In 2006, approximately 1,130 Tribal hunters harvested 130 pronghorn antelope, 475 deer, 550 elk, 5 moose, and 14 bighorn sheep.

Cattle are the primary livestock utilizing range on the WRR. There are approximately 135 permittees that ran 23,100 cow/calf pairs utilizing 163,400 Animal Unit Months on Tribal lands in 2001 (Bureau of Indian Affairs 2002). Approximately 140 horses were also ranged. There are no free-ranging domestic sheep or other livestock utilizing the WRR.

Wolf Biology

Wolves are large canids weighing 70-120 pounds that generally group into packs and occupy a territory. During 2007, pack size averaged 7 animals (as of November) outside of YNP, while packs in YNP were larger and averaged 14 animals (Jimenez *et al.* 2008). Pups are typically born in April or May and average 6 to 7 per litter. Occasionally, packs do not have a breeding pair and so pups are not produced. Wolf territories are very large and are typically 150 to 300 miles² in size (USFWS *et al.* 2008).

Wolves typically prey upon wild ungulates including elk, bison, moose, deer, and pronghorn antelope. However, elk are the predominate species that wolves prey upon within Wyoming. Between 2000 and 2007, elk comprised 95% of 330 ungulates found killed by wolves between late December and the end of March near Jackson, Wyoming (Jimenez *et al.* 2008). Of elk carcasses, 46% were calves, 39% were cows, and 15% were bulls. Based on availability, wolves preferred calves and selected against cows. During 2005 and 2006, spring/summer/fall analysis of 74 ungulate carcasses showed that elk comprised more than 85% of wolf kills. Of the elk carcasses, 41% were calves, 43% were cows, and 16% were bulls. Calf ratios dropped slightly after wolves recolonized the Jackson area. Between 1989 and 1999 before wolf presence, elk calf ratios averaged 29 calves per 100 cows. Following recolonization by wolves in 1999 until the present, calf ratios averaged 26 calves per 100 cows.

Research in YNP showed that wolves killed between 0.9 and 1.8 elk per wolf per 30-day period during the winter (USFWS *et al.* 2008). This roughly equates to a consumption of 11 to 22 elk per year per wolf. Elk predation by wolves may or may not reduce the number of elk available to Tribal hunters. Mortality can be additive or compensatory. Additive means that each cause of mortality (like bear and lion predation, accidents, disease, and hunter harvest) is added together. For example, a hypothetical population of 100 elk has 15% of its members die during the course of 1 year from the causes just mentioned. Wolves arrive and cause 10% mortality. If mortality was additive, then overall mortality would be 15% + 10% = 25% mortality. Compensatory means that one cause of mortality replaces another. For example, our hypothetical population of 100 elk again has 15% annual mortality. Wolves arrive and cause 10% mortality. If compensation is at play, then overall mortality is still 15%. The reason that mortality from wolves does not increase the overall mortality in this example is because there is a concurrent and commensurate decrease in the other causes of mortality. It is also possible that wolf-related mortality may not be

completely offset by the lowering of other causes, and so may result in an overall mortality somewhere *between* 15% and 25%.

The Northern Yellowstone Elk Herd provides an extant example of wolf/elk interaction. There is debate whether wolf predation of elk has been additive or compensatory and caused a population reduction of elk. This herd declined at an average rate of 6 to 8% annually from ~17,000 animals in 1995, the year wolves were reintroduced, to ~8,300 elk in 2004 (Evans *et al.* 2006). During the later part of this period, there were roughly 100 wolves utilizing the northern range of Yellowstone. In addition, there was a January-February hunt of wintering cow elk near Gardiner, Montana that removed an annual average of ~1,200 antlerless elk from this population between 1996 and 2003. Permit levels dropped from ~2,880 in 2000 to 1,400 in 2003 in response to decreasing abundance and low calf recruitment (Lemke 2003). Annual survival of radio-collared elk was ~83% between 2000 and 2004 and lower than survival rates of 99% between 1969 and 1975 when fewer elk were harvested by hunters, wolves were not present and other predators were less numerous (Evans *et al.* 2006). Wolf predation and hunter harvest were recognized as the reason for lowered survival and the decrease in the elk population (White and Garrott 2005).

In contrast to this, Vucetich *et al.* (2005) demonstrated that the decline in elk between 1995 and 2004 was the result of drought and hunter harvest and that wolf predation was compensatory. They showed that the decline would have occurred to the same extent (the drop from 17,000 to 8,300 elk between 1995 and 2004) without wolf predation. Garrott *et al.* (2005) reported that one should be cautious in generalizing the effects of wolves on elk populations as those effects vary from situation-to-situation. They compared effects by wolves on elk at 2 elk wintering areas: one in the Madison River headwaters area of YNP and one in the Lower Madison River area of Montana. Wolves were estimated to have killed 20% of the elk in the Madison River headwaters area and predicted to cause a future elk population decline, though a decline had not yet occurred. In contrast, at the Lower Madison River area wolves were estimated to have killed less than 4% of the elk and had little affect on the elk population, even though the kill rate per wolf (that is, the number of elk killed per wolf per month) was more than twice as high. Essentially, they concluded that effects will depend on such factors as wolf reproduction and densities, elk reproduction and densities, winter severity, and the amount of human-caused mortality on elk and wolves. Based on these research reports, whether wolf predation will result in fewer elk available for Tribal harvest is unpredictable and unknown at this time.

Wolf Management Pre-delisting

Currently, the FWS is the lead agency for wolf management within Wyoming, including the WRR. Given that wolves are here and will continue to expand their presence, the Tribes desire a greater level of management flexibility and responsibility. This plan provides for that following the signing of an CA between the FWS and Tribes. While wolves are listed, take by Tribal hunters and trappers is not permitted under ESA. Therefore, opportunities for Tribal management of wolves will center primarily on livestock depredations until such time that the wolf is delisted. In order to manage wolves successfully, Tribal personnel will be trained by FWS or APHIS Wildlife Services personnel in determining wolf kills, capturing techniques and appropriate handling of wolves.

As mentioned previously, this plan attempts to balance the needs of wolves and the needs of people. Wolves will likely spend the bulk of time in remote areas of the Owl Creeks and Wind River mountains where the majority of elk reside (see Figure 1). Cattle are also present in these areas during the spring, summer and fall and may be subject to wolf depredation. Wolves may also distribute widely across the WRR and occasionally occur in lower elevation sagebrush uplands and near agricultural lands. Cattle are present in these areas during winter months and calving season. Consequently, wolves may kill livestock and may need to be lethally removed.

Currently, depredating wolves can be removed only by FWS or APHIS Wildlife Services personnel. Losses of livestock must be confirmed before removal of depredating wolves, though a landowner can kill a wolf that is actively biting a cow, horse, sheep or mule on private land.

However, after approval of this plan and CA signing that authorizes the Tribes as to act as “designated agents”, the Amended 10J Rule of 2005 shown below will provide greater management flexibility in managing wolves. Specifically, it provides the following:

Amended 10J Rule of 2005, Department of the Interior.

Provision	Allowance
Take in self defense.	Any person may take a wolf in self defense or the defense of others.
Protection of human life and safety.	The Tribes may promptly remove (that is, place in captivity or kill) any wolf determined by the Tribes to be a threat to human life or safety.
Take of wolves “in the act” of attacking livestock on Tribal land by enrolled members without prior written authorization.	Any enrolled member on Tribal land may immediately shoot a wolf in the act of attacking livestock or dogs on Tribal land, provided the enrolled member provides evidence of livestock or dogs recently (less than 24 hours) wounded, harassed, molested, or killed by wolves, and a designated agent is able to confirm that the livestock or dogs were wounded, harassed, molested, or killed by wolves. <i>In the act of attacking</i> means the actual biting, wounding, grasping, or killing of livestock or dogs, or chasing, molesting, or harassing by wolves that would indicate to a reasonable person that such biting, wounding, grasping, or killing of livestock or dogs is likely to occur at any moment.
Tribal government take of Wolves of Concern.	“Wolves of Concern” are defined as wolves that attack livestock, dogs, or livestock herding and guarding animals once or any domestic animal twice in a calendar year. Criteria to determine when take will be initiated are: (1) evidence of the attack, (2) reason to believe that additional attacks will occur, (3) no evidence of unusual wolf attractants, and (4) any previously specified animal husbandry practices have been implemented.
Additional take by enrolled members on Tribal land for chronic wolf depredation.	Enrolled members may acquire written authorization from the Tribes to shoot wolves on sight on Tribal land after at least two separate confirmed depredations by wolves on livestock, livestock herding or guarding animals, or dogs, and the Tribes have determined that wolves are routinely present and pose a significant risk to the owner's livestock.
Incidental take.	Any person may take a gray wolf if the take is incidental to an otherwise lawful activity, and is accidental, unavoidable, unintentional, not resulting from negligent conduct lacking reasonable due care, and due care was exercised to avoid taking the wolf.
Additional take provisions for Tribal government employees.	The Tribes acting in the course of official duties, may take a wolf from the wild, if such action is for: (1) scientific purposes; (2) to avoid conflict with human activities; (3) to relocate a wolf within the Non-essential Experimental Population (NEP) areas to improve its survival and recovery prospects; (4) to aid or euthanize sick, injured, or orphaned wolves; (5) to salvage a dead specimen which may be used for scientific study; (6) to aid in law enforcement investigations involving wolves.

Other provisions of the Amended 10J Rule of 2005 not specifically mentioned in this plan would also apply to this plan.

On a case-by-case basis, options to handle depredating wolves include but are not limited to: no action, radio-collaring and releasing, using non-lethal methods, and immediate removal by lethal means. Non-lethal methods such as hazing, rubber bullets, and fladry, would be considered on a case-by-case basis. Compensation for livestock losses is currently being offered through the Defenders of Wildlife (see Contact List). When livestock are confirmed as killed by wolves by the Tribes, FWS, or APHIS Wildlife Services, the livestock owner will receive a copy of the report which the owner must then send to Defenders of Wildlife for reimbursement. Currently, livestock are compensated at 100% for confirmed kills and 50% for probable kills. This program may not

continue post-delisting. The Tribes would cooperate with and utilize assistance offered by the FWS and APHIS Wildlife Services when capturing or lethally removing wolves. Any illegal take would be investigated by the TFG in cooperation with Special Agent Roy Brown of the FWS.

A typical depredation scenario is as follows:

- A livestock owner finds a dead calf in his pasture. He covers the carcass with a tarp to protect the scene. He notifies the TFG.
- TFG contacts APHIS Wildlife Services (Tracy Frye or Casper Office 307-261-5336 if Tracy is not available) and/or FWS (Mike Jimenez) for assistance if needed. TFG visits scene and determines whether calf was killed by wolves. Appropriate paperwork is completed. If determined to be a confirmed or probable kill, a copy is given to the owner for submission to Defenders of Wildlife for compensation.
- TFG would discuss options with owner to determine course of action. Actions could include: no action to see if depredation continues; attempt to trap and radio-collar wolves to assess presence of wolves near livestock and identification of wolves if depredation continues; suggest confining or moving livestock if feasible to deter future depredation; consider using non-lethal methods such as fladry, rubber bullets and the like; or lethally remove wolf by trapping or shooting from the ground or aurally.

Monitoring of wolf activity would be done when deemed necessary and feasible within manpower and funding constraints. Possible methods for wolf monitoring would include radio-collaring, hollering surveys, track surveys, aerial surveys, and public reports. When deemed necessary, wolves would be snared, trapped, darted, and handled humanely according to approved practices used by FWS or Wildlife Services. Pamphlets would be developed for distribution to Tribal members that discusses wolf identification, wolf biology, Tribal management policies, and protocols for livestock depredations. Information on wolves would be incorporated into existing outreach programs (for example, hunter education).

Wolf Management Post-delisting

Once delisted, the wolf would be designated as a game animal for which hunting and trapping seasons would be established. Season timing and length, harvest quota and other specifics will be proposed annually by the TFG and LCO for approval by the JBC. Harvest strategy will depend on the number of wolves present on WRR and the management direction the Tribes wish to take. At this time, the Tribes do not designate a specific number of individuals or packs for which it will manage. Tribes will manage wolves independently and are not subject to the number of packs required to be maintained for recovery in areas of Wyoming outside of YNP.

To facilitate our ability to direct harvest, each Tribal hunter or trapper must possess a tag before any legal take occurs. Hunters and trappers would be required to report harvest to the TFG and the LCO. The LCO would record all known take (harvest, management action, illegal, accidents and any other take). Lethal removal would still be allowed without a tag when a wolf is "in the act" of attacking livestock or dogs, or under the other provisions listed above in the Pre-delisting section (Amended 10J Rule of 2005 table).

Options to handle depredating wolves would be the same as described under the Pre-delisting section. The Tribes would not compensate for livestock killed by wolves. Monitoring, capture and handling, and public outreach efforts will be similar to that described in the Pre-delisting section above.

Contact List

Person	Affiliation	Phone	Fax	Email
APHIS Wildlife Services	Casper Office	307-261-5336		
Bob St. Clair	Director, Shoshone & Arapaho Tribal Fish and Game	307-332-7207	332-2742	Fishandgame@wyoming.com
Dave Skates	US Fish and Wildlife Service, Project Leader	307-332-2159	332-9857	Dave_skates@fws.gov
Ivan Posey	Chairman, E. Shoshone Business Council	307-332-3532		Shoshonetribe@washakie.net
Harvey Spoonhunter	Chairman, N. Arapaho Business Council	307-332-6120		
Mike Jimenez	US Fish and Wildlife Service, Wyoming Wolf Coord.	307-330-5620		Mike_jimenez@fws.gov
Suzanne Stone	Defenders of Wildlife, Northern Rockies Field Rep.	208-424-9385		sstone@defenders.org
Pat Hnilicka	US Fish and Wildlife Service, Fish & Wildlife Biologist	307-332-2159	332-9857	Pat_hnilicka@fws.gov
Ray Nation	Bureau Indian Affairs, Wind River Agency, Asst. Supnt	307-332-7810		
Roy Brown	US Fish and Wildlife Service, Special Agent	307-332-7607		Roy_brown@fws.gov
Tracy Frye	APHIS Wildlife Services	307-850-4015		

Definitions

Breeding Pair: an adult male and adult female wolf that during the previous breeding season produced at least 2 pups that survived until December 31 of the year of their birth.

Depredation: a wolf attack that resulted in the immediate or recent (< 1 week) death of a domestic animal.

Designated agents: those designated by the FWS to assume lead authority for wolf management and to implement the portions of their plans that are consistent with the Amended 10J Rule of 2005. A Cooperative Agreement must be in place before a designation occurs.

Domestic animal: animals that have been selectively bred over many generations to enhance specific traits for their use by humans, including use as pets. This includes livestock and dogs.

FWS: US Fish and Wildlife Service.

Fladry: a string of flags used to contain or exclude wild animals.

In the act of attacking: the actual biting, wounding, grasping, or killing of livestock or dogs, or the chasing, molesting or harassing by wolves that would indicate to a reasonable person that such biting, wounding, grasping, or killing of livestock or dogs is likely to occur at any moment.

JBC: Joint Business Council of the Eastern Shoshone and Northern Arapaho Tribes.

Livestock: cattle, sheep, horses, mules, domestic bison, and herding and guarding animals (llamas, donkeys, and certain breeds of dogs commonly used for herding and guarding livestock).

LCO: FWS Lander Conservation Office.

Pack: a group of wolves that occupy a territory and have a breeding pair.

Private land: all land that is not under Federal Government ownership and administration. Tribal land is considered private land.

Remove: place in captivity, relocate to another location, or kill.

Take: to remove.

TFG: Shoshone and Arapaho Tribal Fish and Game Department.

Tribal land: All lands within the exterior boundaries of the WRR as identified in the 1874 and 1897 Treaties.

Tribes: the Eastern Shoshone and Northern Arapaho Tribes of the Wind River Reservation.

Ungulate: hoofed animal.

Wolf of Concern: a wolf that attacks livestock, dogs, or livestock herding and guarding animals once or any domestic animal twice in a calendar year.

WRR: Wind River Reservation.

YNP: Yellowstone National Park.

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