

UTAH WOLF MANAGEMENT PLAN



Utah Division of Wildlife Resources Publication #: 05-17

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&
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Executive Summary

This plan will guide management of wolves in Utah during an interim period from delisting until 2015, or until it is determined that wolves have established¹ in Utah, or assumptions of the plan (political, social, biological, or legal) change. During this interim period, arriving wolves will be studied to determine where they are most likely to settle without conflict.

The goal of this plan is to manage, study, and conserve wolves moving into Utah while avoiding conflicts with the wildlife management objectives of the Ute Indian Tribe; preventing livestock depredation; and protecting the investment made in wildlife in Utah.

Under this plan, wolves will be allowed to disperse into Utah, and be conserved, except when or where:

- Wolves conflict with the wildlife management objectives of the Ute Indian Tribe;
- Wolves cause unacceptable livestock depredation; or
- Wolves contribute to wildlife populations not meeting management objectives as defined by the Utah Wildlife Board's Predator Management Policy.

Livestock owners will be fully compensated for losses of livestock to wolves.

Under this plan, six strategies are proposed:

- Develop and implement outreach programs.
- Manage wolf/human interactions to benefit both humans and wolves.
- Develop and implement wolf monitoring and research programs.
- Manage wolf/wildlife interactions to meet the objectives of this plan.
- Control livestock depredation and fully compensate livestock owners for losses of livestock to wolves.
- Provide funding for wolf management.

¹*“Established”* is defined as “at least 2 breeding pairs of wild wolves successfully raising at least 2 young each (until December 31st of the year of their birth), for 2 consecutive years.” [USFWS, Reintroduction of Grey Wolves into Yellowstone National Park and Central Idaho, Final EIS, May 1994, US Fish and Wildlife Service, Helena, MT; Pages 6-66 and 6-67 in Appendix 8: Memorandum Regarding Definition of a Wolf Population. From EIS Team Wolf Scientist and Northern Rocky Mountain Wolf Recovery Coordinator, March 11, 1994.]

Dedication

This plan is dedicated to Kevin Conway, our friend and our leader. Kevin was the Director of the Utah Division of Wildlife Resources from 2002 until his untimely death in 2004. He was the driving force behind this document, and its chief proponent. He had faith in the Utah Wolf Working Group, and he held us to his own high standards. He knew that there was no more contentious issue in America than wolves, but he assembled a diverse group of people to work together to complete a wolf management plan for Utah. Kevin had faith in us, enduring enormous physical pain to cheer us on and to show his confidence in the group. He never lost faith in what was right. He was a friend to Utah's wildlife and a model for all of us.

Introduction

In 2003, the Utah Legislature passed House Joint Resolution 12 (HJR-12) (Appendix 1), which directed the Division of Wildlife Resources (DWR) to draft a wolf management plan for review, modification and adoption by the Utah Wildlife Board, through the Regional Advisory Council process. In April of 2003, the Wildlife Board directed DWR to develop a proposal for a wolf working group to assist the agency in this endeavor. The DWR consulted with a professional facilitator and numerous interests groups in an effort to identify a working group capable of drafting a management plan within the framework established by HJR-12 and the Utah Code.

The DWR created the Wolf Working Group (WWG) in the summer of 2003. The WWG is composed of 13 members that represent diverse public interests regarding wolves in Utah. The WWG includes representatives from academia (USU faculty), wolf advocates (Utah Wolf Forum), sportsmen representatives (Rocky Mountain Elk Foundation and Sportsmen for Fish and Wildlife), agricultural interests (Utah Farm Bureau Federation and Utah Wool Growers), local government representatives (Utah Association of Counties), the Ute Indian Tribe, two at-large conservation organization representatives, and a member of the Utah Wildlife Board. Technical advisors from the DWR, the US Fish and Wildlife Service, and the US Department of Agriculture Wildlife Services (USDA-WS) assist the working group. A professional facilitation firm, Dynamic Solutions Group, of Casper Wyoming, facilitated WWG meetings, and helped draft this plan.

Members of the WWG include:

- Jim Bowns (Utah Wildlife Board)
- Sterling Brown (Utah Farm Bureau Federation)
- Bill Burbridge (Utah Wildlife Federation)
- Bill Christensen (Rocky Mountain Elk Foundation)
- Karen Corts (Ute Tribe Fish and Game Department)
- Debbie Goodman (Audubon)
- Allison Jones (Utah Wolf Forum)
- Don Peay (Sportsmen for Fish & Wildlife)
- Robert Schmidt (Utah State University, Department of Environment and Society)

- Randy Simmons (Utah State University, Political Science Department)
- Trey Simmons (Utah Wolf Forum)
- Mark Walsh (Utah Association of Counties) - Did not attend any meetings
- Clark Willis (Utah Wool Growers)

A number of alternate representatives also gave unselfishly of their time and talents in developing this plan, as well:

- Sterling Brown – alternate for Wes Quinton and Todd Bingham
- Kirk Robinson – alternate for Allison Jones, Trey Simmons

Byron Bateman – alternate for Don Peay
Bill Fenimore – alternate for Debbie Goodman, and Bill Burbridge
Charles Kay – alternate for Randy Simmons
Dr. Mike Wolfe – alternate for Dr. Robert Schmidt
Lee Howard – alternate for Dr. James Bowns
Jerry Mason (deceased) – alternate for Bill Burbridge
Ken Young – alternate for Bill Christensen

Technical Advisors included:

Kevin Bunnell (Utah Division of Wildlife Resources)
Craig McLaughlin (Utah Division of Wildlife Resources)
Jim Karpowitz (Utah Division of Wildlife Resources)
Mike Bodenchuk (USDA Wildlife Services)
Laura Romin (U.S. Fish and Wildlife Service)

The WWG met 13 times, beginning in November 2003 and concluding in April 2005. They considered a host of issues, concerns and ideas, presented by the citizens and scientists who took the time to make themselves available to the group. These discussions took the form of lively debate, and not infrequent disagreement within the WWG. Yet the WWG persisted, and produced the following management plan using a consensus minus 2 standard for resolving disagreements (Appendix 2).

The plan is based on HJR-12 which urges that the objectives and strategies of the plan, to the extent possible:

- Be consistent with the wildlife management objectives of the Ute Indian Tribe;
- Prevent livestock depredation; and
- Protect the investments made in wildlife management efforts while being consistent with U.S. Fish and Wildlife Service regulations and other Utah species management plans.

This is that plan. The WWG has done all they can to provide a credible conservation plan for wolves, which meets the above criteria. It is intended to be an interim plan, covering that time period between delisting and the development of naturally occurring wolf packs in Utah. It is intended to be adaptive in nature, so that as conditions change, the plan may adapt to those changes.

The goal of the plan is to manage, study, and conserve wolves moving into Utah while avoiding conflicts with the wildlife management objectives of the Ute Indian Tribe; preventing livestock depredation; and protecting the investment made in wildlife in Utah.

The majority of the WWG believes that this plan is fair, sustainable and flexible. We believe it will, to the greatest extent possible, meet the needs of wolf

conservation, prevent livestock depredation and protect the existing wildlife resources of the State of Utah.¹

¹ This statement pertains to the Utah Wolf Management Plan as it was presented to the Utah Wildlife Board (Board) by the WWG and some members of the WWG may not support the changes made by the Board that are identified herein.

Part I. Gray Wolf Ecology and Natural History

Description

The gray wolf (*Canis lupus*) is the largest species in the canid family and resembles a large domestic dog (*C. familiaris*), such as a husky. Wolves can usually be distinguished from domestic dogs by their proportionally longer legs, larger feet and narrower chest (Banfield 1974). Wolves can also be distinguished from other canids by wide tufts of hair that project down and outward from below their ears (Mech 1970). Wolves also have straight tails that do not curl up at the tip like some domestic dogs. Adult wolves, except black individuals, have white fur around their mouths, whereas most domestic dogs have black fur around their mouths (Paquet and Carbyn 2003)

Wolves are sexually dimorphic, with males being larger than females. Adult males weigh 20-80 kg (50-175 lbs) and vary in length from 1.3-1.6 m (4.2-5.4 ft). Shoulder height varies from 66-81 cm (26-32 in). Adult females weigh 16-55 kg (35-121 lbs) and are 1.4-1.5 m (4.5-5.0 ft) in length (Young and Goldman 1944, Mech 1970, Mech 1974). Wolf size follows Bergman's rule with overall size increasing with latitude (Mech 1970, Mech 1974).

Coloration of wolves is agouti (highly variable, ranging from pure white to coal black). The most common coloration is light tan mixed with brown, black and white. Black hair is usually concentrated on the back, while the forehead area tends to be brown and the lower portions of the head and body are usually whitish (Paquet and Carbyn 2003). The pelt consists of long coarse guard hairs with a much shorter, thicker and softer under fur. Dorsal hair is longer than ventral hair and the longest hair occurs in the mane, an erectile part of the coat that extends along the center of the back from the neck to behind the shoulders. Wolves undergo a single annual molt that begins in late spring (Paquet and Carbyn 2003).

Distribution

The gray wolf is circumpolar throughout the northern hemisphere north of 15-20° N latitude, and has one the most extensive native ranges of any terrestrial mammal species. The historical range included nearly all of Eurasia and North America. The present distribution is much more restricted with wolves found mostly in remote undeveloped areas with sparse human populations (Paquet and Carbyn 2003).

In North America the gray wolf historically occupied all habitats north of approximately 20° N latitude except the southeast U.S. where the red wolf (*Canis rufus*) was the dominant canine. During the nineteenth century the increase in human population and the expansion of agriculture resulted in a general decline in the abundance and distribution of wolves in North America. Subsequently, intensive predator control efforts from 1900-1930 virtually eliminated wolves from the western United States and adjoining parts of Canada. By 1960, wolves were

virtually extirpated from all the United States except Alaska and northern Minnesota.

Wolves were historically found throughout Utah, except the Great Salt Lake Desert (Durrant 1952). In 1888, the Utah Territorial Legislature began the extermination of wolves from the state by offering a \$1 bounty. The government-sponsored extermination of wolves continued in Utah until 1930 when the last verified wolf was killed in San Juan County. Previous to this, the U.S. Bureau of Biological Survey reported killing 162 wolves in Utah between 1917 and 1930, with a high of 48 taken in 1918. In July and August of 2002 USDA-WS personnel verified wolf predation on livestock in Cache Co. and in November of 2002 a wolf was captured north of Morgan and then returned to Yellowstone National Park (YNP) where it had been radio-collared as part of an ongoing reintroduction effort. These instances marked the first verified occurrences of wolves in Utah in 74 years.

Sign

Wolves usually walk or trot in an alternating pattern but may also trot in a two-print pattern or lope in a four-print gallop pattern. Young (1944) reported that wolf tracks in the Rocky Mountains averaged 9 cm (3.5 in) in length and 7 cm (2.7 in) in width for the front foot and 8.2 cm (3.2 in) in length and 6.4 cm (2.5 in) in width for the hind foot. Recently transplanted wolves and their offspring have tracks measuring nearly 5 in (12.7 cm) in length and 4 in (10.2 cm) in width (across the toes) (Glazier, K. pers. comm.) Claw marks are almost always present; the foot pad makes up approximately 1/3 of the entire print with one lobe on the leading edge of the interdigital pad and the inside toe is slightly larger than the outside toe. Trails are usually straight and direct rather than wandering. In comparison with most dogs, wolf tracks are more elongated, have the front two prints closer together and the marks of the front two claws are more prominent (Halfpenny 2001, Paquet and Carbyn 2003). Scat varies in color from pure black to almost white and varies in consistency from toothpaste-like to almost entirely of hair and bone. Scat averages approximately 10 cm (4 in) in length and 3.2 cm (1.25 in) in diameter (Halfpenny 2001).

Taxonomy

The gray wolf is a member of the Canidae family in the order Carnivora and is closely related to the coyote (*C. latrans*) and the Simien jackal (*C. simensis*). The closest relative of the wolf is the domestic dog (Wayne et al. 1995). Along with the coyote, the wolf is generally considered morphologically primitive and is typically placed at the beginning of systematic representations of the order Carnivora. The genus *Canis* seems to have originated in the early to middle Pliocene (Wayne et al. 1995). According to Wilson et al. (2000), North America was inhabited by a common ancestor to modern canids 1-2 million years ago. Some of these animals traveled across the Bering Land Bridge where they evolved into the gray wolf in Eurasia. The remaining canids evolved in North America, developing into the coyote, which adapted to preying on smaller

mammals in the arid southwest and the red wolf (*Canis rufus*), which adapted to preying on white-tailed deer (*Odocoileus virginianus*) in eastern forests. Gray wolves later returned to North America and adapted to preying on large ungulates throughout the western and northern United States.

Reproduction

Wolves mate from January to April, depending on latitude. Courtship takes place between pack members or lone wolves that pair during the mating season and estrus in breeding females lasts 5-7 days. Within a pack the dominant pair are normally the only individuals to breed and subordinate females are held in a state of behaviorally induced reproductive suppression (Harrington et al. 1982, Packard et al. 1985). Young are born in the spring after a 62-63 day gestation period. Birth usually takes place in a sheltered place such as a hole, rock crevice, hollow log, or overturned stump. Young are blind and deaf at birth and weigh an average of 450 g (14.5 oz). Litter size averages 6 pups but ranges from 1-11 and may be correlated with the carrying capacity of the environment (Mech 1970, Boertje & Stephenson 1992). Sex ratio of litters may be skewed toward males in high-density populations (Kuyt 1972, Mech 1975).

Mortality

Significant natural causes of mortality in wolf populations include: starvation (Mech 1972, Seal et al. 1975, Van Ballenberghe and Mech 1975, Fuller and Keith 1980), disease (Murie 1944, Carbyn 1982a, Bailey et al. 1995), interspecific conflicts (Ballard 1982, Nelson and Mech 1985, Mech and Nelson 1990, Weaver 1992), and accidents (Fuller and Keith 1980, Boyd et al. 1992). Research has also shown that mortality resulting from intraspecific aggression, in addition to starvation, increases when wolf populations are faced with low prey densities (Van Ballenberghe and Erickson 1973, Messier 1985a, Mech 1977a). In addition, human related mortality factors are significant for most wolf populations. Common human related mortality factors include: harvest (Fuller and Keith 1980, Ballard et al. 1987, Borge and Gunson 1989, Hayes et al. 1991, Plestcher et al. 1997), poaching (Fritts and Mech 1981, Fuller 1989, Plestcher et al. 1997), vehicles (Berg and Kuehn 1982, Forbes and Therberge 1995, Paquet et al. 1996, Forshner 2000), and introduced disease such as parvovirus (Bailey et al. 1995). Annual mortality rates in exploited populations (essentially all aside from Isle Royale) range from 15% to 68% (Fuller et al. 2003).

Social Ecology

Although some wolves are solitary, most are highly gregarious and live in packs with complex social structures. Packs are usually comprised of a breeding pair and their offspring of the previous 1-3 years, or occasionally two or three such families (Murie 1944, Young and Goldman 1944, Mech 1970, Clark 1971, Haber 1977, Mech and Nelson 1989). Within a wolf pack, a strict dominance hierarchy exists and the position of individuals within the hierarchy is reflected by status and privilege (Paquet and Carbyn 2003). Pack size is largest in fall and early winter when pups are integrated into the pack. Pack size normally ranges

between 5-12 individuals, although larger packs have been reported (Mech 1974). Most offspring disperse at approximately 1-2 years of age with a few remaining with the pack up to 3 years (Gese and Mech 1991, Mech et al. 1998). The proximate and ultimate mechanisms regulating pack size are highly complex and not perfectly understood; however, there is a growing body of evidence against an earlier notion that wolves live in packs to facilitate predation on larger prey (Thurber and Peterson 1993, Hayes 1995, Dale et al. 1995, Schmidt and Mech 1997). There is evidence that an increase in prey abundance produces a direct increment in the in-group recruitment and survival resulting in at least temporarily larger packs (Keith 1983). Food limitation has also been shown to be correlated with increased dispersal (Messier 1985b, Peterson & Page 1988)

Communication between wolves is accomplished through postures (Schenkel 1967, Crisler 1958, Fox 1973, Zimen 1976, Fox and Cohen 1977), vocalizations (Harrington and Mech 1983, Harrington 1989, Coscia et al 1991, Coscia 1995) and scents (Kleiman 1966, Theberge and Falls 1967, Peters 1978, Harrington 1981, Asa et al. 1985, Merti-Millhollen et al. 1986, Paquet 1989, Asa 1997, Asa and Valdespino 1998). Innate recognizable patterns of behavior communicate the inner state of a wolf to which other wolves respond. An elevated tail and erect ears conveys alertness and sometimes aggression. Facial expressions, especially the position of the lips and display of the teeth are the most dramatic form of communication. Scent from urine, and possibly feces, is used to express social status and breeding condition and to mark territorial boundaries (Peters and Mech 1978, Asa et al. 1985). Vocalization (howling) is used by wolves to maintain territories and communicate among themselves. Howls can be heard for several kilometers under certain conditions and Joslin (1967) reported that howling could advertise the presence of wolves to conspecifics over a 130 km² (50 mi²) area. Howling may also be involved in coordinating pack activities (Harrington and Mech 1978a & b). Harrington (1975) reported that howling plays an important role in maintaining pack structure, especially in populations with high mortality, helping to assemble the pack members after they have been separated. Howling may also help coordinate hunting efforts (Peterson 1977). Carbyn (1975a) reported that howling was most prominent during crepuscular hours, which may be associated with the departure and arrival of adults at rendezvous sites (Harrington and Mech 1978a&b).

Population Dynamics

Many processes influence wolf population dynamics, including: habitat limitations and environmental variation that causes fluctuations in reproduction, dispersal, age structure of the population, social system and genetics (Paquet and Carbyn 2003). The influence of prey abundance on wolf populations is mediated by intrinsic social processes such as pack formation, territorialism, exclusive breeding, deferred reproduction, intraspecific aggression, dispersal, and primary-prey shifts (Packard and Mech 1980). However, the per capita availability of ungulate prey is the primary factor influencing population dynamics (Keith 1983, Messier and Crete 1985, Fuller 1989, Messier 1994, Eberhardt 1998, Eberhardt

and Peterson 1999). Secondary influences on population dynamics include disease and the level of human-induced mortality (Murie 1944, Keith 1983, Fuller 1989). Other important influences include habitat availability and arrangement (e.g., an area large enough to support only 1 pack and that is isolated from source populations will have different dynamics than an area large enough to support many packs). Some of the specific findings regarding wolf population dynamics include the following: productivity declines as per capita prey availability declines, but significant declines in productivity do not occur until the availability of prey falls below threshold levels (Boertje and Stephenson 1992). Harrington et al. (1983) found in one population, where prey was scarce and the wolf population was declining, there was an inverse correlation between pack size and litter size, while in a separate population where prey was abundant and the population was increasing, pack and litter size were positively correlated.

Dispersal

Dispersal movements are important for gene flow and aid in the establishment of new packs. Dispersal in wolves appears to be a gradual dissociation process. A study in Minnesota reported up to 6 exploratory moves prior to dispersal (Fuller 1989). As offspring mature, they usually disperse when 1-2 years of age with few remaining with the pack longer than 3 years of age (Messier 1985b). Dispersal movements may be directional or nomadic and some evidence suggests that packs colonize areas that were first pioneered by dispersing lone wolves (Ream et al. 1991, Plestcher et al. 1991, Plestcher et al. 1997). Yearling and pup dispersal rates in Minnesota were highest when the population was increasing or decreasing and low when the population was stable (Gese and Mech 1991). Dispersing wolves typically establish new territories or join packs within 50-100 km (31-62 mi) of their natal pack (Fuller 1989, Gese and Mech 1991, Boyd et al. 1995). The time of reported dispersals vary, although January-February is most common (Paquet and Carbyn 2003). The fate of dispersing wolves is probably related to their age, the density of the wolf population, availability of prey, and presence of humans (Fuller 1989, Gese and Mech 1991, Boyd et al. 1995). In northern Minnesota dispersing adults had the highest denning and pairing success, yearlings had moderate pairing and low denning success, and pups had low pairing and denning success (Gese and Mech 1991).

Habitat Use and Home Ranges

Gray wolves are considered a habitat generalist because they require large home ranges and move long distances and don't appear to have any habitat requirements aside from water and prey. Wolves once occurred in all major habitat types including forests, deserts, grasslands and arctic tundra (Mech 1970, Fuller et al. 1992, Mladenoff et al. 1995). Although as a species wolves are considered generalists, populations can be highly adapted to local conditions in relation to prey selection, den-site use, foraging habitat, and physiography (Fritts et al. 1995, Paquet et al. 1996, Alexander et al. 1997, Haight et al. 1998, Mladenoff and Sickley 1998, Mladenoff et al. 1999, Callaghan 2002). Factors that influence habitat use by wolves include: availability and density of prey

(Carbyn 1974, Keith 1983, Fuller 1989, Huggard 1993, Weaver 1994, Paquet et al. 1996), snow conditions (Nelson and Mech 1986a), availability of protected and public lands (Woodroffe 2000), density of domestic livestock (Bangs and Fritts 1996), road density (Theil 1985, Jensen et al. 1986, Mech 1988, Fuller 1989, Thurber et al. 1994, Alexander et al. 1996, Mladenoff et al. 1999), human presence (Mladenoff et al. 1995, Paquet et al. 1996, Callaghan 2002), and topography (Paquet et al. 1996, Callaghan 2002).

Most wolf packs occupy and defend exclusive, stable home ranges (Mech 1970, Peterson et al. 1984, Messier 1985b), however in some circumstances home ranges can be dynamic and nonexclusive (Carbyn 1981, Potvin 1987, Mech et al. 1995, Forshner 2000). Generally, wolves locate their home ranges in areas with adequate prey and minimal human disturbance (Mladenoff et al. 1997, Mladenoff and Sickley 1998). In mountainous habitat, home range selection and travel routes are influenced by topography and the use of valley bottoms and foothills corresponds to the presence of wintering ungulates during periods of deep snow at higher elevations (Singer 1979, Jenkins and Wright 1988, Paquet et al. 1996). Territory and home range sizes are primarily a function of pack size, and pack size increases with prey density (Peterson et al. 1984, Messier 1985b). Colonizing packs are likely to have larger, more variable home ranges than those surrounded by other packs (Boyd et al. 1995, Boyd and Plestcher 1999). Home range sizes for wolf packs in the Rocky Mountains of Canada range from 408 – 1,303 mi² (1,058 to 3,374 km²) (Paquet 1993), and home ranges of wolf packs in the Greater Yellowstone Ecosystem range from 35 - 368 mi² (90 - 953 km²) (Smith, D. pers comm.).

Food Habits

Wolves are obligate carnivores that feed primarily on ungulates (Weaver 1994). In addition, wolves will utilize beaver (*Castor canadensis*), snowshoe hares (*Lepus americanus*), other small mammals, and scavenging to supplement ungulate food sources. In general, wolves utilize prey according to abundance and vulnerability and are known to prey on virtually every ungulate species in North America (Paquet and Carbyn 2003). When there is more than one ungulate species occupying an area, wolves usually preferentially select the smallest or easiest to catch (Mech 1970, Paquet 1992, Weaver 1994, Paquet et al. 1996). In general, wolves select individuals that are the most vulnerable (i.e. old, young or debilitated) from the available ungulate populations (Fuller and Keith 1980, Carbyn 1983, Paquet 1992). For example, the average age of cow elk killed by wolves in Yellowstone National Park (YNP) between 1995 and 2001 was 14 years (compared to an average age of 6 years for hunter killed cow elk) and data obtained by examining fat reserves in the femurs of wolf-killed elk indicated that 34% had exhausted all fat reserves and likely would not have survived (Smith et al. 2003). This is consistent with the generally low rate of hunting success (10-49%) typical for wolves (Mech & Peterson 2003). Given a low probability of success, it is intuitive that wolves preferentially target animals that exhibit some vulnerability.

Kill rates of wolves reported in scientific literature vary widely and Hebblewhite (2000) concluded that the lack of standardized methods used to estimate kill rates confounds attempts to compare rates between different studies. In Banff National Park, Hebblewhite et al. (2003) estimated a kill rate of 0.33 kills / day / pack with the majority of kills being elk (*Cervus canadensis*), which was also the most abundant ungulate. Perhaps the most relevant data to Utah are the kill rates that have been reported in YNP where Smith et al. (2003) reported that elk are by far the preferred prey of wolves with an average kill rate of 1.4 elk / wolf / 30 days, or 1 elk every 21 days. A more recent analysis of the kill rates of elk in Yellowstone covering 2000-2004 indicate that the rate has dropped to 1.1 elk / wolf / 30 days, or 1 elk every 27 days. This later kill rate is comparable to the kill rates reported in other studies including: 15-19 deer / wolf / year (Fuller 1989), 7.3 kills / wolf / year on moose and caribou (Ballard et al. 1987), 16 caribou / wolf / year (Ballard et al. 1997). However, it is important to point out that almost all kill studies (including Yellowstone's) are conducted in winter to simplify tracking, which corresponds to a time when ungulate condition is poorest. Therefore, published kill rates are probably maxima, rather than annual means.

Wolf-Prey Relationships

Wolves are efficient predators that preferentially select vulnerable individuals of large ungulate prey, but are adaptable enough to readily switch to more common secondary prey species (Paquet and Carbyn 2003). As a species, wolves exhibit a remarkable plasticity in their ability to use different prey and habitats (Mech 1991, Weaver et al. 1996). Ungulate biomass per wolf is highest in areas where wolf populations are heavily exploited and lowest in unexploited wolf populations (Keith 1983, Fuller 1989). Group size, landscape structure, and winter severity may influence whether wolf predation is density dependent or density independent, and therefore regulatory or limiting to prey populations. The functional and numerical responses of wolf populations to prey populations are complex and are likely influenced by many factors including: availability of alternative prey, presence of other predators (Messier 1994, Eberhardt 1997, Eberhardt and Peterson 1999), the size of ungulate herds, and ungulate behavior (Huggard 1993, Weaver 1994, Hebblewhite 2000). In addition to the influence of wolf predation on ungulate populations several studies have also documented impacts of wolves on ungulate behavior, including movement patterns, habitat use, and spatial distribution (Carbyn 1975a, Mech 1977b, Rogers et al. 1980, Nelson and Mech 1981, Bergerud et al. 1984, Messier and Barrette 1985, Ballard et al. 1987, Messier 1994).

Smith et al. (2003) summarized wolf prey relationships in YNP for the first 6 years following reintroduction. Elk are the primary prey of wolves in YNP accounting for 92% of the kills recorded between 1995 and 2001. Wolf predation on elk in winter has been highly selective, with calves representing 43% of the kills while representing only 15% of the elk population. As mentioned above, wolves have selected very old adults with an average age of cow elk killed of 14

years (Mech et al. 2001). In addition, wolves in YNP prey on bison (*Bison bison*) and moose (*Alces alces*) although each species represents < 2% of the total winter diet (Smith et al. 2000). Preliminary results indicate that pronghorn (*Antilocapra americana*) fawn survival in YNP is positively correlated with wolf densities, probably resulting from reduced coyote densities (Smith et al. 2003). Only one kill of a bighorn sheep (*Ovis canadensis*) by wolves has been documented in YNP and very little impact is anticipated because wolves spend little time in the steep rocky terrain occupied by bighorn sheep. In addition, wolves in YNP have had very little impact on mule deer (*Odocoileus hemionus*) populations, probably because mule deer largely migrate out of the park during winter months, escaping the period when wolf predation is most intense, and many mule deer winter in areas that are close to human development, which are avoided by wolves (Smith et al. 2003).

Interactions with Non-Prey

As top carnivores, wolves likely have substantial influences on other carnivores in the areas they occupy. However, except for coyotes (Fuller and Keith 1981, Carbyn 1982b, Meleshko 1986, Paquet 1991, Thurber et al. 1992, Peterson 1995, Arjo and Pletscher 1999) and red foxes (*Vulpes vulpes*) (Peterson 1995) interspecific competition between wolves and other carnivores has been the subject of very little investigation. Smith et al. (2003) summarized the observed impacts that wolves have had on predators and scavenger populations in YNP following reintroduction. The presence of wolves in Yellowstone has had profound impacts on coyote populations including reducing the density by 50% and reducing pack sizes. Besides coyotes, nine other species have been observed using wolf kills in Yellowstone; ravens (*Corvus corax*) and magpies (*Pica pica*) visit all kills and many non-winter kills are visited by both black (*Ursus americanus*) and grizzly bears (*Ursus arctos*). Wilmers and Getz (2004) concluded that the presence of wolves in YNP would benefit scavengers by providing a more tractable food resource. Cougar (*Puma concolor*) populations on the northern range of YNP have been intensively monitored throughout the period of wolf reintroductions, during which time the cougar population appears to have been slowly increasing. Interactions between wolves and cougars in Yellowstone have been rare, probably as result of differences in preferred habitats, but limited data indicates that cougars avoid wolves and are subordinate to wolves at kills (Smith et al. 2003).

Ecosystem Level Impacts

Carnivores affect prey directly and indirectly, and ultimately exert an influence that cascades through the trophic levels of an ecosystem (Estes et al. 2001, Miller et al. 2001). Through predation, carnivores can reduce numbers of prey (Schoener and Spiller 1999) and, because prey animals change their behavior to avoid predation, carnivores also have an indirect effect (Schmitz 1998, Brown 1999). Long-term monitoring data from Isle Royale has shown that predation affects the number and behavior of moose, which consequently affects forest

species composition and soil nutrient dynamics (McLaren and Peterson 1994, Post et al. 1999).

The published literature on wolves demonstrates the complexity of inter-relationships between wolves, other carnivores, prey species, and the biotic and abiotic environment. Wolves can function as a “keystone species,” which exists at relatively low abundance and whose effect on its ecosystem is relatively large and involves multiple trophic levels (Power et al. 1996, Estes 1996, Soulé et al. 2003). Further, the absence of wolves from their former range may result in simplification of ecosystems (loss of species diversity) (Soulé et al. 2003). Recent studies in YNP suggest that wolves have a direct effect upon the abundance, distribution and age class of aspen and willows because wolf presence increases the vigilance and movement of large herbivores (Ripple and Beschta 2004).

Ecological Values

Large predators, such as the gray wolf, may add to the integrity of many ecosystems (Estes 1996). Interactions between top-level carnivores and prey species through evolutionary time have shaped and fine-tuned each one morphologically and behaviorally into what they are today. In the absence of those functional relationships, ecological systems may be incomplete.

Top-level carnivores may speed up nutrient cycling, provide carrion for other species, cull sick or weak animals, influence the way prey species use the landscape (Beschta 2003, Ripple et. al 2001), and contribute to biological diversity as exhibited in YNP (USFWS et al. 2003). Broader habitat management and conservation purposes may also be served by the presence of large carnivores such as the gray wolf (Fritts et al. 1994).

The Unknown

One of the most fundamental challenges of wolves returning to Utah is the uncertainty of the outcome. Biologists can only predict the effects of restored wolf populations on prey populations or other wildlife based on what is known from other places. The current uncertainty about the nature, cause, magnitude, and mechanisms of wildlife population fluctuations will be further complicated by the presence of wolves. Today, wolf-prey relationships are influenced by many factors, including habitat modification and fragmentation by humans, land management activities, changes in prey species distribution and numbers, economics, and social and political factors - all of which, individually, are highly dynamic. Predator-prey relationships generally, and wolf-prey relationships have been studied extensively in North America (Mech and Peterson 2003, NRC 1997); yet the results of each study were unique to the study area, as were the conditions prevailing at the time the research was conducted (e.g. predator species present, predator density, prey species present, prey density, winter severity, drought, etc.). Most of the western studies of wolf-prey relationships have been in situations where elk are the dominant ungulate. The situation in

Utah will be quite different with our relatively high population of mule deer. Consequently, obtaining Utah-specific information will be critical to the success of this plan.

Part II. Historic and Current Status of Wolves in the Intermountain West

History

The gray wolf historically occupied all of the Intermountain West; however, wolf populations were extirpated from the western U.S. by the 1930s. During 1940-1973, wolves from Canada occasionally dispersed south into Montana and Idaho but failed to survive long enough to reproduce. Subsequently, wolves received legal protection with the passage of the Endangered Species Act (ESA) in 1973 and began to successfully recolonize northwest Montana in the early 1980s. By 1995, there were six wolf packs in northwestern Montana. In 1995 and 1996, 66 wolves from southwestern Canada were reintroduced to Yellowstone National Park (YNP) (31 wolves) and central Idaho (35 wolves) (USFWS et al. 2004). These areas were selected for reintroduction due to their remote characteristics, low levels of human activity, and relatively large populations of wild ungulates.

Current Status and Distribution

The Northern Rocky Mountain wolf population contains three recovery areas: the Northwest Montana Recovery Area (NWMT) includes northern Montana and the northern Idaho panhandle. The Greater Yellowstone Recovery Area (GYA) includes Wyoming and adjacent parts of Idaho and Montana. The Central Idaho Recovery Area (CID) includes central Idaho and adjacent parts of southwest Montana. Wolves in the three recovery areas are managed under different guidelines, depending upon their designated status under the ESA. In 2003, NWMT wolves were reclassified from endangered to threatened. However, a recent district court ruling in Oregon reversed the reclassification making wolves outside of the 10(j) area endangered again. GYA and CID wolves are classified as nonessential experimental (10(j)) populations; this status allows more flexible management than an endangered / threatened population. The USFWS, responsible for administering the ESA, believes that 30 or more breeding pairs of wolves, with an equitable distribution among the three states for three successive years, would constitute a viable and recovered wolf population. That criterion was met at the end of 2002 (Tables 2.1 and 2.2). The current distribution and population trend of wolves in the three recovery areas is depicted in figures 2.1 and 2.2. If other provisions required for delisting are met, primarily adequate regulatory mechanisms in the form of state wolf management plans that would reasonably assure that the gray wolf would not become threatened or endangered again, the USFWS will propose delisting (removal from protection under the ESA) of wolves in Idaho, Wyoming & Montana (USFWS et al. 2004). An additional 10(j) area has been designated for the Mexican gray wolf (*Canis lupus baileyi*) in Arizona and Mexico. The reintroduction of Mexican Gray wolves into their historic range in Arizona and New Mexico began in 1998 with their current numbers reaching more than 50 animals in the wild. Outside of the

designated 10(j) area the Mexican gray wolf is listed as endangered under the ESA.

Prior to the recent court ruling in Oregon the Northern Rocky Mountain wolf population and the Mexican wolf population were separated into distinct population segments (DPS) with the boundary following I-70 through Utah. The court ruling dissolved the DPS designations erasing the I-70 boundary. This situation may ultimately delay the delisting of wolves and therefore the implementation of this management plan. Until delisting, any wolves entering Utah are under the management authority of the USFWS and not subject to this management plan. Under State regulation wolves are currently listed as a Tier I (highest level of protection) sensitive species in Utah.

Wolf Management in the Intermountain West

Wolf management in the Intermountain West essentially equates to management of livestock depredation and the success of wolf management will, in a large part, be judged by our ability to manage this inevitable conflict. In addition, the coordination of wolf management with the management of big game will be a significant factor relative to the success of wolf management in Utah. To a great extent, the success that managers have had in reestablishing wolves in the Northern Rockies is a result of a straightforward approach towards managing wolf-livestock conflicts that both compensates producers for their losses and provides managers a wide array of tools, ranging from non-lethal deterrent techniques to lethal control to deal with individual situations. Non-lethal techniques available to reduce wolf depredation on livestock include: (1) the use of guarding animals (i.e. dogs, donkeys, mules or llamas) (2) radio-activated guard (RAG) boxes which are programmed to make loud noises and set-off lights when a radio-collared wolf is near (3) the use of fladry (perimeter rope of vertical flagging that in some cases provides a temporary barrier) and (4) the use of non-lethal ammunition such as rubber bullets or bean bag rounds to haze wolves. Information on the relative success of these methods is largely anecdotal.

From 1987-2004 there have been 1,600 reported, confirmed wolf depredations on livestock (429 cattle, 1,074 sheep) and other animals (72 dogs, 25 other), which have resulted in 117 wolf translocations and 292 lethal wolf removals (Table 2.3) (USFWS et al. 2004). From 1987-2004, Defenders of Wildlife has paid \$475,771 in 373 separate reimbursements to ranchers for livestock losses caused by wolves (Defenders of Wildlife 2004) (Appendix 3). However, the Defenders' compensation program is not universally accepted and some livestock producers have opted not to participate. In an effort to better address the concerns of affected landowners caused by wolves in what USFWS considers a "biologically recovered wolf population" USFWS has proposed a new 10(j) rule that would provide States and Tribes, that complete federally-approved management plans, lead management authority for wolves in the experimental non-essential populations. Currently, Montana and Idaho have approved wolf management plans.

Table 2.1 Minimum fall wolf population estimates by recovery area for the Northern Rockies wolf population from 1979 – 2004 (USFWS et al. 2005)

Year:	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
Recovery Area																										
NW Montana	2	1	2	8	6	6	13	15	10	14	12	33	29	41	55	48	66	70	56	49	63	64	84	108	92	59
Yellowstone																	21	40	86	112	118	177	218	271	301	324
Central Idaho																	14	42	71	114	156	196	261	284	368	452
Total	2	1	2	8	6	6	13	15	10	14	12	33	29	41	55	48	101	152	213	275	337	437	563	663	761	835

Table 2.2 Estimated number of breeding pairs, by recovery area, for the Northern Rockies wolf population from 1979 – 2004 (USFWS et al. 2005)

Year:	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04
Recovery Area																										
NW Montana								1	2	1	1	3	2	4	4	5	6	7	5	5	6	6	7	12	4	6
Yellowstone																	2	4	9	6	8	14	13	23	21	30
Central Idaho																		3	6	10	10	10	14	14	26	30
Total								1	2	1	1	3	2	4	4	5	8	14	20	21	24	30	34	49	51	66

Table 2.3 Confirmed wolf depredation and wolf management actions in the Northern Rockies by recovery area, 1987 – 2004 (USFWS et al. 2005)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total
Northwest Montana																			
Recovery Area:																			
Cattle	6	0	3	5	2	1	0	6	3	9	16	9	13	10	8	9	6	6	112
Sheep	10	0	0	0	2	0	0	0	0	0	30	0	19	2	5	13	3	1	85
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	5	0	1	10
Dogs	0	0	0	1	0	0	0	0	3	1	0	0	2	3	1	4	0	0	15
Wolves Moved	0	0	4	0	3	0	0	2	2	10	7	0	4	0	5	0	0	0	37
Wolves Killed	4	0	1	1	0	0	0	0	0	4	14	4	9	4	3	9	14	1	68
Yellowstone Recovery Area:																			
Cattle									0	0	5	3	4	7	22	33	45	100	219
Sheep									0	13	67	7	13	39	117	71	90	99	516
Other									0	0	0	0	1	0	0	0	10	4	15
Dogs									1	0	0	4	7	8	4	1	0	6	31
Wolves Moved									6	8	14	0	0	6	8	0	0	0	42
Wolves Killed									0	1	6	3	9	6	9	23	38	54	149
Central Idaho Recovery Area:																			
Cattle									0	2	1	9	16	15	10	10	3	22	98
Sheep									0	24	29	5	57	39	16	15	118	170	473
Other									0	0	0	0	0	0	0	0	0	0	0
Dogs									0	1	4	1	6	0	1	4	6	3	26
Wolves Moved									0	5	0	3	15	10	5	0	0	0	38
Wolves Killed									0	1	1	0	5	10	7	14	7	30	75
Total, All 3 Recovery Areas:																			
Cattle	6	0	3	5	2	1	0	6	3	11	22	21	33	32	40	52	64	128	429
Sheep	10	0	0	0	2	0	0	0	0	37	126	12	89	80	138	99	211	270	1074
Other	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	5	10	5	25
Dogs	0	0	0	1	0	0	0	0	4	2	4	5	15	11	6	9	6	9	72
Wolves Moved	0	0	4	0	3	0	0	2	8	23	21	3	19	16	18	0	0	0	117
Wolves Killed	4	0	1	1	0	0	0	0	0	6	21	7	23	20	19	46	59	85	292

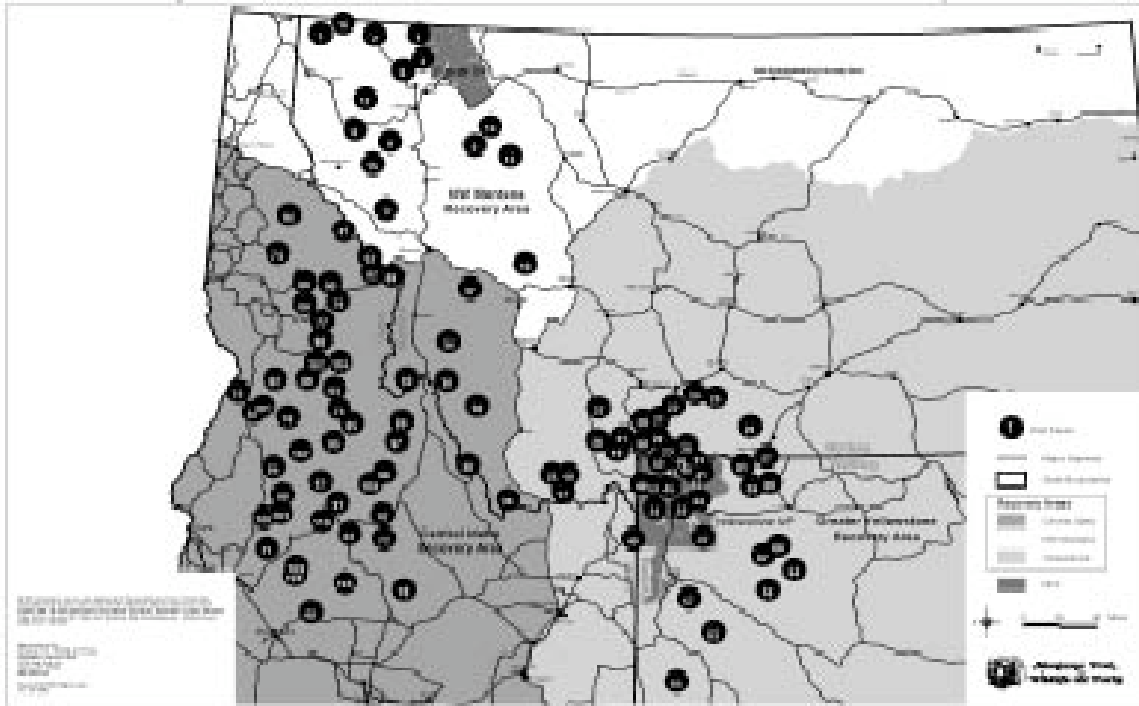


Figure 2.1 2004 distribution of wolves within the Northern Rockies (USFWS et al. 2005)

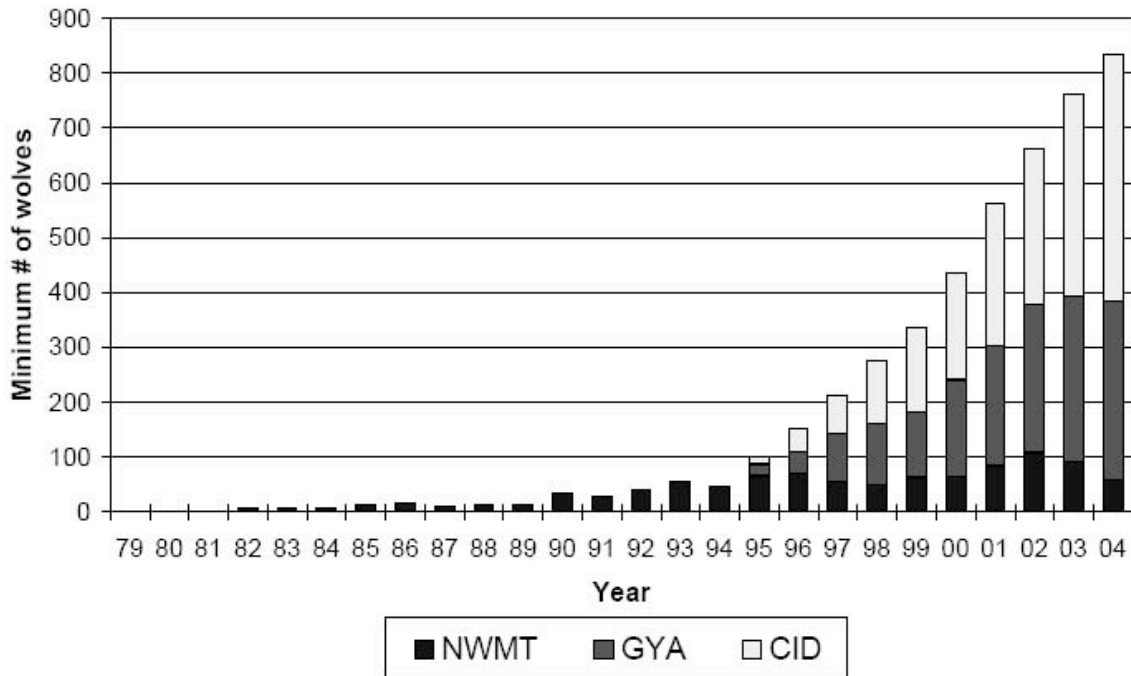


Figure 2.2 Wolf population trend in the Northern Rockies, 1979 – 2004 (USFWS et al. 2005)

Part III. Wolves In Utah

Utah's Environment and Wolves

Switalski et al. (2002) evaluated potential dispersal corridors for wolves into Utah from Idaho and Wyoming and potential habitat for wolves in Utah through a geographic information systems (GIS) analysis. This analysis identified high connectivity of intact habitat between occupied wolf habitat and the both the Bear River Range and Flaming Gorge National Recreation Area. The analysis of potential wolf habitat in Utah concluded that most forested, mountainous habitat in Utah has the potential to support wolves. However, high road densities resulted in many areas being classified as only marginal habitat. Despite this, a number of relatively large potential core areas were identified. Although valuable, this analysis did not include the potential for conflict with livestock in the model of potential wolf habitat; wolf-livestock conflict has been the most significant factor restricting the expansion of wolf populations and the establishment of new packs in the northern Rocky Mountains.

Wolves moving into Utah will inevitably impact wildlife populations. However the level and direction of these impacts will likely vary by species. Table 3.1 documents the current trend, status (in relation to management objectives) and potential impacts of wolves on Utah's wildlife populations. In addition, wolf-livestock conflicts are a potential limiting factor to wolf establishment in Utah. Table 3.2 documents the abundance, trend and distribution of sheep and cattle in the State.

Potential Economic Impact of Wolves

Switalski et al. (2002) also looked at the potential economic impacts of wolves in Utah and although the analysis is admittedly incomplete some generalizations were made. First, other studies (Rosen 1997, Gaillard et al. 1999) suggest that the presence of wolves in Utah might have a beneficial impact on Utah's tourism industry. Second, direct costs associated with having wolves in Utah include: (1) agencies costs associated with management, (2) livestock losses due to depredation, and (3) costs associated with reduced hunting opportunities. Switalski et al. (2002) estimated that the costs associated with wolf management in Utah would not exceed \$130,000 annually and the costs associated with livestock depredations would be about \$47,000 annually based on a wolf population of 200 animals. However, it is anticipated that there will not be more than 25 wolves in Utah during the life of this management plan so if these estimates are accurate, actual costs will substantially lower.

Table 3.1 Status of Utah's wildlife communities and the potential impacts of wolves on these communities.

Species	Abundance	Distribution	Limiting Factors / Conservation Issues	Trend	Management Objectives	Potential Impacts of Wolves
Ungulates						
Deer	268,180*	Statewide in montane and shrub-steppe habitats	Habitat loss / degradation, Winter Kill, Predation, Drought, Sagebrush die offs, Private property depredation, Disease	5 year: Down 20 year: Down	Population: 426,100 Habitat: Conserve / Improve Recreation: Increased opportunity and quality	Little population level impact expected based on the results of wolf reintroductions in YNP and Idaho (Smith et al. 2003), however local herds could experience reductions
Elk	58,025*	Statewide in montane and shrub-steppe habitats	Habitat loss / degradation, Predation, Drought, Sagebrush die offs, Private property depredation, Disease	5 Year: Down 20 Year: Up	Population: 68,400	Local population reductions assuming wolves in Utah prey primarily on elk as they have in the Northern Rockies
Moose	3,400**	Uinta and Wasatch Mountains	Habitat availability / suitability, Habitat loss / degradation, Predation	5 Year: Stable 20 Year: Up	Population: 4,100 Habitat: Conserve Recreation: Increased opportunity and quality	Little population level impacts expected although may be a locally important food source based on results in YNP and Idaho following wolf reintroduction (Husseman and Power 1999, Smith et al. 2003)
Bighorn Sheep	3,460***	Statewide within suitable habitat	Disease, Predation, Habitat loss / degradation,	5 Year: Up 20 Year: Up	Population: 5,300 Habitat: Conserve / Improve Recreation: Increased opportunity and quality Population: None	Little to no impact expected because wolves avoid the rugged habitats inhabited by bighorn sheep (Smith et al. 2003)
Pronghorn	12,000*	Statewide within suitable habitat	Drought, Sagebrush die offs	5 Year: Down 20 Year: Up	Habitat: Conserve / Improve Recreation: Increased opportunity and quality	Little to no impact expected
Predators/ Scavengers						
Black Bear	3,000	Statewide in most suitable habitat	Drought, Habitat loss / degradation, Livestock conflicts, Human conflicts / nuisance, Harvest	5 Year: Stable 20 Year: Up	Maintain populations and increase distribution into unoccupied suitable habitat	Long term positive impact because of increased scavenging opportunities (Smith et al. 2003)
Cougar	3,000	Statewide in suitable habitat	Habitat loss / degradation, Livestock conflicts, Harvest	5 Year: Down 20 Year: Up	Maintain healthy populations within existing occupied habitat	None expected
Bobcat	No estimate	Statewide in suitable habitat	Habitat availability, Prey density, Harvest	5 Year: Down 20 Year: Stable	Maintain healthy populations	None expected
Coyote	100,000	Statewide	None	5 Year: Down 20 Year: Stable	None	Possible negative impact as a result of interspecific aggression (Smith et al. 2003)
Scavengers	No estimate	Statewide	None identified	5 Year: Unknown 20 Year: Unknown	None	Positive long term impact as a result of increased scavenging opportunities (Smith et al. 2003)

* 2003 Population estimate, ** 2000 Population estimate, ***1999 Population estimate

Table 3.2 Cattle and sheep abundance, trend and distribution in Utah.

Species	Abundance*	Trend	Distribution**
Cattle	901,000	Stable or slightly down	Northern: 292,000 Central: 254,500 Eastern: 193,500 Southern: 130,000
Sheep	335,000	Down	Northern: 76,500 Central: 87,500 Eastern: 53,000 Southern: 40,500

* Average 1997-2004 (Utah Agricultural Statistics Service 2004)

**Average 2003-2004 (Utah Agricultural Statistics Service 2004)

Part IV. Stakeholders and Wolves

Background

Wolves and wolf management are contentious topics in Utah and across the Intermountain West. With the reintroduction of gray wolves to a northern Rocky Mountain recovery area within Wyoming, Idaho and Montana in 1995 and 1996, and the subsequent reintroduction of captive-bred Mexican gray wolves (a subspecies endemic to the region) within a recovery area in Arizona and New Mexico, this topic has grown even more controversial. The presence of wolves documented in Oregon, Utah and Colorado has given rise to the need to involve the people of Utah in wolf conservation and management, and the need to develop a plan that is responsive to Utah needs.

Scoping Meetings

With the growth of reintroduced wolf populations, especially in the Northern Rocky Mountains, the wolf controversy has become an important issue for the State of Utah. In March 2004, UDWR and the WWG conducted a series of public scoping meetings in Utah communities. This section provides a summary of public comment obtained through those meetings.

It is important to note that the purpose of the scoping meetings was to identify issues that would be important in the development of the wolf management plan, and to gain some idea of the relative importance of these issues to the people who attended the scoping meetings. Therefore, the results from these meetings should not be extrapolated to any larger population.

Overall Summary of the Top Issues

Top issues, by definition, are those that were among the top three identified by one of the independent work groups during one of the public meetings. Many identical or very similar issues were identified at more than one meeting.

Prioritized Top Issues

The following is a listing of top issues from all locations, in descending order of frequency. In order to be included on this list, the issue must have been selected as a top issue by one of the independent working groups and been selected in the prioritization process. The following criteria were used to summarize these issues:

Issues that were selected 100 or more times are in bold and underlined.

Issues that were selected 75-99 times are in bold.

Issues that were selected 50-74 times are in italics.

Issues that were selected less than 25-49 times are in regular font. Issues that were selected less than 25 times are not included. A complete list of all top issues appears in Appendix 5.

Opposition to wolves in Utah

Creating a safe area for wolves in Utah

Support for wolves in Utah

Positive impacts of wolves on biodiversity, etc.

Need for sound science in planning, management
Livestock depredation
Impact on current game populations, license revenue
Creating a balanced plan

Overall Summary of the Top Advice

Top items of advice, by definition, are those that were among the top three identified by one of the independent work groups during one of the public meetings. Many identical or very similar items were identified at more than one meeting.

Prioritized Top Advice

The following is a listing of top items of advice from all locations, in descending order of frequency. In order to be included on this list, the item must have been selected as a top item by one of the independent working groups and been selected in the prioritization process. The following criteria were used to summarize these items:

Items that were selected 100 or more times are in bold and underlined.

Items that were selected 75-99 times are in bold.

Items that were selected 50-74 times are in italics.

Items that were selected 25-49 times are in regular font. Items that were selected less than 25 times are not included. A complete list of all top items of advice appears in Appendix 5.

Do not allow wolves in Utah.

Manage wolves as predators – eliminate protection.

Identify, protect and manage quality native ecosystems for wolves and prey.

Allow wolves in Utah.

Implement public education programs on wolves, wolf issues.

Base the plan and management on science.

Survey of Public Attitudes

A survey of over 700 Utah residents (Bruskotter 2004) concluded that Utah citizens were generally positive in their attitudes about wolves and wolf management. Attitudes were “remarkably stable” compared to an earlier survey (La Vine 1995).

Results of the survey suggest that the attitudes of Utah urban residents are considerably different than the attitudes of rural residents and big game hunters. As shown in Table 4.1 below, significantly more urban residents than rural residents or big game hunters say that they like wolves and believe wolves are a necessary component of a healthy ecosystem. Likewise, more rural residents and many more big game hunters believe that wolves are a threat to big game and livestock, that wolf numbers should be kept low to minimize their impacts, and that Utah is better off without wolves. Urban residents are much more likely than rural residents or big game hunters to believe that it is wrong to hunt wolves for fur and trophies. They are also much more likely to indicate that they would like to see wolves in Utah.

Table 4.1. Summary of Utahns' attitudes toward wolves.

Response Item	Urban	Rural residents (north)	Rural residents (south)	Big game hunters
What best describes your attitude toward wolves? (% "Like")	61.5	47.3	39.7	43.0
Wolves are a necessary component of a healthy ecosystem. (% "Agree")	71.2	52.8	51.5	39.9
Wolves kill and therefore pose a threat to livestock and big game. (% "Agree")	24.4	41.6	44.4	55.2
Wolf numbers should be kept low to minimize their impacts on human activities. (% "Agree")	49.0	59.6	60.7	74.5
Utah is better off without wolves. (% "Agree")	20.5	37.4	33.6	43.5
It is wrong to hunt and trap wolves for furs and trophies even where they're common. (% "Agree")	47.5	33.8	36.0	23.9
I would like to see wolves in Utah. (% "Agree")	56.9	41.5	42.3	40.2

Still, these differences in attitude between urban Utahns, rural Utahns and big game hunters should not be over-simplified. While it is true that both northern and southern rural residents were less supportive of wolves overall, the survey indicates that there is support for wolves in rural Utah.

Consider the sample of northern rural residents. For example:

- Significantly more indicated that they "liked" wolves than "disliked" wolves.
- Significantly more indicated that they "agreed" rather than "disagreed" that wolves were a necessary component of a healthy ecosystem.
- More "disagreed" than "agreed" that Utah would be better off without wolves.
- Slightly more "agreed" than "disagreed" that they would like to see wolves in Utah.

Some similar attitudes were observed in southern rural residents. In this case:

- More indicated that they "liked" wolves than "disliked" wolves.
- Significantly more indicated that they "agreed" rather than "disagreed" that wolves were a necessary component of a healthy ecosystem.
- More "agreed" than "disagreed" that they would like to see wolves in Utah.

Big game hunters sampled in this survey were, in general, the least supportive group toward wolves. While slightly more indicated that they "liked" wolves than "disliked wolves", they also indicated disagreement with the idea that wolves were a necessary component of a healthy ecosystem. They indicated strong concern about potential impacts of wolves on big game and livestock, and a strong desire to keep wolf numbers low to minimize impacts. Slight pluralities

agreed that Utah was better off without wolves and disagreed that they would like to see wolves in Utah.

Rural and urban residents were very similar in their attitudes with respect to wolf management. For example, both groups strongly supported the idea that state wolf managers should be able to kill wolves that kill pets or livestock. Few in either group indicated that wolf managers should “never” be able to kill wolves. Both agreed that the top priority of wolf management in Utah should be to minimize negative economic impacts and minimize livestock-wolf conflicts.

A more complete description of Utahns’ attitudes towards wolves and wolf management is presented in Appendix 4 and 5.

In summary, the qualitative results of the scoping meetings and the quantitative results of a scientific survey present two very different pictures. A strong majority of those who attended the meetings were very much opposed to wolves in Utah. This attitude is not reflected in the results of the survey. It is likely that the attitudes of those who attended the scoping meetings are not representative of the attitudes of all Utahns on this topic.

Most Utah residents are urban residents. In general, urban Utahns are more positive than rural residents or big game hunters toward the concept of wolves in their state. They are strongly in agreement about the management actions that might be acceptable for wolves, and generally in agreement about what the goals of wolf management in Utah should be, and on the issues of economic impacts and the related issues of minimizing impacts to livestock and big game. There is a substantial group, while not a majority, that opposes wolves in Utah.

The scoping meetings suggest that Utahns who attended these meetings were mixed in the top issues they identified in regard to wolves and wolf management. The top issue identified was opposition to wolves. However, immediately below that issue were issues that involved creating a safe area for wolves, support for wolves and the positive impacts associated with wolves. Below that, were a host of concerns that can be summarized in at least six categories:

- Wolf/human interactions and their impacts on both humans and wolves;
- Conducting wolf monitoring and research programs;
- Wolf/wildlife interactions and their impacts on both wolves and wildlife;
- Livestock depredation and compensation for livestock owners;
- Funding for wolf management; and
- Developing and implementing information/education (outreach) programs.

The top advice identified by these scoping meetings was similar in nature. By far, the top advice offered to UDWR and the WWG was to not allow wolves in Utah or to manage wolves as predators. Again immediately below that were items of advice that were supportive of wolves and the protection of wolves and wolf habitat in Utah. Advice regarding the content of the plan and the six concerns noted above constituted the majority of the remaining advice.

It should not be concluded that the sentiments expressed at the scoping meetings were representative of any larger population than those people who attended these meetings. The qualitative results of the meetings suggest that there is a very vocal segment of the Utah population that is strongly opposed to wolves in Utah, but that another constituency strongly supports wolves. The quantitative results of the survey suggest that support exists across demographic sectors for wolves and wolf management, but that opposition is strongest in big game hunters.

Part V. Management Plan Purpose, Objectives, and Strategies

Purpose

Within the authority of the State of Utah, this plan will guide management of wolves in Utah during an interim period from delisting until 2015, or until it is determined that wolves have established¹ in Utah, or assumptions of the plan (political, social, biological, or legal) change. During this interim period, arriving wolves will be studied to determine where they are most likely to settle without conflict.

Management Goal

To manage, study, and conserve wolves moving into Utah while avoiding conflicts with the wildlife management objectives of the Ute Indian Tribe; preventing livestock depredation; and protecting the investment made in wildlife in Utah.

Management Objectives

1. Allow wolves to disperse into Utah, and be conserved, except when or where:
 - Wolves conflict with the wildlife management objectives of the Ute Indian Tribe;
 - Wolves cause unacceptable livestock depredation; or
 - Wolves contribute to wildlife populations not meeting management objectives as defined by the Utah Wildlife Board's Predator Management Policy.²
2. Fully compensate livestock owners for losses of livestock to wolves.

Management Strategies

These strategies will guide management of wolves in Utah during three specific time frames:

- Pre-plan: Prior to the implementation of the wolf management plan;
- Prior to delisting: While wolves are still listed under the federal Endangered Species Act; and
- Post-listing: From delisting until 2015, or until it is determined that wolves have established in Utah, or assumptions of the plan (political, social, biological, or legal) change.

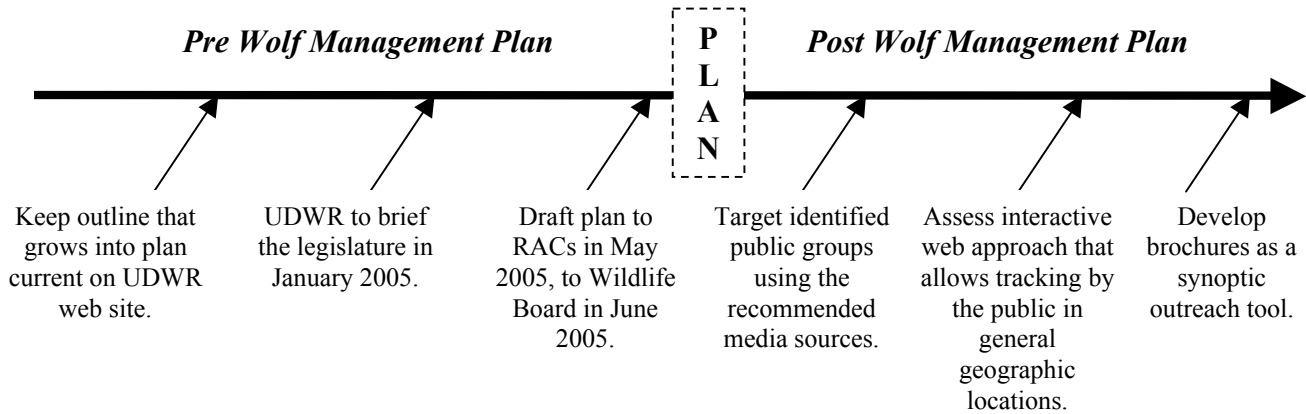
¹ "Established" is defined as "at least 2 breeding pairs of wild wolves successfully raising at least 2 young each (until December 31st of the year of their birth), for 2 consecutive years." [USFWS, Reintroduction of Grey Wolves into Yellowstone National Park and Central Idaho, Final EIS, May 1994, US Fish and Wildlife Service, Helena, MT; Pages 6-66 and 6-67 in [Appendix 8: Memorandum Regarding Definition of a Wolf Population](#). From EIS Team Wolf Scientist and Northern Rocky Mountain Wolf Recovery Coordinator, March 11, 1994.]

² "Managing Predatory Wildlife Species" dated January 19, 1996.

Strategy I: Develop and implement outreach programs.

Outreach efforts will be developed and implemented in three phases. First, it is important to conduct outreach efforts as the plan is being developed. These efforts will keep Utah citizens and other interested parties involved in the process and increase broad-based support for the plan that is developed.

Second, it will be important to conduct outreach efforts as the plan moves through the Regional Advisory Councils and to the Wildlife Board. These efforts will ensure that the voices of all concerned parties are heard during this process. Finally, it will be important to conduct ongoing outreach efforts as the plan is being implemented. The following diagram illustrates the outreach timeline.



As this Wolf Management Plan is implemented, it will be necessary to identify and address the broad array of questions concerning wolves and their impacts on livestock, wildlife, and humans. Because wolf management procedures will be closely scrutinized, a balanced approach must be built that acknowledges the complexity of the political, social, and environmental factors associated with wolves and their management.

Specific constituencies targeted for outreach efforts include:

- Members of the general public;
- Sportsmen & wildlife watching groups, including but not limited to: the Cooperative Wildlife Management Unit (CWMU) Association, Utah Nature Conservancy, Sierra Club, Utah Audubon Council, National Rifle Association, Foundation for North American Wild Sheep, Boone & Crockett Club, Pope & Young Club, Sportsmen for Fish and Wildlife, Rocky Mountain Elk Foundation, Trout Unlimited, Ducks Unlimited, Utah Wildlife Federation, etc.
- Utah Department of Tourism’s Utah Travel Council;
- Livestock producers, via the Woolgrower’s Association, Cattlemen’s Association, and Utah Farm Bureau;
- Elected officials, including Utah’s congressional delegation, Utah legislators, Association of Governments, county commissioners, and municipal leaders;

- Education community, including K-12 schools, community colleges, state colleges and universities;
- Other government entities, including federal agencies such as the Bureau of Land Management (BLM), US Forest Service (USFS), Natural Resource Conservation Service (NRCS) state agencies such as School and Institutional Trust Lands Administration (SITLA), and those within the Ute Tribe.
- Other established groups who have an interest in wolves dispersing to Utah.

These targeted groups should in turn provide their members and interested parties information pertaining to wolf management.

To facilitate outreach efforts, a variety of media sources are available. These sources should be involved in regular updates on the status of wolf management, as well as special segments to educate the public on the wolf when timely or appropriate. The following media sources are available for this purpose:

- Newspapers (47 of which 6 are daily);
- Television (13 stations--channels 5, 2, 4 & 13 are most viewed);
- Radio [over 28 are regularly contacted by the Utah Division of Wildlife Resources' (UDWR) Discover Utah Radio Program];
- UDWR magazine and UDWR television program;
- Constituent group newsletters;
- UDWR Wildlife News (weekly press release to nearly 280 writers);
- UDWR website (1.3 million visits/year), which should provide timely updates, and facilitate an electronic subscription process for Wildlife News;
- UDWR brochures; and
- Direct presentations by UDWR and the Wolf Working Group (WWG) prior to plan release.

Note: UDWR will fund & conduct the aforementioned and also seek partners to broaden outreach efforts.

Strategy II: Manage wolf/human interactions to benefit both humans and wolves.

The WWG expects that for the duration of this initial Wolf Management Plan there will be few, if any, human/wolf interactions beyond those attendant to livestock depredation, due to the low number of wolves expected and the nature of dispersing wolves. When these interactions occur, they are envisioned as being both positive experiences (wolf viewing opportunities) and potentially negative experiences (wolves killing hunting dogs, wolf habituation to humans). A plan to manage those interactions should be proactive and may be important to gaining public acceptance for wolf conservation in Utah.

The UDWR will adopt a 3-level response for wolves (similar to that defined in the management plans for bears and cougars) that addresses nuisance, chronic nuisance and human safety responses.

Nuisance and Chronic Nuisance Responses

Nuisance and chronic nuisance wolves may be harassed, trapped and relocated or aversively conditioned (e.g., less than lethal munitions) according to established protocol.

Human Safety Response

Wolves that pose a direct threat to human safety will be lethally removed.

Implementation

The UDWR and the U.S. Department of Agriculture-Wildlife Services (USDA-WS) will work with private landowners and land managing agencies to mitigate negative impacts due to wolves. In general, the presence of wolves will not initiate a UDWR request for public land closures and/or allocations, with the possible exception of small, seasonal restrictions to protect dens and rendezvous sites. The size and timing of these restrictions should be developed to meet specific needs by the UDWR and USDA -WS and the appropriate land management agencies. UDWR and these agencies will retain emergency authority to address legitimate human safety concerns (e.g., an aggressive wolf in a camp area), but these restrictions, like those used for bears, would be for a short period of time and limited in scope.

Additionally, the use of hounds for cougar and bear hunting will not be curtailed due to wolves. Hounds killed by wolves are included under the compensation program, but wolves that kill hounds (during the act of hunting) will not be removed.

Recreational and commercial trapping of protected and unprotected furbearers will not be curtailed due to wolves, but seasonal restrictions may be appropriate to protect den and rendezvous sites. The UDWR will develop a contingency plan to deal with incidental captures of wolves by commercial and recreational trappers, including protocols (e.g., radio collaring, medical attention and relocation) as appropriate. The Division will coordinate with the Utah Trappers Association to address their concerns.

The UDWR and USDA-WS will participate in proactive strategies to preclude the habituation of wolves to humans. This may include educational programs for rural residents, collaborating with land managing agencies to prevent "campground wolves," removing road-killed wildlife if wolves begin feeding on the carcasses, and training personnel in appropriate responses (e.g., less than lethal munitions, radio-activated guard (RAG) boxes, etc.).

When wolves are confirmed in an area, a communications plan will be implemented that protects information regarding the location of the wolves to

preclude unnecessary harassment (from either a wolf viewing public or would-be wolf shooters). This information will be shared with members of the local community at a level that educates them, but does not negatively impact the wolves.

Strategy III: Develop and implement wolf monitoring and research programs.

To the extent practical, every wolf identified in Utah will be radio-collared and monitored, consistent with the livestock depredation policy. In doing so, the use of global positioning system (GPS) collars will be a priority.

Additionally, a comprehensive protocol will be developed for procedures to be followed when a wolf is handled. This protocol will include, at a minimum, procedures for minimizing stress to the animal during handling, as well as for determining the health of the animal, and for collecting relevant biological data (e.g., age, sex, blood and DNA samples).

Training

In terms of preparation to support this monitoring, UDWR field personnel and USDA-WS personnel will be trained in methods for field identification of wolves (i.e. howling, visual ID, scat, tracks). Similar training will take place among other reliable sources for wolf sighting information (e.g., USFS, BLM, trappers), and will be offered to livestock producers and hunters. A more intensive training for a subset of DWR and USDA-WS field personnel will occur, to include implementation of the protocol for handling wolves described above, as well as other relevant skills.

Programs

UDWR and WS will develop a “reactive response” program to verify reported wolf sightings. As wolf numbers increase, it may be appropriate to actively search for the presence of wolves in certain areas. UDWR will maintain a comprehensive database of relevant wolf information, such as:

- wolf sightings,
- current wolf locations,
- wolf movements,
- relevant biological data, and
- results of any wolf-related investigations.

UDWR will also coordinate tracking and monitoring efforts with the appropriate agencies from surrounding states.

Additional monitoring will occur as UDWR monitors pre- and post- wolf arrival patterns. To the extent practicable, baseline data (i.e., numbers & distribution) will be established for big game herds and livestock before wolves arrive. When wolves frequent a given area, the UDWR will monitor that area to determine whether wolves are impacting big game herds and livestock, and to what extent. If one or more mating pairs form, UDWR will be prepared to locate and monitor den sites and assess reproduction.

Reporting and Expansion

UDWR will publish a comprehensive annual report including the activities under this section, to be available for members of the public, organizations, and agencies.

Finally, when wolves disperse into or near Utah, the above activities described under this strategy will be implemented to include those wolves.

Strategy IV: Manage wolf/wildlife interactions to meet the objectives of this plan.

The State of Utah has been successful in managing big game populations. Currently there are approximately 280,000 mule deer in Utah. The 2008 objective for mule deer is 320,000, with a long -term objective of 426,100. There are currently approximately 58,000 elk in the state. The statewide objective for elk is 68,000. There are currently about 1,000 Rocky Mountain bighorn sheep and 4,000 moose in Utah.

Hunters and hunting organizations have been instrumental in this success. With political support and funding from these organizations, big game numbers have increased, as has big game harvest. For example, in the mid-1980s, Utah's overall elk harvest was approximately 4,000 animals. Today, Utah hunters harvest over 10,000 elk annually; many of which are trophy class bulls. Considerable investments are being made to improve habitat conditions on public and private lands to maintain and increase big game populations.

High percentages of these animals depend on public BLM and National Forest lands. However, in northern Utah especially, large areas of private land provide big game habitat and are managed for fee hunting under the State's CWMU program.

For at least the next ten years, it is the opinion of wolf experts in Idaho and Wyoming that any wolves in Utah will be dispersing individuals and it is unlikely that packs will be formed in that time period.¹ Therefore, it is believed that impacts to big game should be negligible during this 10 year period.

¹ Steve Nadeau (Idaho Fish and Game Department) presentation to the Utah Wolf Working Group, 29 June 2004. Doug Smith (National Park Service) presentation to the Utah Wolf Working Group, 27 July 2004.

As observed in scoping meetings hosted by the WWG, many Utahns of diverse backgrounds, opinions, and interests believe that Utah could support some wolves without adversely impacting overall big game populations. However some stakeholders fear that once wolves arrive in Utah, organized groups, within and outside Utah, will take legal or administrative actions to prevent any control actions that are necessary to manage wolves and protect big game.

In central Idaho and in the Yellowstone area, where wolves were transplanted from Canada, their population growth has exceeded expectations. It is believed that in both locations the populations may have peaked, and may stabilize or even decline to levels that are in balance with prey and available habitat. In central Idaho and in the Yellowstone area, wolf predation has probably been a factor in localized elk population declines. It should, however, be noted that big game populations are affected by a host of factors, including drought, winter severity, birth rates, and natural and human causes of mortality. As a natural cause of mortality, wolf predation will be included in big game management decisions.

Influence on Wildlife Management

Intrinsic to the management of wolves in Utah is the ability to protect the investments made in wildlife management efforts. Wolves in Utah will be opportunistic feeders, preying on available big game, primarily elk and mule deer. The impact that wolves have on big game will not necessarily be related to the number of wolves in Utah. To mitigate these adverse effects, should they occur, investments of funds, personnel time, and volunteer efforts may be necessary.

Under this plan, when de-listed by the U.S. Fish and Wildlife Service, wolves in Utah will have the same legal management status and be subjected to the same UDWR predator management policies as the black bear and cougar.¹ The UDWR will have the responsibility to recommend and/or implement actions that are necessary to manage wolves, including a full range of conservation and control actions, consistent with House Joint Resolution (HJR) 12.

There is overall agreement amongst biologists in Utah and in the northern Rockies that, if necessary, wolf populations can be controlled with available techniques. It is not likely that the UDWR will ever have the level of information necessary to definitively determine the effects wolves are having on big game. Just as with cougars and bears, professional judgment will be important in considering management options.

Wolves will be controlled or populations reduced when they cause unacceptable impacts to big game. At the UDWR Director's discretion, an emergency management action may be implemented for wolves preying on populations of

¹ For the cougar management plan, see <http://www.wildlife.utah.gov/pdf/cmgtplan.pdf> .
For the bear management plan, see <http://www.wildlife.utah.gov/bear/pdf/00bearplan.pdf> .

wildlife that are being re-established, and/or are at low levels. Such an action might include non-lethal control, such as relocation, or lethal control actions.

Recommendations

To implement this strategy, the UDWR will consider having an employee who can dedicate an appropriate amount of their time to wolf management. Similarly, the Northern and Northeast Regions of UDWR will consider having at least one wildlife biologist who is available to field verify credible wolf sightings and investigate wildlife and livestock losses suspected of being caused by wolves.

This plan recommends that the UDWR and the Legislature establish a compensation/incentive program for CWMU operators to foster tolerance for wolves on their CWMU units.

In the event that wolf predation causes a loss of big game hunting opportunity (antlered or antlerless) or decreased age class of male animals, the Utah Wildlife Board has instructed DWR to take the necessary actions to correct the situation.

The Utah Wildlife Board recommends that the legislature establish a fund to mitigate the impacts of wolf predation on big game populations. This fund will be used by DWR to mitigate the impacts that wolves might have on the investment made by DWR and its partners in establishing and enhancing Utah's big game populations. This fund will not be used to reimburse conservation organizations. It is recommended that this fund be in addition to the traditional DWR appropriation of general fund money.

Strategy V: Control livestock depredation and fully compensate livestock owners for losses of livestock to wolves.

Preventing Livestock Depredation

The first opportunity to avoid wolf conflicts with domestic livestock may be in prevention before conflicts occur. In some instances, non-lethal management tools can effectively address depredation concerns and are the most cost-effective, least intrusive method of managing conflict. If successful, non-lethal methods may also eliminate the need for more intensive management actions later. A number of non-lethal techniques may be implemented, including monitoring wolf locations using radio telemetry or other techniques, changing livestock husbandry practices, harassing or relocating wolves, or attempts to modify wolf behavior. Both aversive and disruptive techniques are available. Aversive techniques cause discomfort or pain to the wolf after it demonstrates certain behaviors. Examples include rubber bullets, taste aversion or electric shock collars. Disruptive techniques are designed to prevent some predator behaviors by making the predator retreat, rather than prey on livestock. Examples include pasture fencing, noise makers or siren devices triggered when a wolf approaches livestock too closely. Information on the relative success of these techniques is largely anecdotal. While these techniques may not be effective in all situations, they may present an important tool for livestock producers and wolf managers in Utah for the life of this plan.

The following section deals with depredation actions. Depredation situations cannot always be controlled by non-lethal means. Conversely, not every depredation situation immediately necessitates lethal action. In crafting these protocols, the WWG has endeavored to meet the intent of HJR-12 by balancing the need to conserve wolves with the need to protect livestock and livestock producers. The intent in allowing livestock producers to non-lethally harass wolves is to avert potential conflicts by discouraging wolves from becoming accustomed to human presence or frequenting areas near livestock.

Depredation Actions

Dealing with depredation caused by wolves is likely to remain a contentious issue among the public as management authority is given to the state and wolf populations grow. It is important to note that the goal of depredation management is to prevent losses of livestock, and not to “punish” offending wolves. That is, it is of paramount importance to keep Utah livestock producers from losing livestock by keeping wolves and livestock separate, by conditioning wolves to avoid livestock where possible, and by controlling wolves by both non-lethal and lethal means where necessary. It is further important to note that responsive management in this area is critical to wolf conservation.

Landowners and livestock producers have a lot at stake during this stage of dispersing wolves and the potential establishment of wolf packs. Livestock production is a historic livelihood and continues to be an important part of the economy and culture of our state. The livestock industry recognizes that depredation is a risk and reality within the industry. As such, to minimize depredation and "prevent livestock depredation." as quoted in HJR-12. Livestock owners, immediate family members and employees of livestock owners should be allowed to protect the investments and assets of their livestock-operation

Livestock owners should not be required to obtain a permit or participate in training prior to protecting their investments. Further, it should be recognized that livestock owners are voluntarily and wisely practicing non-lethal control measures to protect livestock from wolves and other predators. As such, livestock owners should not be required to follow specific non-lethal control measures prior to using lethal controls to protect livestock. However, UDWR and USDA-WS will provide voluntary training on non-lethal control options for livestock owners, their employees and other interested parties.

Livestock owners or landowners who take actions against wolves (with or without permit) will be required to report the incident within 72 hrs and an investigation will be conducted to assure the action was appropriate. General wildlife protection rules will preclude harassment of wolves by non-livestock owning public.

During their efforts to comply with the National Environmental Policy Act (NEPA) process, Utah WS will consider methods to reduce the incidental take of wolves during coyote control.

Below are the management actions that will be implemented in a variety of wolf-livestock interactions on both public and private lands for state-managed gray wolves. In each case, the implementation of management actions is assumed to be in ascending order of intensity. For example, in the case of a wolf sighting (without livestock harassment, chasing, biting, grasping, etc.) on private land, a livestock owner should consider non-injurious harassment prior to use of injurious harassment or lethal control.

Private and Public Lands

- Sighting, hearing, or tracks only:
 - ✓ Report to agency (DWR or WS) if concerned.
 - ✓ Non-injurious harassment allowed.
 - ✓ Professional consultation with agency if requested.
 - ✓ Lethal control not an option.

- Harassment of Livestock (*defined as chasing, actively disturbing or harming*):
 - ✓ Report to agency (DWR or WS) if concerned.
 - ✓ Non-injurious harassment allowed.
 - ✓ Injurious harassment (rubber bullets, etc.) without a permit
 - ✓ Professional consultation with agency if requested.
 - ✓ Lethal control allowed without a permit by livestock owners, immediate family members or an employee of a livestock owner on a regular payroll, and not hired specifically to take wolves. Action must be reported to UDWR within 72 hours.

- “In the Act of” (*biting or grasping*):
 - ✓ Report to agency (UDWR or WS) if concerned.
 - ✓ Non-injurious harassment allowed.
 - ✓ Injurious harassment (rubber bullets) without permit.
 - ✓ Professional consultation with agency if requested.
 - ✓ Lethal control allowed without a permit by livestock owners, immediate family members or an employee of a livestock owner on a regular payroll, and not hired specifically to take wolves. Action must be reported to UDWR within 72 hours.

- Confirmed Loss:
 - ✓ Report to Agency (UDWR or WS) if concerned.
 - ✓ Non-injurious harassment allowed.
 - ✓ Injurious harassment (rubber bullets) without permit.
 - ✓ Professional consultation with agency if requested.
 - ✓ Lethal control allowed without a permit, within 72 hours of the confirmed loss, by livestock owners, immediate family members or an employee of a livestock owner on a regular payroll, and not hired specifically to take wolves. Action must be reported to UDWR within 72 hours.

- ✓ Landowner may get a limited duration permit to shoot a wolf on sight following the 72 hour period if deemed necessary by UDWR.

Agency actions

- Sightings, hearing, or tracks only:
 - ✓ Agency personnel will record credible sightings to maintain some records of possible wolf dispersal into the state. Where practical, credible sightings will be investigated with the intent of confirming the presence of wolves.
 - ✓ If requested, agency personnel will provide professional consultation for livestock producers or rural residents. This consultation will include information to preclude livestock loss or other conflict as well as relevant biological information.
 - ✓ In some cases, training in the use of non-lethal scare tactics (rubber bullets, radio-activated guard [RAG] boxes, etc.) may be provided and a permit for injurious harassment may be issued by the UDWR.
- Harassment of livestock (*defined as chasing, actively disturbing or harming*):
 - ✓ Agency personnel will investigate and record all reported incidents of livestock harassment. To the extent practical, verification of livestock harassment should be made by agency personnel.
 - ✓ If requested, agency personnel will provide professional consultation for livestock producers or rural residents. This consultation will include information to preclude livestock loss or other conflict as well as relevant biological information.
 - ✓ In some cases, training in the use of non-lethal scare tactics (rubber bullets, RAG boxes, etc.) may be provided and a permit for injurious harassment may be issued by the Division. Agencies will not remove wolves for the harassment of livestock.
- “In the Act of” (*biting or grasping*):
 - ✓ Agency personnel will investigate actions taken by livestock producers under this clause.
 - ✓ If requested, agency personnel will provide professional consultation for livestock producers or rural residents. This consultation will include information to preclude livestock loss or other conflict as well as relevant biological information.
 - ✓ In some cases, training in the use of non-lethal scare tactics (rubber bullets, radio activated guard (RAG) boxes, etc.) may be provided.
- Confirmed Loss:
 - ✓ Agency personnel will investigate all reports of livestock killed by wolves with the intention of confirming losses for the compensation program.
 - ✓ The results of all investigations will be reported on forms developed by the Division, including status (confirmed, probable, possible, and unknown), location and proximity to known wolves.

- ✓ UDWR or WS may translocate or remove an offending wolf or member of an offending group after a confirmed loss, provided that livestock remain vulnerable to predation.

Compensation Program

HJR-12 urges the Utah Department of Natural Resources to "fully compensate private landowners for losses, not covered by other mitigation sources, resulting from depredation to livestock by wolves." Full market/production value compensation should be available to livestock owners who experience loss due to wolves. After depredated livestock has been investigated by proper authorities, livestock owners should be fully compensated for cases where wolves are the "possible," "confirmed" or "probable" predator. A compensation program should also include a multiplier affect to account for missing livestock

Guidelines of a compensation program are as follows:

- Compensation will come first from State funds.
- Investigations (whether confirmed, probable or possible depredation) will be conducted by WS and/or DWR.
- Compensation rules will apply statewide.
- Compensation for confirmed loss to livestock categories other than cattle and sheep (horses, guard dogs, stock dogs, etc.) will have a monetary cap (per animal).
- Compensation will be available for a confirmed loss of any animal (other than companion animal/pet) that is killed.

It should not be assumed that the only means for compensating livestock owners is that of government funding. Defenders of Wildlife (Defenders), a non-profit wildlife advocacy organization, provides funding to shift the economic liability away from ranchers and towards wolf advocates through a compensation program that reimburses livestock owners from wolf depredation in other western states. The Wolf Compensation Fund was established in 1987 and has paid substantial claims to livestock owners in Idaho, Montana and Wyoming. In some cases, veterinary bills for livestock injured by wolves have been reimbursed. Funds from the Wolf Compensation Fund have also been used to purchase livestock feed, lease supplemental pasture, purchase additional guarding animals or fencing materials, and to cost-share other modifications to husbandry practices to minimize the potential for future depredations. While some Utah livestock interests have regarded this program with some skepticism, it may represent a viable alternative to government funding for compensation. If the State of Utah establishes a compensation fund for wolf damages, Defenders will not compensate Utah livestock producers under their program. Defenders also provides resources to livestock operators through the Bailey Wildlife Foundation in the form of non-lethal depredation management tools.

Strategy VI: Provide funding for wolf management.

Summarized below is a breakdown of estimated funding requirements:

Description	Timeframe*	Estimated cost	Agencies bearing this cost	Possible funding sources
Livestock compensation: Paying claims to livestock producers for wolf kills.	Current and future expense, incurred regardless of oversight authority.	Approx. \$7,000/yr., expected to increase	UDWR	Endangered Species Mitigation Fund (ESMF); private donations (Defenders of Wildlife, etc.), tax check-off, General Fund.
Research and monitoring: Personnel, equipment, flights, etc.	Current and future expense, data needed regardless of oversight authority.	\$30,000 for initial equipment and preparation; \$5,000-\$10,000 operating/yr., increasing to \$120,000/yr. with breeding population.	UDWR, USDA-Wildlife Services (WS)	State Wildlife Grants (SWG), ESMF, private donations, tax check-off, General Fund, federal WS funds, USFWS.
Monitoring and analysis of wolf impacts on other wildlife.	Future expense, primarily not included in the interim plan.	Limited costs in the interim period will be covered in research costs above.	N/A	N/A
Incentives for private landowners, including CWMU operators.	Future expense.	Costs estimated to be similar to livestock compensation.	WWG recommends that the UDWR and the Legislature consider establishing this program.	
Public outreach, including radio, TV, publications, etc.	Current and future expense.	Current: \$15,000-\$20,000/yr.; Future: up to \$50,000/yr. as wolf numbers increase.	UDWR	General Fund
Costs to the Ute Tribe: livestock compensation, training, depredation incident response, etc.	Future expense.	Livestock compensation: \$5,000/yr.; monitoring: \$5,000/yr.; Training: \$2,500/yr.; Depredation response: \$2,500/yr.	Ute Tribe	Unknown at this time.
Law enforcement: response to public safety and depredation conflicts, investigations of illegal wolf kills	Current and future expense, incurred regardless of oversight authority.	1-2 investigations/yr would cost about \$10,000. Cost increases with wolf population.	UDWR	General Fund, tax check-off.
Description	Timeframe*	Estimated cost	Agencies bearing this cost	Possible funding sources
Administration: RAC/Wildlife Board interaction, planning, accounting, federal aid coordination, etc.	Most costs are current. Planning efforts increase when state receives management authority.	\$20,000-\$25,000/yr.	UDWR	General Fund, SWG, tax check-off, federal aid funds, private donations.
Personnel training: Employee training in sighting, tracking, collaring, etc.	Current and future expense.	UDAF/WS: \$3,500/yr.; UDWR: \$15,000-\$20,000/yr.	UDAF/WS, UDWR	General Fund, tax check-off, private donations. Possibly ESMF or SWG.
Depredation incident response and action: travel, gather/analyze evidence, and remove/relocate offending wolves.	Current and future expense.	Current minimum: \$20,000/year; Future: USDA -- \$20,000-\$100,000/yr, UDWR: \$5,000/yr.	USDA/WS, DWR, possibly Ute Tribe.	Federal funding while wolves under federal protection. General fund and tax check-off when state assumes management.

* - Current expenses are those incurred now, while wolves are managed by USFWS. Future expenses are those incurred when management authority is transferred to the state.

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APPENDIX 1
House Joint Resolution 12

WOLVES IN UTAH
2003 GENERAL SESSION
STATE OF UTAH
Sponsor: Michael R. Styler

This joint resolution of the Legislature urges the United States Fish and Wildlife Service to expedite the process for transferring authority to manage wolves to the states. The resolution also urges the United States Fish and Wildlife Service to reject requests to establish additional recovery areas that would include the state of Utah; urges the Utah Division of Wildlife Resources to draft a wolf management plan that is to the extent possible consistent with the wildlife management objectives of the Ute Indian Tribe, prevents livestock depredation, and protects the investments made in wildlife management efforts; and urges the Division of Wildlife Resources to prepare a grant proposal recommending that the Department of Natural Resources' Endangered Species Mitigation Fund fully compensate private landowners for losses, not covered by other mitigation sources, resulting from depredation to livestock by wolves.

Be it resolved by the Legislature of the state of Utah:

WHEREAS, wolves have become well established in the Northern Rocky Mountain states of Idaho, Montana, and Wyoming, and dispersing young wolves from these expanding populations are traveling into and attempting to recolonize parts of Utah;

WHEREAS, the biological status of wolves in the Northern Rocky Mountain Recovery Area has recently exceeded criteria for full recovery under the Northern Rocky Mountain Wolf Recovery Plan;

WHEREAS, the United States Fish and Wildlife Service has stated that the presence of wolves in Utah is not necessary for the recovery of wolves in the Northern Rocky Mountain Recovery Area;

WHEREAS, Utah is not a participating state in the Northern Rocky Mountain recovery effort for Gray Wolves;

WHEREAS, the wolf is currently protected in Utah by state statute as well as by the Federal Endangered Species Act;

WHEREAS, the state of Utah has a legislated, public process for the purpose of developing policy for the management of protected wildlife, which includes the Regional

Advisory Councils and the Utah Wildlife Board;

WHEREAS, the Utah Wildlife Board has been recognized by the Western Association

of Fish and Wildlife Agencies for its ability to resolve complex, controversial wildlife management issues;

WHEREAS, the Utah Wildlife Board has approved a Policy on Managing Predatory

Wildlife Species that provides direction to the Division of Wildlife Resources in managing predator populations;

WHEREAS, recent biological assessments recognize that lands within the original boundaries of the Uintah and Ouray Reservation in the Uinta Basin of Utah contain suitable wolf habitat;

WHEREAS, the state of Utah and the Ute Indian Tribe are party to a Cooperative

Management Agreement which recognizes the need for cooperation in the management of

wildlife within the original boundaries of the Reservation;

WHEREAS, citizens and conservation organizations in Utah have invested significant

resources to restore populations of wildlife in Utah; and

WHEREAS, hunting, ranching, and livestock production contribute significantly to the economy, heritage, and quality of life in Utah:

NOW, THEREFORE, BE IT RESOLVED that the Legislature of the state of Utah

urges the United States Fish and Wildlife Service to expedite the delisting process for wolves

in the Western Gray Wolf Distinct Population Segment, thereby transferring authority to

manage wolves to the states.

BE IT FURTHER RESOLVED that the Legislature urges the United States Fish and

Wildlife Service to reject requests to establish additional recovery areas that would include the

state of Utah, leaving the entire state in the Western Gray Wolf Distinct Population Segment.

BE IT FURTHER RESOLVED that the Legislature strongly urges the Utah Division of

Wildlife Resources to draft a wolf management plan for review, modification, and adoption by

the Utah Wildlife Board through the Regional Advisory Council process.

BE IT FURTHER RESOLVED that the Legislature urges that the objectives and

strategies of the plan, to the extent possible, be consistent with the wildlife management

objectives of the Ute Indian Tribe, prevent livestock depredation, and protect the investments

made in wildlife management efforts while being consistent with United States Fish and

Wildlife Service regulations.

BE IT FURTHER RESOLVED that the Legislature strongly urges the Division of

Wildlife Resources to prepare a grant proposal for consideration by the Department of Natural

Resources' Endangered Species Mitigation Fund to fully compensate private landowners for

losses not covered by other mitigation sources and resulting from depredation to livestock by

wolves.

BE IT FURTHER RESOLVED that a copy of this resolution be sent to the United

States Fish and Wildlife Service Region Six, the United States Secretary of the Interior, the

Utah Wildlife Board, the Utah Division of Wildlife Resources, and the members of Utah's

congressional delegation.

Legislative Review Note
as of 1/20/03 3:20 PM

A limited legal review of this legislation raises no obvious constitutional or statutory concerns.

Office of Legislative Research and General Counsel

APPENDIX 2
Utah Wolf Working Group Charter
(04/19/04)

1) Purpose:

- a. The purpose of the Utah Wolf Working Group (WWG) is to assist the Division of Wildlife Resources in developing a Wolf Management Plan for the State of Utah. This plan will incorporate House Resolution 12, the Utah Wildlife Code, and pertinent federal regulations.

2) Authority:

- a. The Utah State Legislature and the Utah Wildlife Board have the authority under state law to direct the Utah Division of Wildlife Resources (UDWR) to complete a wolf management plan. UDWR has the technical capability to complete this plan.
- b. However, the Board and UDWR have chosen to convene a working group to develop this plan, in order to insure that the various stakeholder interests are adequately represented. The members of the working group were selected to represent various interests related to wolves in Utah.
- c. The authority of the WWG is limited to that of producing a draft wolf management plan by the date specified. The WWG is fundamental to the development of that plan, but the content of the plan may be altered by UDWR, the Wildlife Board, or the Utah State Legislature, prior to its approval and implementation.

3) Expectations:

- a. The WWG will produce a draft wolf management plan, ready for presentation to the Regional Advisory Councils (RACs) by May 1, 2005. Following review and comment by the RACs, the WWG will submit a revised draft to the Wildlife Board in July 2005.
- b. The plan will include biological and social assessments, including a summary of public scoping meetings, issues, goals, objectives and strategies, as appropriate.
- c. The plan will include only one proposed management alternative, except that multiple damage management alternatives will be provided to accommodate USDA-APHIS Wildlife Services involvement in managing wolf depredations on livestock and domestic animals, including pets.
- d. The WWG will hold public scoping meetings in as many locations as necessary, up to 10 locations.

4) Time Frame:

- a. The WWG will not continue past the completion and presentation of the draft plan to the Wildlife Board in July 2005.
- b. Specific timing of WWG activities in drafting the plan include:

- i. March 2005: Final draft approved by WWG, posted on website
- ii. April 2005: WWG reviews public comment on draft, makes revisions
- iii. May 2005: Plan submitted to RACs for review and comment
- iv. June 2005: WWG considers RAC comments, drafts final plan
- v. July 2005: Final plan to Wildlife Board for review and approval

5) Roles and Responsibilities:

- a. Members of the WWG are expected to:
 - i. Read and learn information quickly and accurately.
 - ii. Attend meetings regularly. Each member may designate one alternate, who may attend meetings and represent the member.
 - iii. Articulate interests, concerns and perspectives on issues.
 - iv. Maintain an open mind regarding other views.
 - v. Work as a team member to address the responsibilities of the WWG.
 - vi. Participate collaboratively in group decision-making.
 - vii. Constructively manage conflict between group members.
 - viii. Communicate on a regular basis with interests the individual was selected to represent.
 - ix. Support group decisions.
 - x. Commit to participating until May 1, 2005.

- b. UDWR has contracted with Dynamic Solutions Group, LLC (DSG) as facilitators and process coaches to assist the WWG in developing this draft plan. DSG is expected to help the WWG achieve the state outcomes by:
 - i. Serving the WWG as an impartial “process” specialist, ensuring that meetings are conducted as efficiently and effectively as possible.
 - ii. Assessing the WWG’s progress in meeting agenda items set for each meeting and managing the group’s time accordingly.
 - iii. Working with WWG and UDWR to develop an agenda for each meeting, keeping a record during the meeting, and ensuring that flip chart records are distributed to WWG members in a timely fashion.
 - iv. Establishing a clear context and structured framework for deliberations.
 - v. Ensuring the participation of all WWG members by creating an environment where all parties are comfortable.
 - vi. Developing and maintaining trust and respect within the group so that all individuals can express their opinion.

- vii. Helping identify participant interests (rather than positions) and encourage collaboration and creative thinking.
- viii. Evoking and encouraging the creativity of the group.
- ix. Asking appropriate questions as necessary to stimulate understanding and consensus among group participants.

c. UDWR is expected:

- i. To provide media resources to the WWG, including but not limited to:
 - 1. Website
 - 2. News releases
 - 3. Video
 - 4. Magazine articles
- ii. To provide advice and counsel to the WWG.
- iii. To notify the WWG of changing circumstances, new information, etc.
- iv. To provide clear direction to the WWG, regarding the roles, responsibilities, etc. as noted in the charter.

d. The technical resource persons designated to serve the WWG will provide information to the group upon request.

- i. These resource persons should plan to attend all WWG meetings, but will not take part in WWG discussions unless asked by the group.

e. The general public is encouraged to assist the WWG. Several mechanisms will be used to encourage and allow public participation.

- i. All WWG meetings will be open to public attendance.
- ii. A series of public meetings around the state will be scheduled and conducted specifically for the purpose of obtaining input from various interests to assist WWG.
- iii. Limited public participation periods may be scheduled during some WWG meetings.
- iv. Public input will be solicited through the UDWR website.

6) Funding and Support:

- a. WWG operating expenses (meeting facilities/equipment/expert speakers/etc.) will be funded via the UDWR budget and various grants as needed.
- b. Non-governmental agency WWG member travel expenses (motel/meals/mileage) will be reimbursed by the UDWR.

APPENDIX 3

Defenders of Wildlife Compensation Policy

Eligibility

It is our intent to offer this compensation to help reduce wolf-related economic losses for individual ranchers and farmers while promoting wolf conservation. To best serve these goals, Defenders is refining the eligibility and documentation guidelines for compensation of wolf-related livestock losses. Livestock owners who demonstrate best management practices, including reasonable use of non-lethal methods, will remain eligible for compensation. When possible, we will assist with appropriate non-lethal deterrents to help livestock owners reduce future conflicts with wolves. Please contact us for more information or see our website for details at www.coexistingwithcarnivores.org.

To be eligible for compensation from Defenders of Wildlife, the following requirements must be met:

- 1) The livestock in question were legally present on the land where the depredation occurred.
- 2) Defenders of Wildlife must receive claims within six months of the depredation event.
- 3) There is no evidence of long-term or habitual presence of dead or dying livestock in the immediate area, which attracted the wolves and possibly caused the depredation.
- 4) The loss is determined by Wildlife Services, or the authorized agency equivalent, as a *confirmed or **probable loss.
- 5) The livestock covered under these guidelines include sheep, cattle, horses, mules, goats, llamas, donkeys, pigs, chickens, geese, turkeys, herding dogs and livestock guarding dogs.
- 6) The livestock loss is not being compensated by a private insurance policy or compensation process other than that offered by Defenders of Wildlife.
- 7) a. In areas where wolves currently exist, Landowners, permittees or their representatives in the northern Rockies (Idaho, Montana and Wyoming) have been broadly alerted to the presence of wolves in their region; therefore, their animal husbandry practices should reflect this knowledge. As in the past, to receive compensation, regional livestock owners must demonstrate reasonable use of non-lethal methods. These methods include, but are not limited to: increased human presence, herders or range riders, electric or predator-resistant fencing, livestock guard dogs (use of several per band), predator deterrent lighting, and electronic alarm systems. Defenders of Wildlife, in consultation with

livestock owners and field agency representatives, will evaluate the effectiveness and appropriate execution of these methods.

b. In those areas beyond the northern Rockies where wolves may disperse (e.g., Oregon, Utah, Colorado, etc.), provided requirements 1 – 6 have been met and producers are otherwise eligible per requirements 8 and 9, livestock owners will be compensated the first time they lose livestock to wolves. For subsequent losses, livestock owners or their agents in these areas must follow the same criteria described in section 7a for the northern Rockies region.

8) The livestock owner seeking compensation must not be a publicly-owned entity, since the goal of this fund is to shift economic responsibility for wolf recovery away from individual farmers and ranchers.

9) Defenders of Wildlife reserves the right to deny compensation or assistance to anyone who intentionally submits fraudulent claims, purposefully attempts to entice wolves to kill livestock, illegally wounds or kills wolves, refuses to utilize reasonable nonlethal deterrents, or acts in an abusive or threatening manner toward any Defenders' employee.

Process

The compensation fund will pay 100 percent of the current market value of adult livestock or the projected market value of livestock below marketable age for *confirmed losses up to \$2,000 per animal. The compensation fund will pay 50 percent of the value for **probable losses. Appropriate documentation, such as a contract, previous sale record or current market reports, is required. Most claims are processed in less than 6 weeks. To expedite processing and help clarify the eligibility guidelines for compensation, a standard investigation report form has been adopted. In order to process a compensation claim for wolf depredations on livestock, the following information must be submitted:

A completed copy of the standard investigation report form for *confirmed and/or **probable losses due to wolf predation. These reports should provide a reasonable record of evidence based on standard criteria. The report should contain a complete record of this evidence or it will be referred back to the livestock owner with instructions to contact their field investigator for more information.

APPENDIX 4 Public Scoping Process

In March 2004, UDWR and the WWG conducted a series of public scoping meetings in Utah communities and summarized the public input from these meetings. Evening meetings were held in the following communities, on the following dates. Attendance by the public at each meeting is noted.

Date	Community	Attendance
March 8, 2004	Roosevelt	47
March 9, 2004	Vernal	64
March 10, 2004	Salt Lake City	203
March 11, 2004	Ogden	109
March 12, 2004	Logan	145
March 15, 2004	Cedar City	88
March 16, 2004	Richfield	96
March 17, 2004	Moab	25
March 18, 2004	Price	57
March 19, 2004	Spanish Fork	63

Total attendance at this series of meetings was 897.

A typical public meeting was conducted according to the following process:

- Meetings began at approximately 7 p.m. with a welcome from the facilitator, who explained the meeting process, followed by a welcome by a WWG member and a presentation by UDWR on wolves and wolf management.
- Meeting participants were seated at individual tables, with the 4-8 people seated at each table functioning as an independent working group.
- The participants were given specific instructions for providing their ideas.
- A member of the group wrote the group's ideas on flip chart paper.
- On separate pages, the group recorded issues and advice or suggestions.
- The group selected their "top three" issues and "top three" items of advice or suggestions.
- The top three issues and advice were consolidated by WWG members and UDWR staff and posted on a wall of the meeting room.
- Participants prioritized the top issues and advice from those posted.
- At the conclusion of this public input session, UDWR staff and WWG members informally answered questions and engaged in further dialogue with members of the public.
- Meetings typically concluded by 9:30 p.m.

Overall Summary of the Top Issues

Top issues, by definition, are those that were among the top three identified by one of the independent work groups during one of the public meetings. Many identical or very similar issues were identified at more than one meeting.

Prioritized Top Issues

The following is a listing of top issues from all locations, in descending order of the number of votes they received in prioritization. The total number of votes is noted for each. In order to be included on this list, the issue must have been selected as a top issue by one of the independent working groups and have received votes in the prioritization process.

Opposition to wolves in Utah – 239
Creating a safe area for wolves in Utah - 45
Support for wolves in Utah – 44
Positive impacts of wolves on biodiversity, etc. – 44
Need for sound science in planning, management – 41
Livestock depredation – 28
Impact on current game populations, license revenue – 28
Creating a balanced plan - 25
Economic loss and compensation for others – 22
Public education about wolves - 22
Depredation compensation for livestock owners – 18
Impacts on wildlife – 17
I-70 boundary issue – 17
Quantity/quality of available wolf habitat in Utah – 13
Impacts on multiple use, land use planning – 9
Managing wolf-human interactions (includes human safety, protecting wolves from illegal kills, etc) – 9
Legal status of wolves in Utah (predator, game animal, etc.) - 6
Funding/costs of wolf management/depredation – 5
Impact of adding an additional predator – 5
Documenting existing wolves in Utah – 5
Wildlife should be managed by the state - 4
Wolf control – lethal, non-lethal - 4
Emphasis of UDWR, legislature on game animals - 3
Determining desired wolf numbers – 3
Scientific assessment to determine wolf sustainability - 3
Private property rights – 3
Management options – hunting trapping – 2
Wolf de-listing - 2
Managing wolf distribution to minimize conflicts - 2
Controlling wolf hybrids – 2
Addressing needs of wildlife watchers - 1
Spread of CWD, other diseases – 1
Compensation from federal government – 1

Overall Summary of the Top Advice

Top items of advice, by definition are those that were among the top three identified by one of the independent work groups during one of the public meetings. Many identical or very similar items were identified at more than one meeting.

Prioritized Top Advice

The following is a listing of top items of advice from all locations, in descending order of the number of votes they received in prioritization. The total number of votes is noted for each. In order to be included on this list, the item of advice must have been selected as a top item by one of the independent working groups and have received votes in the prioritization process.

- Do not allow wolves in Utah. – 719
- Manage wolves as predators – eliminate protection. – 57
- Identify, protect and manage quality native ecosystems for wolves and prey. - 53
- Allow wolves in Utah. – 44
- Implement public education programs on wolves, wolf issues. - 31
- Base the plan and management on science. – 25
- Use information from other states and Canada. – 21
- Livestock should not have preference over wolves on public land. – 19
- Consider and fairly compensate for economic losses. – 16
- Plan should consider local, county and tribal plans. - 15
- Move the I-70 boundary. – 13
- No wolves? How? – 12
- Develop a plan for wolves when they impact livestock and native big game. – 10
- Preserve ranching to save habitat. - 6
- Wolves should be managed by the Department of Agriculture. – 5
- Establish protected areas of critical habitat for wolves. - 5
- Use a fair process that allows for public involvement throughout. – 5
- Get money from wolf advocates to help manage wolves. If all dollars come from license buyers, we should be allowed to hunt/trap them. - 5
- Develop management objectives that won't allow wolves south of I-70. – 4
- Develop an effective management plan for wolves in Utah. – 4
- Maintain protected status until they are established in Utah. - 4
- Work toward delisting in S. Utah; state control management – 4
- Assemble a task force to make sure wolves do not establish in Utah. - 4
- Reimbursement from private enterprise or non-profits for losses of privately owned livestock and wildlife. – 4
- Definitely listen to majority voice in Utah; not special interest groups. Those who attend wolf meetings. - 3
- Establish technical advisory committee similar to bears & lions. - 3
- No wolves in UT until we see what happens in ID, MT and WY. – 3
- Turn control/management to DWR immediately (using federal dollars). – 3
- Antelope Island would be a good place for wolves. – 3
- Develop a balanced plan. – 3
- Conduct a science based assessment of suitable wolf habitat. – 3
- Let Utah citizens vote in an election on wolves. – 3
- Allow wolves in certain locations, but if problems occur, manage the problem. – 2
- Every management tool should be available for wolf control. - 2
- Evaluate both positive and negative impacts on big game. - 2
- If other states reduce wolves and they are not de-listed, it limits our options. – 2
- Complete the plan in a timely manner. – 2
- Federal government should pay for damage to livestock, pets at 3x replacement cost. - 2

Communicate with property owners. – 2
 Establish minimum number of breeding pairs to establish viable populations in Utah. - 2
 Coordinate with land agencies on best locations for wolf management. - 2
 Relocation is the best way of handling problem wolves, rather than euthanasia. – 2
 Assign someone to focus on wolf activity and keep public informed. - 1
 Have someone else manage wolves other than DWR. - 1
 Develop a plan where DWR will issue tags to keep down numbers. - 1
 Financial considerations should be paramount. - 1
 Protect life, property, private rights over wolves. - 1
 Delay allowing wolves until they are de-listed – 1
 Keep track of wolves. - 1
 Develop a system that involves all concerned groups – 1
 Add a non-hunter/rancher/farmer to the Wildlife Board - 1
 Balance conservation and recreational interests – 1
 Develop a range of alternatives from “no wolves” to “designated recovery areas” - 1
 Prepare a statement of issues and factual information to be distributed to the public before the plan is completed - 1
 Make wolf management volunteer work – 1
 Beware of special interests taking control – 1
 Pay attention to the benefits (monetary, ecological, social, etc.) of wolves. - 1
 Private property owners should have strongest voice – 1
 Bounty on wolves – 1
 Conduct a study to determine viable population size for wolves in UT - 1
 Speed up delisting. - 1
 Find a way to get Wyoming’s wolf management plan accepted. - 1
 Maintain Utah’s current wildlife populations (though it will be a challenge due to human population growth – even without adding another compounding factor). -1
 No wolf introduction or transplant (ever). - 1

APPENDIX 5

Summary Report: Utah Residents' Attitudes Towards Gray Wolves

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Abstract: We conducted a mail survey of Utah residents in order to determine their attitudes toward gray wolves (*Canis lupus*) and preferences regarding the management of wolves in Utah. The populations of interest for this study included urban and rural residents (sampled separately) and big game hunters, who identified themselves via the survey questionnaire. Residents generally reported positive attitudes toward wolves, were very supportive of non-lethal management, and supported "natural" re-population versus reintroduction. Hunters were split in terms of their attitudes toward wolves (urban hunters were slightly positive, while rural hunters were slightly negative), more supportive of lethal control methods, and supportive of natural re-population.

Introduction: Wolves in Utah

In November of 2002, a radio-collared, male wolf was captured in a coyote trap in north-central Utah, becoming the first confirmed wild wolf (*Canis lupus*) in Utah in approximately 70 years. This incident captured the public's interest and sparked a debate about what, if anything, should be done with wolves found inside Utah's borders. With wolves moving into the state, wildlife managers, politicians, and residents are faced with the dilemma of how to live with and manage wolves.

Study objectives

The primary goal of this study was to assess Utah residents' attitudes toward the wolf and their support for recovering a population of wolves in the state. Secondary objectives were to (1) determine the acceptability of various control methods, (2) determine residents' evaluations of several management options, (3) assess residents' priorities regarding wolf management, and (4) determine the acceptability of various sources of funding for wolf management.

Methods

A random sample of adult Utah residents was obtained from a private sampling firm, and data were collected through the use of mail-back questionnaires administered during October-November of 2003. In order to ensure adequate representation of rural residents, the sample was disproportionately stratified into 2 regions, urban counties (Davis, Salt Lake, Utah, and Weber) and rural counties, and 1000 residents from each region were sampled. We also used the question, "have you hunted big game animals within the last 3 years" in order to identify big game hunters, as we were interested in determining if big game

hunters differed from non-hunters in terms of their attitudes toward wolves and preferences concerning wolf management.

Data collection

We received Institutional Review Board approval to study human subjects on October 7th, 2003, and began mailing surveys approximately 1 month later. Each household first received a letter explaining the study, accompanied by a questionnaire entitled “Wolves for Utah?,” with a return postage-paid cover. Subsequent mailings included a post-card reminder sent 10 days after the initial mailing, and a second questionnaire sent approximately 3 weeks after the initial mailing.

Measurement

Utah residents’ overall attitudes toward wolves were measured based on their response to a single item: On a 0 to 10 scale, “please circle one answer that best describes your attitude toward wolves.” However, 4 other questions were used in order to ascertain respondents’ support for the management of wolves in Utah. These items were: (1) “Wolf numbers should be kept low to provide for plentiful deer and elk in an area,” (2) “Wolf populations should be kept low to minimize their impact on livestock production,” (3) “If wolves do not return to Utah by themselves then they should be actively returned to the state,” and (4) “Wolves should not be reintroduced, but they should be allowed to repopulate Utah naturally.” Finally, we included several questions designed to assess resident’s preferences regarding specific management practices regarding wolves.

Results

Response Rates

The adjusted response rate for our survey was 709 of 1750, or 40.5%. The response rate for rural residents was higher (n = 373, 43.1%) than urban (n = 334, 37.7%), and may reflect a higher level of interest among rural residents due, in part, to higher rates of participation in hunting (rural = 39.7%, urban = 27.8%) and a greater likelihood to perceive the issue of wolf management as very important (rural = 33.3%, urban = 23.8%).

Demographics

Compared with data from the 2000 U.S. Census, 2003 respondents tended to be older (55% of urban respondents and 68% of rural respondents were 45 or older, compared with 40% for Census 2000; [Table 1](#)). Respondents also had higher levels of education (40% of urban residents and 44% of rural residents had at least a bachelors degree, compared with 26% for Census 2000), and more frequently male (almost 3/4s in both samples, as opposed 50% reported in the previous Census; U.S. Census Bureau 2000). The percentage of respondents who reported having hunted big game in at least one of the previous 3 years was also quite high (24% of urban residents and 35% of rural residents), and could reflect higher levels of interest in this issue among hunters.

Utah residents' attitudes toward wolves

Utah resident' attitudes toward wolves were assessed primarily on their response to the following item: On a 0 (strongly dislike) to 10 (strongly like) scale, "*please circle one answer that best describes your attitude toward wolves.*" Based on this measure, we found strong differences between urban and rural residents: 60.3% of urban respondents reported liking wolves (mean = 6.46), whereas 46% of rural residents (mean = 5.39) reported liking them ($P \leq 0.001$; [Table 2](#)). Similarly, urban residents who reported having hunted big game in one of the 3 previous years expressed a higher degree of like for wolves than rural big game hunters. Specifically, 50.8% of urban big game hunters reported liking wolves (mean = 5.76), compared with 38.2% of rural big game hunters (mean = 4.54). Although similar differences existed between urban and rural residents who did not hunt big game, these differences were not statistically significant.

Wolf management preferences

Control of wolves. The majority of respondents from both the rural and urban samples supported killing wolves if: (1) wolves attack livestock (75% for rural and 74% for urban), and (2) wolves attack pets, (64% for rural and 65% for urban; [Table 3](#)). None of the other eight items were agreeable to the majority of respondents, though the item, "if wolves are shown to have a significant impact on big game" approached this mark with support from 50% of rural residents and 42% of urban residents. The majority of big game hunters also supported lethal control of wolves that attack livestock or pets. In addition, big game hunters supported lethal controls if wolves were shown to have a "significant negative impact" on big game populations or hunter success.

Acceptability of control methods. Rural and urban residents exhibited significant differences when asked to rate the acceptability of various methods for controlling wolves that kill livestock ([Table 4](#)). Rural residents rated the acceptability of lethal controls significantly ($P < 0.05$) higher than urban residents in 4 out of 5 cases (7 point scale, where 1 = never acceptable and 7 = always acceptable). Urban residents, in turn, rated non-lethal methods significantly higher in 2 of 3 cases. However, non-lethal forms of control were rated the highest, in terms of acceptability, for both groups. These included: live trap and relocate (urban mean = 5.87, rural = 5.28), use of livestock guarding dogs (urban mean = 5.52, rural = 5.18), and harassment (urban mean = 5.20, rural = 4.96). The methods found to be least acceptable were poisoning wolves (urban mean = 2.24, rural = 2.61) and shooting wolves from the air (urban mean = 3.13, rural = 3.60). Big game hunters tended to rate lethal forms of control higher than the general population.

Wolf management priorities. We asked respondents to identify their "top priority" for the management of wolves in Utah from a list of items: (1) Ensure there are always wolves in Utah, (2) Maximize the number of wolves, (3) Minimize livestock – wolf conflicts, (4) Minimize any effects wolves might have on big game populations, (5) Minimize any and all negative economic impacts due to the presence of wolves, and (6) Maximize the visibility of wolves to increase

tourism opportunities. The priority most frequently selected by both rural and urban residents, as well as big game hunters, was to minimize any and all negative economic impacts due to the presence of wolves. The second most frequently selected priority for all groups of interest was to minimize livestock – wolf conflicts ([Table 5](#)).

Funding wolf management in Utah. The most acceptable funding sources for all groups of interest were those that would allow people a choice in supporting wolves. Respondents favored (1) voluntary contributions on state tax forms, (2) revenue generated from the sale of a wolf hunting license, and (3) revenue generated by the sale of a “wolf-logo” vehicle license plate, while they opposed (1) an additional tax for all citizens, (2) using money from the state’s general fund, and (3) an additional surcharge on the sale of all hunting licenses.

Support for the management of wolves. Utah residents generally supported the idea that wolf populations should be kept low to minimize their impact on livestock production (54% of urban residents agreed, 63% of rural residents; [Table 6](#)). However, rural and urban residents disagreed as to whether wolf numbers should be kept low to provide for plentiful deer and elk (49% of rural residents agreed, 34% of urban; $P = .001$). While urban residents were split on whether or not wolves should be reintroduced if they fail to return to Utah, the majority of rural residents opposed reintroductions. However, both rural and urban residents generally supported the idea that wolves should be allowed to repopulate Utah naturally (49% of urban residents agreed, 28% disagreed; and 50% of rural residents agreed while 31% disagreed). Interestingly, these numbers were almost identical for hunters.

Conclusions

Overall, our data indicate that Utah residents are generally supportive of recolonizing gray wolves. More importantly, while urban and rural residents differed in terms of their attitudes and level of support for wolves, they were very similar in terms of the preferences and stated priorities regarding wolf management. Furthermore, additional analysis indicated that public attitudes toward wolves have remained relatively stable over the past decade (Bruskotter 2004). In sum, these data suggest that Utah residents generally support the return of the wolf, though they desire to keep management costs to a minimum.

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Table 1. Demographic description of survey respondents by region sampled (%).^a

Variable	Sample		
	Urban	Rural	
<i>Age of respondent</i>			
	18-34	28.0	19.3
	35-44	16.9	12.4
	45-54	23.1	20.4
	55-64	10.8	18.8
	65+	21.2	29.0
	(n)	(325)	(362)
<i>Respondent's level of education</i>			
	H.S. grad or less	13.8	18.5
	Some college	46.2	37.7
	Bachelor or 4 year degree	21.5	21.2
	Graduate work	18.5	22.6
	(n)	(325)	(363)
<i>Years in current residence</i>			
	0-10 yrs.	26.1	34.2
	11-20 yrs.	12.4	13.9
	21-30 yrs.	18.0	15.6
	31+ yrs.	43.5	36.4
	(n)	(322)	(360}
<i>Respondent's sex</i>			
	Female	27.6	25.1
	Male	72.4	74.9
	(n)	(322)	(359)
<i>Hunted big game within past 3 yrs</i>			
	Yes	24.3	34.7
	No	75.7	65.3
	(n)	(309)	(346)

^a Urban: Davis, Salt Lake, Weber, and Utah counties; Rural north: Cache, Rich, Tooele, Morgan, Wasatch, Summit, Daggett, Duchesne, Uintah, and Box Elder counties; Rural south: Beaver, Carbon, Emery, Garfield, Grand, Iron, Juab, Kane, Millard, Piute, San Juan, Sanpete, Sevier, Washington, and Wayne counties.

Table 2. Utah residents' attitudes toward wolves.

Population of interest	<i>n</i>	Mean	Std. Dev.	<i>t</i>	%A / L	%N	%D	χ^2
Urban	295	6.46	2.68	4.84***	60.3	23.7	15.9	16.92***
Rural	311	5.39	3.22		46.0	25.4	28.6	
Male	429	5.81	3.14	1.58	53.4	20.7	25.9	18.93***
Female	161	6.25	2.61		52.8	34.8	12.4	
Urban BG hunter	63	5.76	3.33	2.30*	50.8	23.8	25.4	5.31
Rural BG hunter	102	4.54	3.31		38.2	18.6	43.1	

*Significant at $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.

Table 3. Utah residents' tolerance for lethal control measures.

Response item:	Urban <i>n</i> = 315	Rural <i>n</i> = 357	χ^2
As soon as they enter the state.....	12.7	24.4	14.87***
As soon as the state wolf population is able to sustain itself.....	20.3	17.9	0.62
If wolves attack pets.....	64.8	64.4	0.01
If wolves attack livestock.....	74.0	75.4	0.17
If wolves are shown to have a significant negative impact on hunter success...	24.8	33.3	5.93*
If wolves are shown to have a significant negative impact on big game.....	42.2	49.6	3.65
Whenever wolves wander on to private property.....	30.5	36.4	2.64
Never.....	7.9	5.9	1.11
Other.....	10.5	12.0	na

*Significant at $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.

Table 4. Utah residents' assessment of the acceptability of control methods for wolves that kill livestock.^a

Response item:	Sample	<i>n</i>	Mean	Std. D.	Std. Err.	<i>t</i>	<i>P</i>
Live trap and relocate.	Urban	306	5.87	1.76	0.10	3.77	0.001
	Rural	338	5.28	2.17	0.12		
Live trap and shoot.	Urban	299	3.52	2.20	0.13	3.35	0.001
	Rural	344	4.12	2.30	0.12		
Live trap and lethal injection.	Urban	298	3.48	2.11	0.12	3.77	0.001
	Rural	336	4.15	2.31	0.13		
Shooting from the air.	Urban	297	3.13	2.17	0.13	2.57	0.1
	Rural	336	3.60	2.40	0.13		
Hunting wolves.	Urban	299	4.41	2.22	0.13	2.7	0.007
	Rural	341	4.88	2.16	0.12		
Poisoning wolves.	Urban	295	2.24	1.86	0.11	2.27	0.024
	Rural	334	2.61	2.22	0.12		
Livestock guarding dogs.	Urban	299	5.52	1.73	0.10	2.22	0.027
	Rural	332	5.18	2.03	0.11		
Harassment.	Urban	301	5.20	1.90	0.11	1.42	0.157
	Rural	328	4.96	2.19	0.12		

^a Based on a 7-point scale: 1 = never acceptable to 7 = always acceptable.

Table 5. Utah residents' top priority for wolf management (% who selected item).

Response item:	Urban <i>n</i> = 313	Rural <i>n</i> = 352	Rank
Ensure there are always wolves in Utah.....	17.3	8.5	3 -- 5
Maximize the number of wolves.....	2.9	3.4	6 -- 6
Minimize livestock - wolf conflicts.....	29.1	24.4	2 -- 2
Minimize any effects wolves might have on big game....	5.4	8.8	5 -- 4
Minimize negative economic impacts.....	37.4	39.2	1 -- 1
Maximize the visibility of wolves to increase tourism.....	1.6	2.8	7 -- 7
Other.....	6.4	12.8	4 -- 3

Table 6. Utah residents' support for various wolf management options.

Variable	Sample	<i>n</i>	Mean	Std. Dev.	<i>t</i>	%A	%N	%D	χ^2
Wolf numbers should be kept low to provide for plentiful deer and elk in an area. ^a	Urban	316	4.83	2.88	4.54***	34.2	22.8	43.0	20.13***
	Rural	346	5.91	3.23		49.4	22.8	27.7	
Wolf populations should be kept low to minimize their impact on livestock production. ^a	Urban	318	5.68	2.95	3.80***	53.8	15.4	30.8	6.99*
	Rural	349	6.60	3.25		63.3	14.0	22.6	
If wolves do not return to Utah by themselves, then they should be actively returned to the state. ^a	Urban	320	4.69	3.05	4.01***	36.3	25.6	38.1	15.84***
	Rural	350	3.69	3.40		26.6	20.0	53.4	
Wolves should <u>not</u> be reintroduced, but they should be allowed to repopulate Utah naturally. ^b	Urban	319	4.41	1.87	0.901	48.9	22.9	28.2	1.91
	Rural	361	4.39	2.10		49.9	18.8	31.3	

*Significant at $P \leq 0.05$, ** $P \leq 0.01$, *** $P \leq 0.001$.

^a Item measured on an 11-point scale where 0 = strongly disagree and 10 = strongly agree.

^b Item measured on an 7-point scale where 1 = strongly disagree and 7 = strongly agree.