Colorado Chapter of the Wildlife Society and Turner Endangered Species Fund
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Speaker Abstracts

History and future of wolf recovery in the U.S.

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Abstract. As recently as 150 years ago, the gray wolf (*Canis lupus*) was distributed throughout the contiguous United States (US), except for the southeastern US from central Texas to the Atlantic coast where the red wolf (*Canis rufus*) occurred. Conflict with agricultural interests resulted in government-supported wolf eradication campaigns beginning in colonial Massachusetts in 1630. Over the next 320 years, the campaigns were extended throughout the US resulting in the near extermination of both species. In recent decades, efforts to recover the red and gray wolf have been carried out with great success. This talk will consider the past, present, and future of wolf recovery with a focus on western Colorado.

Yellowstone Wolves: Ecosystem saviors? If so, how exportable?

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Abstract. Yellowstone National Park sits amidst the wildest lands in the continental United States. Established in 1872 as the world's first national park, its history is not one of pristine nature. Almost from the beginning Yellowstone was tampered with, managed according to perceptions and values of the people to this day – well-meaning people who felt they were doing what was best. Starting with the fur trade, market hunting and predator control through fire suppression, elk control, bison ranching, bear feeding up to wolf reintroduction, Yellowstone hardly typifies laissez faire management and was far from 'natural', a stated goal later on for park managers. Through debate and criticism, but mostly better science, Yellowstone changed and is now as natural, arguably, as it has ever been. Most importantly, its fully restored suite of large carnivores has contributed to this increased 'naturalness' and impacted the park's ecosystem. Often singled out as a stand-alone force, wolves among the carnivores, considered North America's most ecologically potent carnivore - the actual role of the wolf is not clear and much debated. Wolves' impacts on elk, both numeric and behavioral, has been the most important factor in this ecosystem re-shaping. Their interactions with the other carnivores, through various forms of competition, although less critical, probably has important implications as well. Regardless of viewpoint or definition, this has made Yellowstone a wilder place. These ecological changes depend on carnivores occurring at their 'natural' densities, which is a population size likely too high for most human dominated landscapes, hence and once again, nature is reduced to human terms, so there may not be many other Yellowstone's out there. If there are, success will hinge on human tolerance. And despite dramatic

ecological change mostly in northern Yellowstone, wolf recovery in Yellowstone has benefited humans the most.

Ecological and biodiversity implications of wolf reintroduction

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Abstract. George Orwell famously said all animals are equal but some are more equal than others. If wolves play a disproportionate role in contrast to others, then we'd expect differential impacts in ecological communities. These have been revealed by studies of wolf presence and absence; with other factors equal, effects are claimed to ripple throughout the ecosystem. My talk will focus on three issues: 1) the strength of the evidence for trophic-level effects using i) meso-predator release, ii) birds, and iii) butterflies as illustrative responses; 2) asking how applicable results from other realms are to Colorado? and 3) posing the question, who really cares? Finally, I focus on a presumption, that of biodiversity conservation and whether wolves or something else might get us there.

Current distribution and legal status of wolves in North America

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Abstract. This presentation covers the current distribution and legal status of wolves in North America.

Gray Wolf habitat in Colorado: biological and social characteristics

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Abstract. As a result of human persecution, the gray wolf (*Canis lupus*) was extirpated from Colorado in the 1940's. However, contemporary studies reveal that the state possesses biological and social characteristics that strongly favor the species' restoration. Western Colorado includes a notable assemblage of public lands that stretch across ~ 15 million acres that are managed for conservation purposes and support large populations of elk (*Cervus elaphus*) and deer (*Odocoileus viginianus* and *O. hemionus*). This is noteworthy since prey abundance explains the vast majority of variation in wolf population size when human-caused mortality of wolves is low. Not surprisingly, a 1994 congressionally mandated study conducted by the U.S. Fish and Wildlife Service concluded that western Colorado could support a viable population of wolves. Three additional studies conducted over the last 15 years, using more insightful and reliable techniques, support this conclusion. Notwithstanding the biological suitability of habitat, western Colorado is a considerable distance from wolf populations elsewhere. It is highly unlikely a viable population would come to inhabit the area through natural recolonization. Reintroductions would be required to restore the species to western Colorado. Notably there is significant public support for the wolf's return to Colorado. Several public opinion surveys conducted over the last 20 years indicate widespread

support among Coloradans for restoration. This paper will consider the details of these studies, some consequences of restoring wolves to western Colorado, and a recently launched education effort to draw attention to this issue known as the Rocky Mountain Wolf Project.

Wolf recovery, management and conservation: lessons learned in Wyoming

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Abstract. Gray wolves were reintroduced into Wyoming beginning in 1995 and rapidly expanded in range and number, meeting recovery criteria set forth under the Endangered Species Act by 2002. Numerically, the wolf population grew logistically as expected by standard population ecology. Depredation on livestock by wolves increased concurrently with wolf numbers until the US Fish and Wildlife Service initiated more aggressive lethal management in chronic depredation situations. As delisting from Endangered Species Act protections were planned, Wyoming, Montana and Idaho were each assigned an equal proportion of the numerical recovery criteria for the recovered population of Northern Rocky Mountain wolves despite Wyoming's lesser area of suitable contiguous habitat and extant wolf population, thus shaping the approach to wolf management in Wyoming. Wolves were delisted in Wyoming and were managed by the Wyoming Game and Fish Department from September 2012-September 2014. During this time the Department developed a science-based management program that incorporated wildlife population theory and analyses of population trends to guide management actions. Despite managing above recovery criteria, wolves were relisted by court order in September 2014, leading to a subsequent increase in the wolf population and a concomitant increase in livestock depredation by wolves to similarly record levels. In this presentation we will provide the science behind wolf recovery in Wyoming, as well as discussing the ecological and societal changes documented along the way in having a restored wolf population and fully intact large carnivore guild on the landscape.

Wolves and livestock in the Northern Rockies: implications for Colorado

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Abstract. Wolf reintroduction in the Rocky Mountains brings the possibility of the animals' re-colonization in Colorado, mostly because wolves routinely disperse hundreds of miles to establish new territories. While many Coloradoans welcome the wolf, livestock producers are concerned about the potential for livestock damage, as well as the potential ineffectiveness of wolf management agencies. Wolf predation on domestic livestock in the United States has been relatively low in areas of the West where wolves were reintroduced, and areas such as Oregon, Washington and California where they have re-colonized naturally. Nonetheless, the issue of wolf predation on livestock continues to be a contentious and polarizing issue. Much is now known about wolf behavior around livestock, as well as ways that predation can be stopped, or at least

minimized. Killing the offending wolves often has been the preferred method to control predation, but often at a steep price. Non-lethal alternatives to control predation often work, but they are mostly voluntary rather than mandatory among agencies and livestock producers. Factors that influence management responses often depend on the legal status of wolves and sustainability of the population. Researchers and collaborative groups continue to explore ways that wolves, humans and livestock can co-exist in a wild landscape.

Wolf-livestock coexistence strategies: The Wood River Wolf Project in Central Idaho

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Abstract. The Wood River Wolf Project (WRWP) is a collaborative of conservation organizations, ranching operations, and county, state and federal agencies working together to use proactive, nonlethal deterrents to minimize livestock and wolf conflicts. Since 2008, the Wood River Wolf Project has been helping Blaine County ranchers in Central Idaho implement nonlethal strategies to successfully reduce livestock losses and protect native wildlife. Using nonlethal methods reduces management costs and social conflict while maintaining the wolf's important ecological contributions. The WRWP uses a wide range of deterrents such as increasing human presence, guard dogs, Foxlights, noisemakers, and fladry, to prevent wolf-livestock interaction. In addition, the Project seeks to bring people with different opinions and interests together to pursue common goals by engaging in stakeholder empowerment and trust-building. The WRWP was initially sponsored by Defenders of Wildlife, but now the Lava Lake Institute for Science & Conservation, a local conservation nonprofit, serves as the fiscal agent.

Overview of wolf conflict resolution

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Abstract. The impacts that wolves have on livestock operations (both real and perceived) is one of the reasons for opposing the reestablishment of wolves. Utilizing experience from other systems, I will share my thoughts on the potential impacts that wolves can have on agricultural producers and how to minimize this conflict. I will touch on the following topics: 1) how wolves can impact livestock producers, 2) the benefit of a spatial risk map, 3) the concept of "problem individuals" and how that influences the use of lethal and non-lethal tools, and 4) the importance of collecting data on conflict.

Hunting and trapping as tools for wolf management

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Abstract. Wolves are one of the most intensively studied mammals in the world. As a result, fundamental biology and annual tolerable mortalities for population sustainability are generally known. However, the complex relationship of humans to wolves creates an

atmosphere for management decisions that will test both our wildlife science and our understanding of the human dimensions which surround this iconic species. In order for management decisions regarding wolf population control to work, serious consideration for all public values of wolves needs to be woven into decision making. To accomplish this, a new paradigm of decision making may be necessary, in a process where stakeholders are empowered to be true partners in management of the wolf resource, and agencies are open to consideration of the values of all citizens.

Attitudes and values toward wolf recovery in Colorado

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Abstract. Coloradans display strongly positive attitudes and values toward wolves and wolf recovery. Those positive attitudes remained high over the past 15 years and support exists among all major demographic groups, except rancher. The main opposition ostensibly exists over fears of livestock predation, competition with hunters for game, and human and pet safety. A more nuanced evaluation suggests that to many wolves represent 1) a loss of control over public and private grazing lands; 2) the threat of restrictions associated with conservation, especially for species on the Endangered Species Act; 3) regulations that will require changes in land and livestock management; and 4) a threat to rural, western lifestyles. Yet, changing attitudes and values is difficult, especially for well-conceived and strongly held values. Simple education programs rarely work because knowledge is only one of several variables influencing values and attitudes, and a relatively weak one at that. If Colorado decides to recover wolves, an outreach program should focus on areas that offer the most hope of *behavioral* change; do more than simply provide information and persuasive messages; work on positive experiences associated with wolves; involve all stakeholder groups from the start of the recovery process; and pick the right messengers for each group.

Factors impacting human tolerance for large carnivores: insights from psychology

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Abstract. Human beings and our associated activities are arguably the single most important factor limiting large carnivore populations and efforts to conserve these charismatic species. Human populations limit carnivore populations both indirectly, through habitat modification and competition for shared prey, and directly, through regulated (i.e., hunting, lethal control) and unregulated killing (i.e., poaching) of carnivores. Efforts to understand *why* people engage in actions aimed at limiting or promoting carnivores requires knowledge of how individuals make judgments and decisions—the realm of psychology. In 2003 my colleagues and I began research aimed at explaining such judgments and decisions. Our efforts were shaped by several theories originating in social and cognitive psychology (specifically, theory on *attitudes*, *social identity*, and *risk*).

Following a line of research that extends back more than a half-century (1), my colleagues and I reasoned that attitudes toward predators (in this case, gray wolves) could be explained by salient beliefs about this species and their associated impacts. An initial study not only supported this hypothesis, it found that attitudes toward wolves and beliefs about their impacts independently explained substantial variance in people's judgments about the acceptability of lethal wolf control ($r^2 = 0.42$) (2). In turn, we found that beliefs about the impacts associated with wolves were largely explained ($r^2 = 0.60$) by respondents identification with relevant social groups (e.g., hunters, ranchers, wildlife advocates). These data suggest that people's beliefs about carnivores are socially constructed, and these constructions exacerbate social conflict surrounding carnivores' management.

Similar to attitudes theory, research on hazards suggests 'acceptance' (or tolerance) of a hazard is based upon the risks (or costs) and benefits one believes accompany the hazard. This theory, however, diverges from attitude theory in that it posits that risk and benefit beliefs will have independent effects on acceptance of a hazard (3-5). Hazard acceptance theory's focus on risk-benefit beliefs implies that judgments about the acceptability of hazards, to a great extent, result from rational weighing of the costs and benefits associated with that hazard. However, decades of psychological research demonstrates that there are significant mismatches between technical risk assessments and individual risk perceptions (6). This divergence exists, in part, because of fundamental human biases. Indeed, a variety of factors such as one's *perceived control* over a hazard, *trust* in agencies who manage hazards, and *affective* (i.e., emotional) *response* to the hazard can bias people's judgments about the risks and benefits associated with hazards, which, in turn, impact our acceptance of the hazard object. Our initial studies confirm these types of biases are also at work for judgments about large carnivores (2, 7). Our data also show that, contrary to what many management professionals believe, beliefs about the *benefits* of recovering wolves were much stronger predictors of peoples' intentions to engage in supportive and oppositional behaviors than their beliefs about the *risks* (8).

So what does this research tell us about how we might find tolerance for large carnivores in human communities? First, it suggests that traditional communications aimed at carnivores may take exactly the wrong approach. These communications often emphasize that carnivores can be a risk to people and therefore, people should take certain actions to avoid them and associated risks. By emphasizing risk, without discussing potential benefits, these types of communications may elicit heightened risk perception and fear responses. Indeed, when our lab conducted an experiment to determine how such communications impact individual judgments, we found that communicating only about risks actually *decreased* people's tolerance for these species. However, people who were provided both information about how to avoid risks *and* information about carnivores' benefits (i.e., ecological function, cultural uses) were actually more tolerant of these species (9). Our research shows how theory from psychology can be used to help foster tolerance for carnivores.

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Wolf-Human Interactions: Implications for Restoration

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Abstract. Biologically, wolf (*Canis lupus*) restoration is easy. Wolves are hardy and prolific, and eat almost anything including mostly hoofed-animals that currently reside in most areas. Wolf offspring disperse long distances, so their populations can spread expansively. Politically, however, wolf restoration can be difficult because the animals conflict with humans by (1) killing livestock, (2) intimidating many people, and (3) preying on wild ungulates that hunters and guides also value. Nevertheless, in large enough tracts of wild lands where conflicts with humans are minimal or can be overcome, wolf populations can be restored. Prescription wolf management using zoning can be useful to this effort.

The Moral Case for Wolf Reintroductions

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Abstract. Wolves are animals of great beauty, intelligence and grace that have inhabited North America much longer than human beings. Like all species, they have a right to continued existence free from anthropogenic extinction. Our landscapes will be healthier, more diverse and more whole with wolves, and our lives will be richer and better for their presence. Given the long, sordid history of predator control, reintroducing wolves throughout their former range would be a justified act of restorative interspecies justice.