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BIS 356 Research Paper

Living Among the Wolves

Wolves (*Canis Lupus*) have been around for a few million years. From prehistoric times to present day, humans have had attitudes towards wolves both positive and negative. Today all of those negative feelings revolve around the predation of livestock. The negative effects that wolf predation has on ranchers, rural communities, and the local economy are all concerning. In the northwestern United States, cattle ranchers are doing everything they can, whether ethical or not, to rid the wolves from preying on their herd. If we can learn how to effectively protect livestock from wolf predation without harming the wolves; the wolf population will be safe from extinction once again. How can wolves in North America be better incorporated into the ecosystem to prevent species loss from occurring?

When wolves were first reintroduced back in 1995 into one of the most well known ecosystems in the United States, Yellowstone National Park, society was worried then about their presence. At first, deer were being killed in large numbers and the predator pressure was more than it had been in centuries. Elk behaviors changed with the presence of the wolves and havoc caused by large population numbers dwindled down to nothing in just a couple of years. The biologists in the park at first were weary, but then it all started to fall into place. The presence of wolves caused a trophic cascade to occur in the park. This is defined by powerful indirect interactions that control entire ecosystems. Soil erosion was no longer a concern and plant life was lush once again.

Even though the wolves were small in number, they contributed heavily to transforming not just the ecosystems but also its physical geography. “In Yellowstone, biologists have the rare, almost unique, opportunity to document what happens when an ecosystem becomes whole again, what happens when a key species is added back into the ecosystem equation.” (Staff, 2011)

With the reintroduction of wolves, despite the positive effects being created in ecosystems, ranchers continue to have very ill manners towards this species. The ongoing wolf-livestock conflicts become more prevalent when someone’s economic enterprise is put in danger. Which who wouldn’t be upset if they were losing money to an animal preconceived for being dangerous? This question cannot be answered with only the implementation to kill the wolves. Elizabeth H. Bradley, *The University of Montana*, performed an evaluation on these attributing factors and discovered that “pastures where depredations occurred were more likely to have elk (Cervus elaphus) present, were larger in size, had more cattle, and grazed cattle further from residences than pastures without depredations.” (Bradley, 2004) Her study groups consisted of 31 ranches that had experienced depredation and 51 ranches that never had experienced depredation. Vegetation coverage and the proximity to established wolf dens are also attributing factors. When assessing factors that contribute to livestock depredation, there seems to always be similar characteristics among the ranches accompanied by ranchers who are not trying to implement measures to decrease their chances of depredation from occurring again.

If we focus more on the reasons as to why certain ranches over others are becoming victims to wolf predation, we would see less livestock being killed. On average, the calves of the herd tend to be the most vulnerable. Focusing efforts to protect the weak and young, if possible, would be a good starting point. Another method that could protect both wolves and livestock would be to fill in dens in subsequent years to encourage the wolves to den elsewhere away from pastures containing livestock if moving the herd to another area is not possible. “Such a tactic was successfully implemented in Paradise Valley, Montana in 2001 to keep a wolf pack from denning close to livestock again.” (Bradley, 2004) As of 2017, Montana has roughly 900 wolves living amongst humans and livestock alike. They are on the right track to keeping the peace among the wolf-livestock populations.

The use of non-lethal methods for protecting livestock from wolf depredation needs to be greatly considered. A cost effective way of protecting livestock could be done with the use of fladry barriers. Traditionally this method was used to hunt wolves in Eastern Europe and Russia. (Musiani...2003) Fladry barriers are red plastic flags hanging from a rope stretched short distances above the ground that is placed around the edges of grazing lands where livestock is present.This method has been used for decades and proven to work in both Europe and the United States. Today, ranchers are also using the method known as “turbo-fladry” which is hanging those red plastic flags on an electric fence line to add a second line of defense in case the wolves get brave enough to test the fladry barrier. Wolves do get close to fladry barriers but do not go

past them. This type of barrier is a simple affordable deterrent for the wolves and saves the lives of livestock at the same time.

When a field study was performed in Alberta during the winters of 2001 and 2002; the fladry barriers were placed 2m (about 6.5 ft.) outside conventional barbed-wire fencing. This kept the fladry barrier from being damage or ingested by the cattle. “During the two 60-day field trials in which 25-ha cattle pastures were enclosed with fladry, we detected 23 wolf approaches to within 50m (164ft.) of the barriers, of which 14 were within 1m (3ft.), but there were no crossings and no killings.” (Musiani… 2003) Livestock killings were recorded both before and after the field trials occurring. In Idaho, fladry was placed on the existing barbed-wire fence and required constant maintenance to maintain a fluent barrier. After 60 days the wolves did cross the barrier, but it is believed that the cattle left their odor on the flandry and the wolves then did not see a threat. Optimal conditions would maximize the fladry barrier effectiveness on a small scale and potentially on larger scales too. (Musiani...2003)

Another misconception about wolves is that they only eat fresh kills. This is a myth. Wolves are scavengers and will eat on already dead animals. The scent of blood can be encountered almost two miles away by the wolves. This makes carcasses attractants and could also be another reason why wolves prey on livestock. To limit the chances they have on being attracted to an area, proper disposal of all dead animals should be done in a timely manner. If burying carcasses, the carcass pit should be maintained with a depth of at least eight feet deep and have a fence around it for safety as well as a deterrent for wolves and other scavengers to stay away.

Wolves are frightened by lights and noises. There are devices that can be used on fence lines to keep them away from livestock and also let ranchers know about the presence of wolves. Some of which can be triggered by radio collars that most wolves are equipped with for tracking purposes. Other non-lethal methods for wolf control would be with the use of munitions that will not kill anything or anyone. This list could include rubber bullets, paintballs, beanbags to list a few, but if you decide to go this route you must always follow local and federal laws on the use of such items. This tactic is referred to as hazing. Which has also been proven to be effective due to the established correlation of pain in the presence of livestock.

With the wolf population numbers continuing to rise, the United States Fish and Wildlife Service recently downlisted the status from “endangered” to “threatened.” Wolf depredation on livestock remains a central issue of contention within the transition from federal to state management regulations. This major change will allow wolves to be legally killed, within reason, and this is unjust. “A viable wolf population requires an area of some minimum size and with adequate prey and security from excessive human exploitation.” (Fritts, Carbyn, 1995) If we allow ranchers to kill every wolf that is depredating livestock the population could be hunted to eradication again. Historically the battle between man and wolves goes back to 1609, when settlers first arrived in Jamestown. (Boitani, 2003)

History shows that the wolves have been apart of the culture since the first settlers came to America, but even longer in other countries. Settlers hunted the wolves for fur, to fill bounties, and to protect livestock. See the trend here? Humans have

always wanted to eliminate the problem instead of learning to live with the problem, in this case the wolves. Landowners and local authorities made it their main concern to exterminate all predators. When there is no natural prey for wolves, they turn to what they can for adequate meals for survival. We, as humans, did this to ourselves by killing off what the wolves typically prey on. At least the relationship that the Native Americans had with the wolf was a fortunate one; it was hunted, but also appreciated and respected. (Boitani, 2003) Not once can Americans say that hunting wolves was appreciated or respected unless the kill benefitted them in some way. It took 70 years before the wolves were reintroduced after the first eradication, and we cannot let history repeat itself.

Trying to find the compromise between wolf and ranchers both have sad parts of the story on either side. “But that is often what conservation is all about; an attempt to reconcile the needs and requirements of wildlife with the needs, expectations, and desires of human beings.” (Boitani, 2003) Since wolves already have a negative image in society it is difficult to achieve the rights that this species has and requires in order for them to thrive. When googled, you will be told that the gray wolf species population is at its least concerning state for stability. Yet this species is still being targeted by ranchers to be hunted once again. Personally my issues with this is that they are not going to kill for food, they are killing for sport. This type of hunting is against all ethics tied to hunting. “Kill only what you will eat.” This mindset also forgets the importance this species had on ecosystems across the country, especially how they helped save

Yellowstone National Park. The trophic cascade that the wolf population provided is still astonishing 23 years later and still has positive attributions present day.

In the Pacific Northwest, wolves are gradually expanding across the state and facing many challenges. The large highways that are spanning the Cascade Mountains are considered to be major barriers for multiple wildlife species in the area including the wolves. The elk population is not as large as it once was before, and being the primary prey for wolves this isn't very promising. Urban development along the highways are taking away prime natural habitats for the wolves and other species. Lastly, "many people still have a fear of wolves that can result in them being shot, poisoned, or harassed until forced to leave an area." (Western Wildlife) If wolves are given the proper protection in Washington state, their population should rebound naturally. Dispersing wolf packs from neighboring states and Canada will continue to help the genetic diversity and pack sizes in the state rebound successfully.

"In these early stages of recovery, however, the loss of the breeding female in the Lookout Pack is an example of how precarious the wolves' status is. The loss of even a single individual can have a significant impact, particularly when that individual is the alpha male or female." (Western Wildlife) Naturally, things will take time to get back to a healthy status. Unfortunately, this can happen too slowly at times. Washington wolves need help and only we can help them. The building of the animal overpasses over I-90 in Western Washington is a start in the right direction. There are 20 animal overpasses planned in the project upgrade to help the wildlife cross safely.

What we have learned is that wolf presence plays a critical role in the dynamics of a ecosystem. They help to maintain a healthy relationship with every aspect of the ecosystem from the small plant life to rivers alike. Wolves are the natural way of regulating population sizes of deer, elk, bison, moose, and caribou. If times are tough, wolves will even eat smaller prey since they are considered to be opportunistic eaters. The carcasses from their kills support other wildlife such as bald eagles, coyotes, bears and foxes. Wolves give back to the ecosystem on many different levels and help restore its thrivability to 100%.

Wolves can even help mitigate climate change. The tops of food chains are usually the first to go when the foundations of a single ecosystem collapses. A wolf is considered a keystone species since they protect other species that share an area with them. The more diverse an ecosystem is, the better equipped it is to deal with environmental changes. Wolf kills provide large amounts of nutrients to the soil, and help feed the scavengers during every seasons. Humans need to realize that the less we invade pristine forests, the better off the environment will be. The larger the land area the better coverage each species can have for both their home range and outside of it for the sake of their genetic diversity among their species.

Wolves are more than a dangerous predator. They are the glue that keeps ecosystems in check. They provide population control and keep overgrazing from occurring. We must realize that they prey on livestock when provoked by attractants. They want to protect their families just like we do, and when livestock is close to their

den they do just that. If elk or carcasses are nearby livestock they are going to be drawn to that area more and more. Weak, young, and vulnerable livestock are preyed upon because they are easy kills. Ranchers make the wolves out to be the bad species but they are only feeding off of their known instinct. Lethal methods of management are a thing of the past, and we must enforce non-lethal methods of managements for the sake of the ecosystems around us. The environment needs our help, and learning to live among the wolves is just one of the ways we can help mother nature.

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  In many areas, livestock are grazed within wolf range. Predation and harassment of livestock by wolves creates conflict and is a significant challenge for wolf conservation. Domestic and wild prey were being tested for anti-predator responses in relation with wolf presences. After observing cattle and elk behaviors, their results suggest both elk and cattle modify their behavior in relation to wolf presence. Some measures could have energetic costs as well.

- Boitani, Luigi, and L. David Mech. *Wolves: Behavior, Ecology, and Conservation*. Univ. of Chicago Press, 2003.

  This book is often referred to as the 'bible' on wolves. This book contains everything there is to know about wolves and their characteristics from body shape and size to their hunting techniques and behavior. One of the chapters I am using for my research paper is the conservation chapter. It goes into detail of why this is so hard to accomplish globally when there is no compromise taking place. *David Mech's work also gets referenced quite often in other scholarly articles.

- Matthew E. Gompper; Top Carnivores in the Suburbs? Ecological and Conservation Issues Raised by Colonization of North-eastern North America by Coyotes: The expansion of the coyote's geographical range may broadly influence community structure, and rising coyote densities in the suburbs may alter how the general public views wildlife, *BioScience*, Volume 52, Issue 2, 1 February 2002, Pages 185–190, https://doi.org/10.1641/0006-3568(2002)052[0185:TCITSE]2.0.CO;2

  The "top-down" effect is described showing how only a handful of top predators within a population hold the power to disproportionately influence animal and plant communities. Predators, such as coyotes, have spread their geographical ranges into urban communities over the years. This raises the awareness of how to deal with the presence of a predator that is perceived by some people as potentially dangerous, and how to gauge the ecological and conservation effects on the region. Things aren't always as simple as just killing the species off.

- Musiani, Marco; Mamo, Charles ; Boitani, Luigi; Callaghan, Carolyn; Cormack Gates, C.; Mattei, Livia; Visalberghi, Elisabetta; Breck, Stewart W.; and Volpi, Giulia, "Wolf Depredation Trends and the Use of Fladry Barriers to Protect Livestock in Western North America" (2003). USDA National Wildlife Research Center - Staff Publications. 620. https://digitalcommons.unl.edu/icwdm_usdanwrc/620

  In the United States wolves were exterminated before and after the European settlement took place here. The conflict between human and wolf presence in rural areas becomes a problem when livestock productions becomes at risk due to their economic value. Wolves tend to prey on cattle and other

domestic species when they are within their range. Ranchers need efficient ways to protect their livestock without being lethal. This is where the use of fladry barriers come into play and have proven to be effective as a wolf deterrent, and cost effective.

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  Nature reserves would allow wolves to have the space they need for protection. Their population is critical and if these land plots existed their numbers could increase back to a healthy number. These reserves would not limit the wolf population to only residing their but give them the opportunity to be safe while passing through or residing there long term.

- Kellert, Stephen R., et al. “Human Culture and Large Carnivore Conservation in North America.” *Conservation Biology*, vol. 10, no. 4, 1996, pp. 977–990. *JSTOR*, JSTOR, www.jstor.org/stable/2387134.

  This article focuses on how to get human culture to live side by side large carnivores. Educating key groups on why the species is needed in the ecosystem. By building support through these key groups, people can see the values these any large carnivorous species have on their respective ecosystems.

- Hanley, Zoe & S. Cooley, Hilary & T. Maletzke, Benjamin & Wielgus, Robert. (2018). Forecasting cattle depredation risk by recolonizing gray wolves. Wildlife Biology. 2018. wlb.00419. 10.2981/wlb.00419.

  Minimizing wolf-livestock conflicts requires identifying conditions placing livestock at risk and focusing adaptive management at a local scale. Gray wolves began recolonizing Washington in 2008.

- Bradley, Elizabeth H., "Evaluation of wolf-livestock conflicts and management in the northwestern United States" (2004). Graduate Student Theses, Dissertations, & Professional Papers. 2265. https://scholarworks.umt.edu/etd/2265

  The controversy between wolves and livestock is difficult to face and causes people not to like them. The methods that have been used for

management techniques and if they actually work or whether lethal or non-lethal to prevent depredation. All of these studies were done in different locations and compared to learn what best works for keeping both the wolves and livestock safe.

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- “Wolf Ecology and Behavior.” *Western Wildlife Outreach*, westernwildlife.org/gray-wolf-outreach-project/biology-behavior-4/.

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