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EFB 390

**Wolves in Europe**

The wolf (*Canis lupus*) used to occupy most regions of North America and Eurasia. They were considered a keystone species that allowed for ecosystems and other animals to depend on their presence and to create a stable environment. When civilizations started to develop, human-wolf interactions were painted negatively based on attacks to livestock, competition for game species, and fear that the wolves were going to attack humans next. This competition and fear of the wolf by humans made negative attitudes skyrocket and wolves started becoming the prey. Regulations and legislation on wolf hunting became popular which decreased populations to almost extinction. Human populations continued to increase in both Europe and North America creating wolf habitats to shrink. Looking deeper into these root causes, our team of researchers believe that wolf populations are influenced by not only public perception but also whether the land is owned by the private or public sector.

Throughout the 19th and 20th centuries, European nations had driven almost all predatory species such as bears, lynx, and wolverines to extinction. The eradication of these species was a result of farmers trying to protect their livestock from predation (WWF. n.d.). Many counties had put bounties on this specific species. The department of Cantal located in France had bounties put into place up until 1927 even though no wolves had been native in their region for several decades. These bounties were based on distortions of interactions between wolves and the public that impeded their judgment negatively (Moriceau 2014). The second half of the 20th century is where the public perspective on the wolf species began to change. In a recent survey done, 72%-84% of Europeans supported wolves being legally protected and over 65% of participants disagreed to keep these wolf populations out of their regions (Grossmann et al. 2020). Conservation efforts across the European continent began to be put into place to help restore their population. Allowing this predatory keystone species to be restored will help the balance of prey species overall.

There were still conflicts between humans and wolves that allowed for the reintroduction management to not have the full support of the public. This problem was fixed by the introduction of new management techniques by each individual country in Europe. In the country of Norway, the human population is sparse but their views on wolves are largely associated both socially and politically across rural and urban territories (WWF. n.d.). Rural communities believe that their concerns on wolf predation to livestock are not recognized by the conservationists living in urban stems and without the understanding there will continue to be a divide on wolf perspectives.

Another European country that has been dedicating management efforts into damage prevention by wolves is Romania. This country is known to have large amounts of livestock, such as sheep, so over the years their protection efforts have drastically increased. In Romania, wolves were poisoned and treated like pests up until the 1990s where it was then considered a protected species (WWF. n.d.). The public is tolerant of the wolf species due to the country's vast open spaces with very little human populations and rarely any incidents with wolf predation. Every country in Europe has different laws and regulations that make it hard to manage entire wolf populations. These countries have different land masses and geological ranges that further distort the human population while also simultaneously spreading out the wolf populations.

The United States, they had similar perspectives on the wolf species. In the early history of the United States wolves were seen as a threat to agriculture and livestock, the same as European countries. Since settlers began their reign and exploration in this part of the globe, they’ve seen wolves as a species to eliminate. The American people decided to start implementing eradication campaigns that were highly supported by the government (Hinton et al. 2013). It wasn't until the late 20th century when their societal beliefs began to change. By 1973 the Endangered Species Act started the restoration process of the remnant wolf species. The United States Fish & Wildlife Services (USFWS) soon followed by establishing the Red Wolf Recovery Program which located and tried to preserve this species of wolf in Texas and Louisiana (Hinton et al. 2013). The program did not work but this goes to show that efforts in saving this species have been taken seriously.

Since these efforts have been taking place, many researchers have produced surveys allowing data to be collected regarding people's newer perspectives on the wolf reintroductions and coexistence during the 21st century. Some of these surveys were Chart, bar chart

Description automatically generateddone in the state of Colorado where over 84% of participants were in support of reintroduction methods from earlier surveys done in 1994. The rural residents represented 83%, with 66% being avid hunters who were also in support (Colorado State, n.d.). Those still

not in favor still had some worries regarding their pets, livestock, hunting opportunities lost and threats to people.

**Figure 1:**Proportions of Colorado residents indicating they would vote in favor of wolf reintroduction from a 2019 online survey, a 2001 phone survey (Colorado State, n.d.), and a 1994 mail survey

Chart, pie chart

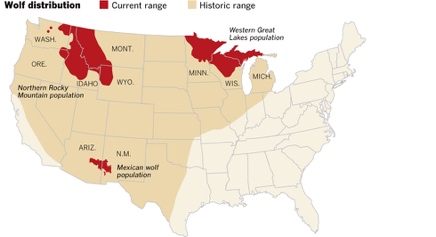
Description automatically generatedChart, pie chart

Description automatically generatedNow that we’ve seen the historical differences between perspectives and coexistence of humans and wolves, we can introduce the relationships of private and public land used on wolf populations. The United States by land area (3,796,742sq miles) and occupied by approximately 7% of water and is smaller than Europe’s land areas (3,930,000sq miles), the same can be said with human populations (“Are the USA” 2019). All European countries are independent from one another, so they have a wide variety of laws and regulations. Private land in the United States makes up around 60% of its total area (Kerry et al. 2014). Just recently the grey wolf became protected under the Endangered Species Act which now protects them in all contiguous 48 states and Mexico on private and public land (“Gray Wolf Recovery News and Updates | U.S. Fish & Wildlife Service” n.d.).

(Kerry et al. 2014)

(Kerry et al. 2014)

Europe is split approximately 50% into private and public land areas when comparing almost every country into the mix (Kerry et al. 2014).

Map

Description automatically generatedThe Ministerial Conference on the Protection of Forests in Europe (MCPFE) has investigated private and public land ownership. The countries of Austria, Finland, France, Iceland, Norway, Slovenia, and the UK all have much of the land used by the Graphical user interface, table

Description automatically generatedprivate sector with less than 40% being in the public sector. The European countries of Bulgaria, Poland, Romania, Sweden, Switzerland, Lithuania, and the Czech Republic had over 70% of its land being public (Kerry et al. 2014). Norway, one of the countries with most of its land private, has wolf packs that are disproportionately located around its south-eastern area along the border of Sweden which can Table

Description automatically generatedbe shown as a very small section of land. Wolves are protected in Norway and have a designated area for them but since its land is used for many free ranging livestock, local hunters and wardens are allowed to use lethal force when protecting their animals (Salvatori et al. 2005). Another European country in the public sector that influences the wolf populations is Romania. This country has a large stable distribution of this species that coincides with the geography of the Carpathians and Apuseni Mountains. Hunting quotas have been established in Romania and modified in the year 2001 but regulations are scarcely implemented (Salvatori et al. 2005). The countries with most public land such as Poland, Romania, and Sweden have seen increases in their wolf populations over the last decade (Oliver 2020). We interviewed a wildlife ecologist and postdoc that goes by the name Ophelie Couriot on her opinion on why wolves in Europe seem to thrive in this region compared to the United States. Ophelie believes that due to more human present on public lands allows for wolves to be more accustomed to human interactions (Couriot 2022). Wolves in the United States are just starting to be introduced again so they must get accustomed to new resources and territories before they populations can grow. This coincides with some of our hypothesis stating that public land could yield more wolves than public land.

(Kaczensky et al. 2021)

(Kerry et al. 2014)

(Kerry et al. 2014)

When looking at the distribution of human population density, wolf densities, and geographic ranges we were able to analyze if they had corresponded with distribution data. The European countries were seen to have moderate to high populations throughout its region with higher populations towards the center of Europe. These demographics also corresponded with high topographic regions. Wolf populations were shown to greatly correspond to these mountainous areas. Human populations have altered the suitable habitats of wolves with no other factors being involved and suitable habitats for wolves have decreased due to this since 1992 (Cimatti et al. 2021). The United States does not follow this distribution. Human population density in areas where wolf populations are present are in locations with less than 100 people for every square mile per county. These areas usually are in regions with elevated topographic regions and are only in three sections around the United States.

“graphic” n.d.

With almost every country of Europe creating similar views, laws, regulations, and legislation regarding the wolf populations this allows for the coexistence of humans to wolves to become a positive topic to discuss. This region of the world has also been more upfront about why these populations are presented the way they are. In the United States, wolves were driven out of some states more recently than European countries and due to the resources not being available it is harder for this species to disperse throughout the region. Human attitudes are what drives these populations and without the support and encouragement to reintroduce these populations back into their environments we will continue to see have a halt in their progress. From this research alone we were able to identify that public and private land does play a role in the influence of wolves in an area and more positive perspectives present in the public sector are due to more interactions from humans to wolves also increase wolve populations. In the future more regulations should be put into place in the United States to better suit this important keystone species.

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