

**Tracking Newspaper Reporting on Wolves in Minnesota in the Years
Immediately Following Their Listing and Delisting from the Endangered
Species Act**

Caroline Harvey, Christian Nielsen, and Thu Nguyen

Senior Comprehensive Exercise

Advised by George Vrtis and Dan Hernández
Environmental Studies
Carleton College
March 13, 2019

We hereby give permission for the Carleton Environmental Studies program to use and reproduce this paper for educational purposes, citing us as the author. (The authors do not forego copyright protection.)



(sign here)



(sign here)



(sign here)

Acknowledgments

We would like to take this time to thank our advisors George Vrtis and Dan Hernández for their support and direction throughout the course of this term. In particular, George lead our senior seminar during the fall term, helping us maneuver through the messy proposal process, and Dan provided helpful feedback when he joined on as an advisor during the winter term. We would also like to thank Constanza Ocampo- Raeder for taking time out of her term to provide us with additional guidance on implementing our study's framework and helping construct our data analysis. Furthermore, we would like to thank Kim Smith for taking the time to read a draft of our paper and provide insightful feedback and direction moving forward.

Additionally, we would like to thank the MN Historical Society, UMN Duluth, and the Carleton Library, specifically Kristin Partlo, for all of their help in getting us the microfilm necessary for our study. Finally, thank you to Lisa Falconer and the Carleton ENTS department for helping us secure funding to complete our research.

Abstract

Our study sought to examine the different ways in which gray wolves were being portrayed by two newspapers in Minnesota within two time periods. Looking at the *Minneapolis Star Tribune* and the *Duluth News-Tribune* during the periods of 1974-1975 and 2011-2013, we found and analyzed 544 articles all mentioning wolves to see how they were being portrayed. Previous studies have sought to analyze newspapers and other forms of media to track changes in wolf portrayal, though few have focused on Minnesota. By comparing the different themes coming up when wolves were being discussed, we ultimately attempted to categorize the wolf portrayals as being pro, negative, or neutral. While we expected that proximity to wolf country would be a key factor influencing how wolves were discussed in the newspapers, we found instead that the *Duluth News-Tribune* had more positive than negative articles on wolves, while the *Minneapolis Star Tribune* had more negative than positive articles. However, the majority of articles for both newspapers took a neutral stance on wolves.

Introduction

As Americans pushed westward largely since the start of the 1800s, humans and wolves have come increasingly into contact. With settlers diminishing deer and elk populations through hunting, as well as clearing large areas of land for livestock, wolves began to lose much of their habitat and food source. As a result, wolves increasingly began turning to livestock as a food source, and hungry wolves also often competed with hunters for game. Not long after, public movements began to rise to support the hunting, trapping, and killing of wolves, as they became more and more demonized by society. Eventually, government-sponsored extermination campaigns came about, and by 1930, wolves were nearly extinct in many states (Fogelman

1989). Wolves continued to be demonized and hunted in Minnesota until 1974 when they were added to the Endangered Species List and received federal protections, removing control of wolf management from the state. Following population increases due to their protected status, wolves were removed from the Endangered Species List in 2011 and subsequent wolf hunting seasons were held in Minnesota as a means of wolf management until their re-addition to the list in 2014.

Over the course of these listing and delisting periods, our study sought to examine and understand the various ways wolves were being portrayed in two Minnesota newspapers, the *Duluth News-Tribune* and the *Minneapolis Star Tribune*. The audiences making up the readership for both of these newspapers is very different as these newspapers are distributed from completely different regions of the state; the *Duluth News-Tribune* is located well within current wolf habitats in the northeast region of Minnesota, and the *Minneapolis Star Tribune* is located outside of wolf habitats in the southcentral Twin-Cities Metro region of Minnesota. By using newspapers from different regions, our study also sought to examine how proximity to wolf habitat was affecting wolf portrayals in the media.

Our study has become particularly relevant today as wolves are currently being discussed for delisting once again, leading to more conversations concerning state-sponsored wolf management and wolf hunting seasons. With our study, we hope to aid those who influence wolf management to understand how Minnesotans are perceiving wolves so that management strategies may reflect the needs of Minnesotans and their ideals for wolves.

Literature Review

In their essay “An Overview of the Legal History and Population Status of Wolves in Minnesota,” John Erb and Michael W. DonCarlos define historical wolf policy in Minnesota in

three distinct eras: the Bounty Era (1849-1965), the Postbounty/Pre ESA Era (1965-1973), and the Post ESA Era (1974-present). During the Bounty Era, Minnesota legislature used wolf population reduction as a means of wolf management (Erb & DonCarlos 2009). Local or state government paid bounties for the killings of wolves, a system put in place and authorized by the state legislature until 1965. By 1900, wolves had become rare in southern and western parts of the state, retreating further north to more heavily forested wilderness areas as wolf persecution continued across the state (Erb & DonCarlos 2009; Mech, 2000). By 1930, the wolf range in Minnesota was primarily contained to the forested counties bordering Canada (Erb & DonCarlos 2009). The decrease in wolf range and population did not prevent or cutback on bounty shootings any; from 1949 to 1964, private citizens were also allowed to purchase permits for aerial wolf shootings, a tactic that was also employed by state personnel involved in wolf removals during this time. Prior to European settlement, wolf populations had been estimated to be 4,000 to 8,000 (Mech 2000). From 1949 to 1964, wolf bounty killings averaged approximately 150-180 each year (Erb & DonCarlos 2009).

The killing of wolves in Minnesota during this time is unlike the killing of other large game animals; as Barry Lopez writes, “the history of killing wolves shows far less restraint and far more perversity,” (1978, 139). Wolves were not just killed - they were poisoned, quartered, and tortured. Wolves were poisoned with “strychnine, arsenic, and cyanide, on such a scale that *millions* of other animals... were killed accidentally in the process,” (Lopez 1978, 139). Wolves were set on fire, their jaws torn out, Achilles tendons cut, and dogs were turned loose one them (Lopez 1978). Jon Coleman opens his book “*Vicious: Wolves and Men in America*” with a gruesome story of naturalist James Audubon watching as a farmer slashes the Achilles tendons of three wolves and sets his hounds on them (2004). Coleman equates the killing of wolves

across America in such perverse ways to the pogroms of Jewish people in Eastern Europe in the 19th and 20th centuries (Coleman 2004). As Lopez pointedly states, this type of wolf management was not predator or population control. Wolves were not killed for any responsibilities they were held to; wolves were killed out of fear of what they may do (Lopez 1978).

The Postbounty/Pre ESA Era saw the end of the bounty program and in its place came a targeted predator control program. During this time, only state-certified trappers were authorized to remove wolves from areas where loss of livestock could be verified. This depredation program was more focused on mitigating human-wolf conflicts than simply reducing the wolf population (Erb & DonCarlos 2009). However, in 1970, the wolf population in Minnesota, originally between 4,000 and 8,000, was estimated to be just 750 (Erb & DonCarlos 2009).

On December 28, 1973, the Endangered Species Act (ESA), a program focused on conserving threatened species and their ecosystems, was passed by President Richard M. Nixon. The ESA is regulated by the U.S. Fish and Wildlife Service (USFWS) of the Department of the Interior, the National Marine Fisheries Service (NMFS) of the National Oceanic and Atmospheric Agency, and the Department of Commerce (“Implementation” 2015). The ESA authorizes two federal agencies to identify species for listing: the USFWS for terrestrial wildlife and non-ocean going fish and NMFS for most other marine species. Either agency may determine whether a species should be considered for listing based on provided information, or someone may petition either agency to list a species (“Implementation” 2015). Once listed, a species is then protected under federal regulations and the responsible agency then makes a recovery plan to provide direction for the recovery of the species with criterion for determining

when a species is considered recovered and can be delisted (“Implementation” 2015; Czech and Krausman 2001).

In the year following the ESA’s enactment, the gray wolf was listed as an endangered species, bringing us into the Post ESA Era. Upon listing, wolves were defined as a species “in danger of extinction throughout all or a significant portion of its range” (Bruskotter et al. 2014). In being made an endangered species, wolves and their habitat were placed under federal protection, making it illegal to kill wolves and thereby ending government-sponsored extermination campaigns. After wolves were listed, a rapid increase in population was noticed through 1976, a result of the protections wolves received from the ESA (Erb & DonCarlos 2009). By the mid-1970s, wolf populations were estimated to be at 1,000 to 2,000, an increase from the 1972 estimate of 750 (Erb & DonCarlos 2009; Mech 2001).

Wolves are currently still protected under the ESA, though as of the late 1990s, there has been renewed controversy as to whether or not wolves should remain protected (Steinhart 1995). According to the Minnesota Department of Natural Resources (MNDNR), wolf populations in Minnesota have been relatively stable since around 1997, with an estimated population of wolves in Minnesota being around 2,500 (Erb et al. 2018). As wolves have continued to come into conflict with groups such as ranchers and hunters, many have argued for the delisting of wolves so that they may be hunted and killed again in Minnesota (Mech 2001). In 2011, wolves were officially delisted in the Upper Great Lakes region—a region encompassing Minnesota, Wisconsin, and Michigan. As part of the delisting of wolves, management strategies fell to the individual states, and in Minnesota, wolf hunting once again became legal, though it also became much more highly regulated than in the past.

The inaugural hunting season occurred in 2012, and 411 wolves, 11 over the DNR’s

quota, were killed through the hunt. The state went on to plan another hunt for 2013, despite a statewide survey that found that two-thirds of Minnesotans polled found no need for a wolf hunting season (Smith 2011). In preparing for the hunt, the DNR conducted a wolf population survey and lowered the quota for the 2013 season by 45%. The year ended with the hunting season coming to a close a month early after the quota was exceeded. Given the mixed support for the wolf's delisting, debates continued, and in 2014, the decision to remove wolves from the Endangered Species list was overturned, and wolves in the Upper Great Lakes region were once again federally protected ("Gray Wolf" 2018).

Despite the official relisting of wolves as an endangered species in Minnesota in 2014, talks of delisting wolves again continue to this day. As the current debates in Minnesota continue over how best to manage wolves, the way in which wolves have been portrayed in the media has come to reflect public sentiment throughout the state. However, as different regions in Minnesota hold different groups of people with varying cultural backgrounds, political beliefs, occupations, and interests, the way media has portrayed and documented wolves is likely different based on the region of the media (Fritts et al. 2003). Due to their extensive coverage of wolves, especially over the last century, newspapers provide an important means to view and analyze public sentiment on wolves across the state.

In particular, several previous studies have attempted to categorize the portrayal of wolves in print media. In their paper "Are attitudes toward wolves changing? A case study in Utah," Bruskotter et al. looked to determine shifts in wolf perception in Utah residents since 1994, as well as in specific stakeholder groups such as urban residents, rural residents, and big game hunters. The authors found that survey respondents generally viewed wolves slightly more positively in 2003 than 1994, with positive attitudes up eight percentage points, and noted that

big game hunters and rural residents had less positive views towards wolves than urban residents did, although the majority of all three groups indicated a positive view of wolves (2007). (Bruskotter et al. 2007). This small percentage increase indicates that while positive views towards wolves are increasing, wolf perceptions in Utah have not drastically changed in recent decades; the authors attribute the lack of change in wolf perceptions to residents' lack of experience and interactions with wolves (Bruskotter et al. 2007). Over the course of the study and to this day, there have been no established wolf populations in Utah, although sightings do occur sparingly (Bruskotter et al. 2007). Bruskotter et al. did note a trend among respondents that showed respondents disagreeing with the notion that wolves compete with big game hunters for trophy animals, and instead viewed wolves as actually helpful to ecosystems in being able to control deer populations (Bruskotter et al. 2007). This perception of wolves as part of a larger ecosystem rather than a competitor leads the authors to better understand some of the broad social factors that help shape perceptions of wolves, including urbanization, population replacement, and education (Bruskotter et al. 2007).

Additionally, in the study "Tracking a Half-century of Media Reporting on Gray Wolves," Killion et al. attempted to track changes in the salience of certain topics related to the portrayal of wolves in Idaho newspapers between 1960-2015, ultimately trying to determine if wolves were coming to be seen more favorably or not within the state (2018). Killion et al. used a more quantitative approach than what we used in our study, however, we found their methodology in categorizing and tagging articles to be helpful for our data collection.

Furthermore, there have been many studies about changing wolf populations in Minnesota (Mech 2001; Mech 2000; Erb & DonCarlos 2009; Erb et al. 2018), though there have yet to be any studies concerning wolf perceptions in Minnesota. As Minnesota was the only state in the

contiguous U.S. to have maintained a wolf population and experience no complete extinction of wolves throughout its history, it provides an interesting study area for exploring possible differences or changes in the portrayal of wolves.

Additionally, for our study, our decision to analyze media coverage was not an arbitrary one. In general, people get most of their information on public affairs and happenings from the media (Schmidt 2012). While there may be concerns about an individual's preferences in news consumption, Robert Entman's article "How the Media Affect What People Think: An Information Processing Approach" (1989) demonstrates how media influences what people think, by affecting what specifically they think about. Although people have the ability to choose which news publications and topics they pay attention to, known as selection bias, the results from Entman's study indicate that the impacts of selection biases are relatively weak when compared to the impact that the actual media content has on public opinions. Entman's findings are what allowed us to conduct this research; because public opinion is not solely shaped by selection biases, selection bias will not be a concern in our analysis, and will not significantly influence our results.

More than just influencing decisions, Cook et al. found in their article "Media and Agenda Setting: Effects on the Public, Interest Group Leaders, Policy Makers, and Policy" (1983) that media content influences public views on issue importance. Through an extensive survey, the authors showed media content on issue importance was superior to the political leanings of news audiences; audiences are more impacted by the content presented in the media than they are partisanship. This is not to say that party identity does not impact issue importance, but rather, media content has a more lasting effect. This also rang true in Maxwell and Jules Boykoff's "Climate Change and Journalistic Norms: A Case-study of US Mass-media Coverage"

(2007). In their analysis of US newspaper and television coverage of human contributions to climate change from 1988 through 2004, the Boykoff's similarly found that media plays a key role in shaping the political terrain and influencing how people will react to events and topics seen in the news. The media's expansive influence on the American public has the capability to not only frame the valuable current events, but also how the individuals perceive and integrate this information into their understanding of the present world and their daily lives (Boykoff & Boykoff 2007).

This is particularly relevant to wildlife management, as Ruth Kansky and Andrew T. Knight stressed the importance of understanding stakeholder attitudes in making key wildlife management decisions in their article "Key Factors Driving Attitudes towards Large Mammals in Conflict with Humans" (2014). The authors stated "attitude research provides insight on stakeholder preferences for diverse management options," which in turn can "indicate support for desired population sizes for a species, the extent of damage stakeholders are willing to tolerate, and the desirability of different species on private or communal land," (Kansky & Knight 2014). With such information, wildlife managers can design management strategies that are more likely to be supported by those influencing and those being affected by such decisions. This, in turn, can prevent the emergence of conflict between wildlife managers and interest groups, as well as aid in designing appropriate intervention strategies when needed.

In order to better understand more of the important roles that newspapers in particular serve, we turned to "Communicating about Environmental Risks: How the Public Uses and Perceives Information Sources" by McCallum et al. (1991). Through a survey of six separate communities with over 3,000 respondents, McCallum et al. found that local newspapers are the primary source for environmental information. High credibility serves as the most valuable

attribute for any environmental news source. Due to how conclusive and reliability they are, these findings justified the decision to use newspapers as a medium for our analysis and to provide a basis for understanding how audiences interact with local newspapers.

In order to analyze our newspaper selections for our study, we employed Environmental Discourse Analysis. Environmental Discourse Analysis (EDA) is a means of determining both how the environment is constructed and what people's relationship to it is like within multiple contexts (Burke et al. 2015). In particular, EDA consists of a linguistic and a social component, seeking to examine how language describing the environment "shapes, transforms, and reproduces social reality." (Stamou and Paraskevopoulos 2004). For our study, this meant we were looking at the language used in articles concerning wolves and the social context of the articles in order to uncover deeper meanings and understandings of varying wolf perceptions.

Additionally, we were interested in seeing if location and proximity to wolf country had any effect on the ways in which wolves were being portrayed and viewed in newspapers. In their article "Situation-Specific 'Impact Dependency' as a Determinant of Management Acceptability: Insights From Wolf and Grizzly Bear Management in Alaska" (2006), Decker et al. found that in a survey of Alaskan residents, respondents were more likely to support the use of lethal management strategies to control predation in situations where a human's access to big game animals like moose and caribou was greatly limited by a predator. Indeed, a common belief exists that wolves limit populations such as moose and caribou, though removing wolves from an ecosystem has not always historically lead to increased game populations (Steinhart 1995, 75). Additionally, Bruskotter et al. found in their study that ones' proximity to wolves could also be an influential factor in shaping public perception of wolves, as they observed that the urban residents in their survey were more likely (74%) to have positive responses to wolves than rural

and hunter respondents, who potentially had more contact with wolves (2007).

Thus, our study seeks to determine if and how the proximity to wolf habitat affects the way in which wolves have been portrayed in two prominent Minnesotan newspapers—the *Minneapolis Star Tribune* and the *Duluth News Tribune*.

For our study, we expected there to be a difference between the portrayals of wolves by the *Minneapolis Star Tribune* and the *Duluth News-Tribune*, largely due to the difference in proximity to wolf country of Minneapolis and Duluth, though potentially based on other factors such as political leanings of each city, education level of the citizens, or the amount of time citizens spend outdoors. In particular, since the *Duluth News-Tribune* is based within wolf country (Figure 1), we anticipated there to be a generally more negative portrayal of wolves, regarding hunting, livestock depredation, and negative effects on game populations based on the results from Bruskotter et al. This could be because of more direct and negative interactions with wolves, such as fear of predation or attacks on pets, game, or even people (Bruskotter et al. 2007). Similarly, if there were indeed more negative interactions with wolves near Duluth, we would expect that the *Duluth News-Tribune* would contain many articles expressing positive attitudes towards the 2012, 2013, and 2014 wolf hunting seasons, as well as for the entire eradication of wolves.

On the other hand, we anticipated that the *Minneapolis Star Tribune*, would generally have more positive portrayals of wolves due to its farther proximity from wolf country and its possible resultant lack of contact between wolves and humans (Bruskotter et al. 2007). Thus, we expected to see more articles related to the protection of wolves, especially being in favor of adding them back to the Endangered Species List. Finally, because the *Star Tribune* is printed near the state capital and outside of wolf country, we anticipated seeing articles on wolf-related

legislation to be more neutral towards wolves, where policies are described in a more informational sense.

However, while previous studies have successfully analyzed wolf portrayals in media using a more negative, positive, and neutral based framework (Bruskotter et al. 2007 & Killion et al. 2018), we also realize that the way wolves are viewed and represented can be complex, with portrayals not necessarily fitting perfectly in the characterization of positive versus negative views of wolves. As such, we also believed there to be other ways of characterizing the public perceptions of wolves, which might be more nuanced and might better fit the varied public views of wolves we expected to find.

Furthermore, up to this point, there have been fewer studies seeking to categorize and describe public perceptions of wolves on more local rather than national scales, especially in doing city comparisons. By analyzing the portrayal of wolves by two of the largest newspapers in Minnesota, we will be able to more accurately describe and detail trends in Minnesotan public support for current and future state wolf management strategies. As a result, these trends could be helpful in informing future wolf-related policies and management plans, in order to better target and

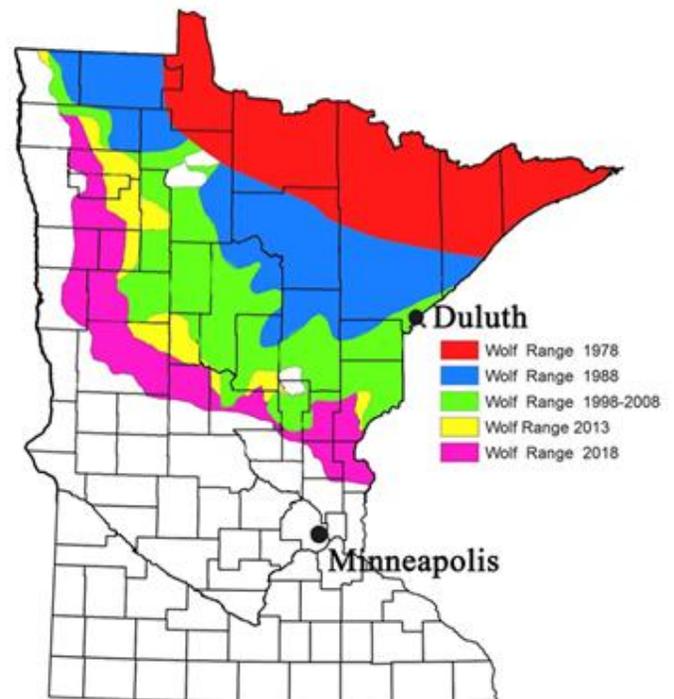


Figure 1. Minnesota Wolf Range. Map showing range of wolves across the state, as well as their expansion since 1978. The two cities for our study area, Minneapolis and Duluth, are included. Modified from Erb, Humpal, and Sampson 2018.

alleviate citizens' concerns. Finally, in looking at any changes in the portrayal of wolves over time within Minnesota, our study has the potential to continue, in order to see how public sentiment towards wolves has historically compared to national trends, detailing any important similarities or discrepancies between wolf perceptions in Minnesota and the rest of the U.S.

Study Area and Time Period

The study areas for our research were the Minnesotan cities of Minneapolis and Duluth. Minneapolis is located in south-east-central urban Minnesota and has a population of 422,331 people, making it the largest city in Minnesota (United States Census Bureau 2017). Additionally, Minneapolis is the sixth most liberal city in the United States (Tausanovitch & Warshaw 2014). Minneapolis has an expansive readership between its multiple newspapers, and circulates over 500,000 newspapers daily (Minnesota Newspaper Association 2018).

Duluth is located in northeast Minnesota on the shores of Lake Superior. Duluth has a population of 86,066 people (United States Census Bureau 2017), and is the fourth largest city in the state. Duluth is located in Saint Louis County, a county that has historically voted liberally ("Minnesota Election Results" 2019). Journalism and news reporting were not significant or common enough of occupations in Duluth to be included in the Bureau of Labor Statistics 2017 report on Occupational Employment Statistics, but there is one environmental reporter in Duluth ("Contact Us" 2019). Duluth circulates over 30,000 newspapers daily (MNA 2018).

Our analysis focused on two time ranges: 1974-75 and 2011-13. These dates were chosen because both contain key moments dealing with the wolf's status on the Endangered Species List. In 1974, the gray wolf was added onto the Endangered Species List for the first time, prompting the need to create the Wolf Recovery Program. Prior to this, wolves were unprotected

and a regular hunting season for wolves was held in Minnesota from 1965-1974 (“Gray Wolf Recovery” 2018). Wolves were also killed in a livestock depredation program that ended briefly in 1974, before returning again in 1975 (“History of Wolf” 2002).

In 1975, Minnesota created its first Wolf Recovery Program. This program was the first attempt by the state to manage the current population through means other than hunting. This plan acted in correspondence with the federal government’s Endangered Species Act and aimed to protect the gray wolves of Minnesota. The recovery plan would go on to be edited and re-published in 1978, 1992, and 2001.

In 2011, the gray wolf was removed from the Endangered Species List, thus ending federal protections and handing management of the wolf back to the state. In the case of Minnesota, the DNR assumed management of the gray wolf. As outlined in the DNR’s Wolf Management Plan of 2001, a five-year prohibition on hunting is called for in the event of a delisting. Additionally, the U.S. Fish and Wildlife Service also requires a five-year monitoring period after a species is delisted in order to “assess their ability to sustain themselves without the protective measures of the ESA” (U.S. Fish and Wildlife Service, p. 2). However, Minnesota legislature removed this five-year monitoring period in order to institute a wolf hunting season that would begin in 2012. The decision to remove the monitoring period and set up a hunting season created a controversy among Minnesotans (Smith 2012).

The DNR held wolf population surveys every five or ten years with the most recent survey at the time of delisting occurring in 2008. There were no plans to conduct another survey before the hunting season, which was viewed as a grievous oversight by many Minnesotans. The conversation turned to assessing wolf population dynamics. The DNR stated that wolf populations were healthy and stable enough to survive a harvest of 15% of the state’s wolves

from hunting (Smith “Killing Fields,” 2012). Minnesotans opposing the wolf hunt began expressing their disapproval through article submissions to newspapers, adding that with additional depredation and accidental or illegal killings, the wolf population could be reduced by nearly 25% of its total size (Smith “Killing Fields,” 2012). Due to the possibility of such a great decrease in wolf populations, opponents of the hunt worried if wolves would be able to sustain their population size once more hunts were held and mortality factors, such as disease, were taken into account (“Wolf Hunt” 2012). Environmentalists brought up that, although the wolf population may have reached a stable status, the wolf’s habitat range was still nowhere near as expansive as it historically had been, and many thus believed that the wolf should remain protected until its habitat range had also fully recovered. With all these different sides to the wolf debate, our study’s focus on the two time frames of 1974-1975 and 2011-2012 hopes to understand how these viewpoints were presented in newspapers from Minneapolis and Duluth.

Methods

Environmental Discourse Analysis

Our study used newspapers as a source for an Environmental Discourse Analysis. Environmental Discourse Analysis (EDA), which is a specific branch of Critical Discourse Analysis (CDA), as a powerful means of determining both how the environment is constructed and what people’s relationship to it is like within multiple contexts (Burke et al. 2015). In particular, EDA consists of a linguistic and a social component, seeking to examine how language describing the environment “shapes, transforms, and reproduces social reality.” (Stamou and Paraskevopoulos 2004). Within any given discourse, EDA aims to explain who is involved, whose claims are included, and for what purpose (Xu 2016). With this information, the

reader can gain a deeper understanding of how an environmental concept is both being portrayed and received. Many previous studies have employed EDA to analyze a wide range of content, including content as diverse as travel guides and newspapers (Stamou and Paraskevopoulos 2004 & Burke et al. 2015).

Newspaper Analysis and Selection

In their paper “Tracking a half-century of media reporting on gray wolves,” Killion et al. sought to determine how wolves have been portrayed in an Idaho newspaper between the years of 1960 and 2015 (2018). By using a generative Bayesian mixture model, a statistical model allowing them to identify and “quantitatively assess the salience of various topics surrounding the gray wolf,” Killion et al. identified key topics that were recurring whenever wolves came up in the newspaper. In order to conduct our Environmental Discourse Analysis on gray wolves in Minnesota, we adapted Killion et al.’s data collection techniques by searching for key topics coming up in Minnesotan newspapers. However, instead of using the Bayesian model and filtering articles out by word en masse, we read over each article and tagged the articles based on topic, ultimately determining the way wolves were being portrayed as a result of the kind of language used to report on them, as outlined below.

For our study, we chose to analyze newspaper articles and images from both the *Star Tribune* and the *Duluth News-Tribune*. In particular, these two newspapers were chosen for comparison due to their different proximities to wolf country in Minnesota and their readership. The *Star Tribune* is the largest newspaper in Minnesota, circulating 261,783 newspapers daily and reaching 1.4 million readers each week across the Twin-Cities metro region within Minnesota, as well as extending into the upper Midwest (MNA 2018; “Star Tribune” 2014). The

Star Tribune is based in and distributes from downtown Minneapolis, a region of Minnesota outside of wolf ranges (“Gray Wolf” 2018). While the *Star Tribune* is reported to be high in factual reporting, it is noted to be more left-center slanted and to use “loaded words to favor liberal causes” (“Minneapolis Star Tribune” 2016).

The *Duluth News-Tribune* is the fourth largest newspaper published in the state of Minnesota and circulates 21,262 newspapers daily throughout the Twin Ports metropolitan region, as well as throughout areas of northeastern Minnesota, northwestern Wisconsin, and Michigan’s Upper Peninsula (MNA 2018). The *Duluth News-Tribune* is based in the northeastern port city of Duluth on the shores of Lake Superior, right in the middle of the state’s wolf population. The *Duluth News-Tribune* is considered to be a right-center leaning publication: there is minimal partiality in straight news reporting, but opinion and editorial content is right-leaning (“Duluth News Tribune” 2018). Comparing the ways in which both the *Star Tribune* and the *Duluth News-Tribune* portray wolves may also help to show if location and proximity to wolf populations have an effect on the way in which gray wolves are discussed by each publication.

Data Collection

Articles were collected from online archives for both the *Star Tribune* and the *Duluth News-Tribune*. In the case of the *Duluth News-Tribune*, the online archives only went as far back as 2000. To remedy this and to complete our data collection, we used microfilm of the *Duluth News-Tribune* for the years 1974-1975. For the online archives, we followed Killion et al.’s process of first querying content using the keywords “wolf” or “wolves,” and narrowed our search down to our desired time ranges. All content within the time range was analyzed, and those relevant or pertaining to wolves were then categorized, tagged, and catalogued through

Zotero. Our tagging conventions are explained further below. All microfilm rolls were read over for mentions of wolves, and relevant content was scanned and then catalogued and tagged in the same manner as the online content.

Articles we did not tag for our analysis and found to be irrelevant were those such as: “Wolves’ history of blunders rains on Rubio’s parade” (Souhan 2011); “Nature as human theater” (Breining 2011); “James Meger, painter of ducks and wildlife” (Anderson 2011); and “No-wake zone set at St. Croix bridge site” (Patrick 2011). Articles such as these were deemed irrelevant because they referenced the NBA franchise, the Minnesota Timberwolves; they used the word “wolf” without offering any connotations to wolves, where the word was just there; or they had “wolf” as a part of someone’s name or a title.

Tagging Conventions

The categorizing and tagging process of each article consisted of three phases: phase 1: our initial categorization, phase 2: article specification and phase 3: tagging checks. More specifically, the first phase consisted of assigning initial categories to each article or image. These categories consisted of labeling each article or image by its respective newspaper, by the year the article was published, and by the initial perception of wolves displayed in the article leading to a pro, negative, or neutral image of wolves.

For the purpose of our study, pro wolf articles and images were those which expressed favorable sentiment towards wolves. Media like this included pieces advocating for the federal protection of wolves, advocating against wolf hunting seasons, commemorating or iconizing wolves through art forms such as sculptures, natural history dioramas/displays, wolf-based ecological documentaries, etc. Other forms of content that were considered pro wolf were

articles and images in which the contributor humanized wolves through the mentioning of family units and pack loyalty, or made romantic connections between beloved family dogs and their wolf ancestry.

Negative tagged media made references or had connotations contrary to pro wolf articles. Negative media expressed desire for the eradication of wolves, desire for the killing of wolves explicitly for their pelts, or advocating for wolf hunting seasons while expressing anger and/or fear of livestock attacks. Articles and images that were also considered negative contained descriptions of wolves or werewolves and played into horror fantasies.

The articles and images tagged as neutral were ones which took both pro and negative stances on wolves, or those where no impression was given, such as in informative articles solely conveying information on hunting regulations and updates on wolf-related legislation.

The second and third phases consisted of giving each article and image tags specifying the 'Article Type', 'Location' of the article mentioned (i.e. if it was outside Minnesota), and subsequent tags that related to the article giving a description to the content and the way in which the article or was expressing a perception of wolves. Descriptive tagging of articles and images was done through a multi-tiered system in which an article or image was given an overarching theme such as 'Legislative' or 'Pop Culture' and then subtags were given to provide a further description (see Table 1 below). The third phase of tagging entailed checking the accuracy of the tags and categories created during the first and second phases. This was done to insure the each tag given to an article adhered to the tagging conventions created for this study.

Tag Titles	Explanations and/ or Sub Tags Encompassed
Article Type	Interview, Public Opinion (op/ed), Q/A (“Ask Jerry or Mary”), Entertainment (Sub: Pop Culture, Sub 2: Movie, Sub 2: Tv, Sub 2: Cartoon)
Location	For locations other than Minnesota
Ecology	Sub: Species Interaction, Sub: Population Ecology, Sub: Conservation, Sub: Wolf Ecology
Economics	monetary things such as management budgets, fees/ licenses, taxes etc.
Education	pertaining to ecology and nature learning
ESA Delisting OR Relisting	pertaining to the Endangered Species Act and/or advocating for the removal or addition of wolves to the law
Ethics	concerning animal ethics or ethical reasoning
Hunting	the killing of wolves, including trapping
Informative	informing about public, events, rules and regulations etc.
Legislative	legislative actions (bills, appeals, etc.), descriptions of the ESA
Nature	articles related outdoors, national/ state parks, wilderness
Pelts	hunting for wolf fur/ pelts
Permits	wolf/ animal headcounts
Predation	when wildlife is killed by a wolf
Pop Culture	Sub: Movie, Sub: TV, Sub: Syntax, Sub: Sculpture etc.

Problem Wolves	wolves that kill livestock/pets and subjected to trapping/ killing programs
Syntax	use of wolf to denote human behaviors, qualities, or events etc.
Wildlife Management	management of multiple species other than wolf/ wolves
Wolf Hunting Season	specifically talking about a wolf hunting season
Wolf Management	management of just wolves

Figure 2. Tagging Conventions. The tags we created and used to categorize the articles portraying wolves are included. Additionally, we describe the types of articles receiving each tag through our content analysis, as well as possible subcategories each tag may encompass.

Data Analysis Approach

The aim of our analysis was to understand how Minnesotans’ changing attitudes towards wolves were represented in the *Star Tribune* and the *Duluth News-Tribune*. To understand how the two newspapers were portraying wolves, we used a mixture of quantitative and qualitative methods. We started out quantitatively by taking our catalogued articles and images and comparing the counts and ratios for commonly encountered categories and tags, year of publication, pro/negative/neutral rating, and publishing newspaper.

After our quantitative analysis, we conducted an environmental discourse analysis of the articles and images to better understand the conversation around and the portrayal of wolves from each newspaper. We looked at media content across the different newspapers, time frames, and categories, to look for any correlations, or lack thereof. We analyzed for which specific issues in the wolf debate were receiving the most attention from reporters and newsreaders, and how these articles were being written, as well as any assumptions made in the articles. Finally, by taking special note of not just the topics, but also of the names of people and groups recurring

in the wolf debate, we also evaluated the articles to see how wolves were being discussed by specific people and institutions.

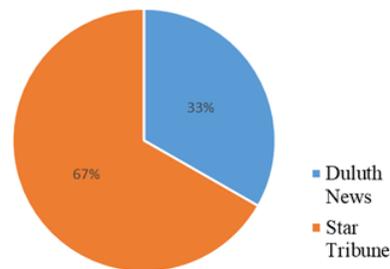
Results

A)

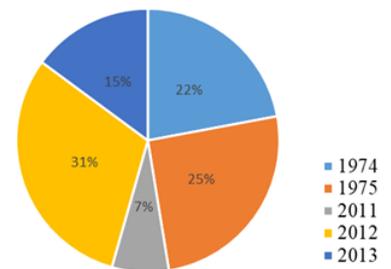
Year	Duluth News	Star Tribune	Total
1974	26	94	120
1975	28	110	138
2011	10	28	38
2012	77	90	167
2013	40	41	81
Total	181	363	544

Figure 3. Article Collection Results by Year and Newspaper. A) Table showing the number of newspaper articles used in our study by year and newspaper. B) Distribution of total newspaper articles used by publication. C) Distribution of total newspaper articles by year.

B) By publication



C) By year



Initial searches on the *Duluth News-Tribune* and *Star Tribune* online archives for “wolf” or “wolves” yielded 94,431 results. Of these results, we collected 544 articles and images from our study periods of 1974-975 and 2011-2013 for analysis. Altogether, 181 articles and images were collected from the *Duluth News-Tribune* and 363 articles and images were collected from the *Star Tribune* (Figure 3).

Pro wolf media totaled 139 across our study periods. Negative media comprised 140, and neutral media 265. Pro media for the *Duluth News-Tribune* totaled 59, with 33 negative and 89 neutral. The *Star Tribune* had 80 pro, 107 negative, and 176 neutral articles and images (Figure 4).

A)

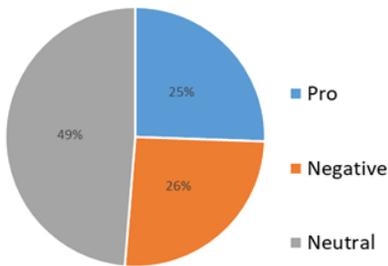
Year	Pro	Negative	Neutral
1974	27	43	50
1975	20	61	57
2011	13	11	14
2012	54	18	95
2013	25	7	49
Total	139	140	265

B)

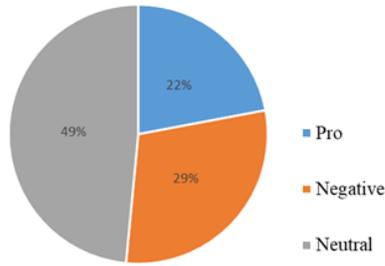
Newspaper	Pro	Negative	Neutral
Duluth N-T	59	33	89
Star Tribune	80	107	176

Figure 4: Article Collection Results by Portrayal of Wolves. A) Table shows the total number of articles within each categorization of wolf portrayal by year. B) Table shows the total number of articles within each categorization of wolf portrayal by publication. C) The chart shows the distribution of the total number of articles by categorization of wolf portrayal. D) The chart shows the distribution of *Star Tribune* articles by categorization of wolf portrayal. E) The chart shows the distribution of *Duluth News Tribune* articles by categorization of wolf portrayal.

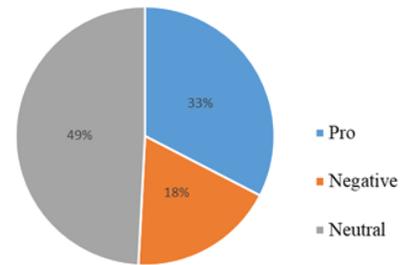
C) Total



D) *Star Tribune*



E) *Duluth News Tribune*



Categorization of article types gave the following breakdown: entertainment pieces made up 19 articles, opinion/ op-eds 58, personal narrative 7, Q&A sections 5, interviews 4, and news reports made up the remaining 451 (Figure 5).

Entertainment	Opinion/Op-ed	Personal Narrative	Q&A	Interviews	News Reports
19	58	7	5	4	451

Figure 5. Number of Articles by Article Type. The table shows the breakdown for the total number of articles based on the different types we came across.

Breaking down the categorization of articles further, there were 81 articles concerning wolf management; 73 articles concerning wolf legislation; 56 articles referencing wolves in pop culture; 69 articles about the wolf hunting seasons or wolf hunting and trapping generally; 34 articles concerning ecology; 22 on wildlife management; 20 educational; 10 about ESA status, listing, or delisting; and 3 on economics (Figure 7). We also broke down our four largest categorizations further by year, newspaper, and pro/negative/neutral rating (Figure 8).

A)

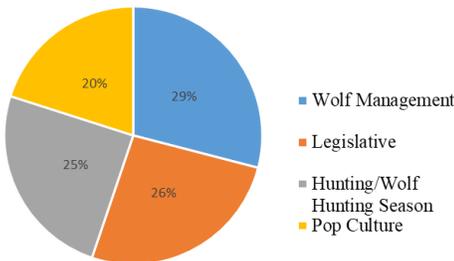
Year	Wolf Management	Legislative	Hunting/Wolf Hunting Season	Pop Culture
1974	25	10	4	18
1975	12	5	8	29
2011	5	11	0	5
2012	19	38	42	2
2013	20	9	15	2
Total	81	73	69	56

B)

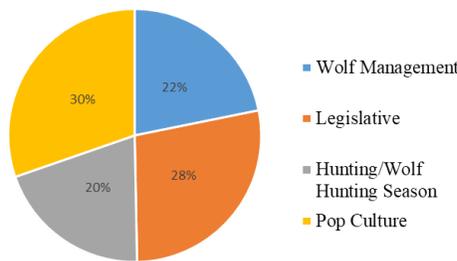
Newspaper	Wolf Management	Legislative	Hunting/Wolf Hunting Season	Pop Culture
Duluth	45	27	36	6
Star	36	46	33	50
Total	81	73	69	56

Figure 7. Article Count by for the Most Frequent Tagging Categories. A) Table shows the total number of articles by year for our four most frequently used tags. B) Table shows the total number of articles by publication for our four most frequently used tags. C) The chart shows the distribution of the total number of articles within our four most frequently used tags. D) The chart shows the distribution of *Star Tribune* articles within our four most frequently used tags. E) The chart shows the distribution of *Duluth News Tribune* articles within our four most frequently used tags.

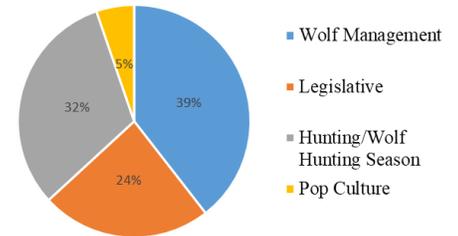
C) Total



D) *Star Tribune*



E) *Duluth News Tribune*



Rating	Wolf Management	Legislative	Hunting/Wolf Hunting Season	Pop Culture
Pro	18	9	23	7
Negative	16	7	10	44
Neutral	47	57	36	5
Total	81	73	69	56

Figure 8. Article Count by Type of Wolf Portrayal and Tagging Category. The table shows the number of articles that were deemed to portray wolves positively, negatively, or neutrally for each of our four most common tagging categories.

“Wolf Management”

Articles categorized under the theme “Wolf Management” exclusively discussed how the state of Minnesota should manage its gray wolf population. These articles’ were centered around the gray wolf species and not that of other wildlife species. While other species such as deer or moose were addressed in several articles, the center and bulk of the articles pertained to wolves. This theme also included articles discussing the management of wolves in other states.

“Legislation”

Under “Legislation,” these 73 articles focused on the logistics and/or the opinions on policies and bills being proposed, or denied, by either the state of Minnesota, other states with wolf populations, and/or the Federal Government. This theme encompassed politically based articles, and while they were primarily objective, this category included articles expressing favoritism to the legislation being discussed.

“Hunting/ Wolf Hunting Season”

Articles which fell under the “Hunting/ Wolf Hunting Season” theme encompassed articles which focused on the hunting of wolves. Specifically, these articles mentioned hunting wolves in terms of both recreational purposes including the means of gaining pelts. This also included articles discussing the use of hunting wolves for conserving the species and/ or for the protection of other games species such as deer. For this reason, this category also includes articles specifically addressing a wolf hunting season.

“Pop Culture”

The theme “Pop Culture” pertained to other mediums within each newspaper such as cartoons, advertisements, or movie descriptions which referenced or depicted wolves. “Pop Culture” also included articles not centered around wolves or the wolf debate, but rather used the word wolf as part of a metaphor such as “a wolf in sheepskin.” This theme also included articles that used photos of wolves to aid in the reader's understanding of the piece.

Other Less Common Themes

Though wolf management, legislation, hunting, and pop culture were the most common themes we found surrounding the discussion of wolves across both newspapers, a variety of other themes were commonly encountered as well, which ultimately became many of our different tagging categorizations for the newspaper articles (Figure 2). In particular, one other interesting theme to come up was that of education, where different articles would talk about specific centers, activities, and programs people could go to or participate in to learn more about wolves. Additionally, the theme of nature was also common, where wolves were linked to an

idea of rugged wilderness, often in parks and preserved nature areas. A third important theme to come up was ethics, where articles argued for the protection of wolves based on ethical appeals. Finally, one other theme discovered was predation, mentioning wolves' predation of different animals such as livestock or game animals, including deer and moose. Further themes noted from our study are encompassed and described in our tagging conventions. The sheer number of themes we encountered underscored the many ways wolves are being portrayed and viewed within Minnesota.

Discussion

Neutral Perspectives of the Duluth and Star Tribune

Across both newspapers, there were overwhelmingly more neutral articles and images than pro or negative, with 263 total neutral articles and images and only 139 pro and 140 negative. Our findings indicate that the neutrality taken by these newspapers papers is due principally to two factors. First is the variety of voices contributing to the articles, each of which brings its own perspective to the way in which wolves should be viewed and managed. The second reason for seeing neutrality rather than polarity in the portrayal of wolves, is due to the variation of context for the discussions framing the wolf debate.

A contributing factor to the neutrality surrounding wolves is the voices that have been involved in the wolf debate and discussion. Different voices from different institutions carry different weights in the conversation around wolves. Take for example the article "Killing Field" (Smith, 2012). This article focused on trapping as a form of managing livestock depredation by wolves. The main conflict of the article is wolf population ecology, and the people interviewed by Smith in this article carried different weights and brought different meanings to the discussion; one such interviewee was Dan Stark, a wolf specialist for the Minnesota DNR, whose

professional and trained opinions are a voice of logos in the discussion. Stark used straightforward, unemotional language and stated facts based in scientific research to convey his points. In this article, Stark was a voice of reason and logic meant to ease the reader with the idea of 700 wolves being killed each year in the name of wildlife management.

Another interviewee in this article is Maureen Hackett, founder and president of wolf advocacy group Howling for Wolves. Having no professional background or training in wolf biology, Hackett advocated for wolves by appealing to readers emotionally and using more charged language with buzzwords and phrases like “risk”, “level of naiveté I find arrogant,” and “just kill wolves” (Smith, 2012, p. C16) to emphasize her points. This dichotomy between logic and passion divides readers to falling under one group or the other; neither voice is particularly stronger, more common, or favored more than the other, but both appeal to different readers in different ways and create a neutralizing effect over the audience.

In Public Opinion articles—which were generally more emotionally charged and slanted towards one specific side, as stated earlier—associations and affiliations impacted the weight of what was being expressed. Common voices found in public opinion articles that were pro-wolf included environmental activists, ecologists or biologists, and sustenance hunters. Common voices from anti-wolf articles included hunters, livestock farmers, and those believing wolf management should be based on science and research and not cultural or emotional value. This is not to say that these were the only associations or there were rigid divisions between associations in pro- and anti-wolf articles, rather some associations were more common in pro- rather than anti-wolf articles, and vice versa. It is the overlapping of associations and arguments between the two sides that created a rift between how each contributor views wolf management in Minnesota.

These discrepancies lead to both the Duluth News Tribune and Star Tribune conveying a neutral stance on Minnesota's wolf date.

In letters to the *Duluth News-Tribune* titled "Wolf hunt nothing but recreational killing" (2012) and "Hunting for sport is an affront to common sense" (2013), Duluth-based hunters Brian J. Augustine and Catherine Colvin discussed the ethics of hunting wolves for sport and criticized those who do so. Both writers identified themselves as hunters and spoke to their individual hunting practices and morals. Their association with hunting gave their words more weight with hunters, the audience they are being critical of. Without the hunting association, they would just be more voices in the debate between hunters and activists. Critical opinions and associations such as these are creating a greater divide in readers' minds over what is "right" or "wrong" and leave more room for neutrality to set in.

The range of voices contributing to the overlap between "right" and "wrong" perceptions of wolves is shaped by many outside factors. The topic and timing of current events surrounding the protection status and the management of wolves in Minnesota thus has influence over the way in which the wolf debate takes form. The political climate and changes in interspecies dynamics (specifically between wolves, moose and deer) shift public stances on the wolf debate. Often a combination of these factors inform perceptions of wolves which can fluctuate between years.

When analyzing the tags given to each article the gravity of the political climate surrounding the each article entry became noticeable. For instance, articles published in 2012 expressed concerns surrounding problem wolves or wolves approached the wolf debate from an economic viewpoint. Consequently during this year, the Minnesota legislature proposed cutting the budget to the livestock compensation program. Similarly, the mode in which the articles

express their opinions through the topic of hunting coincides with additions or repeals to hunting legislation.

For each time period, we see that neutral content was consistently higher than pro or negative, except for 1975, where there are 61 negative and 57 neutral papers (Figure 4). This can potentially be contributed to the creation of the recovery plan. When the plan was first created, some thought the use of the term “recovery” rather than “management” was misleading, as many Minnesotans believed the wolf population to be healthy for Minnesota and in no need of recovering. There were also the Minnesotans, namely livestock farmers and people involved in the agricultural industry, that still viewed wolves as pests that were antagonistic to their lifestyles and didn’t see a need for listing the wolf, much less a recovery or management plan (“History of Wolf” 2002).

In 2012 there was a spike in pro and neutral articles and images, when the state’s inaugural wolf hunting season was established, with 54 pro articles and images and 95 neutral. The pro media for 2012 consisted of 23 letters to the editor protesting or correcting inaccurate information about wolves and how they should be managed, with the other half of pro media consisting of articles arguing against the wolf hunting season and wolf management practices in Minnesota. Of the 95 neutral articles and images in 2012, 40% of articles and images pertained to wolf management legislation and 34% were on wolf hunting season updates.

Wolf Management

In the *Duluth News-Tribune*, the category with the most number of articles pertaining to wolves was “Wolf Management.” Overall the theme of Wolf Management was more neutral, with 58% of Wolf Management articles showing neutrality. Of these articles 56% came from the

Duluth News-Tribune. Duluth's neutral tendencies regardless of proximity to wolf country countered our initial assumption that the locality would cause the *Duluth News-Tribune* to have a larger quantity of negative portrayals of wolves than in the *Star Tribune*. This contradiction is due in part to the types of articles presented in each newspaper. With Duluth being in wolf country, we expected there to be more articles on wolf management in the *Duluth News-Tribune*, since the people of Duluth are dealing with wolves more frequently due to their proximity. The citizens of Minneapolis can read about wolf management, but anything beyond or more specific than state legislation would seem inconsequential for most Minneapolis residents since they will most likely not encounter a wolf in their everyday lives. Articles on wolf management were most prevalent in 1974 (25 articles) when the wolf was first added to the endangered species list, and in 2012 and 2013 (19 and 20 articles, respectively) after the wolf's delisting from the ESA and the implementation of wolf hunting seasons.

Pop Culture: Text and Images

Of the main themes expressed in the Duluth- News Tribune and Star Tribune, all but "Pop Culture" themed articles maintained a greater number neutral stances. 89% Pop Culture articles came from the *Star Tribune*. Pop Culture articles were overwhelmingly more negative with 79% of Pop Culture articles representing wolves negatively. While many references to wolves were pertaining to the debate on the protection status of the gray wolf and its management, connotations of wolves can be influential even through indirect pop culture references. Phrases such as "keep the wolf from the door" ("Big-government spending blamed for economic ills", Sept 19, 1975) which depicts the wolf species as a nuisance, or even as unwanted scavengers, are used primarily in contexts other than the wolf debate. In this particular

instance, the article is discussing the excessive spending of the US Government. Similarly phrases such as “wolf in sheepskin”(Communist teach”, May 30, 1975) , or the use of wolf behaviors to insinuate similar characteristics in humans were found in many other articles aside from those which specifically comment on the wolf debate. These phrases were also represented in cartoons, movie titles, movie descriptions, and advertisements. Typically however, these connotations were overtly negative such as one article in the *Star Tribune* comparing a demon to a wolf (6 February, 1974 pg. 3) or a Q&A article stating “is he a gentleman or is he a wolf” (2 January, 1974 pg. 6) attributing womanizer like qualities of some men to predatory qualities of wolves. Similarly, movies presented in the *Star Tribune* also carried explicitly negative images of wolves through a mythical lens about murderous werewolves. Uses such as these, although indirect, can instill perceptions (both positive and negative) in the heads of readers which may in return influence public stances on the wolf debate (Entman 1989).

Images depicting wolves that were presented with articles were far less revealing than the pop cultural references. Our image analysis found that a majority of images used were stock photos of wolves used for the sake of indicating the focus of the article was to be on wolves. Few authors deliberately used photos of wolves to further emphasize the author’s position on wolves and their management. Of the few who did so it was much more direct when the article was negative or anti-wolf. Specifically, these articles advocated for wolf hunting seasons and then used images of hunters posing next to the body of the wolf they had just hunted.

Legislative

Of the primary themes we saw coming up in the ways wolves were being discussed, the legislative category was one of the more straightforward ones we came across in being able to

tag articles under this theme. As these types of articles related more to updates on legislation regarding wolves, these articles were often more informational in nature, serving to provide updates to the reader on political proceedings. In general, these articles focused largely on legislation regarding either the status of wolves as part of the ESA, or updates on the wolf hunting seasons.

However, despite many of these articles being more informative in nature, they weren't necessarily objective, as several took more direct negative or pro wolf positions. In particular, one article from the *Star Tribune* talking about budget cuts to depredation reimbursement programs in Minnesota, put forth the belief that cutting the budget would "increase damage caused by wolves" (Smith, "Federal Wolf Program Falls Prey to Budget Cuts," 2011). In using the word "prey" in the title and extensively describing throughout the article the damage that could be caused by wolves, the article brings to mind the idea of wolves being destructive predators, bad for both humans and other animals such as livestock.

Though there were several overall negative articles relating to wolf legislation, there were also a few overall positive ones as well. For example, in one *Star Tribune* editorial with reader-submitted commentary, the reader expresses concern over the removal of a five year moratorium on recreational wolf hunting and trapping. Writing "What happens to the packs when key members are killed? I'm no biologist, but when you kill more than 700 wolves, you are creating serious problems for the surviving wolves," the reader implores other readers to write to their legislators to keep the moratorium in place (Chutich, "Tell Lawmakers Moratorium is Needed," 2013). In invoking the complexity of wolf pack dynamics and in stating that there will be "severe problems" if the moratorium is not in place, the reader writing in clearly shows support for wolves and tries to convince other readers to take his side.

However, while we found articles more clearly portraying wolves positively or negatively, the majority of articles under this theme were neutral in nature. More specifically, these articles focused mostly on updating the reader on a certain piece of legislation, rather than providing a positive or negative portrayal of wolves. For example, one such article from the *Duluth News Tribune* simply began by stating “Minnesota will see two wolf seasons this fall, not just one” (“DNR Proposes Two Wolf Seasons,” 2012). Here, through the use of straightforward and non-emotionally-charged language, this article just seeks to alert readers of the fact that there are two wolf seasons occurring during that year. As such, when both the *Star Tribune* and the *Duluth News Tribune* discussed wolves in a legislative sense, it was most often in order to inform the reader on current legislation. Thus, it would make sense that this would be a common theme for how wolves are being discussed between both time periods studied, as people use newspapers as a means of staying up to date with current events and happenings.

Hunting/Wolf Hunting Season

Articles pertaining to hunting and specific wolf hunting seasons were essentially showing both sides of the wolf hunt debate- those that are for the wolf hunt, and those that are against it. While still overwhelmingly neutral, articles tended to have more charged language in describing both sides of the hunting debate. In a *Duluth News-Tribune* article about the wolf hunt by an unknown author, the author first describes wolves as “an iconic creature, a symbol of all that is truly wild, a superior animal with a complex pack hierarchy” before going on to also label wolves as “too emboldened, preying on livestock and snatching pets from the yards of rural homes” (2012). This back-and-forth pattern of portraying wolves as iconic symbols of wilderness and then savage beasts shows up in most staff-written articles.

Also prominent in staff-written articles were anti- and pro-wolf hunting sentiments. In a June 2012 article, Dennis Anderson of the *Star Tribune* talks about an online survey the DNR hosted to capture feelings on the wolf hunting season, writing that the survey can't be posted without "various parties -- opponents of the hunt in particular -- trying to rig the results," and states, "politicians and their wildlife managers have, over time, reduced wolf numbers, or eliminated them altogether," (2012). Anderson then calls wolf populations "by all accounts flourishing" and says the wolf hunting season is held because "a certain rebalancing of interests is necessary that will benefit both wolves and people" (2012). Anderson goes on to contextualize wolves in Minnesota, stating "as much as the gray wolf... lives to kill, arguably humans' DNA is configured to return the favor, and kill wolves" and then describes wolves as "marauding" (2012).

From Entman (1989), we understand that this back-and-forth presentation of anti- and pro- wolf hunting sentiments and wolves as iconic symbols of nature versus savage beasts forces readers into a position where they must take a stance on the wolf hunting debate. Entman's findings show that biases in media do not influence readers, rather the content of the media is what will be influencing readers. Despite the overwhelming neutrality in Hunting/Wolf Hunting Season articles, the content and charged language in these articles influences readers into making their own decisions as to whether wolves are symbols of wilderness or savage beasts, and whether the readers are anti- or pro- wolf hunting.

Time periods

When comparing the wolf portrayals between our study periods (1974 to 1975 and 2011 to 2013) we did not find there to be a significant difference between the overall positive and/or

negative portrayals between these time periods. This was similar in findings to Bruskotter et al.'s "Are attitudes toward wolves changing? A case study in Utah," who's study also found little change in wolf perception over time (2007). We attribute this to the occurrence of our main themes in each of our study years. In particular, we found that wolves were continuously being discussed in ways relating to legislation, management, pop culture, and hunting, where these themes came up over and over again between both of our study periods. No year and/or time period was absent from engaging with the wolf debate through our four main themes, indicating the concerns between time periods have little variance.

Research Limitations

During the initial compiling of news articles from the *Duluth News-Tribune* and the *Star Tribune*, we encountered three potential limitations to our study that could cause variation in our analysis. The first was the difference in accessibility between our selected newspapers. The *Star Tribune* has a complete digital archive of the articles published since the newspaper was founded in 1867. The *Duluth News-Tribune* on the other hand only has select years digitally available. Of the years provided, it is debatable whether or not the digital archives contain all the articles from those years. If it does not, then this could limit the breadth of articles used in our study.

Similarly, the *Star Tribune* archives pulls up articles based on search terms using character recognition, but there have been instances where some articles were not suggested despite containing our search parameters. Again this will limit the accuracy of our results.

The second limitation was with the microfilm that contained the years of study that the Duluth did not have digitally archived. Because of our inability to travel to the University of Minnesota's library and view the microfilm there, the film had to be shipped. This limited the

amount of microfilm we could receive at once and significantly reduced the years in which we could study.

The third potential limitation is in regards to the 1975 articles collected from the *Star Tribune*. During the multiple day gathering process, our search terms initially yielded 467 possible matches but later the same search terms yielded 1110 results. The significant increase in possible matches we do not believe detracts from the accuracy of the articles we collected in that year but does warrant intrigue.

Conclusion

Despite the limitations in our research, being able to understand trends in the way Minnesotans view wolves can be helpful to gauge the level of public support for existing and future gray wolf management strategies. From our study, we found that of the 544 articles gathered between the *Duluth News-Tribune* and the *Star Tribune* for the years 1974-1975 and 2011-2013, the majority of articles took a neutral stance on wolves. The neutrality between both the *Duluth News-Tribune* and the *Star Tribune* suggests that newspapers' proximity to wolf habitat is not indicative of the way wolves are portrayed in their respective paper.

Our study also found that the most common categories in which wolves were mentioned were through the concepts of wolf management, legislature, hunting and/or a wolf hunting season, and pop cultural references. The content of these topics would be useful in further addressing management plans or education programs, in order to mitigate any public concerns in the future. Specifically, the references made to wolves through the Pop Culture section could be helpful in creating targeted education programs that dispel inaccurate beliefs or fears about wolves. As current talks continue for delisting wolves in Minnesota, our study will provide

useful information for how wolves are being portrayed in the Minneapolis and Duluth regions. The addition of more news publications or other sources of media could help provide further insight into this controversial topic, should wolves again lose federal protection and require state intervention.

By looking at any changes in wolf perception over multiple time periods, we have been able to link public sentiment in Minnesota to national social and/or environmental movements occurring during our study periods. For instance, the negative trends in the wolf portrayals during 1975 can be attributed to the creation and controversy around Minnesota's Wolf Recovery Plan, whereas the more positive or neutral portrayals can be contributed to the period of the first wolf hunting season in 2012. If our study is to be repeated, the addition of different or larger time periods would help to increase the precision of the trends we have noted in our study.

By conducting an analysis of the ways in which wolves have been portrayed in the *Star Tribune* and the *Duluth News-Tribune*, we are now able to more precisely determine the way that the public has viewed wolves since their addition to the Endangered Species List. In looking for trends in wolf perception over time and across two distinct regions of Minnesota, we are able to see how different factors have influenced public perception continuously across both our time periods and thus the portrayal of wolves between the two newspapers. On March 6th, the U.S. Fish and Wildlife service announced plans to once again remove protections for gray wolves across the lower 48 states. As the discussion around wolves continues in the coming months, we hope our study helps to unpack the various opinions regarding wolves in Minnesota and from this, we see wolf management in Minnesota that is reflective of Minnesotans' views of wolves.

Reference

- Boykoff, Maxwell T., and Boykoff, Jules M. "Climate Change and Journalistic Norms: A Case-study of US Mass-media Coverage." *Geoforum* 38, no. 6 (2007). 1190-204.
- Bruskotter, Jeremy T., Houston, Melanie J., and Fan, David. "Attitudes toward Wolves in the United States and Canada: A Content Analysis of the Print News Media, 1999-2008", *Human Dimensions of Wildlife* 15, no. 5 (2010). 389-403.
- Bruskotter, Jeremy T., John A. Vucetich, Sherry Enzler, Adrian Treves, and Michael P. Nelson. "Removing Protections for Wolves and the Future of the U.S. Endangered Species Act (1973)." *Conservation Letters* 7, no. 4 (2014). 401–7.
- Bruskotter, Jeremy T., Robert H. Schmidt, and Tara L. Teel. "Are Attitudes toward Wolves Changing? A Case Study in Utah." *Biological Conservation* 201, (2016). 237–42.
- Burke, Brian J., Meredith Welch-Devine, and Seth Gustafson. "Nature Talk in an Appalachian Newspaper: What Environmental Discourse Analysis Reveals about Efforts to Address Exurbanization and Climate Change." *Human Organization* 74, no. 2 (2015): 185–96.
- C.K. Williams, G. Ericsson, T.A. Heberlein. "A Quantitative Summary of Attitudes Toward Wolves and their Reintroduction (1972–2000)". *Wildlife Society Bulletin* 30, no.2 (2002). 1-10.
- Coleman, Jon T., and JSTOR. *Vicious: Wolves and Men in America*. Yale Western Americana Series. New Haven: Yale University Press, 2004.
- Cook, Fay Lomax, Tom R. Tyler, Edward G. Goetz, Margaret T. Gordon, David Protes, Donna R. Leff, and Harvey L. Molotch. "Media and agenda setting: Effects on the public, interest group leaders, policy makers, and policy." *Public opinion quarterly* 47, no. 1 (1983): 16-35.

Contact Us. (n.d.). Accessed March 10, 2019, from <https://www.duluthnewstribune.com/contact-us>

Czech, Brian, and Paul R. Krausman. *The Endangered Species Act: History, Conservation Biology, and Public Policy*. Baltimore: Johns Hopkins University Press, 2001.

Delisting a Species: Section 4 of the Endangered Species Act [Pamphlet]. (2011). Arlington, VA: U.S. Fish and Wildlife Service.

Duluth, MN-WI - May 2017 OES Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates. (2018, March 30). Accessed March 10, 2019, from https://www.bls.gov/oes/2017/may/oes_20260.htm#13-0000

“Duluth News Tribune - Media Bias/Fact Check.” Accessed November 12, 2018.

East Side Review contacts. (n.d.). Retrieved March 10, 2019, from <http://www.lillienews.com/content/east-side-review-contacts>

Erb, John, and Michael W. DonCarlos. "An overview of the legal history and population status of wolves in Minnesota." In *Recovery of gray wolves in the Great Lakes Region of the United States*, pp. 49-64. Springer, New York, NY, 2009.

Erb, John, Humpal, Carolin, & Sampson, Barry. “Distribution and Abundance of Wolves in Minnesota, 2017-18,” MN DNR, 2018, 12.

Entman, Robert M. "How the Media Affect What People Think: An Information Processing Approach." *The Journal of Politics* 51, no. 2 (1989). 347-70.

Fay Lomax Cook, Tom R. Tyler, Edward G. Goetz, Margaret T. Gordon, David Protess, Donna R. Leff, Harvey L. Molotch. “Media and Agenda Setting: Effects on the Public, Interest Group Leaders, Policy Makers, and Policy.” *Public Opinion Quarterly* 47, no. 1 (1983). 16–35.

- Fogleman, Valerie M. "American Attitudes towards Wolves: A History of Misperception." *Environmental Review: ER* 13, no. 1 (1989). 63–94.
- Fritts, Steven H, Robert O Stephenson, Robert D Hayes, and Luigi Boitani. "Wolves and Humans," *USGS Northern Prairie Wildlife Research Center*. 317, (2003), 289-316.
- George, Kelly A., Kristina M. Slagle, Robyn S. Wilson, Steven J. Moeller, and Jeremy T. Bruskotter. "Changes in Attitudes toward Animals in the United States from 1978 to 2014." *Biological Conservation* 201, (2016). 237-242.
- "Implementation of ESA and Related Litigation." The United States Department of Justice. May 15, 2015. Accessed April 2, 2019. <https://www.justice.gov/enrd/endangered-species-act>.
- Iyengar, S., Peters, M., & Kinder, D. "Experimental Demonstrations of the "Not-So-Minimal" Consequences of Television News Programs." *American Political Science Review* 76, no. 4 (1982). 848-858.
- Kansky, Ruth, and Andrew T. Knight. "Key Factors Driving Attitudes towards Large Mammals in Conflict with Humans." *Biological Conservation* 179, (2014). 93–105.
- Kellert, Stephen R., Matthew Black, Colleen Reid Rush, and Alistair J. Bath. "Human Culture and Large Carnivore Conservation in North America." *Conservation Biology* 10, no. 4 (1996). 977–990.
- Killion, Alexander K., Tracy Melvin, Eric Lindquist, and Neil H. Carter. "Tracking a Half-Century of Media Reporting on Gray Wolves." *Conservation Biology* 0, no.0. (2018).
- Liordos, Vasilios, Vasileios J. Kontsiotis, Magdalini Anastasiadou, and Efstathios Karavasias. "Effects of Attitudes and Demography on Public Support for Endangered Species Conservation." *Science of the Total Environment* 595, (2017). 25–34.
- Lopez, Barry Holstun. *Of Wolves and Men*. New York: Scribner, 1978.

Mech, L. D. 2000. Historical overview of Minnesota wolf recovery. In *The Wolves of Minnesota: Howl in the Heartland*, ed. L. D. Mech, pp. 15 – 27. Stillwater, OK: Voyageur Press.

Mech, L. David. “Managing Minnesota’s Recovered Wolves.” *Wildlife Society Bulletin* 29, no. 1 (2001). 70–77.

Minneapolis-St. Paul-Bloomington, MN-WI - May 2017 OES Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates. (2018, March 30). Accessed March 10, 2019, from https://www.bls.gov/oes/2017/may/oes_33460.htm

“Minneapolis Star Tribune.” Media Bias/Fact Check. Accessed November 12, 2018.

Minnesota Election Results. November 6, 2018. Accessed March 10, 2019, from <https://www.nytimes.com/interactive/2018/11/06/us/elections/results-minnesota-elections.html>

Minnesota Geospatial Commons. Accessed February 25, 2019.
<https://gisdata.mn.gov/dataset/bdry-state-of-minnesota>

Schmidt, Diane E. “Public Opinion and Media Coverage of Labor Unions.” *Journal of Labor Research* 14, no. 2 (1993). 151–64.

Stamou, Anastasia G., and Stephanos Paraskevopoulos. “Images of Nature by Tourism and “Environmental Discourses in Visitors Books: A Critical Discourse Analysis of Ecotourism.” *Discourse & Society* 15 no. 1 (2004). 105–29.

Star Tribune. (2014). Accessed March 10, 2019, from <https://www.startribunecompany.com/learn-about-us/what-we-do/>

Service, U. F. “Gray Wolf Recovery in Minnesota, Wisconsin, and Michigan”. December, 2011.

Accessed March 10, 2019, from

<https://www.fws.gov/midwest/wolf/aboutwolves/r3wolfrec.htm>

Steinhart, Peter. *The Company of Wolves*. New York: Alfred A. Knopf, Inc., 1995.

Tausanovitch, C., & Warshaw, C. “Urban ideologies”. August 4, 2014. Accessed March 10,

2019, from <https://www.economist.com/graphic-detail/2014/08/04/urban-ideologies>

“The History of Wolf Management in Minnesota”. April, 1999. Accessed March 10, 2019, from

http://www.mnforsustain.org/wolf_history_and_expansion.htm

“Top Newspapers in Minnesota by Web Ranking | 4imn.Com.” Accessed November 12, 2018.

“Top 10 Minnesota Daily Newspapers by Circulation - Agility PR Solutions.” Accessed

November 12, 2018.

“Wolf Management - Minnesota DNR - MN Department of Natural Resources.” n.d. Accessed

November 12, 2018.

Xu, Jiang. “Environmental Discourses in China’s Urban Planning System: A Scaled Discourse-Analytical Perspective.” *Urban Studies* 53, no. 5 (2016). 978–99.