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UNDERSTANDING VERMONTERS' PERSPECTIVES OF THE EASTERN
COYOTE POPULATION

by

Jenna Howard

A capstone project submitted in partial fulfillment of the requirements of the degree of
Master of Arts in Education: Natural Science and Environmental Education.

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DEDICATION

To my nature-loving family and friends for bringing me closer to Vermont's natural community and supporting me through the writing process. To my content expert, professors, and classmates for your never-failing guidance and expertise. Finally, yet emphatically, to Vermont's eastern coyote population for teaching me what it means to be resilient. I have learned a great deal from you all.

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CHAPTER ONE

Introduction

The purpose of this Capstone project is to foster a greater understanding of how coyotes fit into Vermont's ecological system and to analyze what it means to coexist peacefully with these misunderstood animals. By creating a science-based, community activity guide on Vermont's coyote population, I aspired to have this project educate the public on the benefits of supporting this predator and encourage them to participate in current coyote conservation efforts. Historically, coyotes have been considered "vermin," an animal believed to be harmful to crops, farm animals, game, or thought to carry diseases ("Vermin," n.d.). Although Vermont Fish and Wildlife professionals have detached coyotes from this term (Porter, 2018), the stigma has left many local farmers, hunters, and community members with lingering fears and frustrations. Despite the many ecological benefits that can be credited to this animal, it continues to be vilified by many who do not understand how to live cooperatively with this species (Burkman, 2020; Yoon, 2010). This fact led me to the following question, *How do Vermonters receive information about the state's coyote population and how does this impact behaviors and beliefs?* Through my research and the development of a community activity guide, which includes ten hands-on lessons that provide information about the eastern coyote and methods for coexistence, I hope to do my part to help restore some equilibrium to the coyote-human relationship in Vermont.

When studying the social dynamics of a family of coyotes, I see many similarities to my own family's structure. Each member prioritizes the wellbeing of the group but also has the ability to venture off independently. For this reason, I felt inspired to begin this chapter with a short story about the alpha of my family, my mother. The narratives that follow highlight my own connection to coyotes and the events that led me to study this topic, such as growing up on my family's farm and overcoming a tragic incident related to animal cruelty. I end this chapter with an analysis of current Vermont wildlife legislation and how social media supplies Vermonters with information regarding coyotes. The stories and reflections I share in this first chapter provide a rationale for my plan to create a community activity guide, which has allowed me to become more engaged with the people and animals inhabiting my state.

Songs at Night

Shortly after my parents' divorce, my mother was visited by coyotes at night. They sang their sad songs outside her bedroom window, verbalizing her fear of the unknown as she embarked on a new journey without my father. During these nightly serenades, my mother would slide deeper under her covers as she listened to the undulating melody of their cries. She did not feel comforted by these sounds, but I like to imagine that they were presenting her with their "greeting song." She was becoming a new version of herself and needed to be properly reintroduced to her predatory neighbors. In some Native American stories, the coyote takes the role of the messenger, imparting words of wisdom to whomever it meets (Welker, 1993-2016). I often wonder what

messages my mother received from the family of coyotes that visited her on those lonely summer nights.

Now, more than ten years after this first encounter, my mother walks in the woods each morning by herself. She often sees signs of predators, such as scat or the remains of an unfortunate animal that became dinner, but she continues to navigate alone. In this way, she mimics the behavior of the coyotes that wander our woods. These animals spend a large amount of time traveling alone, hunting or seeking a mate and a new territory (Schadler, 2020). My mother has expressed to me that she fears meeting a stranger during her travels more than coming across a bear, coyote, or the elusive mountain lion. My mother is still visited by coyotes at night, but in her new house, with her new partner, she has a different perspective on their presence. Their ballads are now a welcomed and comforting sound that complement the subtle tune of the dark. Her acceptance came only after spending time in the coyotes' environment and understanding the role they play in Vermont's wilderness.

My relationship with coyotes is similar to my mother's. Although I have never seen a coyote directly, I often feel their presence while walking in the woods or when overseeing my small herd of goats. Despite frequent sightings by other Vermonters, many of us only know these animals by the songs they sing at night. Coyotes, like many other predators, avoid human contact whenever possible (The Humane Society of the United States, 2019; Way, 2007, 2014). In recent years, however, urbanization has blurred the line between human and coyote territory. Although humans and coyotes have occupied the same land throughout history, our seemingly separate lives at times appear to weave

together unexpectedly. Coyotes have found their way into metropolitan areas such as Chicago, Los Angeles, and New York City's Central Park (Flores, 2016) where they likely bring about confusion, curiosity, and fear from passersby who don't expect to see such a striking example of wildlife within their bustling city. Despite the surprise that encounters such as this elicit, the coyote is not a new member of our communities, even though many people continue to treat it as such. I am thankful for the coyotes that inhabited my backyard when I was younger. The company of this family helped me develop a sense of respect and admiration for their species that I still hold to this day and a longing to learn more by reading about first-hand encounters documented by wildlife biologists.

A Place on the Farm

My aunt, another alpha female, has always said that coyotes play an integral role on our family's vegetable farm. My aunt has spent many years overseeing the organization and production of the Paquet Farm and is known for her dedication and hard work. Like my mother, my aunt wanders the woods by herself. At one point in her life, she walked the entire long trail from one end of the state to the other and has since been affectionately referred to as "Granny Goat." My aunt has always inspired me to be more connected to nature. She finds enjoyment from all types of outdoor experiences, such as hiking, mushrooming, and picking corn on the farm. For over one hundred years, my family has peacefully coexisted with many different predators as we tilled the earth, planted seeds, and harvested crops on our 150-acre parcel of land. Although this is not a popular opinion amongst all Vermont farmers, some of whom mistake the coyote as a

rival due to the occasional hunting of livestock, my family respects the role of the coyote. Vegetable farmers are often plagued with the difficult task of keeping grazers and nibblers out of the fields. Drawn to our pumpkin patches each fall, deer often only take a bite or two of the biggest, brightest pumpkin, leaving it unsellable and inedible. Groundhogs also munch on cucumbers, squash, and peppers contently throughout the growing season. Coyotes balance the ecological system, without them our farm would struggle to produce any vegetables unscathed by teeth marks.

In one of my favorite poems, *In Just-* (1920), E.E. Cummings describes the world as mud-licious and puddle wonderful during springtime. This is how I think of my family's farm, a place where I have learned so much about nature and the interconnectedness of plants, animals, and humans. I have always felt a sense of stability and serenity on our farm, everything has a place and a purpose. I feel this way even in the midst of removing dozens of blemished pumpkins from the patch each fall. Sometimes, this is what it looks like to live cooperatively with nature. My aunt is someone else who understands this concept. She often supports local hunters in their efforts to track deer and other animals on the farm property, but kindly asks them to leave the coyotes at peace. Not respecting the give-and-take of the human-nature relationship leads to misguided management. Pushing animals out of farming territory or seeking to remove their existence altogether only creates larger issues and disrupts the natural balance of our ecosystem (Vermont Fish and Wildlife Department, 2009).

In Vermont, a state with a vast farming industry and history, the presence of the coyote is not always appreciated. Farmers often lament lost sheep or cattle in areas where

coyote and farming territory are one and the same. Despite these difficulties, coyotes contribute to the stability of our farms in many ways. Not only do coyotes manage the rodent population, they also assist with forest regeneration and seed dispersal (Schadler, 2020). Although coyotes are not known as top predators in the Midwest, in Vermont they have achieved this status because of their larger size occurring from hybridization, the process where an animal or plant breeds with another species or variety (“Hybridization,” n.d.). Vermont coyotes, known as eastern coyotes, are an awe-inspiring combination of western coyote and eastern wolf (Schadler, 2020). As Schadler (2020) said in her recent lecture titled, “The Real Eastern Coyote,” humans are the shepherds of livestock and pets and it is our responsibility to keep them safe. Despite the larger stature of the eastern coyote, which makes their presence much more apparent to farmers and community members, I believe we can still live harmoniously with Vermont’s coyote population.

A Wild War

I became an animal advocate after my family experienced the devastating loss of our beloved horse, Bunny. In October of 2016, Bunny was shot with a bow and arrow while grazing in her pasture. It was an unthinkable incident, one that my family and I were convinced was an accident. Surely the hunter would step forward to claim responsibility for the tragedy, or so we thought. The reality of the situation was much worse than we could have ever imagined. We spent the next year participating in legal proceedings to try and convict the young man, who at the time of the incident was under the influence of drugs, in order to receive justice for Bunny. For a time before the police identified the young man, hunters from all corners of our community reached out to pay

their respects and to criticize the actions of the person responsible. This event unfortunately implicated Vermont's hunters who had no hand in this tragedy. The man guilty of the crime was not a hunter but endangered members of our community with his reckless and ultimately fatal use of stolen hunting equipment. From my family's efforts and the unwavering support of the community, the person responsible for this crime served six months in prison. My family and I sat through the sentencing mourning the loss of Bunny and the young man who was struggling to overcome addiction. We left the courtroom feeling content with the conviction, but knew that no restorative measures could undo what had been done to Bunny, our family, and the community. From this experience, I saw first-hand the obstacles that impede the implementation of more rigid animal rights laws and how difficult it can be to enforce the ones that have already been established.

I reflect on this personal experience whenever I read articles or hear community members promoting hunting without restrictions. This experience also encourages me to monitor the progress of animal protection bills for both domesticated and wild species. The stability of our community depends on hunters in many ways, but the misconceptions about coyotes have tipped the scale unfavorably against these animals. Because coyotes are not a native Vermont species, many believe they must be invasive. This, however, is not the case, as invasive species are defined as organisms "that are not native to the ecosystem under consideration and that cause or are likely to cause economic or environmental harm or harm to human, animal, or plant health" (Invasive Species Advisory Committee, 2006, p.6). Both sections of this definition need to be in

conjunction for an organism to be deemed invasive. In Vermont, a clear example of an invasive species is the common buckthorn. This plant can be found on my family's farm and impedes plant growth, impacts animal health if the buckthorn berries are ingested, and alters soil chemistry (Spinney, n.d.). For farmers, this plant is problematic and fits the definition from ISAC as an organism that negatively impacts plant and animal health.

While coyotes may be a non-native species, the Vermont Fish and Wildlife Department (2017) states that predators do not threaten native prey populations, this includes the coyote which is recognized as a Vermont predator by this organization. Additionally, according to Lovett (2018), coyotes are born with a fear of humans, which is one of the factors contributing to low coyote attack statistics in Vermont. Despite the differing opinions Vermonters have, the coyote has evolved to become a beneficial predator in our environment.

Vermont Legislation

In May of 2018, Vermont's Governor passed H.636, a bill that ended coyote killing contests after many years of this practice being commonplace. At the time, Vermont was only the second state to make this decision in the nation (Gribkoff, 2018). Despite the momentum generated from this decision, the implementation of this bill created polarized groups and was met with resistance from the governor himself. For many, this bill did little to change preexisting beliefs and behaviors towards coyotes. This bill was seen as problematic and restrictive by many as it shed a negative light on coyote hunting practices in general. Coyotes are one of the few animals in the state that can be hunted year-round using a variety of methods, one of which involves using domestic dogs

(Vermont Coyote Coexistence Coalition, 2018), which are genetically similar to coyotes, to track and hunt coyote families. There are only restrictions for when coyotes can be trapped, which occurs from the middle of October to the end of December (Vermont Fish and Wildlife Department, 2009). For others, this bill was a step in the right direction to correct a long history of misunderstanding that gave rise to unjustifiable treatment.

According to Vermont's Fish and Wildlife Department (2017),

Coyote hunting contests are not only ineffective at controlling coyote populations, but these kinds of competitive coyote hunts are raising concerns on the part of the public and could possibly jeopardize the future of hunting and affect access to private lands for all hunters.

Despite the differing views on coyote hunting, Vermont's coyote population has withstood all hunting practices in the past because of their unique self-regulating mechanism. Coyotes respond to hunting by creating larger litters thereby expanding their numbers to fill the vacancies created by hunting, disease, and accidents (Schadler, 2020). In his book, *Suburban Howls Tracking the Eastern Coyote in Urban Massachusetts*, author and researcher Jonathan G. Way (2007, 2014) describes how the death of alpha pack members, from natural causes or abundant hunting efforts, might temporarily impact the number of coyotes in a specific area but vacancies will soon be filled by transient coyotes waiting to secure a mate and territory. A transient coyote is described by Way as "An animal not belonging to a social group; usually a younger animal dispersing to a new location to settle" (pp. 280-281). Once a transient coyote has established its claim to a territory, it may breed and create a new coyote family when it

achieves alpha status. Hunting coyotes excessively does very little to decrease the population but rather invites non-resident coyotes to new areas (Way, 2007, 2014). Way (2007, 2014) suggests that Robert (Bob) Crabtree, a scientist at the Yellowstone Ecological Research Center, was one of the first to formulate this theory. In a letter describing the effects of coyote control practices, Crabtree (1997/2012) described three likely outcomes of this type of human influence: an increase of coyote pups produced, an increase in coyote immigration into the coyote control area, and an increase in predation rates on domestic livestock (pp. 4-5).

Vermonters have continued to debate the coyote issue since H.636 was enacted almost two years ago. In the summer of 2019, another controversial event made headlines. A local hunter strung up two deceased coyote pups from a pole outside a home in the northern part of the state. Images of this event spread rapidly over social media sites and were shared between neighbors in the area. Despite the outrage that locals and animal advocacy groups expressed, state officials could not take action because of current coyote hunting regulations (Silberman, 2019). This incident in particular has prompted many to look deeper into current hunting laws and regulations. Presently, many advocacy groups have turned their attention to a new bill being considered by Vermont's legislature. H.357 is an act that would prohibit the wanton waste of wildlife. This new law would help ensure that animals hunted would be used with purpose, either for food or fur (House Bill 357, 2019). Under this new law, coyote hunting would become more strongly monitored.

A Tangled Social Web

Many Vermonters may be seeing coyotes more often near their homes, but the societal territory they occupy now more than ever is Facebook. Many community members use this platform as a place to share coyote news, sightings, and opinions. One of my first experiences with coyotes on social media came shortly after the controversial incident took place this past summer. I saw the photograph of the coyote pups on Facebook and quickly scrolled past to avoid any distressing feelings it would elicit. Since this event, I have started to pay more attention to the types of photographs and news articles shared by my fellow Facebookers. Although many coyote advocacy and hunting groups frequently post informative articles, I found that many of my neighbors and friends primarily share information during mating season when coyotes appear to be more active. This past season, I saw countless photographs highlighting coyote aggression and posts warning people to keep small children and pets indoors. What I found most surprising about these posts were the comments from community members. People from all professions with different beliefs and varying coyote knowledge told stories and provided “facts” about these animals. As I scrolled through these comments, I wondered where this information was coming from. Were the stories and photographs revealed on Facebook factual or were they examples of myths, misunderstandings, and half-truths by the general public? If I developed these questions, surely others did as well.

Social media sites have turned into primary news sources for many people. One click brings you to an article and one more click allows you to share material with hundreds of people. It is in this way that many of my neighbors receive information about

the eastern coyote. This fact validates the need for more accessible community education in my area and a more active presence by animal and wildlife professionals on social media sites.

Conclusion

The strong female role models in my life, along with my appreciation for animals and nature on the farm have shaped my investigation and inspired me to delve deeper into the ever-evolving eastern coyote. Coyotes may be thought of as wily, sly, or even untrustworthy, but they have proven to be an adaptable and permanent resident in many communities in the United States. In the state of Vermont, the presence of the eastern coyote feels stronger as coyote territory and developing suburban areas collide and their company can no longer be ignored. More sightings and encounters have naturally led to more discussions regarding their purpose in our ecological community and the legislation needed to alter current coyote hunting practices. Family members have encouraged me to collect information about these animals in order to think about how to cohabitate with them in the future. My own analysis of coyotes and presence on social media helped me generate the guiding question for this study, *How do Vermonters receive information about the state's coyote population and how does this impact behaviors and beliefs?* With this question inspiring my research, I hope to become better allied with the people and animals that have been right outside my door since my childhood.

The following chapter examines the human-coyote relationship throughout history and discusses how the coyote attained its infamous reputation. In the second chapter I also take a closer look at how different forms of media influence behaviors and beliefs,

focusing specifically on human interactions with predators in suburban and rural areas.

Lastly, I look deeper into the educational methods used to increase knowledge of animal

welfare and compare my findings to the actions that are currently taking place in

Vermont. My findings in these areas contribute to the creation of a community activity

guide focusing on eastern coyote coexistence.

CHAPTER TWO

Literature Review

Vermont's perfectly quaint natural landscape has captivated my attention since I was young and inspired my transition into the environmental education field. It is from this transition that I learned more about the wildlife and humans that belong to my community and the marvelous qualities that distinguish my home from other northern states. Recently, I became aware of the differing opinions and understandings about the eastern coyote population in Vermont and the numerous ways in which information about Vermont's wildlife is dispersed in rural and suburban neighborhoods. This realization inspired the creation of my research question, *How do Vermonters receive information about the state's coyote population and how does this impact behaviors and beliefs?*

The literature collected for this project reflects recent studies on coyote and human behaviors as well as strategies for cohabitation and resurrecting the once sacred human-coyote relationship. There are many different resources available to the public with the purpose of increasing coyote awareness and discussing coyote related issues. These resources encourage varying degrees of coyote coexistence, which in turn generates different behaviors in the audience they reach. My investigation of these informational sources begins with stories and anecdotes from centuries past (Flores, 2016; Cooper, 1987). More modern resources such as print (Bombieri et al., 2018; Alexander & Quinn, 2012) and social media (Westerman et al., 2014; Boydston et al., 2018) are then analyzed to determine how perceptions of the coyote have changed over

time. Finally, Vermont's hunting culture (Boglioli, 2009; Porter, 2018), as well as community education strategies such as experiential learning (Sponarski et al., 2016), are considered in order to understand the current status of Vermont's coyote-human reconciliation efforts.

Coyote and Human History

Coyotes and humans have long had a tangled and complicated history. Although current media represents the human-coyote relationship as a new phenomenon (Flores, 2016), this is only the case east of Wisconsin (Vermont Fish and Wildlife, 2009) where the eastern coyote and humans have only lived together a relatively short amount of time. Humans' relationship with the western coyote, however, dates back many centuries, which is where my analysis of coyote-human history begins. Over time, coyote and human populations have expanded and evolved together to live in a wide range of habitats. To understand the coyotes' history is to understand a portion of our own. An analysis of the evolution of the eastern coyote, and the relationships their western ancestors had with early peoples many centuries ago, will lead to a deeper understanding of current behaviors and beliefs held by members of Vermont's rural and suburban communities. With support from coyote studies (Baker & Timm, 2017; Vermont Fish and Wildlife Department, 2017), this section provides an overview of the coyotes' migration and hybridization over time. It also looks closely at coyotes' connection to various cultural groups such as Native Americans and early European settlers and explorers (Flores, 2016). From this investigation, we begin to understand the complexity of the twenty-first century coyote.

Native American Creation Myths and Trickster Tales

For centuries, humans have been captivated by coyotes' mysterious and unrelenting presence. As humans have developed in appearance, intelligence, and overall endurance over time, so too has the coyote. In fact, as two omnivorous species, we have long shared and competed for the same resources and territory throughout our communal history (Flores, 2016). It is likely that indigenous tribes from more than one hundred centuries ago were some of the first to study and appreciate the nature of the western coyote (Flores, 2016). This recognition is evident in the myths and tales that are deeply rooted in the cultures of many Native American tribes, both past and present. These stories highlight the interdependence between humans and coyotes and the complexity of the coyotes' reputation.

Coyote, oftentimes referred to as Old Man Coyote in Native American stories, has not only been recognized as a Trickster figure, but also a deity responsible for many of the Creation events that led to the formation and survival of early humans (Flores, 2016).

Coyote's roles are few: he causes the flood, originates death and interferes with the placing of stars, as well as generally poking his nose into everyone's business. Even here, however, he is accorded a knowledge above that of the other beings (Cooper, 1987, p. 183).

Coyote, who has the ability to appear in both human and animal form in Navajo stories, has long been an integral part of the Navajo tribe's ability to understand the rhythm of the world and their relationship to their natural surroundings. Coyote also appears in Apache and Pueblo cultures, but with some variation to the roles and responsibilities described in

Navajo stories (Cooper, 1987). Although Coyote is vital to human counterparts in the Navajo culture, he also carries with him a cloud of negativity, not unlike his present-day animal descendant. He is characterized as restless and rude and is often associated with evil and witchcraft because of his connection to the First Man and First Woman who shed light on the world in the Navajo Creation Myth (Cooper, 1987).

Coyote's character in Trickster Tales varies slightly from the Creation Myth. These tales have historically captivated the attention of both adults and children in the Navajo culture. Although they are more light-hearted and sometimes comical, they still reveal important messages about life's challenges (Cooper, 1987). In one particular story shown in Cooper's (1987) article *Coyote in Navajo Religion and Cosmology*, Coyote loses his eyes in a gambling game, which he later replaces with eyes of pine pitch. Although Coyote is able to see, his eyes begin to melt whenever he is close to fire. This story serves to provide a rationale for why coyotes are afraid of fire and have yellow eyes, but is also used to discuss difficult issues such as blindness within the Navajo community.

It is in these stories and tales that we glimpse the coyotes' human reflection. Coyote is perplexing because of his ability to represent qualities of both gods and humans, simultaneously establishing the ways of the world and falling short in many of his endeavors because of his curiosity and untruthfulness.

When one reads American Coyote stories, it does not take much time or analytic effort to conclude who Coyote really is, and it is that realization that makes him so intriguing as a god. Coyote is us in avatar form, or perhaps something more

like The God Within. Coyote personifies the full suite of humanity's traits. He is a god who is not merely good but also, transparently, very, very bad (Flores, 2016, p. 37).

It is very telling about the coyote species that humans from many centuries ago recognized these shared qualities in another group of predators. Flores (2016) believes that it was the coyotes' resiliency in the face of a changing world after the end of the Wisconsin Ice Age and Pleistocene Extinctions that revealed the special abilities of this animal to its human neighbors. He states that once eyes were turned toward the coyote, it did not take long for early humans to notice this animal's unique capability to be both solitary and social, a quality not often found outside of the human species.

Despite this ambivalent start for the coyote, its position with humans shifted over the next century. Within these years, the similarities between humans and coyotes that were once highlighted in Native American stories faded away. Other cultural groups establishing their place within American territory had little knowledge of the tales and myths told by the land's earliest occupants and therefore created and shared their own anecdotes about the infamous coyote (Flores, 2016). These accounts have established the foundation for the opinions and messages about coyotes, both eastern and western, that seem to infiltrate our current newspapers and social media sites around the country.

Early Explorers and Settlers

In the early 1800s, explorers and settlers shared the same reserved reverie of the western coyote as many Native American tribes did, at least for a short while. Explorers like Meriwether Lewis and William Clark surged westward in the hopes of understanding

and recording rural America's natural history. On their journey, they came across a perplexing animal, one that had qualities of both the wolf and the fox, but at the same time was completely individualistic (Flores, 2016). Although the accounts of Lewis and Clark are arguably the most notable, other European naturalists had been studying this animal, which was dubbed the Prairie Wolf, many years prior (Flores, 2016). The first explorers analyzed this animal through a scientific lens and not a spiritual one as the Navajo continued to do during this time period. The subtle curiosity that first captured the explorers' attention began to develop into reservation as the coyotes' intelligence and durability became more apparent.

Scottish naturalist Hans Kruuk argues that with our evolutionary background as hunters, we humans look on predators with an especial fascination as competition. Our evolutionary history holds a genetic memory of when we were prey too, so we can also exhibit an instinctive anticarnivore loathing. Because they seemed like smaller wolves, coyotes aroused suspicion in frontier folk. Though too small to arouse a prey response, they did strike us as potential competitors (Flores, 2016, p. 76).

This has been the opinion of many agriculturalists for the past two hundred years. Many Vermont farmers and livestock owners continue to harbor similar feelings because they believe eastern coyotes are a threat to herd prosperity. Despite the growing intolerance of farmers and ranchers in the 1800s, it was writers such as Mark Twain that spread unfavorable views of the coyote to the far corners of the country (Flores, 2016). It was on

a train ride west that Twain first observed the coyote and wrote about the animal's "long, slim, sick and sorry-looking skeleton" and "furtive and evil eye" (Flores, 2016, p.77).

The eastern coyote has also lived with the evolving opinions of Vermonters since its arrival in the twentieth century (Vermont Fish and Wildlife Department, 2009).

Coyote encounters have continued to be shared through oral stories and written work, just as they were many centuries ago. It is likely that attitudes towards the coyote will continue to evolve over the next century, but one thing is clear, modern humans have the ability to change the coyote story for the better and reawaken the coyote-human relationship that was once so sacred.

The Eastern Coyote in Vermont

There were many changes happening to Vermont's landscape and the genetic makeup of the coyote during the late 1800s and early 1900s. As more settlers began to call Vermont home, native predators such as the timber wolf began to disappear because of deforestation and the reduction of prey such as caribou, deer, and moose (Vermont Fish and Wildlife Department, 2009). The disappearance of this top predator created an opportunity for the coyote to flourish. Up until the time that the eastern coyote was first sighted in Vermont in the 1940s, it was busy undergoing a transformation that would distinguish it from its Prairie Wolf ancestors. As the coyote migrated east, it bred with northern wolf populations (Vermont Fish and Wildlife Department, 2009) creating a bigger predator than was once observed by Native American tribes and early explorers. Since that time, the eastern coyote has partially assumed the niche of the wolf and

continues to live in tandem with Vermont's native prey species (Vermont Fish and Wildlife Department, 2017).

The hybridization of the coyote has added to the admiration and fear felt by different members of Vermont's rural and suburban communities for many years. Modern interactions with coyotes have become complicated because of blurred lines between coyote and human territories. Where once these areas were perceived as being separate, they are now one and the same.

Whatever the reason for this range expansion, it is clear that humans throughout the Northeast are now confronted with issues that have not existed in many parts of the region for more than 100 years--how to deal with the presence of a carnivore that is perceived by some segments of the public as potentially dangerous, and how to gauge the ecological and conservation effects of such a species in the region (Gompper, 2002, p.186).

The expansion of both the human and coyote populations have forced both species to coexist in limited space, leading to a variety of interactions and experiences.

Coyote attacks on humans are the most documented type of encounter, often shared through media platforms such as Facebook and online news sites. Studies conducted on coyote populations in the west found that there are several factors that have contributed to coyote attacks in California from 1970 to 2015. According to Baker and Timm (2017), a prolific suburban environment, human acceptance or in some cases indifference to the coyote population, a lack of understanding or opportunities to access education on coyote behavior, and intentional feeding are some of the largest factors that

have contributed to the number of coyote attacks in the larger California area. Baker and Timm's (2017) study found that of the 165 documented attacks within the 38-year time range, adults were more likely to be attacked than children. The authors admit that the data collected from this study is limited and only represents attacks that were reported, but also emphasize that these attacks were likely caused by the numerous factors stated above. Coyote habituation, a term used to describe the coyotes' assimilation to human-occupied environments (Baker & Timm, 2017), can be seen even in communities around Vermont. The factors noted by the authors not only apply to incidents in California but have contributed to the strained human-coyote relationship all over the country.

Vermonters and coyotes have not been immune to the consequences of growing human and predator populations. Reports of suspicious coyote behavior and rare coyote attacks find their way into local newspapers. The stigma and fear resulting from these incidents last longer than the time the stories remain on the front cover of the local periodicals. Despite past and present conflicts between our two species, the state's wildlife department is optimistic that opinions about the eastern coyote are becoming more positive in suburban areas, but also recognizes the varying beliefs from rural residents that "tend to be less accommodating to coyotes because of direct experience with depredation on domestic livestock or deer" (Vermont Fish and Wildlife Department, 2017). In recent years, educational groups and organizations have taken on the challenge of creating positive opinions about our local coyote population in order to preserve the wellbeing of all Vermont species, both native and adopted.

Summary

The coyotes' extensive history highlights centuries of varying attitudes, but one conclusion all cultural groups have come to is that the coyote is here to stay. Whether the coyote is viewed as a spiritual deity or a wily and untrustworthy character, the eastern coyote has assumed the role of a top predator in the Northeast in a subtle, yet remarkable fashion. For eighty years the eastern coyote has lived side-by-side with Vermonters, always remaining prosperous despite human and environmental hardships (Vermont Fish and Wildlife Department, 2009) such as coyote hunting competitions, a growing suburban landscape, and Vermont's brutal winters. The sacred stories told long ago may have faded, but the presence of the coyote remains a deeply debated topic all around the country. In recent years, the eastern coyote has found its way onto a new frontier, the media. Unlike never before, Vermonters have information about coyotes at their fingertips. The following section analyzes how the media has influenced Vermonters' perspectives on the coyote. This analysis looks closely at current behaviors and beliefs to begin to think about ways to bring together Vermont's divided residents.

Media Influence

In the past, coyote stories and myths were retold to different generations. These stories kindled feelings of fear and curiosity of the coyote for many years. To this day many Vermonters still define our coyote population as sly and deceitful. Ancient stories and myths have now been replaced with social media and print news, where unfavorable perceptions of the coyote have continued to grow and spread. Social media is rapidly becoming a trusted news source and impacts attitudes through comments and

photographs. Studies have shown that media in all forms can impact people's understanding of predators and the risk they may pose (Bombieri et al., 2018; Alexander & Quinn, 2012; Westerman et al., 2014; Boydston et al., 2018). This section focuses on analyzing the ways in which social media and print media have influenced Vermonters' tolerance and acceptance of the eastern coyote.

Print Media

Over the years there has appeared to be a rise in reports on predator attacks in the media. Perhaps this is because of growing human and predator populations or the desire for more people to venture into wilderness areas for recreational purposes (Bombieri et al., 2018). Despite these hypotheses, the fear associated with the possibility of a predator attack can be exacerbated by the media and can also be transferred from generation to generation (Bombieri et al., 2018). Based on how many of our ancestors felt about the coyote and how this angst was documented by various authors, it is no wonder that many people continue to associate the coyote with danger.

Perhaps without knowing it, those who read the newspaper develop a cognitive bias, a term Bombieri et al. (2018) uses to describe human error when calculating risk and safety, "For example, people's risk judgements of low probability events are often inflated because of biased media coverage of natural catastrophes and accidents" (p. 578). A person's ability to accurately associate the risk of a predator attack can be challenging when graphic images or headlines are frequently seen in the news (Bombieri et al., 2018). In a study conducted by Alexander and Quinn (2012), the researchers looked closely at the disconnect between public perception of coyotes and the risk they actually pose. More

specifically, they analyzed how media sources captured interactions between coyotes, humans, and pets in Canada in order to understand the ways in which negative attitudes towards coyotes were reinforced. Of the 453 news articles collected for the study, 119 described coyote-human interactions with 32 detailing coyote attacks on humans. Within many of these articles, negative words were used to describe the actions of both coyotes and humans. Coyotes were often described as being vicious and aggressive, while humans were reported as taking retaliatory measures such as tracking and killing the coyote in question or supporting killing competitions to suppress the coyote population. The authors also noticed that many words and phrases traditionally used to describe criminal human behavior were used in several reports to accentuate the actions of the coyotes involved in the incidents, for example “the two assailants [coyotes] remain at large,” and “coyote remains a fugitive” (p. 8). The media not only captures the emotional responses of those involved in the stories but also transmits meaning to others through specific word choice and image selection.

Social Media and the Internet

For some, social media is arguably one of the most popular aspects of twenty-first century life. It is through this resource that people find entertainment, connect with others, and educate themselves on topics both foreign and domestic (Westerman et al., 2014). With this in mind, it is not surprising that this space is also used to discuss issues related to wildlife interactions. Although the coyote has always been discussed and observed by various cultural groups, it is on display now more than ever because of the vast audience that social media sites, such as Facebook and Twitter, reach. With the

power to spread news quickly and extensively, social media sites, as well as print media sources, reinforce various perspectives and fuel emotions that have the ability to either positively or negatively impact coyote conservation and coexistence efforts.

According to Westerman et al. (2014), social media sites are uniquely constructed to allow the participant to contribute to news sources through the addition of comments and photographs. This can be seen in the social media posts collected by the Vermont Coyote Coexistence Coalition (2018) in a report titled *Coyote Hunting in Vermont*. In this report, Facebook posts by hunters were collected in order to display the negative actions taken against the coyote. Additional comments by community members were also documented on the original posts. Comments such as “Kill everyone you see hunters or the small game will be gone,” and “Kill them all they are destroying our deer heard [herd]” (pp. 11, 16) spreads misinformation about the coyote population. A recent report from the Vermont Fish and Wildlife Department (2017) revealed that there is little evidence to support the idea that coyotes in Vermont greatly affect the stability of the deer population. Local hunters and other community members create feelings of mistrust, confusion, and aggravation within Vermont communities when they share remarks, such as the ones above, that are not supported by current coyote research. Posts such as this also leave the viewer to determine information credibility, which can be difficult if the viewer has limited knowledge of the coyote or current efforts being done to resolve human-coyote conflicts.

Social media is not only a tool for community members but can also be a valuable resource for researchers and wildlife professionals to use when analyzing the public’s

perception of the coyote population and the types of encounters they may have experienced. A recent study conducted by Boydston et al. (2018) looked at another popular social media site, YouTube, to learn more about coyote-dog encounters. The researchers looked at 35 videos posted to the site by pet owners and bystanders that included at least one dog and one coyote. The researchers then categorized the behaviors seen in the video into groups such as “predatory,” “agonistic,” “social play,” or “other/undetermined.” This is a timely study as many media sites often report coyote attacks on domestic animals such as cats and dogs, which elicits strong reactions from readers (Alexander & Quinn, 2012). In the videos analyzed by Boydston et al. (2018) no fatalities were viewed. Additionally, they found that both dogs and coyotes showed similar frequency in agonistic behaviors such as lunging and biting as well as desire for social play. Because coyote-dog interactions, and by extension coyote-human interactions, are difficult to observe and document, the YouTube videos gave the researchers an uncommon glance at the events impacting local opinions and actions towards coyotes. Although the research depended largely on what pet owners and observers were willing to post to social media, it still revealed a range of coyote information that could have aided in the education of the general public.

The Impact on Vermonters’ Perspectives

In Vermont, it is my impression that locals are exposed to both negative and positive media coverage of the coyote. Because social media sites appear to be less monitored and allow for the spread of public opinion, it is here that I have seen more negativity from both hunting and non-hunting groups. To combat the negativity and

distribute more sources that reflect the facts collected by wildlife professionals, several coyote-friendly groups, such as the Vermont Coyote Coexistence Coalition, have made their presence known. Bornatowski et al. (2019) state that while the media can easily share information that could be misconstrued by readers, it also has the ability to create opportunities for positive interactions between humans and animals and instill a sense of optimism for the stabilization of our shared environment.

Despite the various feelings reflected in the Canadian articles collected by Alexander and Quinn (2012), the researchers determined that in 324 of the 453 articles, an expert was cited. Although the qualifications and the backgrounds of the experts varied, the messages promoted by these individuals were similar; coyote coexistence is important, removal of the coyote is not beneficial and extremely difficult to do, and humans should discontinue feeding coyotes to reduce interactions in residential areas. A quick online search of recent coyote articles in Vermont also revealed the inclusion of professional input. A story picked up by the Times Argus, a local Vermont newspaper, reported an unusual coyote attack on two elderly individuals in 2019. Although some graphic language was used by the interviewee to describe the incident, reporter Dennis Jensen (2019) also included input from the Vermont Fish and Wildlife Commissioner. In this article, the Commissioner acknowledged the unusual behavior of this coyote, but also reinforced the idea that the eastern coyote is an important member of Vermont's ecological system and that coyote attacks in our area are rare. While the graphic language in the article likely instilled fear in readers, it is my hope that the information provided by

this professional offered additional context for the situation, thereby alleviating some of the public's concern.

Summary

In some instances, Vermont's print and internet media contributes to the public's negative opinion of the coyote. While I do believe social media sites and graphic language in print media influence a variety of emotions, including arguments from coyote experts is a way to distribute accurate coyote information. Comparing some of Vermont's media articles to the studies conducted by researchers revealed to me that other factors also contribute to the unfavorable perception of Vermont's coyote population. As Bombieri et al. (2018) noted, perceptions about a predator can be transferred to younger generations. It is this realization that has encouraged me to look closely at Vermont's culture and the educational strategies used by professionals in order to determine how Vermonters receive information about the state's coyote population and how this impacts behaviors and beliefs. In the following section, Vermont's political and hunting practices are analyzed to determine how these factors influence the strained coyote-human relationship.

Vermont Culture

Vermont is a state with deep cultural roots. "As a system of meaning and shared beliefs, culture provides a framework for our behavioral and affective norms" (Pogosyan, 2017). It has long been known that hunting is a cornerstone in many Vermont communities. Vermont was one of the first states with constitutional language protecting its citizens' right to hunt and continues to support a large population of hunters to this day

(Vermont Fish and Wildlife Department, *Hunt*, n.d.). This section looks at how cultural and environmental factors impact the behaviors of many Vermonters. Theories on culture (Kitayama & Park, 2010) will be used to assess how Vermonters receive information from current hunting legislation and the beliefs and behaviors of Vermont's political and professional leaders.

Observations in the Woods

In Vermont, another way in which people learn about coyotes is through observation and individual encounters in the woods. Vermont hunters spend a considerable amount of time in the forest where they study numerous animals, including the coyote. Currently, eastern coyotes endure an open hunting season with little restrictions on how they are hunted. According to Vermont's Fish and Wildlife Department (*Hunt*, n.d), hunting has been an important part of Vermont's culture even prior to the official recognition of our state several centuries ago. Although hunting was a necessity in human's early history, it continues to be practiced by Vermonters likely because of family tradition and the desire for comradery (Willerslev & Bojesen, 2011). Within Vermont's communities, there is a large disparity between hunting, non-hunting, and anti-hunting groups. The different opinions and behaviors of these groups were clearly revealed when coyote hunting competitions were still legal in the state (Boglioli, 2009) and continue to make collective acceptance of the coyote extremely arduous.

Coyote killing competitions began around 1990 and exhibited extreme behaviors towards a species many Vermonters considered to be vermin. Historically, these competitions had the ability to draw large crowds of 500 people or more and

subsequently groups of protestors arguing against animal cruelty and wanton waste (Boglioli, 2009). Perhaps paradoxical to the behaviors reflected during these competitions, many hunters in Vermont have a deep respect for and connection to nature, which encouraged author and researcher Marc Boglioli (2009) to dig deeper into Vermont's hunting culture in the early 2000s. He found that many hunters identified themselves as shepherds of the deer population, using them as a food source while simultaneously looking out for their wellbeing. These hunters described times when they observed coyotes chasing deer or capitalizing on wounded animals before they were able to locate them. From these numerous encounters, many felt that coyotes were likely impacting the deer population and therefore must be eliminated. These stories reflect what Flores (2016) described as the competitive nature between humans and coyotes. These anecdotes also explain why many hunters still believe the deer population is in danger despite opposing evidence offered by New England's wildlife professionals (Boglioli, 2009). In a magazine titled *Northwoods Sporting Journal*, New England hunter Justin Merrill (2020) states,

In my deer hunting area the coyote population has gotten ridiculous. It hasn't been this bad for several years. I'm guessing all of Maine could use a coyote population reduction. Let's all do our part this winter to try our best at hanging a few pesky coyote on the skinning pole (p. 67).

Although the reports shared by the Vermont Fish and Wildlife Department explain that there is not sufficient evidence to suggest that coyotes are detrimental to the deer population (Vermont Fish and Wildlife Department, *Hunt*, n.d.), many hunters think

differently because of the personal experiences they have had in Vermont's backwoods country.

According to Louis Porter (2018), Commissioner of the Vermont Fish and Wildlife Department, the clashing perspectives on coyotes is partially a result of changing values. In the 2018 *Coyote Population Report*, he explains that a traditionalist viewpoint was typical in the United States before the start of World War II. During this time, traditionalists believed that wildlife, in part, existed to provide sustainable resources to humans and viewed hunting as a part of their "cultural identity" (p.12). This viewpoint, I believe, is still widely accepted by Vermont hunters. Porter (2018) explains that mutualist values began to evolve before the start of the twenty-first century. As people began to move into urban and suburban areas, consistent contact with wildlife diminished, "Manfredo (2009) suggests that given the human tendency to anthropomorphize, people began to view wildlife in more egalitarian ways (Porter, 2018, p.12). Despite these two different ways of considering wildlife, Porter (2018) believes there is a healthy mixture of both perspectives within Vermont communities.

Coyote Policy

In Boglioli's (2009) article documenting Vermont's coyote killing competitions, he ends his reflection by questioning whether a bill to end these competitions would ever be approved by Vermont politicians. Almost ten years later, a coyote contest ban was finally passed by Vermont's Governor, albeit without his signature (Gribkoff, 2018). Despite the enactment of this new law, Governor Scott revealed his reservations, calling the new bill "confusing" and "unnecessary" as Vermont laws still continue to support an

open hunting season on coyotes (Gribkoff, 2018). The inconclusive nature of this bill and the response it generated from politicians leaves a lot to be interpreted by Vermonters. Although the bill dictates that coyote hunting competitions are illegal, some hunters continue to harvest coyotes in great numbers, as documented on social media sites.

With this step towards more rigid coyote conservation regulations, animal support groups have continued to put pressure on Vermont lawmakers. Recently, a group of Vermont Law School students petitioned to end the open hunting season on coyotes but were met with resistance from the state's Fish and Wildlife board (Silberman, 2019). The seemingly cautious efforts from lawmakers and wildlife professionals to address coyote injustice with harsher consequences reveals the hunting community's deep roots in Vermont politics. It is apparent that hunting is a coveted part of Vermont's culture and plays a large role in the human-coyote relationship. The right to hunt coyotes with minimal restrictions and regulations has been afforded to Vermont citizens for close to a century. These deeply ingrained behaviors are difficult to change, even in the face of growing resistance from non-hunting and anti-hunting groups. This is not to say that all hunters exhibit unfavorable behaviors towards coyotes, but the general feeling of annoyance and intolerance is palpable in many communities. In order to establish equilibrium within Vermont's communities, several suggestions have been made to lawmakers, such as putting parameters around the coyote hunting season, adhering to policies of coexistence, implementing coexistence efforts within the community, and promoting non-lethal forms of animal control (Lovett, 2018).

Summary

According to Kitayama and Park (2010), “Typically, cultural anthropologists argue that culture is composed of layers of assumptions that are hidden from the surface because they are inscribed in daily practices and institutionalized in mundane routines, conventions, and societal norms” (p. 120). It is clear that Vermonters receive information about the coyote through many different mediums. The cultural layers described by Kitayama and Park (2010) are present in everyday life in Vermont. Wildlife professionals are challenged to perforate these layers in order to combat misunderstandings and years of animosity towards the coyote. In the final section, different community education and engagement strategies are analyzed in order to determine how to engage a wider population of Vermonters in the efforts to revitalize the reputation of the eastern coyote.

Community Engagement Strategies

In order to improve the coyote-human relationship, our efforts need to be grounded in Vermont’s communities. Using community engagement best practices will help strengthen the ties between humans and animals and allow for a broader and deeper understanding of Vermont’s coyote population. “Successful approaches to engagement respect the important similarities and differences experienced at the community level” (North American Association for Environmental Education, 2017, p.12). This section looks at different community engagement strategies and their key characteristics such as the experiential learning model (Sponarski, et al., 2016; National Audubon Society, 2011), communication and inclusivity (NAAEE, 2017), and establishing long-term change (Fox, 2006; The Humane Society of the United States, 2019). This section also

analyzes the community education programs and resources in Vermont that have contributed to the increased awareness of the local coyote population.

Hands-on Learning

In order for Vermonters to receive scientifically based information about coyotes, they need to be involved in a variety of educational learning opportunities. Experiential learning is described as “both a philosophy and methodology that supports the development and implementation of effective educational programs (Sponarski, et al., 2016, p.2). This teaching model follows a cycle that allows learners to engage with new information, reflect on their understanding, and apply their knowledge to meaningful experiences (National Audubon Society, 2011). Opportunities where the community is encouraged to engage in hands-on activities or with a variety of materials is considered best practice, as factual information alone does little to change behaviors and beliefs (Sponarski et al., 2016). Many people are fearful of predators or lack sufficient knowledge to feel prepared in the event of an interaction, which makes reconciliation efforts much more important (Elliot et al., 2016). Because of the participatory nature of this model, it is used often in wildlife conservation efforts. In many coyote management plans, education and community outreach are considered to be some of the most important factors that contribute to predator coexistence (HSUS, 2019). Websites, newsletters, public service announcements, and brochures are some examples of passive methods, while trainings on coyote hazing, a non-lethal harassing method used to maintain coyote weariness of humans, and the formation of outreach and educational teams allow for more community involvement (HSUS, 2019).

Experiential learning also impacts students' understanding of coyotes and encourages them to help mitigate community issues. In a study conducted by Sponarski et al. (2016) an educational program grounded in experiential learning was used to analyze students' attitudes towards coyotes and their understanding of coyote attack statistics. During the study, the researchers had students engage in tracking and coyote monitoring activities that directly impacted their community. At the end of the study, the researchers found that many participants expressed less fear of coyotes and generally felt they had more control over coyote interactions. The authors suggest that wildlife-education programs should focus on coexistence and should strive to positively influence knowledge, attitudes, and general awareness of different wildlife species.

Communication and Inclusivity

Although promoting hands-on learning experiences has proven to be the most effective way to transfer information, the factual evidence distributed to the public, either passively or dynamically, needs to be highly scrutinized. Based on evidence collected on the public's perspectives of coyotes in urban areas, Elliot et al. (2016) suggests that coexistence efforts need to focus on providing practical information on the consequences of wildlife feeding rather than attempting to change the public's perspective of the coyote altogether. Although Elliot et al. (2016) focused on urban settings for the study, ones very different from Vermont's suburban and rural communities, the authors suggest that taking small steps and providing clear instruction might be more successful at generating long-term change. Providing residents with practical information, as the authors suggest, might mean urging Vermonters to closely monitor pets outside in coyote areas and

evaluate their property for coyote attractants (HSUS, 2019) in order to help residents feel more comfortable with their local coyote family. Another suggestion from these authors focused on establishing partnerships with veterinarians and outdoor businesses, such as gardening and landscaping, to engage a wider population of the public rather than relying solely on wildlife management agencies to facilitate change and communication.

Providing information about the general characteristics of the coyote and explaining how specific human actions can either exacerbate existing wildlife issues or resolve them is needed in more Vermont communities. According to Fox (2006), an educated public is likely to be more tolerant of the presence of coyotes. Establishing a more positive outlook on Vermont's coyote population can only occur through extensive community communication and education measures.

The Community Engagement Guidelines for Excellence (2017) suggest distributing information and creating learning opportunities that address the needs of people of different languages, ages, cultures, genders, and abilities. In Vermont, this means collaborating with people within hunting and non-hunting groups, rural and suburban communities, as well as children and adults with varying coyote knowledge and experience. In the past, Wildlife Congresses, which allowed for respectful dialogue between groups, were used to connect polarized parties in Vermont (Porter, 2018). Porter (2018) also acknowledges that it is the job of professionals within Vermont's Fish and Wildlife Department to conduct scientific research and continue to collect feedback from the public. He notes that changes in rules and regulations should be publicly noted and be made with the wellbeing of all citizens in mind.

Investing in Change

As this research suggests, the coyote-human relationship is ever evolving and is far from being terminated despite past efforts. The strategies and methods used to increase coyote awareness need to rally community investment in long-term change. This means connecting efforts to Vermonters' current lifestyles in order to make incremental changes. Fox (2006) and The Humane Society of the United States (2019) suggest that along with public and community education efforts, establishing a coyote hotline for community members to discuss sightings and other incidents could lead to a safer environment for both humans and animals. Targeting agricultural areas with non-lethal animal husbandry programs, which includes implementing methods such as guard animals and improving fencing, has been recognized in other rural areas around the country as an effective way to address issues between farmers and coyotes (Fox, 2006). These measures may be impactful on rural Vermont residents as well. Local ordinances such as leash laws and anti-feeding bans may also help change behaviors of people in urban and suburban areas (HSUS, 2019).

Although a variety of methods can be used to enact change, it is imperative to collect current coyote data in order to understand how the local population has changed over time. Vermont has not conducted an extensive study on the state's coyote population since 1986, which leaves many wildlife groups wondering how to best inform the public with the seemingly limited data they have and whether or not current hunting regulations ensure the wellbeing of the current coyote population (Lovett, 2018). Measuring progress

and analyzing goals regularly, as well as considering potential barriers, are actions that lead to lasting changes (NAAEE, 2017).

Summary

Educational efforts need to focus on forging new connections and targeting areas of weakness within a community (Schuttler et al., 2019). Successful organizations begin by reflecting on current beliefs and areas of need while also collaborating with the public on major decisions and the steps taken to achieve desired goals (NAAEE, 2017). In Vermont, there are many invested parties that are working to promote positive coyote perspectives, but there is still room for growth. Encouraging more members of the community to assume leadership roles, engage in experiential learning opportunities, and to seek moments to begin long-term change will benefit Vermont's animal and human populations.

Conclusion

The topics evaluated in this chapter emphasize different challenges that can impact the progress of coyote education efforts, but also reveal unique opportunities for Vermonters to assume leadership roles. These topics have also highlighted the many factors that contribute to Vermonters' current behaviors towards the coyote, such as humans' long history with the western coyote, the media, and Vermonters' individual experiences with the eastern coyote in nature. It is time that more Vermonters contribute to the educational work being done to create a safe and harmonious living environment for all. With this in mind, answering the question, *How do Vermonters receive information about the state's coyote population and how does this impact behaviors and*

beliefs? becomes a task for everyone living within Vermont's rural and suburban communities. The first two chapters have highlighted the transformation of humans' relationship with the coyote, while the next chapter in this series describes the accompanying Coyote Community activity guide in detail. In chapter three, this literature review is linked to several learning methods that will be used for coyote education in Vermont. It also reviews the intended audience, materials, and setting needed for the successful implementation of this project.

CHAPTER THREE

Project Description

In the face of environmental issues or challenges, a person or a group of people needs to do something new or different. In essence, to create change, we need to shake up the status quo. The challenge is nearly always the same: how do we, as conservation leaders, achieve the greatest impact with the most strategic use of resources? Answering this question involves finding the right balance of solutions, using science, policy, education, and communication (The National Audubon Society, 2011, p. 7).

The coyote debate in Vermont is an environmental issue that will require many resources and participants in order to disrupt current policies and ways of thinking. As stated above, finding a balance of solutions requires the support of a community. It is my opinion that several educational theories and models need to be considered in order to engage more Vermonters in coyote policy reform and conservation efforts. Place-based education inspires learners to analyze their individual connection to the place in which they live. With this learning model, participants gain new knowledge by working within a community, thereby becoming more mindful of ongoing projects or issues (Sobel, 2017; Smith, 2002). Experiential learning encourages students to participate in hands-on activities (Jose et al., 2017; Dernova, 2015), while transformational learning allows individuals to identify a dilemma and engage with it meaningfully to reform previous understandings and beliefs (Uyanik, 2016). The combination of these three educational

approaches are woven into coyote curriculum for members of my community. The curriculum designed is part of the answer to the question, *How do Vermonters receive information about the state's coyote population and how does this impact behaviors and beliefs?* The following chapter describes how these educational models and theories support the development of the Coyote Community activity guide, which brings together coyote information and active learning experiences for members of Vermont's communities.

Rationale

Place-Based Education

Through place-based education, students are involved in identifying community issues and working to create solutions for these challenges, all while actively learning outside of the classroom. Sobel (2017) and Smith (2002) assert that place-based education is a reliable method for engaging students with their community and the nature within it. Place-based education has the ability to reinforce the skills needed for math, science, social studies, and language arts by exposing students to relevant, hands-on learning activities within their neighborhoods (Sobel, 2017). This teaching method is part of the foundation for my community activity guide, as the learners who participate in the lessons actively work within their community to learn more about Vermont's coyote population. Although the coyotes' role in our community is already being discussed by many politicians and wildlife experts, including some of Vermont's youngest learners in the debate will help create a more educated community in the future.

Smith (2002) states that place-based education has several different focuses, such as nature studies, real-world problem solving, and induction into community processes (pp. 588, 589, 591). These are the areas that my activity guide focuses on. The lessons included in the guide encourage participants to learn about the coyote family living in their specific area. This type of study helps participants understand the different perspectives of their neighbors and engage with coyote conservation organizations in the future. From this study, participants experience three of the place-based education focuses outlined by Smith (2002). According to Smith (2002) children seem to have an ingrained desire to explore the natural world, which is sufficiently satisfied when the four walls of the classroom are left behind. Lastly, this approach to education invites students to become part of the decision-making process for current and future community concerns. The characteristics of place-based education outlined here are woven throughout each lesson in the activity guide in order to help students in Vermont's different regions expand their coyote knowledge.

Experiential Learning

Jose et al. (2017) states that the experiential learning theory derives from the constructivist way of thinking, which claims that a learner should be an active participant in their own education. According to the authors, learning occurs when new hands-on experiences blend with previous beliefs. The cycle that experiential learning follows then allows participants to apply the new knowledge gained from the experience to future events (National Audubon Society, 2011). Within this activity guide, participants complete projects that benefit their homes, schools, and communities. Experiential

learning theory is especially helpful for students learning about nature as it allows them to understand how organisms in an ecosystem are interdependent (Jose et al., 2017).

Experiential learning can also be beneficial for adults (The National Audubon Society, 2011). While the hands-on experiences adults engage in may be more complex, the premise behind this theory is relevant for learners of all ages. Students may benefit from this type of learning because of their natural curiosity, but adults profit from this model when it serves to address professional problems or achieve personal goals (Dernova, 2015). Within this model, adults participate in active experiences and reflect on new understandings (Dernova, 2015) just as students do. It is because of this model's applicability to various groups that I was inspired to create lessons and activities that engage both children and adults in my community.

Transformational Learning

Part of the transformational learning process involves analyzing personal assumptions and opinions about a topic in order to consider different points of view. In recent years, environmental educators have turned to transformational learning to address environmental problems that continue to plague individual communities and the world (Uyanik, 2016). According to Uyanik (2016), adult learning is part of the foundation for the transformational education approach. This learning theory is used to introduce a new outlook on Vermont's coyote population for the participants that might have reservations about current coexistence measures. Considering opposing viewpoints is critical in order to establish more coyote acceptance throughout the entire state of Vermont.

Project Description

Community centered instruction is at the heart of coyote coexistence and conservation efforts. In order to contribute to the work being done in my own community, I have created a Coyote Community activity guide specific to the eastern coyote and Vermont residents. On its own, factual wildlife information does little to generate changes in participant behavior (Sponarski et al., 2016). It is my hope, however, that some descriptive information about Vermont's coyote population coupled with experiential learning opportunities will foster a different way of thinking and behaving for the children and adults within my community. The activity guide begins with information about coyotes in Vermont, such as physical characteristics, typical habitat, and human-coyote history. The lessons that follow focus on coexistence and safety measures and also address common coyote misconceptions.

The activity guide was written with both students and adult community members in mind. It is versatile in order to address the needs of participants in schools, at home, or in various community organizations. In order to allow for fluctuation in instruction, the materials required for each lesson include common household items, such as paper, pennies, and marbles, as well as natural materials easily found such as sticks and rocks. Common Core State Standards as well as Next Generation Science Standards are included for public school use. These standards allow teachers to integrate the activity guide into preexisting science, math, or literacy curriculum. Additionally, the North American Association for Environmental Education (NAAEE) Guidelines for Excellence K-12 Learning (2010) and the NAAEE Guidelines for Excellence Community

Engagement (2017) are used to address the needs of community members and children in non-traditional learning environments. Each lesson is constructed to allow for flexible timing where participants complete each activity within their own time limit, in order to fit the needs of various schedules. The desired outcome for this project is for students and adults to feel more informed about the coyotes living in Vermont and to kindle a sense of control over possible coyote encounters in the future. Ideally, participants would feel empowered to use their new knowledge to become more involved in coyote conservation and awareness efforts in their individual neighborhoods and to analyze current coyote hunting policies that promote year-round hunting in Vermont.

The first three lessons in the activity guide allow participants to understand the basics of the coyote population in our state before completing activities within their community. In later lessons, participants determine whether their house, school, or organization is inviting unwanted coyote behavior through easy access to food or other resources. These lessons encourage participants to remove or secure attractants and inform others to do the same by working with members of their community to build proper compost and trash receptacles. Lessons that follow invite participants to learn about coyote hazing, a method proven to be effective in deterring coyote presence in more populated areas (HSUS, 2019). These lessons involve participants creating personalized “jingle jars” to carry with them during future nature walks. Ending lessons allow for further community engagement through letter writing to policy makers or coyote professionals. The following table outlines the objectives for each lesson within the activity guide.

Lesson	Lesson Description
1. Meet Vermont's Eastern Coyote	Participants will learn about the eastern coyotes' appearance, diet, habitat and general behaviors.
2. Coyotes in Vermont's Environment	Participants will learn how coyotes interact with other species in Vermont, including humans. Participants will learn more about the natural areas near them by making a map of their home or school.
3. Appreciating Eastern Coyotes and Their Journey	Participants will learn about coyote history through information presented in a book and radio broadcast.
4. Home and School Predator Assessment	Participants will conduct a home or school investigation to limit coyote attractants.
5. Coyotes and Pets	Participants will learn how to protect pets in coyote populated areas. Participants will share information with community members.
6. Coyotes on the Farm	Participants will learn how to protect farm animals and will think about different perspectives Vermonters have on the eastern coyote.
7. Coyote Encounters	Participants will learn what to do if they see a coyote and will learn the basic method for coyote hazing. Participants will create their own "jingle jars" to carry with them on nature walks.
8. Get Involved!- Coyote Legislation	Participants will learn about current coyote legislation and will be encouraged to write letters to Vermont lawmakers or coyote professionals.
9. Coyote Outreach in Vermont Communities	Participants will consider ways to share coyote information in their community. Participants may create and distribute a survey or send coyote postcards.
10. Build Your Own Den!	Participants will work directly with community members to make human-sized coyote "dens." During this process, participants will share important coyote information with others.

Assessment

Most of participants' achievement will be reflected through the hands-on tasks within the activity guide. These activities are connected to Common Core State Standards and Next Generation Science Standards outlined on the "Standards Alignment" page within the activity guide. Teachers could include these standards within rubrics in order to formally assess students' mastery of the many foundational skills needed to complete each activity within the guide. Participants also have the opportunity to monitor individual and community changes in coyote understanding. At the end of the activity guide, on the "Outreach Within Vermont Communities" page, participants are encouraged to design a survey for neighbors or peers in order to evaluate coyote knowledge and potential misunderstandings. Participants should consider answering these questions individually to monitor personal changes in opinions and growth in coyote knowledge. I think it is important to note, however, that success is not necessarily dependent on participants' change in attitude, but more so in their participation in the community projects intended to strengthen the connection between human and coyote groups.

Setting and Audience

This activity guide is designed to reach as many people as possible and to meet the needs of Vermont's diverse residents. That being said, in part, the lessons are geared towards students in third to fifth grade, as students in this age range are beginning to analyze lifecycles, characteristics of organisms, and behaviors between different species. Within different subject areas, students are also designing solutions to various problems,

according to the Next Generation Science Standards (n.d.). Students in this age group are able to conduct more independent tasks and are generally more aware of issues within their communities. The lessons within the activity guide can also fit into curriculum established by educators at nature centers or homeschooling families because of the inclusion of both NAAEE guidelines and national standards. It is my hope that students from both rural and suburban areas engage with the lessons in a meaningful way and will choose to challenge wildlife injustices in the future. Although these lessons are written with upper elementary students in mind, I believe these activities are applicable to other community members as well. Families with children of different ages could work together to complete the guide as well as adults willing to work independently in order to learn more about the coyote population in their area.

It is my hope that this guide fits into pre-established routines for students, families, and adults and allows participants to engage with the community they are a part of. Because of the flexibility of this activity guide, participants are introduced to new ideas and activities that do not disrupt lifestyles or dismiss underlying concerns and opinions about coyotes. While it is my goal to help create a more harmonious coyote-human relationship, I recognize the differing opinions held by Vermonters and the fact that change happens incrementally by being exposed to meaningful experiences.

Limitations

Perhaps the most challenging aspect of this project was creating lessons applicable to participants in both rural and suburban areas of Vermont. According to the Vermont Fish and Wildlife Department (2017), rural residents may feel uneasy about the

presence of the coyote due to issues related to livestock depredation. In order to address this potential barrier, I dedicated one of the lessons in the Coyote Community activity guide to living with coyotes on the farm. The information on this page helps participants analyze current livestock protection efforts on the farm and encourages them to make changes in order to accommodate all living things. It is my intention to work with coyote professionals in my area to establish a plan for distributing this activity guide to Vermonters in northern parts of the state and adding more lessons to address the needs of more residents.

The current restrictions mandated by Vermont's Governor due to Coronavirus concerns also prove to be problematic for the implementation of this project. Social distancing recommendations will likely limit the number of students available to participate in the lessons in person and restrict the locations in which these lessons could take place. Additionally, participants who decide to complete the activities individually might choose to eliminate any lessons pertaining to community interaction. With community collaboration making up the foundation of this project, lessons were written to encourage community interaction outdoors where social distancing is more manageable.

Summary

The Coyote Community activity guide outlined in this chapter is part of the answer to the question, *How do Vermonters receive information about the state's coyote population and how does this impact behaviors and beliefs?* The implementation of this guide will support classroom curricula and address lingering questions and concerns

about coyotes within Vermont's communities. This guide has the potential to reach members of the community who have limited coyote knowledge and inspire more Vermonters of all ages to become invested in current coyote debates. In chapter four, the process of creating the Coyote Community activity guide is analyzed in order to reflect on this resource's potential impact on the behaviors and beliefs of Vermonters who actively participate in the lessons. I reflect on the challenges and limitations of this project as well as the positive outcomes generated from the activities and community support. Additionally, my personal and professional experiences, as well as the literature collected throughout this research project, is synthesized in order to reflect on my growth as a student, researcher, teacher, and wildlife enthusiast.

CHAPTER FOUR

Conclusion

Contrary to the fear of many, they [coyotes] will not overrun us, and with a little education, we can live together peacefully and enjoy the presence of these beautiful animals. We should give nature a chance to do her own wildlife management. It worked for a long time before man came on the scene, and it's time we learned to get with the program (Way, 2007, 2014, p. 266).

It has been a privilege to learn about the eastern coyote in Vermont and to engage with members of my community throughout the duration of this project. The people who I have worked with and the coyotes that I have come to understand will continue to be mentors on my environmental education journey. This project sprouted from a need to understand the environmental issues in my community and provided me with an opportunity to learn more about a creature that I, and perhaps many others in my community, took for granted. The question, *How do Vermonters receive information about the state's coyote population and how does this impact behaviors and beliefs?* was formulated after viewing negative posts about Vermont's coyote population on social media. The Coyote Community activity guide that I have created is my way of responding to coyote misinformation commonly found on the internet and engaging more Vermonters in positive coyote coexistence efforts.

In this collection of chapters, the first offers a rationale for my interest in Vermont's coyote population and describes how, without always realizing it, the eastern

coyote has had a subtle, yet important presence in my life and the lives of my family members. The second chapter reflects coyote literature connected to the research question. Through my research, I came to realize that Vermonters receive information about the local coyote population in many different ways. While the internet and other media sources are a large contributor to the public's perspectives, Vermonters' opinions are often rooted in hunting culture and politics. Chapter three outlines the purpose of the Coyote Community activity guide as well as the setting, audience, and resources needed for successful implementation of the project. Chapter four serves as a resting spot for my research on the eastern coyote. While I have learned a great deal about my predatory neighbors, addressing coyote misconceptions and working to improve coyote policies in Vermont will take more effort from all members of Vermont's communities. In this chapter, I reflect on my individual learning journey, starting with my major findings and understandings. I also begin this chapter by describing the changes made to my project from my original description in chapter three. I then revisit the literature from the second chapter in order to discuss the resources that were helpful in my project implementation and that have inspired me to continue my investigation of Vermont's coyote population. Lastly, chapter four is concluded with my reflection on my project's implications and limitations and my plans for future coyote research and policy investigation.

Findings and Understandings

When I began my research on the eastern coyote, I knew I had a lot to learn and several misunderstandings to address in my own knowledge of this creature. I started this project by analyzing my own perspectives and potential biases in order to enter into this

project with a clear mind. Discussing coyote opinions and issues with my family proved to be a helpful place to start. These small discussions provided me with an opportunity to become familiar with the different opinions Vermonters have about this animal before engaging with professionals and other members of my community. One of my first experiences working with professionals came when I attended a coyote lecture given by my content reviewer, Chris Schadler. I was aware that many Vermonters have unfavorable views about this animal but I was surprised by the amount of people who attended this lecture to support coyote coexistence efforts. There was not an empty seat in the presentation area with many more community members standing in the back of the room to hear her lecture. It was at this moment that I began to feel excited about the prospect of working with so many dedicated animal enthusiasts and doing my part to help this population of Vermonters grow even larger.

While my introduction to coyotes already felt exciting and gratifying, it wasn't until much later into my project research that I experienced the highlight of this educational journey. In order to make my Coyote Community activity guide feel more authentic and connected to the public, I decided to reach out to Vermonters on Front Porch Forum, a community-building online service, to ask for local coyote pictures. I was skeptical at first about the response my post might elicit. The continuation of this project would have been challenging if community members did not respond to my post or responded to my request in a negative way. I was elated when I saw the first email in my inbox with a series of coyote pictures from East Montpelier. This experience was made even more special when I realized the pictures I received were taken only a quarter of a

mile away from my house. Although I am fortunate enough to hear coyote calls from a distance every now and then, this was my first time viewing one of the coyotes living in my area. Several days later, more Vermonters from neighboring communities sent photos and videos from trail cameras. I even received a picture of a mountain lion taken from a trail camera in the White Mountains of New Hampshire. I was shocked to see this picture as wildlife professionals claim this animal no longer resides in Vermont. All of the Vermonters I communicated with were supportive of my efforts to learn more about the eastern coyote including several that I suspect are avid hunters. These community members added an invaluable element to my activity guide and brought me closer to the animal that I have been studying for months.

While the activity guide unfolded better than I imagined at the start of my research, there were several changes I needed to make along the way. I envisioned an activity guide with ten lessons and an accompanying Facebook page called “Adopt Vermont’s Coyotes.” This page would have been dedicated to the eastern coyote in Vermont and would have encouraged Vermonters to post pictures and sound recordings of the coyote family in their area. It was my hope that this page would encourage more Vermonters to be mindful about the animals in their area and to focus on the many amazing qualities of this predator. Incorporating a technology element into this project seemed like a fitting idea as my inspiration for this research topic came after viewing coyote posts online. As I started on the pages of the guide, I quickly realized that it was difficult to create activities suitable for students in grades 3-5 as a coyote enthusiast and not a coyote biologist. Although I have learned a tremendous amount about this animal, I

ultimately decided to create lessons based on the information I learned from my research for community members or teachers to use in a way that best suits the students in their care. A Facebook page that had the potential to reach many Vermonters was an exciting idea, one I hope to return to soon, but was more than I was ready to manage while still being at the beginning of my coyote research. After combining some of the lessons outlined originally in chapter three, I decided to end my Coyote Community activity guide with an opportunity for students and community members to make their own human-sized coyote “dens.” For me, this seemed like a culminating project that had the potential to bring together many different people and would allow students to discuss their coyote knowledge while working in the environment that both Vermonters and coyotes share.

Literature Review Revisited

During my research, I often found myself sorting information on the eastern coyote from the western coyote. As this was a difficult task, with the help of my content reviewer, I was introduced to the book *Suburban Howls: Tracking the Eastern Coyote in Urban Massachusetts* by Jonathan G. Way (2007, 2014) which is exclusively about the characteristics and behaviors of the eastern coyote. Although I began reading this book after the majority of my research for chapter two was finished, this resource has been one of the most helpful in understanding the complexities and uniqueness of this predator. It has also served as a mentor text when planning educational strategies and methods to incorporate into my activity guide. In his book, Way (2007, 2014) describes the benefits of place-based learning outlined originally by David Sobel. Both authors believe that this

type of educational approach invites students to engage in their communities and creates an authentic learning experience for everyone involved. Way (2007, 2014) states that coyotes are an ideal subject for science education because of their presence in diverse settings around the country. From his own experience, students became overwhelmingly invested in coyote research when presented with opportunities to learn about and even engage with their local coyote population. Way's (2007, 2014) book helped rationalize my choice to create a Coyote Community activity guide that incorporates both place-based education strategies and opportunities for experiential learning.

While Jonathan G. Way's (2007, 2014) work was gratifying to read and tremendously informational, I found myself including many other coyote resources into my final project. I felt it was important for my readers to understand basic coyote characteristics and behaviors before learning how to coexist with them. Vermont Fish and Wildlife resources, such as the Coyote Fact Sheet (2009) and the Vermont Coyote Population Report (Porter, 2018) provided a solid foundation to build my project upon. It was also important for me to include an introduction to the eastern coyotes' journey to Vermont and this animal's relationship to humans over time. Information from Cooper (1987) and Flores (2016) was used to highlight the coyotes' foothold in human history and to signify the coyotes' place in Vermont's future.

I also appreciate the guidance that Project Coyote, a non-profit coyote organization in California, afforded me in the form of brochures, online videos, and articles. These resources helped me establish the structure of the Coyote Community activity guide. From these resources I was able to understand how to incorporate coyote

information in a way that was sensitive to the opinions of many different residents and how to present information in a fun and engaging way. All of the resources included in my reference page have positively influenced my outlook on Vermont's eastern coyote population and have inspired me, in one way or another, to continue to investigate these amazing creatures in the future.

Implications and Limitations

I am hopeful that my research and the creation of the Coyote Community activity guide will inspire at least one Vermonter to analyze their perspective on and attitude towards the eastern coyote population. While Vermont may be several years away from adding more restrictions to coyote hunting policies, I believe working with Vermont's youngest learners will help create a more coyote-friendly environment in the future. The upcoming generation of wildlife enthusiasts will also be responsible for analyzing animal hunting and protection policies. It is my hope that this generation will be more cautious if given the choice to implement year-round hunting or trapping guidelines on any animal. Twenty-first century citizens, both young and old, are living in a time when taking care of the environment needs to be a top priority. While global concerns such as climate change may be reflected on national media sites, addressing local environmental injustices is also a worthwhile endeavor. Through the Coyote Community activity guide, I encourage and challenge more Vermonters to realize the importance of protecting the diverse wildlife species we are fortunate enough to live alongside and invite community members to learn about the coyote through authentic learning experiences. I believe coyote coexistence efforts in Vermont have been successful in recent years and it is my

hope that this activity guide will become part of the solution to the coyote-human dispute that is still prevalent in many areas in Vermont.

While the Coyote Community activity guide was written with many different Vermonters in mind, there are several limitations that could impact the successful implementation of this curriculum. Including both environmental and national standards makes this resource more inviting for teachers but ultimately coyotes are not a required topic in any curriculum. While I believe the activities within this guide could be adjusted to fit many different math, science, or literacy objectives, teachers are faced with numerous academic requirements throughout the year that often account for the majority of student learning time. Additionally, the pictures and resources referenced throughout the activity guide are specific to central Vermont communities. While I have received support from many different residents in this area, I recognize that other Vermont communities are not reflected in this guide. In order for more Vermonters to become accepting of our coyote population, additional communities need to be acknowledged and included. It is my hope, however, that this limitation can be mitigated by expanding this activity guide in the future or creating supplemental coyote activities specific to various Vermont neighborhoods.

What Now?

Finishing the Coyote Community activity guide has taught me the importance of working with others to achieve a common goal and has allowed me to invite students to consider solutions for community issues in Vermont. In order to continue learning more about the coyote coexistence efforts in my state, I plan to reach out to several coyote

organizations in the hopes of distributing my activity guide to Vermonters in different locations. Working with the professionals at these organizations to expand my activity guide would ensure that all major coyote information is communicated in one document. I am also eager to share my ideas with teachers in my area and to work closely with these professionals to make any needed adjustments in order to ensure that the lessons in the activity guide are accessible for a larger population of Vermont students. Lastly, I recognize the importance of continuing my own education. Volunteering at coyote organizations and continuing to read current coyote literature will help build upon the knowledge that I have acquired during this six-month-long coyote investigation. With this in mind, I urge Vermont wildlife professionals to implement a coyote study in order to update data on coyotes in my state, which was last documented and analyzed in the 1980s. With this data, current hunting regulations on coyotes and other animals could be more strongly evaluated (Lovett, 2018). The information collected from a study such as this would provide invaluable learning opportunities for Vermont students and community members. Working with wildlife professionals to collect coyote data would not only meet the expectations of a wide range of national standards but would help many Vermonters establish a deeper connection to their natural surroundings.

Summary: A Nod to the Eastern Coyote

As I end this chapter, I would like to give a nod to the eastern coyote, as both a proper greeting and as a sign of understanding and respect. From walking in the woods with my mother to working on the farm with my aunt, the eastern coyote has always been there in the background. While this is often the case, I hope that this project brings this

impressive animal to the forefront of Vermonters' attention. I am thankful for the support that I have received from family, community members, and wildlife professionals throughout the duration of my research and investigation, but I am especially grateful to the coyote families in Vermont who have taught me a tremendous amount about what it means to be resilient. The coyotes' difficult, yet impressive history and ability to coexist with humans in many different environments is matched by few other animals. I have learned a great deal more about this animal than I anticipated at the start of this project many months ago and will undoubtedly continue to further my knowledge as my research on the eastern coyote continues.

My research revealed many different findings, one of them being the importance of community support when attempting to resolve environmental issues. While revisiting the literature from chapter two and beginning my work on the Coyote Community activity guide, I found that place-based education and experiential learning strategies were essential in the coyote education process. The information that I gathered from many other authors and researchers helped me understand the coyote species from different viewpoints. While there may be some limitations to this project, I am hopeful that Vermont students and community members will benefit from the many different lessons included in the activity guide and will learn how to coexist with and protect coyotes and other wildlife species in the future. As Jonathan G. Way (2007, 2014) suggests, we need to remember how privileged we are to be able to witness nature at its wildest (p. 237).

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