WILDLIFE-INSPIRED AWE IN LEISURE-BASED LEARNING

BY

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DISSERTATION

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Abstract

The purpose of this dissertation is to illuminate that awe is a part of wildlife experiences and that people learn from those experiences. Previously noted in literature, these notions were evidenced in this study through quantitative and qualitative measures spanning three stages of data collection.

Data collection was guided by a theoretical framework, which integrated the Experiential Learning Theory (ELT) (Kolb 2000, 1984) and the Theory of Emotional Memory (TEM) (LeDoux 2000, 1996) into what was referred to throughout this manuscript as the Wildlife Experiential Emotion Model (WEEM; see chapter two). Guided by the important work of Human Dimensions of Wildlife scholars, this model was successfully utilized to demonstrate the processes by which people experience wildlife-inspired awe. Specifically, stage one intercept interviews documented the ways in which people come to make meaning of significant experiences with wildlife. Personal reflections allowed participants to appraise or make sense of their emotional wildlife encounters, beginning a learning process evidenced through memory recall and storytelling.

The stage two survey sought to identify factors that contribute to reflective understandings of wildlife-inspire awe. The resulting Wildlife Awe Scale (WAS) includes surprise, excitement, wonder, awe, and astonishment, and serves as a potential starting point for future quantitative consideration of wildlife-inspired awe in leisure settings.

The stage three follow up interviews brought into focus the resultant learning stemming from experiences of wildlife-inspired awe. Learning manifested through behaviors related to wildlife, leisure preferences, professional pursuits, and social behaviors that ultimately depict
that learning has occurred as a result of emotionally significant wildlife experiences. In the process of chronicling participants’ stories, we developed a better understanding of the ways in which wildlife-inspired awe has the potential to influence one’s self-awareness, as well as their beliefs about environmental advocacy.

Developed for this study, the Wildlife Awe Scale proved to be a valuable data collection tool and will contribute to future efforts to understand how people experience awe while in the presence of wildlife. Findings from this study also have implications for environmental educators and recreation managers, as further understanding of how people experience awe will allow for more effective program design and policy development.
Acknowledgments

This manuscript was a long time coming. When I was in high school, I joked about earning a doctorate someday. It was something that was far off and impossible; for a kid from the West Side of Rockford, it’s the kind of thing that you don’t even dare dream about. Thankfully, I have always been surrounded by incredible people who have helped me grow and evolve. I owe them a debt of gratitude that I will never be able to repay in full.

I did not know it at the time, but in many ways my journey began at the Atwood Outdoor Education Center. There was a magic in that place. The people and wildlife that roamed those 334 acres are among the most formative relationships of my life. They taught me about myself and the world around me. I will be forever grateful.

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My RST Family does not simply include faculty, but all of those with whom I shared a classroom. I was blessed from the start to be surrounded by some of the brightest, most curious, and most daring people I could have imagined. We will be forever joined by the Orange and Blue, and as we traverse the next stages of our lives, I look forward to the next evolution of our friendships.

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If there is anyone a student wants to make proud, it is their adviser. I have had the privilege of having an adviser who not only cared about me as a scholar, but as a person. I have often referred to him as my “school dad,” as our relationship regularly mimicked that of a father and son. I tested the boundaries, he reinforced the rules. I got lost, he helped me find my way back. I had growing pains, he taught me how to evolve. With age, just as fathers and sons ideally grow into friends, I am happy that he and I have progressed to the point where we talk as much about life as about work. That has been a new professional experience for me, and I will carry it with me as I mentor my own students. Thank you for everything Bill.
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On the West Side, Champaign-Urbana is a far off, magical land… the kind that only exists in fairy tale. You see pictures, but you still aren’t totally sure it actually exists. To earn two degrees from the University of Illinois and be a part of the RST faculty has been better than anything I could have ever dreamt. I am so proud to have been a part of this institution. Though I will head off to destinations unknown, in a sense I will always stand upon the iconic red bricks of this campus. Hail to the Orange. Hail to the Blue. Hail Alma Mater.
On Becoming a Cultivator of Awe

"An animal's eyes have the power to speak a great language." -- Martin Buber

For a moment, I locked eyes with the opossum. Its and my mouth were agape, the opossum’s presumably in anger and fear, mine in fear and awe. Wildlife was uncommon in my hometown as an eight-year old, and it was the first opossum I had ever seen. I stood only a few feet away as the marsupial, perched atop a cyclone fence, bore its teeth and hissed. My family was equally unfamiliar with such urban wildlife, and my father poked the opossum with the brushy end of a broom hoping to scare it away. I was both terrified and energized; these seemingly opposite feelings occurring simultaneously. I found myself feeling fearful for my safety and that of my family. I also was exhilarated to be so close to another species so exotic, so new. Time moved as though it was in slow motion, and I struggled to comprehend the scene that was unfolding in front of me.

After a few tense minutes, the opossum eventually moved off into the northern Illinois darkness. That night, I struggled to fall asleep. I was no longer scared. Instead, as I lied in bed, a deep sense of wonder had taken hold. When I closed my eyes, I could still see the opossum, clinging to the fence, struggling to get away. I wanted to see the opossum again, and instead of resting my head on a pillow, I found myself sitting by my bedroom window hoping I might catch another glimpse. For the rest of that summer – and many to follow – I spent many a night looking out my bedroom window, hoping to catch a glance of that ghostly white creature.

Time passed. I never saw that opossum again, yet anytime I thought about nocturnal animals, I could visualize that summer’s night in my backyard. A full decade later, I suspect not coincidentally, the first job I took after high school was leading nighttime nature hikes at a local environmental center. After another decade, I enrolled at the University of Illinois to study
human-wildlife interactions. In between those moments, I chose to pursue wildlife at every opportunity. When planning a trip, a friend once exasperatedly claimed, “It’s like if there are no animals you don’t want to go there.” Looking back, my friend was not wrong. Wildlife became a part of what I wanted to do, how I saw myself, and how I wanted others to see me. Wildlife became a part of my identity.

To this day, if I close my eyes, I can visualize that night so many years ago, staring in slack-jawed astonishment at the unexpected backyard visitor. It was my first truly emotionally significant wildlife experience; my first experience of wildlife-inspired awe. In a manner of speaking, closing my eyes takes me back to that space and time. To this day, I can still see the opossum, the facial expressions of my parents and sister, the way the broom bristles bent upward over the back of the opossum, even the pattern in the patio blocks adjacent to the back stoop. My experience of wildlife-inspired awe shapes how I see the world, it shapes how I travel the world, and as I sit typing this manuscript, it shapes how I describe the world. The opossum is long gone, but it lives on in memory and manifests in story.

My journey to this point was not straightforward. I knew I felt awe, but to impress that notion on others was difficult, sometimes impossible. Most people I spoke with struggled to understand how I could experience awe with an opossum; I struggled with the words to do the experience justice. Looking back, I not only recognize the emotionality of the initial event, but the complexity of the appraisal process that followed. I saw and felt new things that night. As I reflected upon my experience, memory was clear, but meaning came slowly. However, through personal reflection and conversation with others, I came not only to a point where I understood my experience, but to a point where I better understood myself, the natural world, and the people around me. Learning had occurred.
To come to understand something is to learn. Though it took me many years to realize, my childhood encounter with the opossum was a learning experience. I learned about the world around me; I learned what I cared about; I learned what I would fight for; I learned what scared me. I also learned that the same event can make people feel different things; and subsequently, they can learn different things.

My present day pursuit of awe was learned. I did not always know what awe was or how to search for it. I certainly did not know what awe was prior to that night. However, as a result of that experience, I learned what awe meant to me and I learned where I might find it. The circumstances of that night in my backyard ultimately led me down a path of personal exploration, contemplation, and transformation. I felt something that night that I wanted to feel again, and my pursuit of those feelings led me to make decisions that would encourage such an outcome. The desire is one of primacy and primality. Subsequently, I learned to hike, to paddle, and to handle a camera. Learning fostered learning, and I learned about ways in which I could potentially put myself in the presence of animals such as opossums. Being in the presence of wildlife still fills me with a sense of awe that I might not have known without my chance encounter with that rat-tailed marsupial.

Historical accounts bear striking similarities. Thoreau stood in awe as a bird landed on his shoulder; Muir was transfixed as he locked eyes with a bear; Leopold knelt in stunned silence as he watched a wolf die. These processes fascinate me and helped inspire the manuscript you are about to read. I came to understand my own learning experience, but want to better understand the learning experiences of others. Informed by my own experiences, I believe the best way to chronicle others’ narratives of wildlife-inspired awe is to build with them a dialogic relationship through which they can recount their stories. In doing so, my hope is to untangle
their many thoughts and feelings, providing thematic insight into the nature of how people learn from wildlife encounters. Moreover, I hope to identify where they are in their learning processes and perhaps help them make sense of their wildlife-inspired awe experiences.

When I first encountered the opossum, my emotions were mixed. Indeed, awe is an emotion that is thought to be comprised of fear, excitement, and surprise (Keltner and Haidt, 2003). However, in the days, weeks, and years that followed, I came to make positive meaning of the encounter. My sister did not find the same meaning in her appraisal process. For many years, when she recounted that night, she spoke not of awe, but of fear and trepidation. Those negative emotions were pervasive; the first she recalled from memory. That is not to say that she did not initially feel awe, only that it was not the emotion that lived on in memory or that she cites in her stories. For each of us, something occurred between the initial emotional response and the reflective process that followed. I believe there is value in considering that “something.”

While conceptualizing and conducting this study, I sought to be guided exclusively by theory and previous literature. However, I suspect it was impossible to remove my values, beliefs, and experiences entirely from my choices. Those choices related to everything from my selection of a theoretical framework, to my questionnaire design, to the themes that emerged in my analysis. Despite my conscious effort to remain unbiased in making these decisions, I must acknowledge here the distinct likelihood that I did not accomplish my goal. While I made every attempt to be an impartial researcher and minimize my voice, I will leave it to the reader to determine if or to what extent they agree.

This study was one of exploration. I sought to showcase participants’ stories and more fully understand their learning processes. My focus was on participants’ experiences as they exist
in memory. For some participants, it is possible that the interview process itself may have brought to the surface emotions and experiences that they had not previously known, felt, or expressed. For many of my participants, my engagement with them was clearly an exploration for both of us in terms of understanding wildlife-inspired awe. As Keltner and Haidt (2003) suggested, “the potential power of awe, combined with the mystery of mechanisms, may itself be a source of awe, giving pleasure both to those who study it and those who cultivate it in their lives. (p.312)” By choosing to research awe, speaking with people about their experiences, I have become a cultivator of awe. This exploratory work is my effort to bring those memories to the surface; to engage others in a dialogue about their experiences of wildlife-inspired awe, learn about how they feel, think, and behave, and ultimately better understand what they have learned from their experiences.
For Mom, Dad, and Mease.
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CHAPTER ONE: INTRODUCTION

“I have often wondered, in reading mountain literature, and I have at times reveled in listening to descriptions of emotions evoked by the scenery of our national parks in this conference, why it was that animals are not more mentioned as an adornment to the landscape. The most interesting book on mountains here in this last year was by Mr. Van Dyke. His wonderful analysis and ecstatic views of mountain scenery merely records the animals which inhabit the mountains, but in spite of his subtle analysis he does not say a word about the addition to the scenery, the emotions which are evoked by the sight of animals in the mountains. Who could, when looking into the Grand Canyon — those of you who are familiar with it and who realize all the feelings and emotions that that stupendous picture of nature arouses within you — suppose in the midst of it a mountain ram steps up on a crag, his color, his horns, his attitude wholly in unison with his surroundings, does not that make the feeling of your emotions more complete and more profound? It must.”

— Charles Shelden (1917, p. 197)

As Shelden depicted imagery of a bighorn sheep in the Grand Canyon, he also succeeded in eloquently describing an experience of awe during leisure pursuits. More than that, he described a scenario by which someone already experiencing awe could have that experience enhanced by the presence of wildlife. However, Shelden’s description was not an assertion of imagination. Rather, he was a storyteller, recounting a unique version of his own experiences. As demonstrated by the delivery of his speech, Shelden learned from his experiences of wildlife-inspired awe and sought to share his beliefs with others. The experiential process by which people reflect upon their emotional experiences and ultimately learn from them is the foundation of this research. Congruent with the example depicted by Shelden, in this dissertation I will seek to chronicle and expand upon three central findings from popular and peer-reviewed literature: 1) Wildlife encounters elicit awe, 2) Awe encourages memories about wildlife, and 3) Awe-inspired memories suggest learning has occurred.

Sharing space with a wild animal holds value for people so significant that centuries of personal expression have depicted the relationship between humans and wildlife. Human cultures have perceived wildlife as gods, demons, machines, tools, children, and prophets, to name a few
(Challinor, 1989). Early stories about encounters with wildlife have been chronicled in the United States by Lewis and Clark. The explorers and their team documented more than one-hundred animal species, describing not only animal physiology and behaviors, but human reactions and interactions with wildlife on the American landscape. By the turn of the century, Seton (1898) penned one of most significant works devoted entirely to wildlife. "Wild Animals I Have Known" chronicled the author's interactions with all manner of wildlife in a variety of settings. He told stories from the point of view of the animal, not so subtly signifying his own emotional attachment to wildlife. In the journals of both the Lewis and Clark and Seton, the authors' did not merely learn facts and objective evidence; rather, the emotions they experienced became a central part of the stories and were essential to understand the intrigue of their narratives. In prefacing his own work, Seton (1898) explained ".... I hope some will herein find emphasized a moral as old as Scripture -- we and the beasts are kin" (p.12) demonstrative of a human-wildlife relationship that transcended simple affection and symbolized awe and emotional connectivity. Seton's (1898) manuscript is still in print today and the public's attention to wildlife encounters has remained, with a steady flow of authors recounting their own memories of wildlife encounters (Goodall, 2010; Masson, 1996; Lopez, 1978; Carson, 1962; Leopold, 1949; Muir, 1911).

Both positively and negatively, emotional responses to wildlife encounters leave a lasting impact on people. People can often vividly recall times of heightened emotion, such as significant tragedies and celebrations; this is why so many people can so accurately recount where they were on September 11, 2001, how their spouse looked on their wedding day, or how they felt after their favorite team won the Super Bowl. Similarly, people can often recall with great detail how they felt when they were in a deer-vehicle accident, the day a dragonfly landed
on their nose, the moment when they startled a bear, or the view of a particularly rare bird through their binoculars. By being more likely to recall the feelings of a certain experience, we become more likely to relive the experience itself internally. As such, we do not need multiple exposures to the excitement of seeing our first bear in the Smoky Mountains or the fear of seeing our first bear in Yellowstone; the emotion attached to the experience only needs to live on in our memory. The vicarious repetition of those emotions shapes our beliefs and understanding.

My assertion is that the above descriptions describe experiences of awe inspired by wildlife. Awe is the difficult to describe feeling that can manifest with wide eyes, speechlessness, timelessness, moist eyes, or even goosebumps. Both the initial encounter and subsequent reflection process combine to be committed to memory – even if in a modified form. Consider Leopold’s description of the “fierce green fire” dying in the eyes of a wolf. Consider Thoreau’s timeless moment, when a sparrow landed on his shoulder at Walden Pond. Consider Abbey describing nearly stepping on a venomous snake. Consider Muir’s descriptions of interacting with bears or how Lewis and Clark’s were completely enamored with prairie dogs during their travels. Each of the descriptions these authors shared came long after the initial encounter. Moreover, their after-the-fact descriptions suggest that they have learned from their experiences and that their learning is manifesting via cognitive appraisal and subjective feeling. Significant interactions and the reflective process that follows can lead to unique learning experiences.

Emotional responses to wildlife have been studied to understand wildlife benefits, conflict, reactions to management alternatives, and strategies to educate people, to name a few. However, while we are developing ever more sophisticated understandings of emotions, I have identified three questions largely yet to be addressed in the leisure literature: 1) In what ways is
wildlife-inspired awe experienced among adults? 2) What factors contribute to memories of wildlife-inspired awe? 3) What roles does wildlife-inspired awe play in influencing learning? As documented by so many of the seminal American environmental writers, people learn about themselves and the world around them during and as the result of emotional responses toward nature. What is less clear is how that process plays out.

Understanding experiences of wildlife-inspired awe could enhance leisure opportunities in frequency and quality as well as help sustain agency efforts to garner public support. As Shelden spoke to his colleagues nearly a century ago, it was exactly such a goal that he hoped to achieve. Shelden described how wildlife-inspired awe made life better for people. He described a world that was more beautiful and made more sense to people because it was filled with wildlife. Perhaps most significantly, Shelden learned from his wildlife-inspired awe experiences and attempted to convert to memories to action. In what I believe is the logical next step forward, in this study I will explore: ways in which wildlife-inspired awe is experienced among adults, factors that contribute to memories of wildlife-inspired awe, and ways in which memories of wildlife-inspired awe suggests learning has occurred.
CHAPTER TWO: LITERATURE REVIEW/CONCEPTUAL FRAMEWORK

Through this review of literature, I intend to piece together seemingly disparate research streams and demonstrate the interconnected nature of the work of so many key contributors. It is their contributions that inspired this manuscript. By the end of the literature review, readers will have identified:

1. *Wildlife encounters elicit awe*
2. *Awe encourages memories about wildlife*
3. *Awe-inspired memories suggest learning has occurred*

    **Concept One: Wildlife Encounters Elicit Awe**

    In coming to understand that wildlife encounters elicit awe, readers will be guided through a brief discussion of previous research related to emotion, including terminology and characteristics. Drawing heavily from psychology journals, I will discuss arguments for considering awe as a distinct emotion.

Identifying emotional components

Emotions have been considered regularly throughout the last two centuries. Dating at least as far back as Darwin (1872) and James (1884), researchers have attempted to identify and study the creation, manifestation, and significance of emotions. More recently, Scherer (1987, 2001) suggested that emotion is:

    An episode of interrelated, synchronized changes in the states of all or most of the five organismic subsystems in response to the evaluation of an external or internal stimulus event as relevant to major concerns of the organism.

Scherer (2005) offered that the five emotion components included: cognitive (appraisal or reflection), neurophysiological (bodily symptoms), motivational (action tendencies), motor expression (facial and vocal expression), and subjective feelings (emotional experience), the
latter of which will be of particular importance in this study. Noteworthy is that Scherer (2005) resisted the frequent tendency in research to label emotion and cognition as two independent but interacting systems. Instead, he suggested that cognitive appraisal or reflection is not separate, but is instead one of the components of emotion. In this manuscript I will adhere to Scherer’s (2005) assertions that cognition is a part of emotion. Specifically, I will use the term “appraisal” to denote the cognitive component of emotion.

Scherer (2005) went on to differentiate between two types of events that could inspire emotion. Stimulus events are external: “often such events will consist of natural phenomena like thunderstorms or the behavior of other people or animals that may have significance for our well-being” (p.700). Conversely, internal events include “recalled or imagined representations of events,” the memory of which can be sufficient to generate strong emotions. Put simply, both emotional situations and memories of previous emotional situations can be triggered in one’s mind with or without an external stimulus.

Once triggered, Scherer (2005) suggested that emotions may be dichotomized as being either aesthetic or utilitarian. The latter correspond to what Ekman (1992) and others have referred to as “basic” emotions, including anger, fear, joy, sadness, disgust, guilt, and shame. They are considered utilitarian as they are considered vital to one’s survival (fight or flight) and well-being (grief and coping). Aesthetic emotions are thought by Scherer (2005) to have lower practical functionality: “Aesthetic emotions are produced by the appreciation of the intrinsic qualities of the beauty of nature, or the qualities of a work of art or an artistic performance” (p.706). Included among the aesthetic emotions Scherer (2005) identified was awe.
The significance of awe

Long before Scherer, Broad (1954) suggested that awe was closely tied to religion or religious experiences, though he failed to define the emotion with any specificity. More recently, Schneider (2011) offered that awe is a “foundational human experience that defines the human existence (p. 249).” However the most commonly accepted description comes from Keltner and Haidt (2003), who described awe as “the upper reaches of pleasure and on the boundary of fear.” The authors argue that awe is a critical component to experiencing religion, politics, nature, and art. Particularly noteworthy is Keltner and Haidt’s (2003) assertion that awe is best identified by a level of pleasure so profound that it borders on frightening. While pleasure was not among them, Scherer (2005) noted pertinent words that aid in the description awe. They included: admire, adore, dazed, dazzle, enrapt, enthrall, fascinate, marvelous, rapt, reverence, spellbound, wonder, and worship.

Descriptions offered by Cole, Bierstadt, Thoreau, Emerson, and other environmentalists suggest that awe possesses the power to inspire people, oftentimes on an existential level. Their memories expressed through art depict sublime, peak experiences that took on a significance bordering religiosity. The phrase “awe-inspiring” has, in the colloquial sense, become so much a part of language in the United States that one could argue it is now no more than a cliché. However, within the research community, it still holds meaning. Keltner and Haidt (2003) suggested that experiencing awe requires two elements: vastness and accommodation. Vastness is characterized as anything that is larger than oneself or of one’s ordinary experience level or frame of reference. Common examples cited include landscapes and architecture; places such as the Grand Canyon and the Empire State Building are routinely suggested as spaces that inspire awe. While physical size is one aspect, vastness can also refer to “social size,” which Keltner and
Haidt (2003) suggested can include things such as fame, authority, or prestige. This accounts for awe felt while in the presence of particularly powerful people such as world leaders, film stars, or athletes.

Conceptually, accommodation evokes work by Piaget that claims certain experiences are so new and different that one cannot assimilate them into existing mental structures. Anecdotally, this may be what people refer to who have had their “minds blown.” Keltner and Haidt (2003) suggested that accommodation often involves confusion and obscurity, and is prone to occur during heightened times of crisis. They also note, however, that feelings of enlightenment and rebirth can occur. These wide-ranging feelings are accounted for by the authors who posited that awe requires a need for accommodation, though that need is not necessarily met; hence why awe can be both terrifying if one fails to understand and enlightening when one succeeds.

Keltner and Haidt (2003) claimed that both vastness and accommodation were central to identifying awe. In the absence of either, the authors posit awe is no longer being experienced. Specifically, accommodation without vastness is “surprise,” while vastness without accommodation is “deference.” Additionally, they posit that awe is “flavored” by five themes, including threat, beauty, ability, virtue, and supernatural causality. This is to say that the emotion of awe is influenced by perceptions of the situation. Threat refers to awe mixed with fear, for example, experiencing an electrical storm. Beauty refers to aesthetic pleasure in all its forms, from natural beauty to sexual attraction. Ability refers to exceptional talents and/or skills; examples could include demonstrations of speed, be it on the part of an elite athlete or an animal such as a cheetah. Virtue refers to moral beauty of human goodness and is often closely tied with a desire to be a better person or lead a better life. Finally, supernatural causality refers to the
perception that a deity is being manifested in a situation. Though Keltner and Haidt (2003) suggested that the supernatural was often scary, “the uncanny… can be glorious if the entity is perceived as benevolent.” Such was the case when an awe-filled John Muir described the Sierras, when Cole described the southeastern Wilderness, and when Thoreau described that of the northeastern United States.

Concept Two: Awe Encourages Memories about Wildlife

At this stage, readers should have a functional understanding of emotion, with specific attention paid toward awe. In the following sub-section, I will introduce wildlife into the conversation, and will guide readers through a brief discussion of the ways in which encounters with wildlife influence people. For the purposes of this dissertation, wildlife is defined as any naturally occurring species found in Kingdom Animalia. This includes any non-domesticated vertebrates (birds, mammals, amphibians, reptiles, fish); molluscs (clams, oysters, octopuses, squid, snails); arthropods (millipedes, centipedes, insects, spiders, scorpions, crabs, lobsters, shrimp); annelids (earthworms, leeches); sponges; and jellyfish. This definition of wildlife does not include members of the Plantae, Fungi, and Protista Kingdoms.

The emotional impacts of wildlife viewing

Research produced in the last two decades established a theme of strong emotional responses toward wildlife. Emotional encounters with wildlife are typically identified as being either positive or negative. While this dichotomization is likely an oversimplification of complex emotional experiences, it remains a readily accepted practice.

Curtin (2006) documented human emotions toward dolphins in a leisure setting, specifically noting "the importance of making a connection either through eye contact or touch."
Similarly, in their study of aquatic wildlife, Ballantyne, Packer, & Sutherland (2011) noted that not only were vivid memories produced from experiences with dolphins and sea turtles, but that some respondents "conveyed a sense of empathy, or an emotional connection with the animals, which involve understanding and identifying with the animal’s 'feelings.'" Along Alaska's Dalton Road, seeing wildlife was cited by visitors as emotionally significant by half of respondents (Farber and Hall, 2007). Seeing young animals, being in reasonably close to animals, and observing natural behavior were all cited as being particularly powerful experiences. Such findings were not limited to wilderness settings, as Clayton, Fraser, and Saunders (2009) "conclude(d) that a visit to the zoo appears to be a positive emotional experience that leaves visitors interested in learning more about animals." Additionally, Vining (2003) wrote at length about the value of exploring the connections that exist between humans and wildlife. She referred to "magic," a term describing the sense of awe and wonder that accompanies peak experiences and "the sense that something very special and powerful has occurred." Similarly, Serpell (2000) posited that connections extended beyond logic and emotion and were the result of a deeper spiritual connection.

Conversely, human-wildlife interactions can be quite negative, and a large literature base exists chronicling these interactions. Terms such as "nuisance wildlife" and "human-wildlife conflict" have emerged as a direct response to the well-established trend. All manner of species have been considered nuisances, with the most common including snakes, squirrels, opossums, skunks, woodchucks, raccoons, bats, deer, mice/voles, coyotes, bears, seagulls and pigeons, among others (Bluett, 1996; Braband and Clark, 1991; Craven, Barnes, and Kania, 1998; Curtis, Richmond, and Wellner, 1993; Hadidian, Childs, Schmidt, Simon, and Church, 2001; Hadidian, Hodge, and Grandy, 1997; Miller, Campbell, Yeagle, and Colligan, 2001; Organ and
Ellingwood, 2000). Negative emotions toward wildlife encounters were apt to occur nearly anywhere, in both urban and rural settings, at work and at home. Much like positive emotion toward wildlife likely leads to positive appraisal, negative emotion toward wildlife is likely to result in negative appraisal.

The impacts of awe

Keltner and Haidt (2003) suggested that awe challenges one’s existing schemas, yet while the emotion is felt for just a moment, the impact is more durable. Once meaning can be applied to an emotion such as awe, opportunities are created for personal growth, self-reflection, and refined thought.

Considering that only a small number of researchers have considered the consequences of awe, studies examining the impact of awe on people are almost non-existent. Schurtz, Blincoe, Smith, Powell, Combs, and Kim (2012) linked goose bumps as a physical manifestation of a personal awe experience, but did not ascribe utility beyond schema revision. Keltner and Haidt (2003) asserted that awe helps facilitate the identification of community leaders. Shiota, Keltner, and Mossman (2007) demonstrated the close relationship between awe and happiness; while the authors acknowledged the preliminary nature of their findings, they found that all awe experiences described were interpreted positively by participants. Perhaps the most compelling evidence came from Rudd, Vohs, and Aaker (2012) who found that experiencing awe enhanced one’s well-being. More specifically, their study identified that nearly half of Americans reported feeling time starved, which led to undesirable side effects, including trouble sleeping and stress. After experiencing awe, participants reported the perception that they had more free time available and demonstrated a lessened impatience. Subsequently, participants were found to engage in healthier behaviors including but not limited to partaking in experiential goods over
material goods, and spending more time and energy helping others. Rudd et al (2012) posited that experiencing awe benefitted participants by elongating time perception and allowing them to more readily savor positive moments. “These results not only have implications for how people spend their time, but also underscore the importance and promise of cultivating awe in everyday life. (p. 1135)”

In total, findings from previous literature suggest that emotions are significant, awe as an emotion resonates widely and with significant benefits, and nature holds the power to facilitate awe. Further exploration of awe in natural world contexts may be a vital component to nuancing our understanding of how emotions manifest in the lives of people. Specifically still left to be explored is the role of wildlife in facilitating awe. While much of the literature related to the solicitation and benefits of awe notes the significance of nature, wildlife remains a largely unexplored element of the awe-inspiring natural world.

Wildlife-Inspired Awe

There is a great deal of evidence related to emotional human-wildlife interactions, much of which is depicted as being either positive or negative. Similarly, awe is described as a specific emotion that carries both potentially positive and negative connotations. Though the relationship between wildlife and awe may seem intuitive to some, literature reflects only sporadic examination of the linkages. To my knowledge, none has specifically identified “wildlife-inspired awe,” the identifier I used here. To this point, the vast majority of empirical evidence considering wildlife-inspired awe has been tangential in nature – perhaps most recently Curtin and Kragh, 2014. To my knowledge no one has given focused empirical attention to the role of wildlife as a facilitator of awe. Fortunately, a few authors have noted and provided valuable insight into the phenomenon, beginning over a century ago and continuing today.
Many of the seminal environmental authors cite experiences of wildlife-inspired awe, chiefly among them Darwin's (1872) *The Expression of the Emotions in Man (sic) and Animals*. Previously, Emerson (1836) compared the restorative manner of nature to the feeling of the snake shedding its skin, and Thoreau (1854) suggested that singing birds were vocal symbols of the solitude provided by nature. More than a century later, Carson's (1962) critically influential *Silent Spring* called attention to the absence of those same avian serenades. John Muir (1911) spoke reverently of all manner of creatures, from lizards to squirrels. Of the bear, he suggested "one likes them the better the longer one looks into their beautiful, innocent eyes." Significant portions of Leopold's (1949) *A Sand County Almanac* depicted wildlife and their impact on his worldview. His essay "Thinking Like a Mountain" described a transformative learning experience of watching the "fierce green fire" burn out of a dying wolf's eyes. In Leopold's case, he described his dramatic shift in worldview, in which he was converted from an advocate for wolf destruction to an advocate for wolf protection. The act of witnessing an animal die unnecessarily by his own hand began a process of appraisal that would eventually turn him into one of the greatest environmental voices of his time.

More recently, Ballantyne, Packer, and Falk (2011) found that, among marine area-tourists, one of the most salient aspects of the visitor experience was the sense of wonder or awe brought on by interacting with wildlife. Respondents to Curtin (2009) suggested that their awe-inspiring interactions with wildlife were a privilege “beyond words.” She noted that in those situations fast, modern time dissipated and was replaced by a particular stillness, during which respondents were wholly immersed in their surroundings. Frederickson and Anderson (1999) documented the awe and wonderment in their respondents who, having not seen but merely heard the sounds of wildlife felt “a reawakened sensitivity” (p. 26) toward nature.
Ballantyne, Packer, and Sutherland (2011) reported that particularly in situations for which wildlife in their native habitat approached visitors rather than running away, people found the experience to facilitate a unique sense of awe:

“The photographic quality of these memories is usually attributed to the emotional content of the event. In the context of wildlife tourism, experiencing a sense of wonder, awe, excitement and privilege appeared to contribute to visitors’ emotional arousal, thus producing vivid and enduring memories. (p. 176)”

Proximity also seemed to play a role for a respondent to Milstine (2008), who while aboard a whale watching boat, got close enough to hear the whale breathe: “The neatest part I think is hearing the whale. There are no words. Cool, awesome, that just isn’t enough” (p. 181). While not all were outwardly positive, each of these seminal stories identified above serve as examples of emotionally significant interactions with wildlife that ultimately sparked learning behaviors, including personal paradigm shifts (Leopold), public awareness (Carson), and social/political activism (Muir). In the next section, I will take specific focus on the potential for learning that exists following experiences of wildlife-inspired awe.

**Concept Three: Awe-Inspired Memories Suggest Learning Has Occurred**

To this point in the review of literature, readers should have identified characteristics of emotion and awe, while also coming to understand the role wildlife-inspired emotion, including awe, can play in memory development. When memories are formed, learning has occurred. As such, when a person has emotional encounters with wildlife – or has emotional experiences of any kind – learning something is a very likely to occur due to the likelihood of the encounter being committed to memory. This section seeks to consider what people have the potential to learn from emotionally significant wildlife encounters.
Learning from wildlife

Learning is a process that brings together cognitive, emotional, and environmental influences and experiences for acquiring, enhancing or making changes in one's knowledge, skills, values, and worldviews (Illeris, 2000 and Ormod, 1995 via Merriam, Caffarella, and Baumgartner, 2007). Numerous other definitions exist for learning, many of which center around measurable outcomes such as knowledge development or enhancement. However, I believe the definition above is most appropriate for the purposes of this manuscript as it describes a process of learning from experience that potentially includes all five of the emotional components described by Scherer (2005)

Put simply: "Emotionally laden thoughts are highly salient and more readily encoded than non-emotional thoughts" (Bernstein et al., 2006 via Hudenko 2012, p.21). In other words, situations infused with emotion are more frequently committed to memory, or learned. Woods and Mascard (2003) posited that when tourists are emotionally engaged by a wildlife encounter, they are more likely to remember details of their trip and to commit the interaction to memory. Previous studies have identified how emotional response to wildlife (including but not limited to awe) can influence one's wildlife value orientations (Hartel, Carlton, and Prokopy, 2015), travel experiences (Curtin and Kragh, 2014; Ballantyne, Packer, & Sutherland, 2011), attitudes toward wildlife conservation (Nelson, Bruskotter, Vucetich, and Chapron, 2016; Skibins, Powell, and Hallo, 2013), and perceived importance of wildlife stewardship (Larsen, Cooper, and Hauber, 2016). Other authors have considered the influence of emotional dispositions on wildlife management preferences, each finding that certain emotions (fear, disgust) predicted the level of support for controlling predatory wildlife (Sponarski, Vaske, and Bath, 2015; Frank, Johannson, and Flykt, 2015; Jacobs, Vaske, Dubois, & Fehres, 2014).
Science education literature has recognized this relationship as well, increasingly incorporating emotion into teaching and learning strategies, “where emotional appeals often facilitate achievement of educational goals” (Fortus, 2014 via Larson, Cooper, and Hauber, 2016, p.30) However, perhaps the clearest support for the relationship between wildlife and learning comes from Ballantyne et al., (2011):

“The combination of emotional affinity with a reflective, cognitive response appears to have the most powerful impact on visitors, leading to a concern and respect not only for the specific individuals encountered in the wildlife tourism experience, but the species as a whole. In this way, the wildlife experience made environmental issues more personal and relevant to them (p. 774)”

All told, there is support for a framework that will allow me to explore the finer points of the process by which people learn from their emotionally significant experiences with wildlife. That proposed framework is described in the next section.

A Framework Connecting Awe with Learning

Developing a preliminary framework necessitated the consideration of two theories, each of which can help to frame different aspects of this study. Experiential Learning Theory (ELT) (Kolb, 1984; 2000), and Theory of Emotional Memory (TEM) (LeDoux, 1996; 2000) were considered. ELT incorporates the importance of appraisal into learning; the circular structure allowed for learning to continue over time. Unlike more linear models, ELT is constructed on the foundation that understanding is not static – the learning process is perpetually in motion. TEM, while more linear, directly addresses the manners in which emotion influences memory formation and retrieval creates a pathway for new understandings to evolve.

Experiential learning is defined as "the process whereby knowledge is created through the transformation of experience." (Kolb, 2000) Kolb (1984/2000) suggested that learning is a process of moving from the events of life, to reflection on those events, to re-framing the way we
think about world due to our own reflections. More formally, Kolb suggested a learning process that moves from direct experience to reflection to broad abstraction to challenging those meanings, and back around again (Figure 1). This experiential learning loop accounts for the understandings that we bring with us into situation, in this case, in human-wildlife interactions. It is with this existing understanding that people respond to the wildlife they encounter as time passes.

![Experiential Learning Cycle](image)

Figure 1. Experiential Learning Cycle. (Kolb, 1984)

Application of ELT to wildlife-related settings has precedent. Ballantyne, Packer, and Sutherland (2011) utilized Kolb's theory in their description of wildlife tourist experiences in Australia. Ballantyne's (2011) mixed method study sought to document to what extent human-wildlife interactions led to changes in behavioral response on the part of tourists. The interpretation of their findings revealed striking similarities to Kolb's (1984) theory of experiential learning. Specifically, interviews with tourists revealed sensory impressions (concrete experience) and reflective responses (reflective observation) were significant factors in future values (abstract conceptualization) and behaviors (active experimentation) toward
wildlife. Though not specifically citing Kolb, Jacobs (2009) also chronicled a very similar process by which emotion impacts knowledge and meaning. In one example:

People born in India may like cows because they have learned that cows are sacred animals. When these people encounter or think of a cow, the knowledge is activated and may turn on the emotional system, which produces a positive emotional reaction. Knowledge can thus become a cause of feelings, and therefore a cause of liking or disliking animals.

Application of Theory of Emotional Memory to a wildlife context

Already well-established is the notion that wildlife has the ability to elicit a wide variety of emotions. Moreover, ELT has noted the role that emotion plays in learning. However, a fully formed theoretical framework necessitates greater consideration for how emotions are experienced and processed. This is provided by LeDoux’s Theory of Emotional Memory (TEM). It has been demonstrated in previous research that emotional events are often remembered more vividly and more accurately than events that do not have an emotional component (Reisberg and Hertel, 2005). LeDoux (2007) offered one way to conceptualize the notion that emotional experiences influence memory. Though LeDoux (2007) focused strongly on parts of the brain related to memory, specifically the medial temporal lobe and amygdala, the larger value of his work in this context is related to the processual nature of memory and implications for learning and knowledge development. "We remember life’s important moments especially well. Emotional experiences, whether good or bad, leave strong traces in the brain" (LeDoux, 2007). Whether stored consciously/explicitly or unconsciously/implicitly, emotional events are more likely to be committed to memory. Consequently, emotional events become more likely to lead to learning.
Integrating emotion and experiential learning

We have already identified that highly emotional experiences are more likely to be committed to memory. Having information committed to memory is the very definition of learning. Different from moods, emotions tend to have a quick onset, but a brief duration (Ekman, 1992). However, the effects of those emotions can potentially be long lasting, as emotional experiences are committed to memory and subsequently retrieved/relived over time in an appraisal process. The salience of emotion in our thoughts, as demonstrated by ELT and TEM, illuminate that emotions have a relationship with subsequent learning.

Beard and Wilson (2002) went as far as to suggest “The affective domain can be seen to provide the underlying foundation for all learning.” Yet despite findings that suggest the important relationship between emotion and learning and that adults have perhaps the greatest ability to benefit from emotional learning, “understanding the processes by which this is
accomplished is sorely lacking” (Charles, Mather, and Carstensen, 2003). I believe that therein is the value of the Wildlife Experiential Emotion Model (Figure 3).

Figure 3. Wildlife Experiential Emotion Model

The model that I am proposing illustrates the literature-supported belief that learning is more likely to occur following times of heightened emotional response. To be clear, this is an exploratory study in which broad application is not a primary goal. As such, I am not seeking to test theory. Rather, seeking a framework for application. This proposed integrated theoretical frame did not exist prior to the development of this manuscript. There is very little doubt that as I
seek to further understanding the relationships between emotion, wildlife, memory, and learning, existing theory will have to be gradually adapted.

The model is oriented from the top center, where concrete experiences are occurring essentially in perpetuity. The vast majority of experiences are mundane in nature, or unmemorable. For example, driving to work every morning is unlikely to provide a significant memory; that is, unless an emotional event occurs, such as a car accident involving a deer. It is during those times of heightened emotion during which both experiential learning occurs as does the development of emotional memories. Not only does hitting a deer with one’s car lead to the ELT process of reflection-abstraction-experimentation, the experience is also committed to memory. Visuals or “mental pictures” are likely to persist, as well as the feelings that went along with those visual cues. In the case of the person who struck the deer, the image of the animal in headlights or dead on the roadside may persist. For others with similar experiences, perhaps it is the images of damage to their car or their deployed airbag that persist. Regardless, the heightened emotional state brings about potentially vivid emotional memories.

Emotional memories influence learning. This occurs not only during memory development, but also during memory recall. Due to the emotionally salient nature of the accident, the person who previously struck a deer with their car could have the memory called to mind while hiking through a local park and seeing a deer. While, from an outsider’s perspective, hiking and driving might appear to be disjointed events, the person who had both experiences could likely link them in their mind. Though hiking and enjoying leisure, the person’s brain “brings her/him back” to the time and place when they had the accident. They may recall those vivid visuals that were initially so significant. Such memories influence not only the basic leisure value of the hiking experience, but also influence the deeper learning process they are
experiencing. A person who spent most of their life enjoying the presence of deer may no longer have that appreciation following an accident with one. On the other hand, a soured opinion of deer as the result of an accident is also not necessarily static; subsequent positive experiences with deer can lessen the negative influence of the emotional memory. The inverse is of course also true, which speaks to the complex, cyclical, and continuous nature of experiential learning and emotional memory.

The topic is worthy of further consideration. Tomkins (1962) suggested that emotion was a hard-wired part of all people. As Denzin (1984) suggested, “To understand who a person is, it is necessary to understand emotion.” (p.1) Dirkx (2001) expounded further: "(Emotions) are an integral part of how we interpret and make sense of the day-to-day events in our lives. As we look at and come to understand our sense-making practices in daily life and the ways emotions constitute that practice, we reveal ourselves more fully to ourselves and to others" (p.65) Or as Lupton (1998) suggested, “Our concepts of our emotions are often integral to our wider conception of ourselves, used to give meaning and provide explanation for our lives” (p.6). The connotations for leisure research are clear. Reframing emotion as a fully natural and necessary component to behavior will encourage further examination of human-wildlife interactions and allow for a deeper understanding of what people learn from their encounters with wildlife.

Particularly worthy of further examination is awe. Significantly understudied and perhaps even less understood, awe remains in some ways as enigmatic as it was when Muir described his feelings of reverence, fear, and wonder while surrounded by mountain thunderstorms. Indeed, the literature has only begun to define awe, and research efforts devoted to awe have been rare. In order to move forward both research and practice, we must continue to explore awe as a real, significant experience in our lives.
Synthesis

Providing the conduit between ideas that have previously gone seemingly unconnected is an important step in explaining the rationale for the data collection methods of this study. To this point we have learned:

1. Wildlife encounters elicit awe
2. Awe encourages memories about wildlife
3. Awe-inspired memories suggest learning has occurred

Subsequently, connecting these ideas and theories allows for the exploration of the ways in which awe is elicited among wildlife watchers and the learning implications for those experiences.

Research Questions

I believe that key exploratory steps can be taken through this study, which seeks to answer the following questions:

- RQ1: In what ways is wildlife-inspired awe experienced among adults?
- RQ2: What factors contribute to memories of wildlife-inspire awe?
- RQ3: What roles does wildlife-inspired awe play in influencing learning?

Measuring Wildlife-Inspired Awe

While there is a strong enough foundation in the literature that could inspire some to make predictions about their connections, it is my opinion that exploring the synergy between two well-substantiated theories is one that is most well accomplished through data collection. Specifically, through the research methods that follow, I will explore the synthesis between ELT and TEM through the lenses of wildlife-inspired awe. In the process, I will answer the three
primary research questions above: 1) In what ways is wildlife-inspired awe experienced among adults? 2) What factors contribute to memories of wildlife-inspire awe? and 3) What roles does wildlife-inspired awe play in influencing learning?

Procedure Overview
As has been chronicled to this point, exploration of topics related to awe-inspired experiences with wildlife has been limited. Subsequently, methodological approaches for exploring how people experience awe while in the company of wildlife remain largely untested. I do not view this a limitation, but rather, an opportunity to consider an array of methods that might best provide insight into the extent to which wildlife elicits awe among adult wildlife watchers and the roles awe plays in influencing wildlife-related learning.

For the purposes of this study, measuring wildlife-inspired awe experiences will require the use of sequential mixed methods. In this case, the sequence is one that has historically proven reliable, utilizing in order, a strategy by which intercept interviews inform the development of an intercept survey, the results of which will inform the development of a more thorough semi-structured interview protocol.

Each stage of data collection builds upon the one previous. The three stages will be united by the objective of exploration. In stage one, I explored the meanings and understandings people have of awe in a wildlife context. The understanding of how people ascribe meaning to “awe” and similar terms will allow for development of stage two, an online intercept survey. The survey allowed for the development of a scale that might better allow for measurement of awe. Stage three interviews enhanced the exploratory efforts of the first two stages and provide initial fodder toward explaining what participants learned from their awe-inspired experiences with wildlife. Details of these three stages are explained in full below.
The benefits to mixing methods lie in what Greene (2007) called complementarity: mixing methods to “elaborate, enhance, deepen, and broaden the overall interpretations and inferences from the study” (p.101). In the case of measuring complex phenomena, particularly in an exploratory context, utilizing both qualitative and quantitative measures will enhance both the breadth and depth of the findings and ideally encourage further discussion. Moreover, a similar data collection approach was taken by Ballantyne, Packer and Sutherland (2011) and Ballantyne, Packer and Falk (2011) in their exploration of emotional responses and relationships with marine wildlife. Though disseminated in separate publications, Ballantyne’s study demonstrated the holistic benefits of a mixed methods approach, as different data types functioned to increase the number of findings as well as bolster triangulation efforts. In the case of this study, data collection is sequential insofar as information obtained during stage one will inform the design of stage two, and information collected during stages one and two will inform the revision of queries utilized in stage three. For this exploratory study, I believe that a phasic design is most beneficial as it will allow for a co-construction of knowledge between researcher and participants. Moreover, as wildlife-inspired awe is an insufficiently understood concept, a phased implementation of data collection will allow me to refine methods and terminology based on that which is most well understood by participants. Succinctly, awe is not well understood, and the greater degree of freedom I have during data collection, the more impactful the potential results.

It is not coincidental that two of three data collection stages are qualitative in nature, nor is it accidental that the quantitative component is heavily-laden with qualitative undertones. The value of storytelling as a means of depicting experience is one that is well-substantiated. “Human beings express their experience of the world through art, science, law, medicine, architecture, etc. and especially through language… it tells us who we are but also is continuously formed by
us in a self-forming process (Van Mane, 1990, p.14).” It is reasonable to assert that by extension, sharing stories is an expression of who we are as well as a depiction of the ongoing self-forming process. By the end of this study, it is my hope that I will have provided thorough documentation of subjects’ learning processes related to wildlife-inspired awe. These processes are by definition lifelong in nature and will necessitate storytelling on the part of participants.

Glover (2003), Polkinghorne (1988) and others advocated for such data collection measures, suggesting that telling stories is a genuinely human way for people to organize their experiences into meaningful wholes. Not only is this belief common, but others have suggested that in conducting research on human subjects, ignoring the experiential aspects of life is to misrepresent the very essence of what is means to be human.

“Human… experiences are viewed as emergent or ongoing social constructions or productions. The emphasis is on how human group life is shaped by people as they go about their activities at this, that, and other points in time. Since all aspects of group life take place in process terms or take their shape over time, it is essential that the human condition be conceptualized and studied in manners that are acutely mindful of the emergent nature of human lived experience” (Prus, 1996, p.17).

To be sure, there are many critics of self-report measures. However, Scherer (2005) justified the practice:

“Given the definition of a feeling as a subjective cognitive representation, reflecting a unique experience of mental and bodily changes in the context of being confronted with a particular event, there is no access other than to ask the individual to report on the nature of the experience” (p.712)

The implications are clear: Data collection involving multiple methods is vital to the success of this study, and without a platform for participants’ storytelling their complete narrative might not otherwise be understood.
CHAPTER THREE: REFLECTION AND TRANSFORMATION (STAGE ONE)

In what ways is wildlife-inspired awe experienced among adult park visitors?

Seeking to answer research question number one, in this first stage of data collection I will explore ways in which adult park visitors experience wildlife-inspired awe. Through interviews, I sought to explore the emotionality of the initial encounters with wildlife, while also considering the reflective process of meaning-making that follows. To make meaning or make sense of something is to learn from it. As such, I created interview questions that also explored the ways in which participants reacted to and learned from the awe experience in wildlife-related contexts. With pilot interviews I sought to ensure that definitions are clear and terminology is appropriate for interactions with participants in subsequent portions of this study. The understanding of meanings was accomplished by allowing participants to identify their own definitions and clarifying in their own language the meanings they associate with their chosen terms. As a means to facilitate the subsequent development of a scale to measure wildlife-inspired awe, this first stage of data collection also served the pragmatic function of allowing me to explore the context and language in which awe is discussed as a response to wildlife encounters.

Methods
Setting
I collected data in Busey Woods, located in central Illinois. A parcel/facility operated by the Urbana Park District, the 59-acre area is a locally well-known destination for urban dwellers seeking natural spaces. A primarily wooded, oak-hickory forest floodplain, the parcel features an accessible boardwalk loop as well as primitive hiking trails. Intended to enhance wildlife observation experience, the park prohibits pets, cycling, and collecting items. A former dumping
site for construction materials, the ecosystem has undergone steady restoration since 1991, and today serves as a hotspot for birders, wildlife enthusiasts, and other recreationists. Other leisure pursuits in and near Busey Woods are reported to include hiking, running, cross country skiing, picnicking, and horseback riding. Additionally, Busey Woods is home to the Anita Purves Nature Center (APNC), and sits adjacent to Crystal Lake Park and the Family Aquatic Center. The latter increases site visitation dramatically, and enhances the leisure diversity of the site.

Migratory birds are often abundant, particularly in spring and fall, and the APNC serves as a visitor center for nature interpretation and education of avian and other species. Wildlife observed in the area includes common Illinois species such as deer, fox, coyote, raccoon, opossum, salamander, frog, turtle, and numerous migratory songbird species. Though more charismatic species are generally not thought to be present, the wide variety of recreation opportunities coupled with the potentially high interest in wildlife observation make Busey Woods an ideal study site.

Specifically, I collected data from an area adjacent to the APNC, on the edge of Busey Woods, where foot traffic and visibility are high. With the looped nature of the trail system, this strategic placement will allow me the ability to identify the vast majority of site visitors, as well as give me the option to intercept prior to or upon completion of their recreation experience.

Procedure/Sample

I conducted 11 pilot intercept interviews with adult visitors. A table was positioned adjacent to the Busey Woods visitor center and signage invited recreationists to take part in a semi-structured interview about wildlife while on-site. Data were collected over the course of two weeks in mid-September, alternating weekdays, weekends, mornings, and afternoons. I
employed a system by which I invited every ninth adult visitor to participate. The participation rate was 92%, with one potential interviewee declining to take part, citing time constraints. Water, granola, and other trail-friendly items were offered to entice participation. Interviews were recorded and transcribed according to IRB protocols. Participants had the opportunity to include contact information for potential follow-up clarifying questions, though anonymity was otherwise be maintained. Following informal introductions and after obtaining consent, participants were read a short description of the nature of the study and were offered an opportunity to ask initial questions of their own. Interviews were then conducted utilizing the semi-structured protocol in Appendix A.

Interviews I conducted with 11 adult visitors to Busey Woods lasted between 10 and 45 minutes, with the average interview lasting approximately 21 minutes. The sample comprised 6 females and 5 males, with all but one appearing to be either 30 or younger or 50 or older, however specific numerical age was not formally discussed. Partial anonymity was maintained, as participants only introduced themselves using their first names. They are identified henceforth by pseudonyms.

Analysis

I transcribed then analyzed data with common themes identified from the transcriptions. Field notes were taken in conjunction and post interview via code memos (Emerson, Fret, and Shaw, 1995). This process entailed utilization of open coding, then axial coding, and finally selective coding (Strauss and Corbin, 1998). Transcriptions were read separately then in conjunction with my notes that were collected at the time of the interview. A color assigned coding strategy was utilized to categorize emergent themes and transcriptions were reviewed multiple times in order to increase trustworthiness. The same analysis process was repeated in
stage three, however in the case of stage one, special attention was given to the word choices and descriptors participants select in describing their experiences with wildlife; this allowed me to have a more thorough understanding of how people ultimately identify and respond to awe. Data collected during stage one directly contributed to the development of stage two.

Stage One Results

Through stage one data collection, I sought to answer research question number one: In what ways is wildlife-inspired awe experienced among adult park visitors? In the explorative effort to develop an understanding of ways in which people experience awe, two significant themes emerged: Wildlife-inspired awe is a potentially transformative experience and experiences of wildlife-inspired awe encourage further pursuit of wildlife. A third theme also emerged that informed the development of stage two data collection; participants suggested that the term “awe” did not do justice to their transformative wildlife experience.

Wildlife-inspired awe is a potentially transformative experience

Participants in this study described wildlife-inspired awe experiences with specificity. Their descriptions suggested that even in the present day they were able to visualize the time surrounding the wildlife-inspired awe experience. Even during the initial event/experience, they expressed that they were aware of the significance of the encounter. Moreover, in the years that had passed since experiencing wildlife-inspired awe, they demonstrated that they had taken part in a reflective or appraisal process that helped them process or make sense of not only the interaction, but the behaviors and choices they would make subsequently. These transformations were present in eight of those I interviewed. In the two cases considered below, participants described excitement- and fear-inducing interactions with wildlife that they ultimately would come to define as positive experiences despite the potential for the opposite to occur. Through
storytelling, they illustrate the feeling and appraisal components of the wildlife inspired awe experience.

Sally: (Seeing wildlife) is calming, and I just really enjoying sharing that moment with whatever animal you’re looking at. Especially if you’re kind of alone and you happen upon something, it’s just like ‘I, I alone am getting to enjoy this really cool moment and this animal is part of it.’ I don’t know, it just makes me feel good. They are always positive feelings. Even if it’s like a scary encounter, even afterwards, I would say it overall is a positive feeling or experience. I’ve never had anything really scary, but just like being close to a bear can be like dangerous or scary, but, I always feel good coming out of a walk looking at wildlife. That’s what brought me out here today.

The notion that negative emotions can still result in a positive reflective experience speaks directly to the experience of awe. Four participants described experiences for which they understood there were “supposed to be” scared, a negative emotion, and yet the prevailing, post-reflection feelings were far more positive. They perceived that their memories were unchanged, but the feelings they associated with the experience had transformed over time.

Katie: There was this one occasion where I was in Montana working on a project for the USGS and the purpose of the study was to get a population estimate for grizzlies in the lower 48 states. I had such a cool encounter with a bear. I saw lots of bears that summer, but there was one that stood out in my mind, because it was very shocking. So (my partner and I) were on this trail, walking around the side of an elevated slope or mountain I guess and (pauses and takes a deep breath) we saw this bear right on the trail, he was right in front of us, maybe ten feet away. In our training they taught us that you needed to look really big, so we threw our arms up and shouted ‘hey bear!’ And it stood up on its hind legs and barked and it was so close you could see the saliva rolling down the side of its mouth. It approached us a little bit, and we grabbed our bear spray, as though that would make a difference, and my heart was pounding a million miles an hour and... (slows pace of breath) then we slowly backed away and the bear was smelling the air but it chose not to charge. There were some encounters over the course of the summer, but with 120 people in the field for three months, there weren’t any attacks, which I think spoke volumes about how docile grizzlies can be. So, that was an amazing experience and I always think of that because it made quite an impression on me.

Katie described not only fleeting emotional moments of the initial encounter, but also described how she processed at the time and subsequently. She was able to simultaneously and seemingly effortlessly recount the sights, sounds, smells, and feelings of the experience as well as the meaning making process she had since. Her tone and facial expressions progressed through a
fascinating sequence that I can only compare to those what might be experienced during an amusement park ride. This is to say that during her response she shifted seamlessly from happiness, to excitement, to trepidation, to relief, before concluding with the same confident, introspective calm expressed in other interviews.

Frank expressed a similar level of detail, but with emotional responses that were more difficult to ascertain.

Frank: I was in the fifth going into the sixth grade and we went up to see the deer that I had raised. It was January. And at the time, we kept the deer in a pen alongside the creek that ran through the park there. There was like an old rock quarry there and that’s where we kept the herd of deer. Well, I’m 11 years old and I don’t realize about the rut. So I go ahead, like I’d done hundreds of times before, and I let myself into the cage and was going to see the deer because they had never been aggressive. But the dominant buck in the herd took me out. I had 34 puncture wounds. Of course, it’s January and the park is closed. They had been feeding the deer lettuce, and this is when lettuce crates were actual crates, and they would just back the truck up to the top of the quarry area and throw (the lettuce crates) down into the deer pen. I worked my way into the crates and started using those to protect myself. I started sticking them on his antlers. I had a large puncture wound behind my right leg. I was wearing cowboy boots and I remember my foot getting very warm and then watching the blood flowing over my boot. I was slowly bleeding to death. And I was by myself. And there was nobody there. Eventually after hollering and being gone for a while, the caretaker’s daughter finally found me and went and got help. I had 34 puncture wounds. I knew after that point, nobody could ever beat me worse than that. Yeah, that was my first time that I learned to have respect for the deer.

He was smiling widely, so I pressed him further: “You just told me a story about how you nearly died, how can you possibly be smiling?”

Frank: Because I lived. I lived to tell the story. That’s the big thing. People don’t actually have enough respect for wildlife. I’ve thought that for many years. But I’ve had a lot of really good experiences with wildlife. I’ve literally had deer bedded down in our front yard. There will be thirty deer just standing there eating the grass, walking down the street like they own the place. Just the other day, right back over there, there’s mama deer and baby near the mausoleum near the cut-through road and the baby is feeding. And I just thought, ‘wow that’s pretty cool.’ That’s kind of the awe thing. It’s when you get a chance to witness animals in their natural state, not behind a screen or a glass wall. That’s where you get your awe factor I think.

Frank, while explaining in unparalleled detail the physical attributes of the awe experience, outwardly provided little with regard to his emotive response. He could go on seemingly
endlessly about the buck, his efforts to protect himself, and his wounds; he described each clearly. Less clear were the feelings he experienced. Indeed, he never verbally acknowledged fear, the likeliest of emotions.

In the cases of both Katie and Frank, their initial emotion of fear would eventually give way to a prevailing memory of awe. This transformation of experience is almost certainly a result of lifetimes of other positive emotional interactions with wildlife, processed and contemplated into a positive amalgam of wildlife-inspired experiences.

In sharing their personal stories of transformation, participants revealed a narrative that speaks directly to the first research question. Additionally, participants also suggested a specific positivity to their memories of wildlife-inspired awe. Specifically, among those I interviewed, experiencing wildlife-inspired awe ultimately inspired people to seek out new awe experiences. What follows are descriptions of learned behaviors associated with transformative experiences of wildlife-inspire awe.

Experiences of wildlife-inspired awe encourage further pursuit of wildlife

Awe is not an emotion that participants experienced on a regular basis. Still, despite the apparent rarity of experiencing awe, and their awareness of that fact, it did not seem to have curtailed participants’ pursuit of experiencing the emotion further. Encountering wildlife, and subsequently having the potential to experience awe, was among the key reasons park visitors were present at the park. After sharing with me stories about awe-inspiring interactions with wildlife, each participant admitted that they wanted to experience awe on their hike that day, though they didn’t expect to. Participants were consciously pursuing wildlife interactions. It was
unclear if they were consciously aware they were pursuing awe prior to being interviewed, but once asked, there was no question it was among their key motivators.

For Steph and Mike, awe was directly, deeply experienced between human and wildlife. They each described brief but ultimately incredibly personal situations with individual species.

**Steph:** We’ve seen eagles here lately. We spotted a juvenile bald eagle sitting in the field. I saw that orange beak. We were driving by and I thought to myself ‘that’s a big bird.’ We were a couple of hundred yards away and I just thought ‘that’s a BIG bird.’ The eagles... (pauses, smiling, then whispers) the eagles are special.

At that point, Steph got quiet. Upon finishing her sentence, she paused, then exhaled loudly. She smiled and stared into the distance. I remained quiet for approximately 20 seconds, during which neither of us spoke. When I asked her to explain what she was experiencing, she told me that she was visualizing the eagle in the corn field. Even though I was present with her, it was as though the positive memory was significant enough to render me all but absent.

In the case of Mike, the creature he described was not nearly so large, but the up close and personal nature of the encounter remained.

**Mike:** There was a snail this one time, and I was trying to let this snail crawl over me and look at it and I was really trying to communicate with the snail that I loved it. I don’t know, I felt this really strong connection with it and, man, I really felt connected to the snail crawling on me. It was like so small and so peaceful. I felt like it was more attracted to my hand than the dirt. I felt like it just wanted to be on my hand for a second. I just felt like it wanted to be there, just for a little bit.

Like Steph, Mike seemed to want nothing more than to relive the positive experience and to make it last. While a snail does not have the scale of an eagle, in this case it seemed to be no less impactful. Mike relived the experience right in front of me. Like Steph, he grew quiet and looked away. As he spoke, he was turning his hand over, and pulling it closer to his face for further
inspection as though the snail were still present. His eyes were wide, and he spoke with a calm, vaguely euphoric tone similar to that of Steph. The snail was gone, but the connection remained.

Sitting with me at a small table adjacent to the urban woodland, Steph and Mike individually expressed narratives of connection and reverence. After telling their stories, I asked them if they hoped to have similar encounters during their hike that day. “Yes, of course,” said Steph, as though I had just asked the most foolish question possible. “I want that every day. I don’t expect to, but I want to.”

Very similar to Steph and Mike, Steve suggested that wildlife-inspired awe was connected to a perceived sense of insignificance.

Steve: Being around animals helps me understand their behaviors, their habits, and what they eat or where they hide out, where their habitats are, where they sleep. Just by observing. Watching the adults feeding their young, basically just observing how bumblebees and butterflies interact with flowers. Especially watching spiders and their webs. I’m bigger than them, but it makes me feel so small. Like, in good way.

For Steve, part of what made wildlife experiences valuable was that he could feel “small” in their presence. Like Steve, on the days I spoke with them, the participants in this sample overwhelmingly wanted to continue to hike, walk, see, and ultimately experience the natural world around them.

Sally: Wildlife makes me feel like I’m being more observant and aware of my surroundings. You can walk through these woods and not see anything, birds are migrating and things are kind of hiding out, but if you kind of take the time to be present and notice those things, it’s really satisfying to me to get to think, like ‘oh I could have missed that, but I saw this thing move and so I got to see that squirrel drop a walnut on my head’ or whatever.

Sally went on to describe an encounter with a bear, during which like the other participants she felt fear that eventually gave way to awe. Though she was well aware that bears were not present that day in Busey Woods, she expounded on how previous awe experiences informed her choice
to hike that day. Sally was a cancer survivor, only a few months removed from her last surgery. She was hiking alone that day, something she said she did often. The woods were a place where she experienced awe before cancer, and she seemed to not only seek, but still find awe in the forest after the disease was in remission. She didn’t talk about wildlife-inspired awe as something that helped her survive her cancer experience. Rather, wildlife was simply something that was always there for her for she could always find joy.

*Sally: I don’t know, megafauna is just kind of inspiring to me. I guess we see it so rarely or so rarely get to interact with it in a natural setting, because there aren’t many left. People don’t get out in to parks that are big enough or set up in a way that those animals can thrive. Seeing a bear is a good indication that something is going right in that area.*

While anecdotally it may seem counterintuitive to suggest that wildlife regularly categorized as dangerous could enhance the value of a site or experience, Sally was not alone. Jeff described a situation during which an encounter with a cougar proved particularly memorable:

*Jeff: I was at Forest Glen (neighboring site), and they had a panther or mountain lion up there. We got to see it from the observation tower, so that was really cool. It was cool, it wasn’t really scary. It was nice. Every time I’ve had an experience out here in nature with animals it’s just been awesome.*

Both Sally and Jeff had encounters with potentially dangerous wildlife, and both still talked excitedly about the value of being in the woods. Further, they not only sought to explain why they were present, but why they thought others should come to the woods as well. Both spoke positively about Busey Woods, but their responses were not site specific. Like several other participants, the ideas of the woods, nature, and wildlife were all intermingled and were all ultimately ingredients in the creation of the awe experience. To be sure, wildlife was a key element, but not unlike Sara, it did not exist independently of the other factors.

To this point, we have identified that in response to wildlife-inspired awe, participants were inclined to try to have similar experiences again and again. The reflectively positive view
of awe as a experience was present across the sample. However, when I began using the term “awe” in the interview, participants had some difficulties in its definition and usage. While ultimately tangential to the first research question, a third theme emerged from stage one data collection that is included here as it lent insight to stage two scale development.

The term “awe” did not do justice to transformative wildlife experiences

Participants were sometimes reluctant to embrace the term “awe” thinking that their experience was bigger, different, or otherwise not captured by it. Participants had no difficulty describing the aesthetic details of their transformative experiences of wildlife-inspired awe. However, when following their descriptions I asked them about what the word “awe” meant to them, participants had difficulty expressing what they thought the term meant. I challenged participants to use the word awe. Based upon their responses, the theme was that for many participants, the term “awe” did not do justice to the transformative wildlife experiences they sought to explain. In some cases, participants grew frustrated when trying to explain what they perceived the term to mean.

Sally: Awe is a terrible word (laughing). It’s indescribable. I guess it’s just like having this disbelief almost that whatever you’re looking at even exists, or that you’re experiencing what’s happening. It’s also good. Well, wait, maybe it’s more of a neutral thing that then leads to positive thoughts. I don’t know. Other than being in nature looking off of some amazing vista or wildlife watching, I don’t think I would ever use the word “awe” except maybe looking at old large architecture, at an old building.

Sally’s account of awe parallels those of historical accounts; a thing of great beauty and horror. She was familiar with the term, but hesitated to use it. Katie seemed to experience similar challenges in defining awe. Like Sally, she knew that she had experienced awe, and she knew awe was something she liked experiencing. Also like Sally, she pursed her lips and furrowed her
brow in frustration as she attempted to express some of the feelings and thoughts that surrounded awe.

*Katie: Awe is rather obtuse. Awe is something that (long pause)... maybe I don’t have an informed opinion about awe because I feel kind of stumped.*

At this point, she let her hands down to her sides and slumped her shoulders slightly. In an effort to keep her talking, I asked her to describe an experience where she thought she might have felt awe.

*Katie: Awe I would associate with the sublime and a sort of landscape that is beyond words, where you can’t articulate the emotions necessarily. It’s like an all-encompassing feeling or emotion. And there is something about the timing when it occurs. It’s kind of beyond time. It’s like it occurs outside of or after you have an emotional response. It’s almost beyond expression, it’s like the ultimate feeling, where it’s so deep seeded that it’s just a feeling, it’s not anything that you can put your finger upon.*

For Katie and most others, a discussion of awe required context. To vaguely describe awe at a definitional level was a challenge. However, when participants had a situation to think about, they were able to more effectively articulate their thoughts. Participants were consistently more able to describe awe following their description of situations in which they knew they had felt awe. The ability to know awe but not know how to describe it suggested that in the pending development of a stage two scale/questionnaire, consideration of awe should likely center around a specific experience or context.

Despite any difficulties related to terminology, the experience of awe inspired participants to pursue it further. In their recounting of awe-inspired experiences, participants described a wide ranging slew of emotions, the bulk of which were positive, including excitement, fascination, wonder, and the sublime. The negative emotion most often cited was fear, suggesting that while it had given way to awe as the prevailing descriptor of participants’ experiences, it was still a present emotion.
Stage One Discussion
During stage one data collection, themes emerged that allowed for a deeper understanding of the wildlife-inspired awe experiences and allowed me to respond to my first research question.

RQ1: In what ways is wildlife-inspired awe experienced among adult park visitors?

Emergent themes:

1) Wildlife-inspired awe is a potentially transformative experience.
2) Experiences of wildlife-inspired awe encourage further pursuit of wildlife.
3) The term “awe” did not do justice to transformative wildlife experiences

The people I spoke with knew awe; it was something they thought about a great deal and had over time come to understand what it meant to them. Participants had in many cases spent years reflecting upon their initial encounters in hopes of making sense of the experience. Awe was not static. For those with whom I spoke, wildlife-inspired awe was an experience that had the potential to be transformative. The transformation of experience happened over time, and many participants suggested that while the initial wildlife contact might have been rather scary or unpleasant, their subsequent feelings about the experience are essentially positive.

The learning process described by participants played out similarly to what was described in the Wildlife Experiential Emotion Model. Specifically, stage one data depicted the first two steps of the model: the recall of emotional interactions with wildlife, and the subsequent appraisal that allowed them to make sense of the event. In the moments of the initial wildlife encounters, emotions ran high. Over time, reflection provided further context and understanding. By the time participants shared their stories with me, they had exalted the awe experience itself to a level resembling reverence. This is to say that the totality of the transformative experience,
including the feeling and reflection components, had become a valued asset for the participants. They treasured their experiences with wildlife and wanted to relive them. Still, it is unclear whether the awe experience itself inspired the reverence, or if the ability to tell the story of the awe experience ignited this seemingly euphoric state.

Regardless, a theme emerged for which participants had, over time, seemingly revised the meanings of many of their most dramatic wildlife encounters. Frightening encounters with bears and near-death experiences with white-tailed deer were each remembered fondly, albeit many years after the initial contact. Despite experiencing fear while in the presence of wildlife, participants in this first stage of data collection suggested that their memories were not an indictment on animals, but rather an opportunity to learn from their experiences. Following their initial fear-filled encounters, any one of the participants could have chosen never to return to natural areas again. Instead, the knowledge they extracted from those encounters, usually informed by years of subsequent encounters, was positive in 100% of those with whom I spoke. During the course of their reflective processes, fear had transformed into awe, wonder, and reverence. Each was demonstrating leisure behaviors on the days I interviewed them; their behaviors suggested that learning has occurred as part of a reflection process.

In the effort to develop an understanding of ways in which the experience of awe impacts people, the notion that wildlife-inspired awe experiences can encourage further pursuit of wildlife may seem intuitive. Indeed, the notion that people would pursue stimuli that made them feel good is not new. Specifically, Shiota (2007) found that “reliving awe experiences made participants want to be in such environments again. (p.950)” By being present in the park that day and pursuing leisure, each of the participants demonstrated a desire to relive experiences of wildlife-inspired awe, even if most did not expect such an event to occur. Even the unlikely
chance that participants might have a significant encounter with wildlife was enough to bring them to the park. This finding is particularly noteworthy when considered alongside the previous theme that wildlife-inspired awe is a potentially transformative experience. In tandem, the two predominant emergent themes of this chapter serve to illuminate the ways in which wildlife-inspired awe is experienced among adult park visitors. Their experiences began with an initial encounter. The initial encounters were filled with a multitude of emotions, some very positive, some very negative. Over time, the immediacy of the emotions gave way to appraisal. Participants thought about what they felt and though about what their feelings meant. They questioned what could be learned from the encounter. Informed by other salient encounters, participants could make sense of their wildlife experiences. In some cases, those experiences were described as being filled with awe, wonder, and reverence. They acknowledged that initially they may have felt fear, but over time, the significance of the fear had faded, having given way to the awe they described during their interviews.

Participants learned from their encounters. However, they had not learned in an academic sense; they were not concerned with facts or scientific names. Rather, they learned what animals such as deer and bears meant to them; they learned the value of certain wildlife and certain settings; they learned that even following fear-filled encounters in their younger years, they still valued a walk in the park as an adult. This finding will be important throughout the entirety of this dissertation.

Limitations

Among the limitations of this initial stage of data collection is sampling bias, which undoubtedly occurred despite my best efforts to avoid the issue. In no way do I assert that the sample with whom I spoke is representative of the central Illinois park-going public. Moreover,
by offering trail-friendly snacks, participants may have been more likely to participate, but were perhaps also more likely to respond to questions in a manner they thought I would prefer. There is no question that social exchanges occurred between myself and the participants, and the potential for social desirability bias should be acknowledged. A final point: all interviews were conducted in autumn. The weather was pleasant and the leaves were changing colors. This may also have pre-disposed participants to positive responses or impacted their moods positively, leading to more positive interview responses.
CHAPTER FOUR: SOLIDIFICATION OF MEANING (STAGE TWO)

What factors contribute to memories of wildlife-inspire awe?

The duality of positive and negative emotions to wildlife is well documented. To this point, however, I am aware of no efforts to distinguish awe from those emotions. In this chapter, I seek to do so. To this point, awe has been studied only sporadically – even less so in a wildlife-related context. Words including but not limited to reverence, wonder, spirituality, connection, magic, epiphany, divine, splendor, and majesty have all been used alongside or interchangeably with “awe.” As such, there is the potential for terminology to be unclear. Specifically, what the literature refers to as “awe” may not match with anecdotal or regional understandings of the term. It was identified in chapter three that participants are apt to use a variety of different words when describing awe. This understanding of participant lexicons informed the development of an online survey which was utilized as part of a second stage of data collection in which I sought to further explore factors associated with wildlife-inspired awe. Specifically, the purpose of this chapter was to answer research question number two. Chapter three results identified that context was an important ingredient for people to make sense of awe. Bearing that in mind, the second research question was addressed utilizing an online survey in which respondents identified a salient experience with wildlife and identified which emotions they associated with their experience. Responses ultimately culminated in the development of the Wildlife Awe Scale (WAS), which I used to isolate factors that contributed to reflective understandings of wildlife-inspired awe.
Methods

The 50-item questionnaire I developed for stage two data collection (see Appendix B) was informed by stage one data, including terminology, phraseology, and question structure. Specifically, I learned in stage one that using the word “awe” was cumbersome for some, particularly if not provided with or asked for a specific context with which to consider awe. As such, the questionnaire utilizes language associated but not necessarily interchangeable with “awe,” including but not limited to “wonder,” “admiration,”, and “respect.” Additionally, the scales and queries in the questionnaire were directly informed by Flykt, Johansson, Karlsson, Lindeberg, and Lipp (2013), Jacobs, Fehres, and Campbell (2012), Jacobs (2012), and Lucas, Diener, and Larsen (2009) and represent efforts widely deemed to be valid and effective for capturing self-reported, emotion-focused data. In particular, I relied on the guidance of Jacobs, Fehres, and Campbell (2012), who provided a thorough critique of methods that had been and could potentially be used to measure emotions toward wildlife. Included in the discussion by Jacobs, Fehres, and Campbell (2012), among the benefits of self-reporting measures such as those utilized here, is to “tap into subjective experiences, information to which subjects have privileged, direct access. (p. 237)” This speaks to my stated goal of utilizing a quantitative format to further explore the stories told by adults who have had significant emotional experiences with wildlife.

Jacobs, Fehres, and Campbell (2012) suggested that “self-report measures assess the experiential component of emotions, as they intend to tap into emotional experiences, memories, anticipations, or general emotional dispositions by asking respondents questions.” As established to this point, awe is unquestionably an emotional experience that falls well within the assessment criteria. Jacobs, Fehres, and Campbell (2012) went on to posit the benefits of a Likert-type scale
to quantify responses to questions about emotions and touted the benefits of keeping items simple; for instance, asking questions such as “how afraid do you feel?” or “how pleasant do you feel?” with response categories ranging from “not at all afraid/pleasant” to “very afraid/pleasant.” In the case of this study, the influence of Jacobs, Fehres, and Campbell (2012) was felt most strongly in the questionnaire section measuring 14 emotions experienced during peak wildlife experiences, including awe, anger, excitement, fear, and surprise.

Stage two survey development was also bolstered by awe-related literature, the emergent themes of which were often similar to chapter three findings. Shiota, Keltner, and Mossman (2007) conducted perhaps the most thorough mixed methods examination of awe currently available. The quantitative portions of their work directly influenced the development of the stage two data collection protocol. Specifically, Shiota, Keltner, and Mossman (2007) demonstrated the validity of utilizing Likert-type scales to measure the strength of awe and awe-related emotions, including but not limited to joy, surprise, fear, excitement, and sadness. The inclusion of this line of questioning into the work of Shiota, Keltner, and Mossman (2007) allowed for different ways to approach measurement of awe.

Procedure/Sample

During stage two data collection, I distributed questionnaires via email to adult visitors to Urbana Park District sites using contact information made available from the agency from an email list that engages local hikers and wildlife enthusiasts. Participants were self-selected and a purposive sampling technique was used geared toward individuals who were most likely to have experienced wildlife-inspired awe. This demographic is what is referred to as a “hidden population,” (Faugier and Sargeant, 1997) or a population for which no sampling frame exists
(Heckathorn, 1997). Considering the inherent difficulty of locating recruits, for the purposes of this study, identification of adults who had experienced wildlife-inspired awe was deemed vital. As such, random sampling was not appropriate. Instead, an email list of park visitors compiled by the Urbana Park District was utilized as initial point of contact. The rationale behind the decision was that of the groups of people most likely to have had emotionally significant wildlife encounters, park visitors were among the most accessible. In hopes of bolstering the number of responses, respondents were also invited to share the URL link with other individuals they believed might be interested in participation. As such, a response rate was not possible to calculate.

Email prompts to complete the online questionnaire were distributed during February 2015; questionnaires were collected during March 2015. Invitations to participate were sent during the first and third weeks of February. Questionnaires were completed online and responses were initially collated using Qualtrics software. The initial emailing was provided by the Urbana Park District and comprised of 410 independent individuals who had visited UPD sites in the previous two years. Modified respondent-driven sampling was utilized, as potential respondents were asked to forward the survey link to others who might be interested. The resultant set of respondents composed some portion of those who received the direct email and those who received a referral email. A similar approach was taken by Merrick (2008) for which recruitment utilizing an existing agency mailing list to identify people who had experience environmental epiphanies, a phenomenon similar to wildlife-inspired awe, and with a similarly hidden population.
Analysis

Data collected during stage two were analyzed for statistically significant relationships using SPSS v.22. Of primary interest were 14 items, each of which asked respondents to describe their memories as they recall them emotions following an emotionally significant interaction with wildlife. Using a seven-point Likert scale, respondents described the extent to which they felt specific emotions, including but not limited to awe, happiness, sadness, surprise, and fear. Possible responses ranged from “Strongly Disagree” (1) to “Strongly Agree” (7), and included the option for respondents to “Neither Agree nor Disagree” (4).

Maintaining the exploratory nature of this dissertation, factor analysis was utilized in hopes of identifying and sorting factors related to how people reflectively made sense of wildlife encounters they perceived to be significant. Previous literature and data reported in chapter three suggested a wide range of emotional responses to wildlife. As such, factor analysis was a valuable tool in correlating and reducing the number of variables. Determining which factors grouped allowed for the development of a scale intended to measure the presence of wildlife-inspired awe in one’s life. Data reduction was valuable as it could lead to fewer items in subsequent questionnaires. Factor groupings were extracted using principal component analysis, with Varimax rotation and Kaiser Normalization. Varimax rotation was deemed appropriate as it allowed me to maximize the sum of the variances of the squared loadings. The result was a simplified expression.

Stage Two Results
During stage two data collection, I sought to respond to the second research question: What factors contribute to memories of wildlife-inspire awe? Administered during the month of February 2015, the online questionnaire garnered 235 usable responses. Of those who
participated, mean age was 57; median age 62. The majority of the sample were women, with 67% identifying as female, 32% identifying as male, and 1% self-identifying as genderqueer.

Survey respondents answered questions related to their experiences with wildlife, with emotion being a primary focal point. The questionnaire sought to identify many of the positive and negative emotions said to potentially occur during interactions with wildlife. Fourteen items were utilized, including several that were thought to be associated with awe.

**TABLE 1: Wildlife-Inspired Emotion Items for Factor Analysis**

<table>
<thead>
<tr>
<th>Groupings of items</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt admiration.</td>
<td>.813</td>
<td>.249</td>
<td>-.036</td>
</tr>
<tr>
<td>I felt respect.</td>
<td>.737</td>
<td>.301</td>
<td>.074</td>
</tr>
<tr>
<td>I felt reverence.</td>
<td>.725</td>
<td>.289</td>
<td>.019</td>
</tr>
<tr>
<td>I felt empathy.</td>
<td>.669</td>
<td>.041</td>
<td>.207</td>
</tr>
<tr>
<td>I felt happy.</td>
<td>.509</td>
<td>.106</td>
<td>-.496</td>
</tr>
<tr>
<td>I felt surprise.</td>
<td>.037</td>
<td>.685</td>
<td>-.062</td>
</tr>
<tr>
<td>I felt excitement.</td>
<td>.356</td>
<td>.665</td>
<td>-.238</td>
</tr>
<tr>
<td>I felt wonder.</td>
<td>.496</td>
<td>.625</td>
<td>-.132</td>
</tr>
<tr>
<td>I felt awe.</td>
<td>.420</td>
<td>.620</td>
<td>-.095</td>
</tr>
<tr>
<td>I felt astonishment.</td>
<td>.444</td>
<td>.565</td>
<td>.004</td>
</tr>
<tr>
<td>I felt anger.</td>
<td>.075</td>
<td>-.130</td>
<td>.828</td>
</tr>
<tr>
<td>I felt disgust.</td>
<td>.020</td>
<td>-.160</td>
<td>.731</td>
</tr>
<tr>
<td>I felt sadness.</td>
<td>.257</td>
<td>-.097</td>
<td>.669</td>
</tr>
<tr>
<td>I felt fear.</td>
<td>-.265</td>
<td>.460</td>
<td>.636</td>
</tr>
</tbody>
</table>

Eigenvalue: 3.327 2.519 2.456
Percent of Variance: 23.763 17.990 17.543

Notes:
Extraction Method: Principal Component Analysis.
The numbers in the cells are saturation of the variables on each of the factors. The highest saturation level considered for defining the factor is shown in bold type.
Rotation Method: Varimax with Kaiser Normalization
Rotation converged in 6 iterations.

All fourteen items loaded. The result of factor analysis was three item groupings. Factor one, which I will refer to henceforth as Positive Wildlife Emotion Scale (PWES), included
admiration, respect, reverence, empathy, and happiness. Factor three, which I will refer to henceforth as Negative Wildlife Emotion Scale (NWES), included anger, disgust, sadness, and fear. Factor two, the factor of greatest significance to this study, will be henceforth referred to as the Wildlife Awe Scale (WAS). Grouped items for the WAS included surprise, excitement, wonder, awe, and astonishment. Eigenvalues for each of the factor groupings was above one, suggesting that each item should be included in the resultant scales. In total, 59.296% of the variance was explained.

**Stage Two Discussion**

Using stage two data, I sought to respond to my second research question: What factors contribute to memories of wildlife-inspire awe? Answering this question involved identifying and grouping factors thought to be associated with significant wildlife experiences, emphasizing those in which awe was felt. From 14 total items, emerged a group of five: the Wildlife Awe Scale (WAS). Comprised of surprise, excitement, wonder, awe, and astonishment, the items in the WAS largely correspond to historical- and research-based depictions of awe.

Ironically, from my vantage, surprise and astonishment were the most unexpected emotions to fall into the WAS. By their very nature, surprise and astonishment are difficult to classify as being either positive or negative (Fredrickson, Tugade, Waugh, and Larkin, 2003). However, perhaps surprise and astonishment capture the conflicted mix of positive and negative emotion thought to be one aspect of awe. Indeed, awe has historically been referred to as a “terrible delight,” a sort of amalgam of positive and negative emotion. Surprise and astonishment, with their inherent abilities to speak to both feelings may capture that contradiction for respondents in this study.
Conversely, excitement and wonder are inherently positive emotions. As they reflected during this survey on their self-selected significant wildlife experiences, respondents identified excitement and wonder as key factors of awe. Experiences colored by excitement and wonder are likely to be memorable and significant. I believe these two factors of the wildlife-inspired awe experience may account for why participants in other chapters of this study reflected upon awe so positively.

Finally, awe grouped with several other items and was not a stand-alone domain. This was not necessarily expected, particularly considering the difficulty with the term expressed by some participants earlier in this manuscript. However, in the case of those participants, while the word made some of them uncomfortable, they still had an acute understanding of ways in which awe had manifested in their lives. Inclusion of “I felt awe” with surprise, excitement, and wonder indicates these emotions come from the same domain. Awe is a complex experience that transforms with time and reflection, so identifying that surprise, excitement, and wonder are a part of the awe experience is of particular value.

Just as notable as the items that fell into the WAS are the items that fell out. For the most part, emotions fell into expected areas: admiration, respect, reverence, empathy, and happiness are typically thought of positively. Anger, disgust, sadness, and fear are typically thought of negatively. However, of key import are reverence and fear. In chapter three, several participants used the term “reverence” to describe their experiences of wildlife-inspired awe; the result was not reproduced quantitatively. As for fear, Ekman (1992) regarded it as the emotion most likely to be avoided. In that sense, there is thought to be no feeling worse than one of fear. While fear fell into the NES, it fell into that scale least strongly of the four items. Fear was next most strongly associated with the WAS (.460), so much so that it suggests fear is also potentially very
much a part of the awe experience. Historical evidence supports such a view, however from a scale development standpoint, it also suggests that there may be value to exploring alternative similar terminology. Agitation, trepidation, dread, distress and others might be considered in future studies as this scale is refined.

Limitations

As with virtually any exploratory study, there are points of improvement in this manuscript. In the case of stage two, respondent burden was higher than anticipated; many respondents (15.9%) did not complete the questionnaire beyond its first page. Put simply, 50 questions were too many for some people. Moreover, the purposive sampling technique did not allow for generalization to larger populations. In short, those sampled may have been pre-disposed to experiencing wildlife-inspired awe. A sample of the general population or of other specific locales might have produced very different results. Further, the survey did not consider variables such as SES, race, political affiliation, or education.
CHAPTER FIVE: LEARNING FROM EXPERIENCE (STAGE THREE)

What roles does wildlife-inspired awe play in influencing learning?

Following stages one and two of data collection, which allowed me to explore and describe parts of the Wildlife Experiential Emotion Model, in this third and final stage I sought to explicitly explore how people come to learn about themselves and the world around them following wildlife-inspired awe experiences. Following emotionally significant and memorable experiences with wildlife, such as those documented in chapter four, a process of transformation begins that ultimately allows people to apply what they have learned from that emotional experience as well as other emotional experiences. This transformation process is one of learning. Informed by responses ascertained in chapter four, in this chapter I explore the ways in which that transformational learning process manifests in daily life.

Methods

Stage three data collection consisted of follow-up telephone interviews that I conducted utilizing data collected in stages one and two. Participants added further depth to previous explanations of wildlife experiences by sharing formative personal wildlife narratives beginning in early life and continuing throughout the life span to the present day. Interviews further brought to light the role of awe as a facilitating experience for subsequent learning behaviors. The benefits of utilizing qualitative data to bolster quantitative findings are widely reported, including the aforementioned Ballantyne studies as well as similar efforts by Merrick and Vining (2012) and numerous others. Considering that many of the descriptions of awe we have at present are the result of the writings of great environmental authors, it is my belief that identifying these narratives empirically is best accomplished through participants’ storytelling. In
the process, I sought to explore answers to my third research question: What roles does awe play in influencing wildlife-related learning?

Procedure/Sample

During March, 2015, twelve potential participants were contacted via email using contact information provided during completion of stage two questionnaires. I selected the stratified sample of potential participants to be reflective of the larger survey respondent population, specifically of sex and age. The stratified sample was appropriate as it would allow me to consider wildlife-inspired awe experiences across the lifespan. Moreover, generalizability outside of the sample was not one of the aims of the study.

Participants were stratified in decade-based groupings: ages 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, and 80-89. Subsequently, I randomly selected recruits from within each category. In following with the demographics of the stage two sample, one recruit was contacted from each of the following groups: 20-29, 30-39, 70-79, and 80-89. Two recruits were contacted from the age 40-49 group. Three recruits were contacted from each of the age 50-59 and 60-69 groups as they were most strongly represented in the initial sample.

Two individuals did not respond to a message to participate in the follow up interviews; one email address was invalid; one respondent replied to the message only after data collection had been completed. As such, in total, I conducted eight interviews via telephone over a three week period. Of those who responded, all did so with a single prompt; reminder messages were never sent as data saturation was reached after seven interviews and the reminders were deemed unnecessary.
Conversational engagement with participants in stage three data collection allowed me to further assess the applicability of the Wildlife Experiential Emotion Model by considering learning implications of participants’ wildlife-inspired awe experiences. The facets of learning included but were not necessarily limited to new, modified, or affirmed behaviors related to wildlife, leisure preferences, professional pursuits, and social behaviors.

![Wildlife Experiential Emotion Model](image)

Figure 4. Wildlife Experiential Emotion Model

The Wildlife Experiential Emotion Model adapted in this study provided the theoretical backbone for question development. As such, I selected interview questions that were most likely to encourage storytelling to capture the chronology of the model that posits wildlife encounters, emotional impact, personal reflection/appraisal, and recognition of something
learned or changed. I recruited potential participants using a solicitation email that reminded them of their questionnaire completion and provided a summary of what they could expect from interview participation. Question examples included: “How/why have your feelings/opinions about wildlife changed over time?”, “Are there any specific species for which your feelings have changed over time?”, “How do you believe that your feelings toward the natural world have been influenced by your interactions with wildlife?”, and “When you think back on your life, why do you think you came to value wildlife?” As the interviewer, when tangential conversation arose, I encouraged participants to follow those tangents, as many stories might not have otherwise been unraveled. Further, prior to the conclusion of every interview, each interviewee was offered the opportunity to discuss any topics/stories about the natural world they wanted to add or perceived to be significant. Complete stage three data collection protocol is included in Appendix C.

At the completion of their stage two questionnaire, I asked survey respondents if they were willing to be contacted to answer additional questions. Fifty-nine percent (138/235) expressed a willingness to further participate by sharing their email contact information. Stage three interview participants retained partial anonymity, sharing only their first names and email addresses, following consent obtained during the stage two survey. Pseudonyms are used henceforth. The sample is outlined below in Table 2. Interviews lasted between 39 minutes and 92 minutes, with the average interview lasting approximately 63 minutes.
Table 2: Stage Three Interview Demographics Summary

<table>
<thead>
<tr>
<th>Name</th>
<th>Sex</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matthew</td>
<td>Male</td>
<td>88</td>
</tr>
<tr>
<td>Robert</td>
<td>Male</td>
<td>38</td>
</tr>
<tr>
<td>Melissa</td>
<td>Female</td>
<td>24</td>
</tr>
<tr>
<td>Janie</td>
<td>Female</td>
<td>61</td>
</tr>
<tr>
<td>Helen</td>
<td>Female</td>
<td>65</td>
</tr>
<tr>
<td>Tom</td>
<td>Male</td>
<td>26</td>
</tr>
<tr>
<td>Caroline</td>
<td>Female</td>
<td>58</td>
</tr>
<tr>
<td>Bernice</td>
<td>Female</td>
<td>76</td>
</tr>
<tr>
<td>N=8</td>
<td>M=3; F=5</td>
<td>Median 59.5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mean 54.5 years</td>
</tr>
</tbody>
</table>

Analysis

I analyzed data obtained during stage three semi-structured interviews according to the same procedure identified during stage one analysis (see p.30) and participants were offered the opportunity to verify and/or clarify their quotes prior to public dissemination of findings. I made additional efforts to synthesize concepts and data obtained across each of the three stages, in effect resulting in a research-based narrative chronicling the processes by which people come to learn about themselves and the world around them signposted by memories of awe-inspired experiences with wildlife.

In both stages one and three I was careful not to lead participants; as such, words such as emotion and learning were avoided. In stage three, I asked questions specifically about participants’ understandings of awe and coded their responses based on the lifestyle context for which their awe was inspired. For instance, when the interviewee referred to a salient experience that proved to inspire awe, were they at work, home, traveling, etc.? Were they with friends, family, or alone? Subsequent questions sought to evaluate how their behavior, beliefs, feelings,
ideas, and worldview may have changed since that initial contact. Since the participants already reported experiencing wildlife-inspired awe in their completed stage two questionnaires, this allowed me to more thoroughly chronicle the Wildlife Experiential Emotion Model process as well as better understand the ways in which they have learned from their experiences.

Stage Three Results
Among the foundations of the third stage of data collection is that every participant had previously expressed (using stage two survey data) that they had experienced wildlife-inspired awe. During the course of interviews a handful of themes were identified. The themes that follow collectively serve to respond to the third research question: What roles does wildlife-inspired awe play in influencing learning? Participants in this study evidenced learning via new or modified behaviors that followed experiences of wildlife-inspired awe. These behaviors serve to demonstrate that learning has occurred following times of reflection/appraisal. Learning was demonstrated via specific behaviors related to leisure preferences, professional pursuits, social behaviors, environmental advocacy, and environmental connectivity. In each case, participants reported that their knowledge, skills, values, worldviews and/or behaviors changed as a result of one or more wildlife-inspired awe experiences. Identified themes are summarized below.

Themes for learning following experiences of wildlife-inspired awe

1. Awareness of leisure preferences
2. Commitment to professional pursuits
3. Change in social behaviors
4. Taking action for environmental advocacy
5. Recognition of environmental connectivity

I chose to avoid the term “learning” during interviews, as understandings of the word vary across people. As such, by purposely avoiding a term such as “learning”, I was able to ascribe the more process-oriented definition of the word that was discussed in the literature.
review: Learning is a process that brings together cognitive, emotional, and environmental influences and experiences for acquiring, enhancing or making changes in one's knowledge, skills, values, and worldviews (Illeris, 2000 and Ormrod, 1995 via Merriam, Caffarella, and Baumgartner, 2007). Among those with whom I spoke, documenting associations between wildlife-inspired awe and changes in one’s knowledge, skills, values, and worldview manifested via the five themes. No one theme was necessarily more prevalent than any other and as such are presented chronologically based on the interview protocol rather than by strength of emergence.

Awareness of leisure preferences. A motivation to experience leisure – those activities that are freely chosen and intrinsically motivated – was closely associated with wildlife-inspired awe. Leisure behaviors can be key indicators of that learning has occurred as they reflect how people prefer to spend their time when unencumbered with more pressing responsibilities. In the case of this study, leisure was an important aspect of the stories people shared. Specifically, participants demonstrated a consistent preference for choosing leisure options that they believed would position them to have encounters with wildlife. This is not to suggest that leisure does not exist without interactions with wildlife or that every human-wildlife interaction is leisure. Rather, the identified theme suggested that people who have experienced wildlife-inspired awe expressed a desire to experience it again, particularly in leisure settings. Participants expressed that the potential for experiencing wildlife-inspired awe was among the key motivators in their leisure-based decision making. In every case, outdoor recreation activities were important to participants. However, it also emerged that people would sometimes experience leisure without specifically attempting to do so.

In Janie’s case, an impromptu invitation to count bats with a friend resulted not only in an experience of wildlife-inspired awe, but in a subsequent decision to bring bats close to her home.
Janie: Last year I got this cool message from a friend who works at Cypress Creek and
she wanted to know if I wanted to go out with her one night and count bats as they came
out of poles. It was fun. You get eaten by mosquitos but it was fun. They had the poles
with fake bark and the bats are actually nesting in there. We got 30 out of the pole we
were watching. It was exciting. The best part about it was sitting there waiting and then
all of the sudden watching these bats pop out of there. It’s like I wanted to buy a pole
and put bats in there.

Researcher: Did you?

Janie: I bought a bat house that holds 300 (bats) and I have a bat tree and we mount it up
there. You can never have too many bats.

While she had seen them flying on countless occasions, being able to observe bats emerging
from their daytime homes resonated strongly with Janie. The physical proximity to bats was a
new experience for her, and even while hounded by mosquitoes, Janie experienced leisure.
Indeed, the experience was sufficiently memorable that she chose to place a bat house in her own
backyard. Not unlike the way in which bird feeders attract avian visitors, Janie’s new
appreciation for bats inspired her to bring them to the areas surrounding her home, and ultimately
to be able to potentially experience their flight again and again. Her initial leisure experience was
so positive that she made an active effort to experience it again and again – from the comfort of
her own home.

Much like Janie, Helen found value in inviting wildlife onto her own property. Rather
than installing conventional housing such as those for bats, she focused on landscaping. More
specifically, she studied to develop her knowledge of native plants, in part so that she and her
husband could attract wildlife to the area around their home. While conventional outdoor
recreational activities such as hiking were no longer at the top of her list of leisure pursuits, she
found that her native landscaping could accomplish similar leisure goals.

Helen: Instead of getting out in the woods so much, and we own a big piece or property
just south of here. We have big yard and I started native landscaping, and my husband
participates too. We have chipped paths and I don’t know how many species now, 150 or
so in the yard, native species. It really is true, if you build them they will come, and we have an amazing array of animal life here. We see more of it here than we did in the country.

Helen learned in prior experiences the valuable contribution that native plant life could have on native wildlife populations. Helen’s leisure evolved once she learned that many of the plant and wildlife interactions she enjoyed in conventional outdoor recreation settings could be experienced closer to home. In a sense, her learning and leisure grew to overlap insofar as maintaining her yard – a chore for many – became a leisurely vehicle to help facilitate positive experiences with the natural world.

Both Helen and Janie learned about native wildlife habitat, and following their initial experiences of wildlife-inspired awe, were compelled to pursue similar leisure again. During the appraisal process, both women learned that by providing habitat they could bring wildlife near their homes.

Leisure and awe are experienced in many ways. For Caroline, leisure included keeping a journal. She recounted to me some of her old entries, and expressed that many of the stories she had complied over the years related to her experiences of wildlife-inspired awe.

Caroline: When I experience awe it’s like time freezes. When something happens that’s just so amazing that you can’t believe your own eyes, I just literally freeze and then I replay and replay and replay what I just saw in my mind and I can’t stop talking about it. If someone was with me I’m like “Did you just see that? Do you know what I saw? Do you get that?” It’s hard to describe awe. It’s such an emotion -- can’t even find words. I now keep a journal -- I had a really tough year with my husband making the decision to go to Texas to work instead of retiring like I thought he was going to a year ago. I started this gratitude journal because I just needed to get myself through the year. After I did your survey I was realizing that in looking back, a lot of my journal entries have to do with something beautiful that I saw that day. Whether interaction between human beings, or walking up to the nature center and in the course of doing so, seeing Baltimore Orioles. I get the rewards of seeing because I put jam on husks, put chunks of orange on the orioles’ feeder. A lot of the positive entries are about nature; nature center stories or a child touched a snake for the first time when they were afraid. Those are like little treasures, the positive memories.
By writing down her thoughts, Caroline provided herself with a platform for appraisal. She has always known wildlife was significant to her, but during the writing process, she came to understand why her wildlife experiences were significant. Caroline found leisure value in writing down the stories of her day, and, in turn, provided herself with an alternative way to recall memories. To some degree, writing was therapy for her; but it was also a way to relive the happiest moments of her days. Such a leisure activity speaks directly to the notion that memories of awe are typically positive. Though coping with personal sadness, to chronicle her positive experiences with snakes and orioles was to celebrate the successes of her days. Caroline did not initially set out to write a nature journal; it was a learned behavior, sparked by her desire to find a positive escape. She did not intend to craft a written narrative of her experiences with wildlife; it was only after being able to revisit her writings that Caroline fully understood the deep significance that the natural world and wildlife-inspired awe had to her personal happiness, coping ability, and resiliency.

When Caroline read from her journal and recounted her stories, she felt good again, not unlike she did during the initial experience. The process of memory recall brought back some of the subjective feelings. Something similar appears to be true for wildlife photography, a behavior learned as the result of participants who wanted help recalling memories of their awe-filled encounters. Half of participants referenced their desire to capture images of their most significant experiences with wildlife. Of the participants, Bernice expressed the most excitement about her photography.

**Researcher:** Have you always taken photographs?

**Bernice:** I got my first camera when I was ten. I never had big, expensive ones, just point and-shoot. I’ve always liked taking photographs.

**Researcher:** What is the appeal?
Bernice: To remember what I’ve seen, the different places we visited. I did get a good picture of a roadrunner when we went to Mexico one time.

Researcher: They’re so tough to capture.

Bernice: I always wanted to see one. It was unreal.

While communicating to set up my phone interview with Bernice, she asked if it would be acceptable to email me some of her favorite photographs of wildlife. When I accepted her offer, she sent a few photos of wildlife encounters she knew she wanted to speak about during the interview. During our conversation, Bernice noted several other encounters. Upon recounting her many narratives, she would often conclude her thoughts by adding “I have a photo of that. I’m going to send you that photo too.”

Image One: Bernice’s Photo: Roadrunner, New Mexico, 2007

Over time, Bernice learned that photography was both a form of leisure she preferred, and also a way to help keep memories alive. Though she specifically said that she did not consider herself a photographer, she also conceded that she rarely went hiking, her preferred
form of leisure, without her camera. Bernice learned as a child that she valued photography. Over the course of her life, a full six decades since, she also grew to realize that taking photos allowed her a way to physically look back at many of the awe-inspired moments she remembered so fondly.

Image Two: Bernice’s Photo: Mountain Chickadee, New Mexico, 2007

In a sense, though the details differed, each interviewee expressed a similar narrative: Wildlife-inspired awe made them feel good and their leisure allowed them opportunities to relive those memories while potentially making new ones. Some participants explored the natural world, seeking to hear the song of a rare migratory bird. Others brought the wildlife to their own backyard, seeking a leisure experience from the comfort of familiar surroundings. Still others found creative ways to capture their feelings and ultimately relive their experiences at their own whimsy. Regardless of the details of the leisure choices participants made, they became more aware of their rationale for their leisure behaviors.
Commitment to professional pursuits. Among the first questions I asked during interviews related to the types of activities people engaged in for leisure. Some of the responses were quite clear: Participants talked about hiking, paddling, etc. Other responses blurred the line between work and play so thoroughly that a new theme emerged: commitment to professional pursuits. In this study, a “professional pursuit” is considered to be any formal position for which the interviewee has any formal title as identified by any agency/employer, whether paid or not. Though no questions were ever specifically asked about jobs, careers, or professional pursuits, several of the participants shared stories about their agencies/roles/titles/etc.

Robert was a 38 year old botanist active in conducting research, including field work. Though I would eventually ask him about how and why he pursued botany, I first asked him what he did for fun.

Robert: Well, often I do the same thing I do for my day job. I have such a good time having a hobby I enjoy. I’m a botanist and I spend a lot of time looking at plants, photographing plants, developing educational materials on my time off. You know, I have a very grounded, balanced journey to become a botanist. I think probably more what led to my choosing this career was trying to figure out first by what (careers) I liked but maybe weren’t the right fit. Once I left home at 18 and went to college, I went to trade school and I started doing a lot of mountain biking, hiking, exploring, et cetera. I did automotive training and I did some work in a warehouse and took some classes in business and decided I was going to finish my degree full-time. I decided to take ecology because I liked being outdoors, though I didn’t really have any specific experience or information being a botanist or scientist. But like I said, I liked the outdoors, I wanted to get a degree and try things out. I had a friend who was in ecology and I thought, ‘well, I’m gonna do that.’ Once I got into it, I had a couple teachers encourage me that I had some talent in that field and pursue it, or at least they fostered my growth. The rest is history I guess.

As a child, Robert did not know he valued wildlife or nature, he learned it over time. Robert was not brought up with a strong background in the natural world; in fact, he would not discover his appreciation for the outdoors until after he moved out of his childhood home. In his case, his leisure pursuits, inspired by social interactions, alerted him not only to the fact that he enjoyed
the natural world, but that he enjoyed it so much he wanted it to be the focus of his life’s work.

Robert did not come from a family of botanists, nor was his entry to the field expected. However, the combination of a recreational affinity for the out of doors and social interactions in the form of teacher support spawned a new career. Robert learned after high school that on a basic level he enjoyed being outside. Positive memories of wildlife while pursuing outdoor recreation ultimately informed other aspects of his life – including his educational and career choice. More than that, for Robert, learning fostered learning. By investing his time in recreational pursuits, Robert discovered his affinity for natural ecosystems. At least in part, his learned appreciation for the natural world led him to specialize in botany.

Janie and Caroline both work in environmental education, and much like Robert, took similarly winding paths toward their profession. Also as with Robert, their responses came from queries about their leisure preferences.

Janie: I’ve been volunteering in environmental education with (kids in) kindergarten and first through fourth grades which is lots of fun. If anybody suggested I’d being doing at that five years ago I would’ve thought they were nuts. I’ve never worked with kids before. It’s amazing to go out and guide hikes and take them out to see ducks. It’s amazing fun. That’s what I now do with most of my spare time. I have a garden, I have a horse, I have dogs. So I have a nice life actually. And this bit with the environmental education just enhanced it tremendously.

Researcher: How so?

Janie: You get out and learn more. I’m 62 years old and finally learned about when ducks molt, why they molt. I had no clue that female ducks molt their feathers when they have their babies. They cannot fly; the babies cannot fly. You learn so much more when you’re trying to explain things to other people. I’ve done some programs about birds at the nature center and I’m working with the Master Naturalist Program every year and so I’m going, keeping that coordinated and going out and learning more. But my whole life has now become involved with nature education.
Janie learned late in life that she had a deep affinity for the natural world. Instead of pursuing research-based science like Robert, Janie found that her ideal combination of leisure and work could be found in environmental education. Caroline’s sentiments were similar.

   Caroline: I like to hang out with friends and I love that what I do for my leisure time is what others may call work.

   Researcher: How’s that?

   Caroline: My paid employment is part-time animal caretaker at the (local) nature center. I love what I do at the nature center; I take care of the animals there and I get to work on creative reuse projects. Those are things that I would do on my own even if I wasn’t employed.

Caroline loved her job because she cared about the subject matter. In each case, Caroline, Janie, and Robert made it clear that their profession did not merely provide revenue, it provided leisure. This finding illustrated the notion that positive memories—including but not limited to those involving wildlife-inspired awe—had an association with some individuals’ professional pursuits.

   Change in social behaviors. While the vast majority of wildlife-inspired awe experiences discussed occurred while one was alone, participants suggested numerous situations in which they were accompanied by others. In most cases, those who experienced wildlife-inspired awe socially did so in the presence of one other person rather than a large group, and with loved ones—usually family. This is not to assert that wildlife-inspired awe cannot be experienced while in the presence of a stranger or strangers, as previous work has demonstrated that settings such as whale watching tours and aquariums can inspire awe while one is surrounded by unfamiliar faces. However, in this study, six respondents suggested that other people were present during certain wildlife-inspired awe experiences.
In addition to direct social participation, participants also expressed stories about experiencing wildlife-inspired awe and subsequently wanting to share their experiences with others. This too is a social behavior. It was notable that all of the participants at some point during our conversation alluded to their propensity for telling others about their experiences. This storytelling took place in a variety of settings, with a variety of individuals, including family, friends, and acquaintances. Moreover, the storytelling took place in a variety of forums, with face-to-face being the most frequent, followed by telephone, and electronic communication/social media.

Following awe-inspiring encounters for which people are alone, there seemed to be value in sharing the stories of wildlife-related awe with others. Bernice articulated this idea, first by noting her conversations with friends and family; then, in their absence, by explaining how she sought acquaintances from her church who were willing to tell and listen to stories about wildlife.

Bernice: When my mother was alive I’d call her and tell her about what I saw in the woods that day. I used to call, well, by internet, a friend and she’s gone too. Me and my sister exchange stuff now. I put it on Facebook. So now at church I told someone the story about the pelican and then someone came up and said, ‘oh, I saw an eagle on the golf course today’ or (they will) ask if I’ve seen any robins and stuff like that. They all come and tell me about it. It’s catching.

Researcher: Do you feel like wildlife can bring people together?

Bernice. Yeah, I think so. We get together once a month and we’ll share our sightings and have a snack and someone will usually come in and show slides or talk about all kinds of subjects, not just the animals and the birds.

When sharing stories of encountering wildlife with their friends and family, several participants in this study suggested that over time they had learned not only did they want to experience wildlife-inspired awe, there was also wanted to share memories of the experiences with others. Bernice suggested that post-hoc storytelling was a way for her to include others in an experience
for which they were not present. Initially, Bernice would reach out to her mother to share her stories. Through her retelling of stories, she was able to connect with her mother and feel as though she was making her mom a part of her experience. Her mother was aging and could not be physically present, but for Bernice, there was value in including her loved ones in her deeply personal experience. After her mother’s passing, Bernice reached out to another friend and utilized social media to share stories. With her mother no longer there, her confidant changed as did her methods of communication. When her friend passed away, Bernice continued to have dialogues with her sister and church-going friends; the learned behavior of sharing memories of her wildlife encounters persisted.

A picture has emerged that depicts social behaviors as a distinct demonstration that learning has occurred following experiences of wildlife-inspired awe. However, as in the case of Tom who described his familial experience seeing the Aurora Borealis, there are occasionally experiences so awe-inspiring that they transcend attempts to communicate their meaning to others. While such instances are rare, documenting these once-in-a-lifetime awe experiences suggests that there are degrees of awe intensity. Fully collected, the stories shared above suggest that there is an association between memories of wildlife-inspired awe and subsequent learned social behaviors.

Taking action for environmental advocacy. The association between learning and memories of wildlife-inspired awe also manifested via participants’ awareness of and willingness to take part in environmental advocacy efforts. All participants believed that they have learned important lessons about wildlife and they believed others should learn similar lessons. Their strong advocacy for others to be aware of environmental tenets speaks to the influence of memories of previous awe experiences. This differs from the previous theme of learning via

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social behaviors insofar as the motivations for each are different. Those participants documented in the previous theme shared stories strictly for personal reasons; they wanted to share a moment with another person who was not present; there did not appear to be external motivations for sharing their stories. In the case of participants who learned from wildlife-inspired awe in contexts of environmental advocacy, sharing stories was more purposeful. Participants in this section described the ways in which their own positive memories wildlife led to learning about environmental advocacy. For them, advocacy included educating their children and community members as well as participating in global-level political discourses. The quotes below demonstrate the inclination – generally near the end of each of the interviews – for participants to expound unprovoked on their feelings about the ways they perceived the relationship between people and the natural world. Six participants expressed frustration and pessimism about how they perceived people’s treatment of the natural world and wildlife specifically. Those participants spoke in frustrated tones as they described about the ways in which they perceived people around them failed to value the natural world with the same vigor as they did. The terms “wildlife” and the broader “nature” and “natural world” were used almost equally by participants. Though certain specific topics (wildlife conservation, water quality, pesticides, etc.) resonated more loudly with certain participants than with others, the overall sense was that participants had learned a great deal about environmentally-focused topics.

For Janie, church is a place of comfort. However, she found it worrisome when fellow churchgoers made decisions she perceived to be short-sighted or fear-driven. Over her life she had learned to value wildlife and develop self-described relationships with many of the creatures she saw on a regular basis. When wildlife she was fond of were challenged, disturbed, or killed,
she found herself struggling to understand the disconnection that she perceived between her
church-going friends and the natural world.

Janie: They even fight the same battles at church. They want to spray with pesticides
because they get brown recluse spiders every now and then and they can cause terrible
problems. You’re not going to die from (a spider bite). You’re going to get sick, sure.
But kids can die of asthma, and the insecticides they use can trigger asthma attacks. The
parents are more afraid of a spider that’s called recluse because it’s hiding from you. It’s
a lack of education and knowledge that creates all that fear. Down here they had a big
deer population and wildlife. There was this doe protecting her fawn and attacking
joggers. It’s really sad for her. They finally decided they had to shoot her. She wasn’t
doing anything but protecting her fawn. They didn’t even try to find the fawn. I looked
for a day and could not find the fawn. If you’re in town (wildlife) gets used to you, like
you’re part of the landscape. They don’t see you as threatening. If you watch them long
enough you develop a relationship. It’s really sad when (human) fear causes them all to
be killed.

Janie’s view was that if people were better informed about the natural world, they would not fear
it and would be more inclined to make more environmentally sustainable situations. For her,
church was a place for which she could have higher expectations; that she could depend on
people there to share her belief system and value the natural world for which they were
surrounded. Many did not. As such, while Janie was discouraged, she was still learning how to
best calm the fears of those with whom she worshipped.

Though she did not discuss church specifically, Helen was similarly discouraged and
expressed a lack of optimism that people would learn to protect wildlife. In response, Helen
involved herself politically.

Helen: All of the places that we just run through change entirely and all of the species are
gone. It's not sustainable in any way. I've been involved with lobbying to protect the
arctic national wildlife for over 20 years. I care about that place. I like looking at the
pictures but I never want to go see it. I won't see all of the beautiful places in the world
and some we don't have any business being there. We are at a critical time. I'm not
optimistic but I'm still politically active.
Both Helen and Janie expressed frustration when they perceived that the people around them did not possess a sense of environmental awareness. Janie believed in direct advocacy; that by engaging with those she encountered at church she might educate them. Helen instead chose to focus on the power structures she perceived to be present, challenging others’ decisions on a global level. In both cases, however, their behaviors were associated with positive memories of wildlife-inspired awe.

Bernice had also learned to value wildlife. As she spoke, she revealed her dislike for those who had not learned to share her beliefs.

Bernice: It disturbs me when I meet people and they know nothing about wildlife. I don’t know how they can miss it when it’s all around them.

Researcher: How do you help them see it?

Bernice: I tell them about it and some of my experiences with it.

Researcher: Do you think it’d be good if more people took an active role with wildlife?

Bernice: It’d be a big help. They need it.

Researcher: The wildlife needs the help?

Bernice: (pauses) Well, preserving areas for them to live in and their habitat. People build buildings on what used to be wetland and then complain when it floods. Well, if you’re disturbing it, it’s going to happen.

Initially, Bernice expressed feeling disturbed that she spent time around people who did not physically notice the presence of wildlife. She perceived others not seeing the same wildlife as an act of laziness and a lack of personal awareness. For a moment, I thought she was going to suggest that people were responsible to be caretakers for wildlife and that without human intervention they would surely suffer. However, she stopped short of saying that wildlife needed our help and instead asserted that a lack of environmental understanding was having an adverse influence not only on wildlife but on humans as well.
Cynicism was present in the voices of many of the participants as they spoke about the states of environmental affairs globally, nationally, and locally. While some spoke broadly of macro-level circumstances, Caroline saw the effects of poor or non-existent environmental education at the community level.

Caroline: I consider wildlife part of the community. To me they are neighbors, part of the fabric of our neighborhood. Two garter snakes mated and they’re in front of the house across the street from me. Those two garden snake intertwine themselves right at the foundation of the house in my neighbor’s front flower bed and I would make regular trips just to go look at them and invite neighbors to look at them. My neighbor sprays huge amounts of pesticides because she hates the beetles that eat rose bushes now. I just think about those poor snakes. She’s lessened the amount (of pesticide) she uses so I think it’s by modeling and reminding people that they need to be aware that if you like those garter snakes than maybe you shouldn’t spray. She loves the garter snakes. The thing you’re enjoying at this moment can be taken away from you if you spray your roses too much and I don’t ever think she made that mental connection. She comes and gets compost from our pile now. I point it out to her, but it turns around slowly.

Caroline developed relationships with her local wildlife. For her, they were like pets or family members, and she learned to advocate for wildlife. In their own ways, Janie, Bernice, and Helen each found themselves feeling discouraged that people would fail to understand the connection between their own decisions and environmental health. Despite feeling discouraged, their advocacy for their beliefs reflects the larger processes of learning they had experienced over the course of their lifetimes. In their cases, that learning manifested at the global and community level. For others, including Matthew, Melissa, and Tom, learning manifested with environmental advocacy at home.

Matthew: I have four children. I had to push a little bit. Last time I was out there (visiting my son in Colorado) I put up a bird feeder with bird food and showed them how to use it. I try very hard to educate them this way.

In Matthew’s case, he has children that are now grown, yet he continues to advocate for the natural world through direct example. Growing up in rural Illinois in the 1930s, Matthew was not raised to have an affinity for wildlife or an understanding of the natural world; he developed each
over the course of his lifetime, stemming from positive memories of wildlife-inspired awe. First he was a learner, but over time, had grown into a teacher. Matthew was the eldest interviewee, who was raised on a local farm and raised his kids in the same setting. He was a product of the Great Depression and expressed how important it was to him to not only behave in a conservation-minded fashion, but to model that behavior for his kids. In some cases, this meant actively enticing wildlife to the home of one of his children.

Melissa is a young mother, raising stepdaughters with her husband. She too sought to model good behavior for her girls. However, while she has a strong belief in teaching her children about the natural world, she also expressed that she is still learning how to best approach being the teacher.

Melissa: I make environmental stewardship a high value in my house when I can. For the rest of my family’s sake, it probably makes me somewhat of a nag about recycling different things but always bringing it back to that stewardship piece about how does our life as a household consumer affect everything around us; running the water too long brushing your teeth, throwing a plastic container away, that kind of stuff. It’s hard to do that in a loving, encouraging way. I remember when we were first married and I was driving with the kids and Kelly, she was 8 or 9 at the time, and she threw something plastic out the window when we were driving in the car and I kind of flipped out about it. I think I said something like “Birds will eat that and then they’ll die” or I said something dramatic and she started to cry because I made her feel horrible and she hadn’t thought about that. I’m just trying to find that good balance to teach her not to litter.

Melissa and Matthew serve as examples of two individuals who are at different points in similar learning processes. Matthew is well-versed, with decades of positive memories of wildlife. He behaves with a high confidence level, showing little hesitation in leading by example. His experiences with wildlife-inspired awe are numerous and varied. Meanwhile, Melissa is still in an earlier stage of learning, not only trying to set a positive example for her kids, but at age 24, simultaneously still coming to understand her own place in the world. What Melissa and Matthew share is that both have positive memories of wildlife-inspired awe; and that those
memoires have influenced not only their own beliefs about the environment, but also the ways in which they choose to teach their families about the topic. They wanted to teach their children to advocate for the environment, much as they had learned to do for themselves.

However, while Melissa and Matthew are at different points in their learning processes, Tom represented in many ways how a lifetime of positive parental leadership can influence an adult. Tom recounted a story that depicted how his own father had modeled positive environmental behavior and how he ultimately came to adopt or learn his dad’s teachings. Perhaps most noteworthy is that while some details of the memory were not as vivid as they likely once were, his father’s lesson still resonated.

Tom: I can remember going to the Colorado Rockies with my family and wanting to throw something at something and knock it over or break it. My dad explained there are times and places for us to hit things and throw things but other times we need to appreciate it and just leave it be so other people can also appreciate it. He said that if someone before me had come and knock that thing over then I wouldn’t even be able to see it, let alone have the opportunity to do what I wanted. Leading by example. I don’t think you can give somebody a brochure and expect them to figure it out on their own. I think there needs to be people that are taking kids out; or in parks, park rangers to show people how to understand the right way to respect nature and to appreciate it.

Tom learned from his father’s example, and eventually memories of that experience informed who he learned to engage his own children. Matthew, Melissa, and Tom collectively illustrate how positive memories of wildlife-inspired awe have the potential to initiate and perpetuate experiential learning processes that are themselves filled with emotional memories. Each had developed their own appreciation for nature-based education, and each sought to mentor those around them, not unlike their parents had done for them. Janie experienced a similar process and attempted to summarize why she felt compelled to teach others what she had learned.

Janie: I think once you get involved with some of these wonderful things that affect you in nature, individually it helps you to get out and want to share those experiences and
help others find their own experiences so they to want to go out and have those experiences too.

What Janie described is a summary of what each interviewee ultimately expressed. They were influenced by positive memories of nature and wildlife-inspired awe, and they want for the people around them, including family, friends, and community members, to have similar experiences. While participants suggested that there many ways to teach and learn from others, they all shared the belief that most people were not reaching the conservation-based outcomes they felt they should. Collectively, the participants believed they have learned important lessons from their interactions with wildlife and they think that others could benefit from the same lessons.

Recognition of environmental connectivity. In addition to its direct reference in the works of Merrick (2012), Vining (2003), and others, what I refer to here as “environmental connectivity” is also intended as an indirect reference to Leopold’s (1949) concept of a “Land Ethic.” In using that term, Leopold described his aspiration that people would develop a “relationship” with the natural world. This final learning-related emergent theme depicts how participants experienced that relationship following positive memories of wildlife-inspired awe. All eight participants referenced directly or indirectly the idea that “all things in nature are connected,” and that adoption of pro-environment and pro-wildlife beliefs could have significant benefits to themselves and others that transcended the physical realm and extended into that of the spiritual or ethereal.

Janie: (Awe is) brilliance; just a source of peacefulness. It’s almost beyond contemplation. It’s like sitting at the Grand Canyon and looking out at the spectacular sunset and realizing this has happened every day for centuries and it’s still going to be happening whether you’re there or not. It’s amazingly wonderful. Just in my back yard I had a lot of bird houses and I was working in my garden and I could hear the birds
chirping. All the sudden, a wren flew right into my palm and it’s like wow, there’s a little bird in my hand.

Researcher: What was that moment like?

Janie: It was just magic. I’m not going to forget it. It was wonderful. So you keep doing things for nature in the hope nature does things like that for you, and it does.

For Janie, despite their differences in scale, sunset at the Grand Canyon and a wren perching in her hand were similarly awe-inspiring experiences. She felt “magic” (Vining, 2003) in both cases. However, her environmental connectivity also came following the awe experiences, as she pointed out how because of those and other experiences, she felt a desire to give back to nature, just as she perceived it had given to her.

Melissa perceived a similar connectedness with the natural world – and once again, it included but ultimately extended beyond the scope of wildlife. While Melissa used the word “spiritual” rather than “magical,” as she expressed a similar notion. In doing so, she articulated not only that she was an important part of a larger whole, but that over time she learned she needed to take care of herself as well as her environment.

Melissa: Nature, wildlife, and wilderness I think of as a whole, is something that takes on a very spiritual component to me just because to me that’s creation and that’s something that’s always existed without me and will continue to exist without me when I’m not on the planet anymore. There’s a great, kind of, importance that comes with that. In a sense, how I interact with it feels special and important in a sense I should do what I can to not ruin it in my interaction with nature and the environment and the ecosystem is kind of a part of it. Kind of like treating my body like a temple; something that’s important and needs to be taken care of. That fits within the context of taking care of wildlife and wilderness and what have you, a connected system.

Fear of death and/or thoughts of mortality are common themes in historical depictions of awe. Melissa’s view was akin to many previous environmental philosophers; that God was present in and manifested through the natural world. Like those philosophers, she recognized the fleeting nature of her own existence and that worship of God’s creations – herself included – came in
many forms. Melissa’s way of expressing her spiritual and environmental connectivity was by maintaining her physical well-being. This was a learned behavior.

Helen also found herself pondering mortality, though sparked by a much different encounter. When I asked her to describe what awe meant, without hesitation she immediately began telling the following story:

Helen: (Awe) means a total openness or awareness to the cosmos. I think some people would say a spiritual experience. About two or three years ago there was a lot of flooding here and we were down on our property looking at the impact and the rain changed the creek quite a bit. The dogs we had with us started barking and there was a coyote. It was looking at the dogs almost chest-high in the muddy water and the dogs were on the bank barking at it and my friend who owned the dogs was screaming and hollering the dogs. Of course, they wouldn’t have anything to do with listening to us. They had this coyote in front of them. Water was rushing. And then all of the sudden the coyote just jumped into the water and jumped one more time and it died. It was washed down the stream. And it was horrifying but so damn real. It’s like ‘oh, my God, we just saw his animal die.’ I mean, it was just unbelievable because you see dead animals all the time on the road or that sort of thing but it was unexpected. It was very unexpected and it was extremely real and it was like I think all of our mouths just dropped and I don’t think we had anything to say. It was amazing, kind of horrifyingly amazing and real.

For Helen, while she alluded to but ultimately avoided ascribing the word “spiritual” to her own experiences of awe, she did express the “horrifyingly amazing and real” aspects of the awe experience that remained in memory. Though she did not see “the fierce green fire” dying in the eyes of the coyote, her tale is certainly Leopoldian in nature. Just as Leopold experienced strong emotions observing the death of a wolf nearly a century ago, so too did Helen experience strong emotion in seeing the coyote washed downstream. Helen’s environmental connectivity was, in part, spawned by an unpleasant, “real” experience. Witnessing the drowning of a coyote was a visual reminder of the nature of mortality as well as of the mortality of nature. Helen’s example demonstrated the varied ways in which people can learn from their memories of awe-filled
experiences; even though the prevailing emotional memories of the experience were negative, Helen still walked away having learned about her and the natural world.

Matthew, Tom, and Janie expressed connectivity slightly differently, suggesting that the ramifications for relationships with wildlife extended far beyond nature and reached into a societal context. In each cases, their understandings of environmental connectivity included aspects of the natural world, wildlife, themselves, and other people. I asked each of them directly if and how the world would be improve if people had stronger relationships with wildlife. Matthew responded “Well, maybe they wouldn’t spend so much time shooting at each other. Especially at night. If (people) were out in nature, maybe they wouldn’t be out at night getting into fights.” Tom had his own take: “If people learn how to respect nature and go out and enjoy it without destroying it or changing it, then I think they would have a better perspective on life, on happiness, on simplicity, on the priorities of life.”

When I asked Janie the same question, she suggested that people stand to benefit greatly from having relationships with wildlife, and that those benefits extended beyond oneself.

Janie: If more people valued wildlife, the world would have more joy, people would learn how to get along better. You can get along with the squirrels in the backyard, you can get along with your nasty boss. If you have to learn how to get along with other beings who you can’t talk with personally, you may have a different understanding of how awesome of a group of beings is living. I have a greater awareness of what’s happening. I love these close encounters. When you have an actual close encounter with an animal, it changes you. You feel so awe struck that this animal noticed you. What a great topic for your dissertation. When you do all this -- there’s a lot more magic in the world. It’s there, it makes you feel good, makes you believe in things. It’s like there’s hope.

For Janie, memories of wildlife-inspired awe experiences have impacted her in such a way that they have influenced her sense of day-to-day optimism. All eight participants expressed a similar worldview, that positive memories of wildlife-inspired awe were associated with their perceived high levels of environmental connectivity.
Overall, the influence of memories of wildlife-inspired awe was evidenced by learned behaviors that included leisure preferences, professional pursuits, social behaviors, environmental awareness, and environmental connectivity. As with learning, participants reported that wildlife-inspired awe is a lifelong, experiential process. In many cases, the collection of wildlife-inspired awe experiences expressed through storytelling influenced how people chose to recreate and spend their leisure time; how they interacted with others; which career they pursued; even how they viewed the world around them. Having acknowledged the various ways memories of wildlife-inspired awe influenced them, it is fully reasonable to suggest that participants learned a great deal from their experiences.

Stage Three Discussion

Using stage three data, I sought to respond to the third and final research question: What roles does wildlife-inspired awe play in influencing learning? Through their storytelling, participants painted a picture upon which their lifetime learning process was evident. As proposed in the Wildlife Experiential Emotion Model, participants illustrated a process by which new knowledge was ultimately modified and affirmed over time as result of experience. Participants revealed through their stories underlying narratives involving having new memories of emotional experiences with wildlife, which over time influenced leisure and social behaviors, professional pursuits, environmental awareness, and environmental connectivity. Participants’ narratives revealed that a lifetime of learning from memories of wildlife-inspired awe often resulted in new understandings of themselves, other people, and the world around them. Wildlife, as part of the larger natural world, was a crucial source of awe; memories of awe were associated with subsequent learning.
Implications for research. This study began to illustrate that learning has the potential to be a lifelong process, one that might manifest in any of the five areas described in the results. Consider Melissa and James – more than 60 years apart in age, and with very different understandings of themselves and their worlds. While there is some overlap in the themes of their stories, they are at very learning stages. This is not to suggest that one’s learning is dictated by age. I would instead posit learning is more influenced by experience. For instance, currently in her 60s, Janie did not learn her affinity for wildlife until later in life. As such, she spoke with a wide-eyed wonderment not often seen outside of childhood. Individual cases aside, learning was a regular theme in every interview. Each participant described how during the course of their lifespan, as following experiences of wildlife-inspired awe, they had grown to further appreciate wildlife and the important role wildlife plays in their life. More than that, they learned more about how they wished to behave, including but not limited to ways to recreate, socialize, and work/volunteer. I believe there may be value to further documenting the paths people take to reach the seemingly “enlightened” state expressed in stage three interviews. Future consideration of this topic may be best suited to be conducted informed by the theory of serious leisure. Stebbins (1992) described serious leisure as "the systematic pursuit of an amateur, hobbyist, or volunteer activity that participants find so substantial and interesting that, in the typical case, they launch themselves on a career centered on acquiring and expressing its special skills, knowledge, and experience." Future studies would still be well served to utilize qualitative methods, as there is no better way to fully document one’s personal narratives, however utilizing a larger sample would likely have value in the future.

Within the confines of wildlife-inspired awe, I believe it is noteworthy that in most instances awe experiences were inspired exclusively by visual cues. Only under rare
circumstances did awe occur as a result of auditory cues, specifically the sounds of a wolf howling and of geese honking. In the case of the latter, a visual cue was still present. Our conventional knowledge of awe suggests that awe is visually inspired, however these noteworthy exceptions suggest that there are other possibilities. Exploring the senses that are involved in the awe experience could provide valuable insight into the reasons behind the phenomenon.

A few of the participants noted that they either currently or previously had hands-on roles with wildlife rescue and/or rehabilitation. While this could suggest somewhat of a rescuer mentality, unclear was whether awe experiences led to desire to rescue, or if rescuing inspired the awe. If it was the latter, such a finding would bolster the notion that people value being physically proximate with wildlife. Such a view was supported by Curtin and Kragh (2014):

Many famous environmentalists began their love of nature and wildlife through direct experience of it and through exploration and adventure. It was during such adventures that kinship, empathy, and extended relations of care with the natural world were manifest. If we apply the same logic today, then it is only through direct experience of nature and wildlife that modern societies can do likewise.

Regardless, while it was excluded from the identified themes, it is likely worthy of revisiting in future scholarly work.

I did not identify any dysfunctional behavior within stage three. All behaviors led to happier lives with more positive meaning for participants. However, there is potential for members of the public to take part in dysfunctional behaviors as a response to experiences of wildlife-inspired awe, including but not limited to people putting themselves and others in danger due to their risk seeking behavior with wildlife. In other words, for every wildlife rehabilitator thought to have a positive societal impact, there is the potential for a person who approaches wildlife too closely or otherwise interacts inappropriately with wildlife.
Bernice sent me unprovoked photographs via email both prior to and following her scheduled interview. For her, the photographic images were like more than trophies, they were a way to help her as the storyteller explain her narratives. The photos helped Bernice express herself to me. Sharing them was her way of allowing me to see what she had, and help put her feelings to words. Bernice was excited to talk about her photographs not as works of art, but to describe what she experienced when she took the photo. She did not talk about lighting, aperture, or tripods. When she spoke about her photos, she was able to recount the setting, location, who she was with, and even the weather conditions. Previous literature has suggested that through significant encounters, wildlife can become central to a person’s identity. This was true of both zookeepers (Hosey and Melfi, 2010) and serious wildlife tourists (Curtin, 2010). In the case of the latter, wildlife and the places where wildlife lives became not only a point of pride, but an expressed identity marker. Curtin (2010) described how both whale and bird watchers kept their binoculars around their necks at all times, even during meals when far away from wildlife viewing opportunities. The binoculars were seen as "signifiers," an indicator that they were always ready to experience wildlife, and that they were superior in a sense to "ordinary" tourists. In some ways, Bernice asserted herself as better than ordinary, perhaps signifying the seriousness of her wildlife-related leisure pursuits. Moreover, though wildlife photographers have been a subject of previous tourism research, however photos of wildlife have never been considered as part of a discussion about wildlife-inspired awe. From a research methods standpoint, this finding could open the door to photo elicitation as a potentially useful tool to further explore the topic.

Implications for management. During the course of stage three interviews, pictures, phones, Facebook, and other social media outlets were all mentioned as platforms for sharing
wildlife-inspired awe experiences with friends and loved ones. While not caused by wildlife-inspired awe, social media participation was increased by wildlife-inspired awe. Specifically, more than half of participants sought out electronic platforms as ways to share their stories and images. In the process, they became teachers of sorts, and those with whom they shared their experiences became the learners. While debates about the roles of technology in the out of doors have existed for several years, sharing experiences of wildlife-inspired awe via a digital platform was an important behavior for the majority of participants in this study. Perhaps wireless internet access could be a valuable addition to some parks and natural areas. Land managers may be reluctant to consider spending their limited resources on anything other than direct programming, maintenance, acquisitions costs, etc. However, if stage three results are any indication, technology may be an emerging way for people of all ages to share their experience with others, subsequently enhancing learning opportunities for those interested in the lives of their friends. In that sense, technology may not mean the death of natural areas, it may mean their resurgence.

In chapter five I also noted the importance of direct social interactions as a means of sharing stories about wildlife and making meaning of wildlife encounters. This finding has precedent. Curtin (2010) reported that wildlife tourists used social gathering spaces such as dinners and travel times to share with others their stories of previous trips and wildlife encounters: "They came with a travel history and travel career that was evidenced ... not in a pretentious way, of where they had been and what they had seen with other tour operators or independently." Even when not actively seeking wildlife, they were recounting memories of past experiences. This suggests that emotional memories and the expression of those experiences to others may have a significant personal and social importance. "Within the culture of wildlife tourism, participants are not only who they are but also where they have been." (Curtin, 2010)
Emotional experiences so salient that their memories they become central to one’s identity reflect a process by which people come to know themselves and world around them differently. One’s emotional memories of wildlife clearly have the potential to resonate and be recalled throughout the lifetime. Emotional memories of wildlife are not merely reminders of where a person has been or what they have done, they are central to the core of how a person makes sense of the world around them.

Though this study focused specifically on wildlife, it is worth noting that each of the emotional memories expressed occurred in a natural setting. Existing literature suggests that the natural world is among the primary tools for inspiring awe. “Perhaps the most common experience of awe for people in egalitarian, Western societies… is in response to massive natural entities, such as mountains, vistas, storms, and oceans, or to naturally occurring objects, like waves or fractals, with infinitely repeating patterns” (Shiota, Keltner, and Mossman, 2007, p. 951). Such descriptions speak directly to Keltner and Haidt’s (2003) description of awe as requiring vastness and accommodation, and suggest that natural spaces are likely facilitators of awe. Schurtz et al. (2011) noted briefly but directly that awe is a result of exposure to nature, while also suggesting that such situations may not occur frequently not because of avoidance of nature, but because daily life does not always allow for the opportunity to immerse oneself in the natural world. If indeed that is the case, there may be value to marketing and/or community engagement practices encouraging more regular “breaks” from daily life.

In this section, it was demonstrated that there is an association between wildlife-inspired awe and subsequent learning, documented to occur in a variety of ways, including leisure preferences, professional pursuits, social behaviors, environmental advocacy, and environmental connectivity. In total, these findings, coupled with findings from the first two stages of data
collection provide strong evidence in support of the Wildlife Experiential Emotion Model. Theoretical implications and potential applications of the model are discussed in chapter 6.
CHAPTER SIX: SYNTHESIS, DISCUSSION, AND CONCLUSION

Synthesis

During the course of reading this dissertation it is my hope that readers came to understand that awe is a part of wildlife experiences and that people learn from those experiences. These notions were evidenced in this study through quantitative and qualitative measures spanning three stages of data collection. This dissertation was intended to answer three research questions: 1) In what ways is wildlife-inspired awe experienced among adult park visitors? 2) What factors contribute to memories of wildlife-inspire awe? and 3) What roles does wildlife-inspired awe play in influencing learning?

Data collection was guided by a theoretical framework, referred to throughout this manuscript as the Wildlife Experiential Emotion Model (see Figure 5). Overall, this model was successfully utilized to explore the ways in which adults experienced wildlife-inspired awe and what they learned from those experiences. Specifically, stage one intercept interviews documented the ways in which wildlife encounters resonate with an emotional significance, both in the moment, and via subsequent personal reflection. It is through these personal reflections that people come to attach meaning to their wildlife encounters, with the meanings evidenced through memory recall and storytelling.

In the stage two survey, initial steps were taken toward quantifying stage one data. Results from the sample, which was believed to be pre-disposed toward those likely to experience wildlife-inspired awe, suggested that the WAS may be appropriate for future use in the measurement of how adults experience wildlife-inspired awe.
Stage three follow up interviews brought into focus the learning behaviors believed to stem from experiences of wildlife-inspired awe. Those beliefs manifested through behaviors related to wildlife, leisure and professional pursuits, social interactions, environmental advocacy, and environmental connectivity. Those behaviors, which were learned following experiences of wildlife-inspired awe, suggested that emotionally significant wildlife encounters have the potential to have lasting impacts.

The very nature of the Wildlife Experiential Emotion Model is that it illustrates an ongoing process. It would appear this process is one of seemingly continual learning, influenced situationally as emotionally significant experiences with wildlife occur. Though “awe” can be challenging terminology for some, those I spoke with pursued it through their leisure, social lives, and careers. Subsequently they sought to include their children, friends, and loved ones in their conscious or unconscious pursuit of awe. Among the key contributions of this study is the identification of signposts that might allow researchers, environmental educators, and land managers to better facilitate learning-focused programs, events, curricula, etc. Moreover, this study suggested that wildlife-inspired awe experiences are not limited to elite environmental authors and artists. Instead, awe was shown to be an experience that is all but democratized; one that is potentially available to any individual seeking leisure experiences in communities, parks, and community parks near and far.

Discussion

In this dissertation my overarching research goals were to explore 1) Ways in which wildlife-inspired awe is experienced among adult park visitors, 2) Factors that contribute to reflective understandings of wildlife-inspire awe, and 3) Roles wildlife-inspired awe plays in influencing learning. I believe this dissertation has accomplished those goals.
Theoretical Implications

The theoretical foundation of this study, which manifested as the Wildlife Experiential Emotion Model, is rooted in the work of countless authors in multiple fields. Wildlife, emotion, and learning are parts of the same research ecosystem, and the work of those authors allowed me to map their connections in a way that has not been previously accomplished. The Wildlife Experiential Emotion Model was predicated on two key conditions: That people have encounters with wildlife, and that some of those encounters are emotionally significant. When a person has an emotional encounter with wildlife, it is the first step in having a wildlife experience – a comparatively more complex phenomena, and one that is far more long lasting and impactful than emotions, which are fleeting by definition.

While the model was overall successful in predicting study results, the data collected suggest that some revisions may be beneficial for future uses of the Wildlife Experiential Emotion Model. For purposes of illustration, please note the differences between Figure 5 and Figure 6.

As expected, stage one findings suggested that some people have interactions with wildlife and that some of those encounters are emotionally significant. The assertion that those encounters are followed by a period of appraisal was also supported, both in stages one and three.

Though social and cultural influences as a factor for learning were unclear, for those with whom I spoke, stage three data supported the assertion that at some point following reflection, learning occurred. This outcome was expected. However, the model has been updated to include
findings from stage three, which involve learning behaviors such as leisure and professional pursuits, social interactions, environmental advocacy, and environmental connectivity.

Finally, the Wildlife Experiential Emotion Model has also been updated to reflect the events expected to follow learning. The initial model suggested that learning from even a single emotionally significant wildlife experience could occur in perpetuity. Interviews in stages one and three suggested that at some point knowledge becomes cognitively inflexible and participants stopped directly reflecting upon and learning from individual emotionally significant wildlife experiences. Instead, what they learn becomes part of their knowledge base and informs their subsequent behavior. As such, depending on the nature of the initial encounter (positive or negative) individuals in this study would be more or less likely to put themselves in situations for which they might experience the same emotion again. Previous studies have documented this propensity for wildlife pursuit or avoidance. In Figure 6, the top left arrow reflects this revision.

Figure 5: Wildlife Experiential Emotion Model as conceived
Once a person has had the initial emotionally significant experience, a process of reflection is said to follow. LeDoux’s work suggested that for people who experience emotionally significant moments, those moments were more likely to be committed to memory and subsequently retrieved from memory. The participants in this study were no exception. Qualitative data in each of the three stages of data collection suggested that participants had lengthy lists of wildlife-related memories. Despite the lengthy lists of awe-inspired memories of wildlife, the people I spoke with shared stories with incredible detail. In most cases, participants expressed that they could still “see” the events in their minds. This level of detail is not only parallel with LeDoux’s assertions regarding formation and retrieval, but lends credence to the value of storytelling as an important data collection method.
The reflection process is arguably the most vital step in the Wildlife Experiential Emotion Model insofar as it sets in motion subsequent processes of abstraction and learning. When people feel strong emotions during wildlife interactions, they are likely to relive the moment in the minds over and over again. This process is entirely internal, playing out in one’s mind. As such, it is during reflection that the emotion of the event slowly becomes an exercise of memory recollection. Though they might relive the feelings of the initial contact, reflection is how they try to make sense of the event. It is during this time that people attempt to reconcile what happened and how they felt about it, and what value or importance the event should have moving forward.

Following a reflection process during which meaning was applied to an emotionally significant wildlife encounter, those interviewed in this study subsequently move to the stage of the Wildlife Experiential Emotion Model for which the meaning they made of the event during reflection is solidified. Kolb referred to this process as abstraction, which is a bit like generalizability. It is during this stage that people essentially stop trying to understand the emotionally significant wildlife encounter and begin to abstract or generalize the event to other situations. The term refers to how people’s experiences and appraisals, inscribed with meaning, become “knowledge,” or something that they believe to be true. More than that, people are thought to decipher how the knowledge can be applied to day to day life. For instance, if one experiences awe as a result of seeing a raccoon when taking out the trash, the meaning of trash removal processed through during reflection is likely to be positive in nature. At that point, people would be said to have a generally positive view of raccoons. Once that positive view and knowledge of raccoons is solidified, inspired by the possibility of seeing a raccoon, a household chore such as trash removal can be revised to be something more similar to “fun” or “leisure.”
Conversely, if instead of awe, one felt fear when seeing a raccoon while taking out the trash, that person would be more likely to approach trash removal with trepidation, or avoid it altogether. The important takeaway is that whether positive or negative emotions color the reflective process, knowledge is acquired following the same progression.

In addition to revising their understanding of raccoons specifically, as part of their abstraction process, they may come to develop new or revised understandings of other creatures. As a result of their reflection, they may be more likely to appreciate or dislike other similar species. Some may abstract their understanding of raccoons to opossums or skunks as both are of similar size and found in similar areas. Still others may abstract to all nocturnal animals, mammals, or wildlife in general. There was evidence in this study that similar processes occurred; specifically that those who experienced wildlife-inspired awe with one species were subsequently more likely to experience it with other species.

In this third step of the Wildlife Experiential Emotion Model, as part of knowledge development, people are thought to shift from internal reflection to external expression. It is at this point in their personal evolution that social factors influence their thinking. People not only rely on their own experiences as they build toward learning and decision making, but on the input and influence of those around them. External influencers in the case of this study were most likely to be family, friends, and other loved ones; however the model also allows for the contribution of perspective from colleagues, news media, television, etc. While this study did not demonstrate the contribution of the latter influencers to one’s knowledge development, these findings also did not eliminate their potential impact, and as such should likely remain a consideration of the model.
Defined as a process that brings together cognitive, emotional, and environmental influences and experiences for acquiring, enhancing or making changes in one's knowledge, skills, values, and worldviews, learning is the culminating mark of the model. Learning was primarily evidenced by leisure and professional pursuits, social interactions, environmental advocacy, and environmental connectivity. For respondents in this study, learning was characterized as a lifelong process, one colored by numerous encounters with wildlife. Kolb’s Experiential Learning Theory proved to be an ideal platform for consideration of the cumulative effect of these encounters, allowing for participants to express how they made sense of the world before, during, and after the emotionally significant encounters. Though ELT was originally designed with more formal adult educational settings in mind, the basic tenets of the theory held true in the context of human-wildlife interactions. Kolb sought to understand the process by which experience, perception, appraisal, and behavior intertwined. His efforts not only allowed for the consideration of those factors, but also laid effective groundwork to infuse emotion theory into the conversation.

In total, both Experiential Learning Theory and the Theory of Emotional Memory proved to be worthy of inclusion in the theoretical framework and integrated model. ELT provided the core structure, providing further understanding into the process by which learning occurs following emotionally significant encounters with wildlife. TEM demonstrated how emotion influences our understanding of the encounter and how feeling can influence subsequent appraisal processes.

Once learning has occurred in whatever form (social, professional, leisure-based, etc.), I assert that one has had a human-wildlife experience. Different from emotionally significant wildlife encounters, which are fleeting in nature, wildlife experiences are long-lasting, residing
in memory, and informing attitudes, leisure behaviors, professional pursuits, etc. These learning experiences – stemming from awe, in the case of this study – can have potentially dramatic impacts on people, and can influence how they view not only wildlife, but their broader worldview. Emotions are often anecdotally disregarded because of their fleeting, “irrational” nature. I believe this study functions as a caution against such a dismissive attitude. When participants in this study experienced wildlife-inspired awe, it changed them. While the emotions may have been fleeting, the experience was not, and the memories of those experiences can have far-reaching impacts.

Implications for Research and Practice

Interviews were the data backbone of this study, and I spoke with individuals who were able to recognize experiences of wildlife-inspired awe. Participants suggested that awe is readily committed to memory and that formative positive wildlife-inspired awe experiences encourage further pursuit of wildlife. Stage one participants also suggested that the term “awe” did not do justice to transformative wildlife experiences. In stage two it was determined that words other than awe were sometimes more comfortable for participants to use; those words included surprise, excitement, wonder and astonishment. Together with “awe” those terms formed the Wildlife Awe Scale. Those who experienced awe were shown in stage three data collection to have learned from their experiences. Learning was demonstrated by participants in this study via leisure and professional pursuits, social behaviors, and environmental advocacy and connectivity. In short, those I spoke with were more likely to spend time seeking wildlife and perceived that they had a deeper understanding of themselves and the world around them as a result.
The implications for these findings could be important for research and practice. Environmental educators might begin to adjust their content and delivery system to encourage wildlife-inspired awe. Land managers might begin to write policies that maximize the benefits of spending time in the out of doors, indirectly encouraging positive interactions with wildlife. Landscape architects can begin to sculpt spaces that recognize the role of wildlife in encouraging positive experiences. Health advocates can begin to utilize wildlife as one strategy to encourage mental and physical wellness via personal reflection.

In addition to the findings-specific discussion points included throughout this manuscript, there are broader themes related to the future of awe in theory, research, and management that I wish to note including:

1) Awe is experienced in many different ways
2) Teaching Wildlife-Inspired Awe
3) Awe leads to learning, not necessarily the other way around
4) Reframing storytelling as teaching, learning, and data collection
5) Awe as potentially utilitarian

Awe is experienced different ways. Like many emotions, awe is not inherently positive. By definition, awe is thought to the upper reaches of pleasure and on the boundary of fear. However, in this study as in several previous, awe was described to be inherently positive. Since we cannot be present to measure the initial onset of feeling, I assert that awe is a mixed emotion but a positive memory. In other words, while the initial feelings of an encounter border on fear, if during those subsequent moments the feeling does not shift to fear, the person will not commit fear to memory. As such, they are left feeling only vaguely positive emotions such as surprise, astonishment, and wonder. In turn, those are the emotions they will carry forward in memory and
report in studies similar to this. Conversely, during encounters when fear becomes the dominant feeling, because it is among the strongest possible feelings, fear – not awe – becomes the emotion committed to memory and subsequently reported. In either case, researchers are left with a situation for which participants have seemingly no alternative but to report awe as a positive emotion.

Teaching Wildlife-Inspired Awe. Among participants, awe was experienced in many different ways. Memories varied, as did what participants learned. Having acknowledged those notions, it would then be easy to simply leave the public to their own devices and let them experience each where they may. However, that would not be parallel with the philosophy and goals of EE, which has taken up the flag to be at the forefront of bringing environmental values to people the world over. While I cannot speak to subjects other than wildlife, I can assert confidently as a result of this study that some adults are capable of experiencing and learning from wildlife-inspired awe. I fear that attempts to encourage awe may seem like an overwhelmingly difficult task. Indeed, there is no single formula to experiencing wildlife-inspired awe, which can make it seem daunting from an educational or lesson-planning standpoint. However, just because wildlife-inspired awe cannot necessarily be choreographed does not mean it should be left to chance. Consider that we cannot directly control potential factors including but not limited to weather/climate and wildlife/human behavior. More than that, we cannot control what previous experiences individual adults will bring with them to our parks and natural areas. However, that does not mean we stop teaching. Environmental educators are in a unique position to be cultivators of awe. The chief concern as educators should not be accounting for every detail of awe-inspiring experiences; indeed, an experience still has value, even if it doesn’t directly result in wildlife-inspired awe. Instead educators should trust that if we
give people the opportunity to explore – even as adults – they will seek out awe-inspiring experiences.

Alternatively, let us focus on what we can control: providing quality wildlife habitat and safe places for people to closely observe; providing program options more reflective of adult preferences; providing diverse facilities that allow for individualized experiences to occur; and providing staff/volunteers willing to tell personal stories as well as interesting facts. These comparatively simple measures may go further to encourage wildlife-inspired awe than any conventional interpretation methods.

Many of the most important attributes we can hope to inspire in people cannot be measured in simple pre/post-tests. Instead, chiefly among our goals is to help people become environmental advocates and stewards. An easy argument against EE for adults is that we are charged with inspiring the next generation of environmental stewards, perhaps because it is too late for this generation. However, this study suggested that may not be the case; that “old dogs” can indeed learn new tricks and that experience is gained from a lifetime of learning, not simply from early life. Our strategy of primarily engaging children in EE has not succeeded to the degree to which most would prefer. Consider that most EE programs work with kids only a handful of times, and in most cases, only once. It is difficult to know our influence on those kids. Conversely though, the parents of these same children are teaching their kids daily. It is our duty to equip those parents with awe-inspiring experiences so that they might share those experiences with the young people by whom they are surrounded. By incorporating adults into our educative efforts, our lessons will ultimately resound more loudly with children. While we cannot as environmental educators cannot necessarily directly deliver the lesson, we can most certainly make sure parents have the material so they might impart it for us.
Awe leads to learning, not necessarily the other way around. I believe that my argument for the value of EE for adults, albeit in a modified form, is bolstered by findings in this study that participants sought wildlife-inspired awe and learned from the experience. In some ways, we have been getting it backwards: teaching people about wildlife does not necessarily make them feel awe or love wildlife; but inspiring them to feel awe and perhaps eventually love wildlife makes them want to learn about wildlife. This was evidenced most notably in chapter five with participants who as a result of wildlife-inspired awe experiences were aware of leisure preferences, committed to professional pursuits, changed their social behaviors, took action for environmental advocacy, and recognized environmental connectivity. In other words, if we can help people feel awe, they will seek out learning on their own, and via whatever platform they prefer. The trick is that the awe has to come first.

At present, virtually nothing has been written about how to help people experience awe. It is an experience that does not come all at once; it develops and evolves over time. Indeed, not all who complete a hike will immediately be able to express the awe they felt on the trail. As such, teaching and/or encouraging awe likely cannot be accomplished with one-time changes to interpretive signage, policy development, or the like. Instead, I believe the best approach to encouraging awe is to provide opportunities for reflection. While listening to participants’ stories, I found myself recalling awe-inspiring interactions with wildlife I had not thought about in years. Providing platforms for people to share their stories of wildlife-inspired may be among the best ways to encourage similar memory recall and subsequently solidify wildlife-inspired awe in one’s mind.

The beauty of the awe experience as a teaching tool is that it does not necessarily need to be expensive or require a great deal of people power. Indeed, with awe, a little goes a long way.
While formal EE lessons can be taught and forgotten within moments, the wildlife-inspired awe experience is one that seems almost without fail to be committed to memory. It is a lesson that continues to resonate long after the experience is over.

Seeing benefits from adjusting our approach to EE will take time. However, one of the lessons we so frequently espouse to our students is that little actions can have big impacts on the environment over long periods of time. We must apply the same standard to ourselves. Again, this is not about pre/post-tests or immediate payoffs. This strategy is one with long-term benefits; but they are potentially enormous benefits.

Reframing storytelling as teaching, learning, and data collection. As we seek to enhance our strategies for encouraging wildlife-inspired awe, we must continue to recognize the importance of storytelling as a tool for teaching, learning, and collecting data. At the heart of this study were the conversations between myself and a wide variety of people who were seeking a platform to express the stories of experiences that had become so important to them. While they told those stories, they became more than participants, they became teachers; I became a learner, not just a researcher. Through the conversations, I obtained data.

In my experience, having conversations with people is one of the things that environmental educators do best. They engage the public regularly and seemingly effortlessly. However, what many overlook is that by talking with the folks that spend time in the parks that serve as their classrooms, they are also engaging in teaching, learning, and data collection. Indeed, environmental educators are not just teaching, they are learning about the aspects of their experiences that resonated most loudly, while being offered an opportunity to share the
experiences that mean the most to them. In that sense, these interactions become more than sharing stories, they become an avenue for sharing knowledge, space, time, and meaning.

I believe that one of the most powerful questions we can ask a park visitor is “What did you see today?” It is powerful because their response tells us not only what they saw, but what resonated in their minds, what meaning they have already begun attaching to the experience, and what memories are likely to endure. This is useful information, and it offers us the opportunity to make our parks and natural areas more reflective of the people who care about the landscape. Storytelling is also a behavior, and one that is not always freely undertaken; typically people await an invitation before showing the vulnerability necessary to recount an experience of wildlife-inspired awe. However, by allowing adults a platform for storytelling we not only have the chance to improve future experiences for both them and us, but to gradually help people attain the lifelong learning and leisure outcomes environmental educators are ultimately tasked with creating.

Awe as potentially utilitarian. Scherer (2005) differentiated between utilitarian and aesthetic emotions. Utilitarian, those considered vital to one’s survival (fight or flight) and well-being (grief and coping) were said to be similar to Ekman’s (1992) list of “basic” emotions and include anger, fear, sadness, and joy. Aesthetic emotions, such as awe, were reported by Scherer (2005) to have lower practical value. In this dissertation, wildlife-inspired awe was demonstrated to have important benefits for participants. Many participated in new forms of creative leisure, while others discovered new social or spiritual outlets, became environmental advocates, or recognized their connectedness to nature. These life-affirming changes were learned behaviors, inspired at least in part of previously experiences of wildlife-inspired awe. It is my assertion that the participants in this study were happier having experienced wildlife-inspired awe than if they
have not. Though limited, previous research has made similar suggestions. Shiota, et al. (2007) reported that by reflecting back upon recent awe-inspiring experiences with the natural world, respondents felt less tired, less concerned with personal worries, and had less of a sense of challenge. Instead, respondents reflecting on recent nature-based experiences of awe reported a feeling of smallness, being in the presence of something greater than the self, connection with the surrounding world, and a desire to prolong or commit the experience to memory (p.952).

I believe the findings in this dissertation coupled with those of previous authors provide sufficient support to further study the ways in which awe (including but not limited to wildlife-inspired awe) can positively impact one’s health, well-being, and resilience. Better understanding the impacts of awe on our daily lives might allow us to reframe awe from an emotion most useful for appreciating beauty to one with valuable health benefits.

Limitations

One does not begin a project seeking to explore wildlife-inspired awe without a certain worldview. As noted in my personal statement (p.vii), I have felt wildlife-inspired awe numerous times. Without those memories, I probably would not know it existed. There is value in that perspective, however there are also potential biases. Informed by memories of wildlife-inspired awe, emotion is a fascinating area of study. It is no coincidence that I selected Scherer (2005) as an anchor for this dissertation, as he avoided dichotomizing emotion and cognition and instead asserted that cognition is part of emotion – and maybe most importantly, not the other way around. Similarly, experiential learning was an obvious choice to anchor my theoretical framework. Kolb’s (2000, 1984) work provided an explanation for emotions I had previously felt; so while other theories may have been appropriate, my selection was informed by the
experiences that led me to pursue this work in the first place. Moreover, my interpretation of the findings is itself open to the interpretation of the reader. This dissertation was a co-construction of knowledge between myself and my participants, and there are potential drawbacks to that strategy, including but not limited to biases in my survey design, interview protocol development, interview tone, and analysis.

Further, both recall and self-selection are potential biases in this study. Moreover, it is fully possible that cultural biases toward “traditional” values of wildlife may exist, including those that might make participants less likely to talk about negative ideas. What was the greatest limitation for this study is also perhaps its greatest strength. Specifically, those I interviewed and surveyed had at least somewhat of a pre-disposition to parks and wildlife. Moreover, I spoke to people in what could be perceived as an idyllic park setting. While this strategy does not allow the findings to be broadly applied to the general public, broad application was never the intention of this exploratory study. As it is a relatively new area of study, it is unknown what percentage of people have experienced wildlife-inspired awe; it may be a relatively uncommon experience. Had this study focused on sampling the general public, the findings might have been lower in both quantity and quality. To be sure, such efforts might have great value in the future, however I believe by maximizing the dialogue with park visitors, I was also able to maximize the detail of the themes and the utility of the results. My hope is that as our understanding of wildlife-inspired awe grows, so too will our ability to create more generalizable studies.

Among the variables not considered at any point during this research was how people learn about wildlife from secondary sources such as television, books, or other people. Though such questions were tangential to the purposes of this research, they likely warrant future consideration.
Conclusion

Nearly a century ago, Shelden (1917) wondered aloud at the National Parks Conference why scientists did not more actively consider the roles of wildlife-inspired emotion in enhancing our park experiences. This dissertation has been my response to his question, and I hope that my answers provide fodder for future study. To explore wildlife-inspired awe as I sought to do here is not an exact science, however, I hope that I succeeded in holistically considering the topics of awe, wildlife, and learning. I believe I have demonstrated the interconnected nature of the three and have provided a template for how we might pursue future understanding of their relationships with each other and potentially other variables. With future research, there is little question that further revisions to the Wildlife Experiential Emotion Model will be necessary, however, I believe this study has provided a strong starting point for the continued exploration of the learning implications of wildlife-inspired awe.

It is becoming increasingly apparent that wildlife are important characters in the story of the human desire for outdoor experiences. Like bridges, gazebos, and nature centers, wildlife is an amenity, one that should be maintained and valued as much as the landscape itself. Indeed, for many people, natural areas without wildlife are not natural at all. Wildlife is central to many people’s leisure experiences, just as they are central to our daily life. It is not coincidence that as Challinor (1989) suggested, wildlife have been viewed historically as gods, demons, machines, tools, children, and prophets, to name a few.

Wildlife will remain central to who we are and how we see the world, because wildlife is one of those rare phenomena with the power to inspire in us positive feelings. The value of those positive feelings cannot be overstated and should not be discounted. As such, it is vital that human-wildlife experiences and wildlife-inspired awe remain as central considerations in our ongoing exploration of the human dimensions of wildlife.
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Appendix A – Stage One Data Collection Protocol

<table>
<thead>
<tr>
<th>Stage One Semi-Structured Interview Protocol</th>
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<tbody>
<tr>
<td>1. At any point in time, have you had memorable experiences with wildlife?</td>
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<tr>
<td>a. Why do you think it was a memorable experience?</td>
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<td>2. During or following those experiences, what feelings did you experience?</td>
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<td>a. Would you describe those feelings as positive, negative, or mixed?</td>
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<td>3. Did this experience contribute to a sense of awe?</td>
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<td>a. Can you describe an experience with wildlife that made you feel awe?</td>
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<td>4. What did you learn from the experience?</td>
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<td>a. Or how do you see the world differently as a result?</td>
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Appendix B – Stage Two Data Collection Protocol

Q1 Project Title: Wildlife Inspired Awe in Leisure-Based Learning

Research involving human-wildlife interaction is being conducted by Jonathan Hicks in the Department of Recreation, Sport and Tourism at the University of Illinois. The purpose of the research is to develop further understanding of how site visitors interact with wildlife and what perceptions they have of wildlife species. The research is focused on the shared and different perceptions and preferences that exist among Illinois’ many park visitors. Information is being gathered through this on-line questionnaire. Participation in the research is voluntary. It is your right to discontinue participation at any point and/or to not answer any questions you do not wish to answer. The questionnaire will take around 15 minutes to complete. While participants will not gain directly from participation, the research will shed light on current human-wildlife interaction trends in the State of Illinois. All participant responses will be held in strict confidence by the researcher. Confidentiality will be protected through the use of pseudonyms in any publication and public presentations. For questions regarding this research, please contact graduate student, Jonathan Hicks (hicks5@illinois.edu) at 217-300-2261. If you have any questions about your rights as a participant in this study, please contact the University of Illinois Institutional Review Board at 217-333-2670 (collect calls accepted if you identify yourself as a research participant) or via email at irb@illinois.edu.

I agree to participate in a study regarding wildlife perceptions and preferences.

______ No
______ Yes

Q2 The questions in this section are about the ways wildlife can influence your leisure time. The questions are intended to further understand the ways in which wildlife is a part of your life.

<table>
<thead>
<tr>
<th>I enjoy watching wildlife when I take a trip outdoors. (1)</th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Somewhat Disagree (3)</th>
<th>Neither Agree nor Disagree (4)</th>
<th>Somewhat Agree (5)</th>
<th>Agree (6)</th>
<th>Strongly Agree (7)</th>
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<tr>
<td>Some of my most memorable outdoor experiences occurred when I saw wildlife I didn’t expect to see. (2)</td>
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<td>Some of my most memorable outdoor experiences occurred when I saw wildlife do something I didn’t expect. (3)</td>
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<td>One of the reasons I take trips to the</td>
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<td>outdoors, like camping, hiking or sightseeing, is for the chance to see wildlife. (4)</td>
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<td>I enjoy seeing birds around my home. (5)</td>
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<td>I notice the birds and wildlife around me every day. (6)</td>
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<td>Having wildlife around my home is important to me. (7)</td>
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<td>I’m interested in making the area around my home attractive to birds and wildlife. (8)</td>
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<td>An important part of my community is the wildlife I see there from time to time. (9)</td>
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<td>I enjoy learning about wildlife. (10)</td>
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<td>It is important that all Illinois residents have a chance to learn about wildlife in the state. (11)</td>
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<td>It is important that we learn as much as we can about wildlife. (12)</td>
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<td>We should strive for a world where humans and fish and wildlife can live side by side without fear. (13)</td>
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<td>I view all living things as part of one big family. (14)</td>
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<td>Animals should have rights similar to the rights of humans. (15)</td>
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<td>Wildlife are like my family and I want to protect them. (16)</td>
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<td>I take great comfort in the relationships I have with animals. (17)</td>
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<td>I feel a strong emotional bond with animals. (18)</td>
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<td>I value the sense of companionship I receive from animals.</td>
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</tbody>
</table>
Q3 What is the best experience with wildlife you have ever had? It could be a “favorite” experience, or one that was significant to you for other reasons. The next several questions will be about your memories of that experience. The experience can have occurred at any time during your life. You will be asked to think about and reflect upon that specific experience with wildlife. As you think about your most positive experience with wildlife, what type of animal did you encounter? i.e. bear, turtle, eagle, etc. *(please list)*

Q4 During that experience with wildlife, to what extent do you agree with the following statements? *(please circle one for each feeling)*

<table>
<thead>
<tr>
<th>Feeling</th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Somewhat Disagree (3)</th>
<th>Neither Agree nor Disagree (4)</th>
<th>Somewhat Agree (5)</th>
<th>Agree (6)</th>
<th>Strongly Agree (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt happy. (1)</td>
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<td>I felt anger. (2)</td>
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<tr>
<td>I felt awe. (3)</td>
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<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt disgust. (4)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt reverence. (5)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt excitement. (6)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt admiration. (7)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt empathy. (8)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt sadness. (9)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt astonishment. (10)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt fear. (11)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt surprise. (12)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt respect. (13)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt wonder. (14)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
Q5 During that experience with wildlife, to what extent do you agree with the following statements?  
*(please circle one for each)*

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree (1)</th>
<th>Disagree (2)</th>
<th>Somewhat Disagree (3)</th>
<th>Neither Agree nor Disagree (4)</th>
<th>Somewhat Agree (5)</th>
<th>Agree (6)</th>
<th>Strongly Agree (7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making eye contact with the animal enhanced my experience. (1)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Being near the animal enhanced my experience. (2)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>The large size of the animal enhanced my experience. (3)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>The small size of the animal enhanced my experience. (4)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>This was one of the only or first times that I had ever seen this type of animal. (5)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt small or insignificant. (6)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt the presence of something greater than myself. (7)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I was unaware of my day-to-day concerns. (8)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I felt closely connected to the world around me. (9)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>I did not want the experience to end. (10)</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
Q6 During your experience, was anyone else with you?
(please select all that apply and write the NUMBER of each next to each category)

- No, I was alone. (1)
- Yes I was with my significant other (2)
- Yes, I was with _____ friend(s) (3) ____________________
- Yes, I was with _____ child(ren) (4) ____________________
- Yes, I was with _____ pet(s) (5) ____________________
- Yes, I was with other (please describe) (6) ____________________

Q7 During that experience, what best describes the type of setting were you in?
(please check all that apply)

- Home or yard (1)
- While driving (2)
- Local park (3)
- National park (4)
- Zoo (5)
- Other (please describe) (6) ____________________

Q8 Which best describes your gender?

- Male (1)
- Female (2)
- Other (please explain) (3) ____________________

Q9 What is your current age? (in years) ____________

Q10 Thank you for being an important part of understanding how people experience wildlife. Are you willing to be contacted via email if the researcher has any additional questions?

- Yes (please include email address below) (1) ____________________
- No (2)
### Stage Three Interview Protocol Draft

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What do you do for fun/leisure?</td>
</tr>
<tr>
<td>2. Does the presence or absence of wildlife influence the quality of your leisure experiences? In what ways?</td>
</tr>
<tr>
<td>3. Try to recall an experience with wildlife that you particularly enjoyed. Please describe the setting and what happened.</td>
</tr>
<tr>
<td>4. When you hear the word “awe”, what comes to mind?</td>
</tr>
<tr>
<td>5. Positively or negatively, has an encounter with wildlife ever inspired feelings of awe?</td>
</tr>
<tr>
<td>6. Try to recall an experience that did not involve wildlife that inspired feelings of awe. Please describe the experience and what happened.</td>
</tr>
<tr>
<td>7. Have your feelings/opinions about wildlife changed over time?</td>
</tr>
<tr>
<td>a. If so, how have they changed?</td>
</tr>
<tr>
<td>b. Why do you think they changed?</td>
</tr>
<tr>
<td>8. Are there any specific species for which your feelings/opinions have changed over time?</td>
</tr>
<tr>
<td>a. If so, how have they changed?</td>
</tr>
<tr>
<td>b. Why do you think they changed?</td>
</tr>
<tr>
<td>9. Generally speaking, how would you describe your feelings toward the natural world?</td>
</tr>
<tr>
<td>a. Do you believe that your feelings toward the natural world have been influenced by your interactions with wildlife?</td>
</tr>
<tr>
<td>10. When you think back on your life, why do you think you came to value wildlife?</td>
</tr>
<tr>
<td>11. Is there anything we did not discuss today that you would like to talk about or anything that we did talk about that you would like to emphasize or clarify?</td>
</tr>
</tbody>
</table>