ABSTRACT

ROSENFELD, CYNTHIA PORTER. Slithering Stories-We-Live-By: Animal Educators’ Construction and Enactment of Positive Narratives About Snakes. (Under the direction of Dr. Elizabeth Craig).

Representations of snakes abound in literature—from Greek mythology to the Bible to the Harry Potter series—in oral traditions, and the visual arts (e.g., 2006’s *Snakes on a Plane*). Often constructed as sneaky or sinister, the cultural evaluation of snakes can perhaps best be stated by the adage, “The only good snake is a dead snake.” Such messages become the “stories we live by,” and although this evaluation is widespread, it is not universal. Animal educators (e.g., naturalists, docents, rehabilitators) are agents of alternative stories that exists in struggle with the dominant one. To examine the messages and the process of messaging used by animal educators, I conducted an ethnographic study situated in the setting of animal education. Sites included a natural science museum, botanical garden, ecological park, rescue and rehabilitation locations, and small-scale education centers (e.g., traveling education programs). The setting, the audience, the storytellers, and the story being told all shape the experience of an animal-encounter. The setting may either resist or perpetuate a negative cultural evaluation of snakes. Presuppositions, convictions, and available examples of modelling all influence whether an audience member chooses to adopt a new story or retain the old one. Through their discourse, enactments, and material displays, animal educators offer a story with touch, body-mapping activities, an ecological narrative, deliberate word choices, and an emphasis on being able to identify snakes. With the audience and setting, educators try to (co)create a new story with the central message, “The only good snake is a live snake.”
Slithering Stories-We-Live-By: Animal Educators’ Construction and Enactment of Positive Narratives About Snakes

by
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A thesis submitted to the Graduate Faculty of North Carolina State University in partial fulfillment of the requirements for the degree of Master of Science

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DEDICATION

To all the people who dedicate their lives to inspiring conservation and care in others, and to all the members of the Linnean suborder Serpentes: long may you climb the trees, scale the rocks, and swim the seas of this planet.
BIOGRAPHY

Cynthia Porter Rosenfeld, MSW, is a candidate for MS in Communication at North Carolina State University. She is interested in environmental and science communication. More specifically, her work looks at how human-nonhuman animal interactions and how critical examinations of popular portrayals (e.g., books, movies, commercials) of nonhuman animals can disrupt the nature-culture dichotomy in the social sciences and humanities.
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CHAPTER ONE: INTRODUCTION

Snake. It is a word often decoded with emotional responses. If I were to ask readers to close their eyes and envision a snake—how does it move? how does it look?—some may be uncomfortable engaging in the imagery. If I took it the next step and asked readers to imagine the snake moving across their feet, wrapping around their arms, and the feeling of the snake’s scales as they rub their hand from the head toward the tail of the animal—going in the direction of the scales to avoid injuring the snake’s integument—I may further heighten anxiety. Snakes are among the most feared of nonhuman animals (Van Le et al., 2013; Warrell, 2010); even pictures of snakes provoke fear in some (Marcum, 2007).

Part of this fear is (re)created by myth and misconception. Stories abound featuring snakes as fantastical villains. For example, one myth suggests the only way to kill a snake is to cut the body into seven separate pieces and burn them in seven different fires; another says coachwhips chase people down and whip them to death with their long, slender tails. Although these stories are fantasy, snakes’ lives are threatened by our very real fear (Marcum, 2007; Schipani, 2018). There are 238 species of snakes listed as between vulnerable and extinct on the International Union for the Conservation of Nature’s Red List of Threatened Species (IUCN, 2017), with 138 of those being critically endangered or endangered. To move from fear to conservation, the stories we tell about snakes have to change. “In the end we will conserve only what we love; we will love only what we understand, and we will understand only what we are taught,” proclaimed conservationist Baba Dioum (quoted in Valenti & Tavana, 2005, p. 308).

Animal educators—be they museum or park employees, administrators of an identification group (i.e., group(s) dedicated to providing identification of snake photographs posted to the group; e.g., if someone encounters a snake in their backyard and would like to know what it is, they can
take a photo and upload it to the group) on social media, or rescue and rehabilitators—are active creators of alternative stories about snakes, trying to inspire care for some of nature’s most misunderstood creatures.

The purpose of the article presented in Chapter Two is to examine how animal educators create—discursively and materially—alternative stories about snakes. Given the journal article format of my thesis, much of my research is unrepresented in the primary manuscript. Such information includes a more detailed literature review, a more robust description of research methodology, and an elaboration on the findings of my ethnography. To address these elements, Chapters One and Three serve to supplement the article presented in Chapter Two. Chapter One (the present chapter) offers an extended review of literature and research method, and Chapter Three provides information on future directions (beyond what is offered in the article) and reflections from the research process.

“The Evolution of Mystery in Nature”: Extended Literature Review

In the following sections, I overview the history of human-snake relationships and discuss the role of fear in human-snake interaction. Next, I consider the implications of fear on conservation and consider the role of a zoological park-type setting as a site for a counter narrative. Then, I review the literature on human-animal interaction, and finally, I explore how to represent nonhuman animals’ experiences in research.

Human-Snake Relationships

The history of human-snake relationships is as old as humanity itself. Snakes evolved before modern humans, so we have never known a world without snakes. In ethologist Mark Bekoff’s edited volume, *Encyclopedia of Human-Animal Relationships*, Heidi Marcum (2007) discusses the history of human-snake relationships. The author claims that snakes are among the
most emotionally-evocative creatures for people, triggering feelings of love, hate, disgust, or reverence. Marcum (2007) describes the complexity of humans’ relationships with snakes. Snakes have served as symbols of fertility in ancient Crete and Mesopotamia, as a symbol of immortality (Oroboros), as key figures in the symbol of medicine (Caduceus), as gods by Hindus in India, and as a zodiacal symbol representing wisdom, patience, and confidence in China. On the other hand, ancient Greek depictions of Medusa and Hydra portray snakes as villainous monsters, and Judeo-Christianity puts snakes in the middle of the Original Sin and humans’ expulsion from the Garden of Eden. Snakes are also present in the oral traditions of people indigenous to North America. There are stories of a “wicked woman” who had affairs with snakes or an “overly proud” woman who gave birth to the first snakes. Similar to the tale of Original Sin, a Peoria story tells of woman tricked by a snake—a rattlesnake who took the guise of a handsome man. An O’odham legend tells a story in which the rattlesnake was responsible for bringing death to the world. However, in this legend, the snake only brings death after seeking help from Elder Brother because other people and other creatures kept poking the rattlesnake to hear his rattle for their own enjoyment (Native Languages of the American, 2015). There are also many so-called “old wives’ tales” surrounding snakes (an ecofeminist critique of the linkage between women and snakes—Medusa, Eve, the indigenous women featured in the folktales, and the “old wives”—is warranted but is beyond the scope of this manuscript). Clearly, there is a vast and diverse library of snake stories from which to choose. However, a common thread in many is that snakes are agents of trickery and often of evil, creatures to be feared.

Fifty percent of Americans report experiencing anxiety when they see a snake, and 20% report being frightened by photographs of snakes (Marcum, 2007). Fear of snakes is considered
by many to be a primordial human fear (Warrell, 2010), although Marcum (2007) points out that not everyone is afraid of snakes.

It is the fear of snakes—fear of the harm they may cause to our human bodies—that has led to activities known as “roundups.” Although existing in several states (Marcum, 2007), Texas hosts the largest roundup: the collection and subsequent extermination (through starvation, suffocation, or decapitation) of hundreds of thousands of rattlesnakes annually (Schipani, 2018). One popular method of collecting snakes is a technique called “gassing,” which involves pouring gasoline in dens to flush out the snakes. Gassing is detrimental to a number of animals other than snakes, and is an environmentally-harmful practice (Marcum, 2007). These roundups are conducted as community festivities and fundraisers, with the one in Texas attracting approximately 40,000 visitors at $60 each for a weekend pass (Schipani, 2018). Proponents of roundups see the events as a way to cull a perceived pest species (Means, 2009). A fear of rattlesnakes is understandable: they are vipers, many of which possess venom capable of killing an adult human being. In the United States, snakes are responsible for six deaths a year; however, this number gains some context when contrasted with the 34 deaths for which “man’s best friends” are responsible annually (Forrester, Weiser, & Forrester, 2018).

Certainly, the risk to human life warrants caution, but the fear seems disproportionate to the risk. This is, of course, a vast oversimplification of fear. An individual’s fear is supported by much more than the real and perceived risk of a situation. Two sources that influence our emotional responses to animals are the media and education.

Modern media depictions of snakes often offer portrayals that promote fear, such as in popular movies like *Snakes on a Plane* or in the book/film series of *Harry Potter*. Fans of *Indiana Jones* may remember that snakes were a sort of kryptonite for the title character, an
intellectual action hero. Depictions of animal-to-human violence on television have been linked to high levels of fear and estimation of personal risk of injury, even when paired with public service announcements (PSAs) that attempt to educate about the animal and explain its importance to its ecosystem (Myrick & Evans, 2014). Influential fear appeals are not limited to media portrayals. Hockett and Hall (2007) found that a national park used a fear appeal to dissuade visitors from feeding wildlife, highlighting the potential bodily risks. The appeal was successful in both reducing visitors’ feeding of wildlife and in heightening their perception of risk.

The question, then, is why we should move from fear to compassion and conservation, or why we should balance fear and compassion. There are multiple arguments for the care and conservation of snakes stemming from different value orientations toward nonhuman animals (Corbett, 2006). The moralistic value orientation (Corbett, 2006), which aligns with Singer’s (2009 [1975]) utilitarian argument (i.e., affording equal consideration to animals’ needs so that human actions do the greatest good for the greatest number of beings) and Regan’s (2004 [1983]) subject of a life philosophy (i.e, we are individual beings going through the process of life), considers the “right” and “wrong” treatment of snakes and opposes acts of cruelty or exploitation. An ecologistic value orientation is concerned about the environment as a system and how relationships interact with(in) that system (Corbett, 2006). An ecologistic argument might look at the role snakes play in a local ecosystem and examine the unintended consequences on the habitat and other creatures of eradicating snakes in that area. The naturalistic value orientation features interest in and affection for wildlife and nature (Corbett, 2006), and such arguments would foreground the aesthetic enjoyment made possible by maintaining biological diversity.
In addition to the types of arguments made for conservation, how the arguments are presented matters. Myrick and Evans (2014) looked at the effects of fear on people’s willingness to conserve animals they have seen depicted as vicious or ferocious. They found that PSAs following depictions of animal-on-human violence were helpful in increasing people’s intentions to support conservation efforts (e.g., signing petitions, donating money, or sharing information with a friend), even though they remained fearful of the animal. Chen and Lin (2014) found that how a story about nature is constructed can impact audiences’ attitudes toward conservation.

Transportation narratives, akin to narrative persuasion, are stories in which people lose themselves and enter the world evoked by the story. When people lose themselves in a story, they begin to identify with the attitudes and values in the stories (van Lear, de Ruyter, Visconti, & Wetzels, 2014). Transportation narratives about conservation of nature are linked to more responsiveness to conservation and subsequent behavioral intentions (Chen & Lin, 2014).

**The Promise of Zoological Parks and Educational Settings**

Three seconds: that is the average length of time an animal housed at a zoological park is observed by park visitors—the animal has three seconds to make an impact (Milstein, 2009). In these three seconds, Association of Zoos and Aquariums (AZA)-accredited organizations, ranging from zoos to aquariums to museums, hope that the exposure to the animal fosters a sense of conservation (AZA, 2018). The goal of igniting a spark of conservation in society is supposed to balance the cost of housing the individual animal in a zoological facility (Milstein, 2009). Yet, few visitors report leaving parks with a greater understanding of or willingness to protect wildlife (Kellert & Dunlap, 1989; Reade & Waran, 1996; Smith, Broad, & Weiler, 2008; Tribe & Booth, 2003). It seems that merely having the animal present with placards displaying text is an insufficient catalyst for conservation-mindedness. However, other studies show there are
techniques that go beyond “mere presence,” such as direct contact and modelling by an educator, that do promote conservation-mindedness and increase positive affection and information retention (Ballouard, Provost, Barré, & Bonnet, 2012; Morgan & Gramann, 1989; Newberry, Fuhrman, & Morgan, 2017; Tomažič, 2011).

Some AZA-accredited facilities provide personal, close encounters with “ambassador animals” (the organization’s preferred terminology) to try to create a deeper, more transformative experience. The controlled setting of the zoo or aquarium may offer an environment more conducive to audience receptivity than a natural, wild encounter. Further, the animal educators are in the position to tell a story about the animal. These intimate encounters can influence how humans think about the animal (Sanders & Arluke, 1993), allow the animals to “speak” for themselves (Milstein, 2008), counter the invisibility of animals in urban settings, and disrupt the industrialized (e.g., factory farming) and technological (e.g., viewing media depictions of animals) practices involving animals by making animal bodies visible (Cook, 2015). Animal educators are in a unique position to make the snake visible to an audience and to offer an interpretation of the snakes’ behaviors, leaving visitors with a different story about snakes.

**Internatural Communication and Human-Animal Interaction**

Scholars in both the humanities and social sciences struggle with the difficult task of how to study and write about human-animal relationships (Alger & Alger, 1997; Sanders, 2003). George Herbert Mead, the considered by some to be the “father of sociology” and an influential figure in the origins of communication studies, is sometimes cited as the source of this tension, owing to his assertion that the social sciences were solely for the study of humans (Kuhl, 2011; Wilkie & McKinnon, 2013). The privileging of spoken discourse is seen as a root of
anthropocentrism in the humanities (Slack, 2008). The choice of words—how to talk about nonhuman animals in literature and how to define communication among species—is even more problematic in communication studies, in which the question of what it means to communicate is still contested within the field (Griffin, Ledbetter, & Sparks, 2015).

Human-animal encounters, the situations in which humans and animals come into close physical proximity without a physical barrier, such as plexiglass, are one site in which constructive human-animal interaction can and may occur. Human-animal encounters go beyond making animal bodies visible to human sight, a practice that perpetuates the human gaze directed at animals (Milstein, 2009). Human-animal interaction involves hearing the animals’ voices, smelling their odors, attending to their body language, and acknowledging their individual preferences, likes, dislikes, goals, and beliefs (Beckoff, 2007), and may include tactile interaction. The preceding description of human-animal interaction rises to the level of internatural communication, defined by Plec (2013) as the exchange of energy between humans and other animals and which involves the capacities to affect and be affected.

Internatural communication is one site of interest in the broad area of posthumanism. Regarding human-animal interaction, posthumanism examines phenomena with consideration to how humans and nonhumans are intertwined and both shape and are shaped by each other (Cavell, Diamond, McDowell, Hacking, & Wolfe, 2008; Haraway, 2016; Wolfe, 2003, 2012). The experience of interspecies communication between humans and nonhuman animals—and recognizing that intraspecies communication exists among nonhuman animals, as well—serves to disrupt sharp distinctions made between “human” and “other,” “culture” and “nature” and recognizes the agency that nonhuman actors possess in shaping human experience.
Nonhuman animals are creatures who can help us understand our own humanity (McNamee, 2000) and with whom we have an opportunity to create a unique, shared experience without relying on shared linguistic symbols (Irvine, 2004; Sanders, 2003). This is consistent with Casimir’s (1993) conceptualization of a third culture, in which individuals of two different backgrounds form a collective—third—culture between them. In internatural communication, humans and animals “become-with” one another (Haraway, 2003; Slack, 2008), creating a third culture that is neither exclusively human nor exclusively the other species in the interaction (Brandt, 2004; Haraway, 2003). Play, mutual gaze, and “speaking for” are key elements of positive (i.e., mutually beneficial) human-animal interactions (Sanders, 2003).

Although internatural communication may open new understandings of the self, separate from human language (Irvine, 2004), the inability to communicate via shared linguistic symbols can also result in frustration, agitation, and aggression (Telkänranta, 2009). Frustrated by an inability to get an animal to behave as a human desires, a person may resort to violence in an attempt to elicit the desired behavior. In some cases, this serves to increase the animal’s level of aggression toward the person (Telkänranta, 2009).

Thus, the process and outcome of human-animal interaction depends on both the individual humans and animals involved, and interactions will vary (Irvine, 2004). The animal-human interaction is a product of how the subjects-in-interaction contextualize the interaction, identify and understand the other, and respond to the subjective experience of the other (Sanders & Arluke, 1993).

**Representing Snakes’ Lives in Research**

In the posthuman paradigm, a study of human-animal interaction necessitates representing the nonhuman being(s). It is not an easy task to represent a snake. First, there is the issue of
scholarly resistance to such representations. Social sciences and the humanities have a history of marginalizing animals (Cook, 2015) and nature (Slack, 2008), even in fields that typically champion hearing from silenced voices (Slack, 2008). This marginalization helps perpetuate the idea of human exceptionalism (Cook, 2015). Marchesini (2017) goes a step further and suggests that exceptionalism is the birthplace of the humanities. “The non-human becomes a solid and consistent category . . . . so that the human finds itself belonging to a different realm, which requires disciplines and approaches opposed to natural science” (Marchesini, 2017, p. 2).

Second, there are the practical concerns of how to interview a snake. Kuhl (2011) and Slack (2008) discussed the difficulty of representing nature in sociology and cultural studies, respectively. Slack (2008) further argues that “eco” studies (aspects of nature that are outside of human discourse and human apparatuses) are backgrounded because it is difficult to handle non-discursive data, and that that difficulty often results in less elegant writing. However, by avoiding representing animal lives in our research, Haraway (2008) claims we are denying our moral entanglements with other life on earth, as well as perpetuating the nature-culture dichotomy (Slack, 2008).

Slack (2008) is right that it is difficult to represent something that presents in a non-discursive form. Summarizing work from Beckoff (2007), Marchesini (2015), and Kuhl (2011), intersubjectivity, and three principles that flow from it, guide my representations of the snakes’ experiences to, ideally, achieve a state that is neither merely anthropocentric projections nor relegating snakes to the status of “unknowable aliens” (Kulick, 2017).

Understanding intersubjectivity, something that exists between conscious minds—a bridge between the self and other, is crucial to representing animals. Intersubjectivity allows us to transcend the human-animal dichotomy of Western ideology (Kuhl, 2011). Intersubjectivity
can function as a sort of critical anthropomorphism (Marchesini, 2015), acknowledging that the non-human animal has both similar and different attributes. With intersubjectivity, “it is necessary to identify a term of comparison and it is more correct to identify that term in the human being rather than in a form of machinery” (Marchesini, 2015, p. 79). However, it is critical anthropomorphism in that it stops short of trying to make projections or translate “animal” into “human.” Instead, intersubjectivity approached as as critical anthropomorphism creates a space to generate empathy (Marchesini, 2015).

There are three principles that allow us to contemplate intersubjectivity (Marchesini, 2015). First, there are universals, applicable across species. For example, animals repeat behaviors that bring pleasure and move away from pain. Second, there are homologies, characteristics found among closely-related animals due to a shared ancestor. For example, I can interpret a monkey—with whom I share a recent ancestor on the evolutionary timescale—refusing to complete requested tasks after seeing another of my species receive a better reward for completing the same task (Brosnan & de Waal, 2003) as feeling something like being treated unfairly. Third, there are analogies, shared characteristics developed through similar environmental pressures (Marchesini, 2015). For example, given our long co-evolution with our canine companion species (Haraway, 2003), many dogs have follow our pointing, learning that the gesture serves as a referential cue (MacLean, Herrmann, Suchindran, & Hare, 2017).

Further, Kuhl (2011) argues for alternative representations of animals in research, including the use of pictures to afford the nonhuman animals greater visibility and multimedia (e.g., websites with audio samples) to allow the animals to “speak” for themselves. Kuhl also adds that narratives and ethnography have the potential to produce vivid stories that allow the reader to imagine a shared experience and engage in kinesthetic empathy.
Snakeology: Methodological Framework for Exploring Snake Education

Between March 17, 2018 and November 8, 2018, after gaining Institutional Review Board (IRB) approval, I conducted a study of snake education programs using ethnographic methods of participant observation, informant interview, and textual analysis. Ethnographic methods were selected to allow for greater attention to the micro-interactions of educators, animals, and audiences. For example, while Morgan and Gramann (1989) found that educator modelling can influence audience members’ feelings toward snakes, what is missing is a nuanced account of what such modelling looks like. Ethnographic methods provide the means to study the nuance. For this study, the following research question guided my ethnographic exploration of the practices of snake education:

Research Question. How do animal educators, snakes, and audiences engage one another to resist or perpetuate the hegemonic negative cultural evaluation of snakes and (re)create alternative stories for conceptualizing snakes?

Hine’s “connective ethnography” (2007) approach was used to both identify sites and participants, and to help conceptualize the study, seeing sites and individuals as linked and interconnected rather than discrete locations and peoples to be compared and contrasted. While at one site or interviewing one participant, links and associations to other sites and participants would emerge. For example, I interviewed a rehabilitator in Florida, who introduced me to an online snake identification group. I joined this group and found that some of my previous interviewees were also members of this group. Thus, rather than seeing each site as discrete and disconnected, connective ethnography calls for seeing how the circulation of information and interaction link the sites to create a larger field of, in this case, what I refer to (and some participants refer to) as snake education.
The first sites I visited and interviews I conducted were places and people with whom I had connections from my year working as a snake educator. From there, I used network sampling to make new connections. With both existing and new connections, I had an IRB-approved script that was emailed to gatekeepers and participants. When a participant and I sat down for an interview, we began by going over the informed consent document. Each participant signed a consent form. Additionally, each participant verbally granted consent on the audio recording of the interview.

**Participant Observation**

In person, I observed eight sites in three states (North Carolina, Georgia, and Utah) over the course of eight months (see Appendix A for observation schedule). These sites consisted of a science museum, botanical garden, three nature/wildlife centers, a reptile center, a zoological sanctuary, and the home of an individual who has a mobile-education program. Online, I daily observed two snake identification groups on Facebook (one with over 100,000 members and one with approximately 50,000) and followed the hashtag “#SnakeOfInstagram” on Instagram for 29 weeks, extending beyond the November 8 end date for in-person observations.

Part of my study included data collected from participant observations of snake encounters presented by animal educators. My role as a participant observer was most closely aligned with Gold’s (1997) “participant-as-observer” (Lindlof & Taylor, 2019), meaning that my observations emerged from my active participation, and my role as a researcher was known (i.e., I announced who I was to educators). In this role, I participated in the animal encounters as a member of the audience, which included listening to the animal educator, observing the educator’s interaction with the snake, and interacting with a snake when directed. I also observed the reactions of fellow audience members to the educator and the snake. Online, I interacted
primarily by liking posts on identification boards or photos on Instagram, although a few times I also offered an identification.

There were multiple benefits of collecting data in the role of participant-as-observer. First, this allowed me to conduct an embodied investigation (Lindlof & Taylor, 2019). Rather than exclusively privileging vision (Lindlof & Taylor, 2019)—such as by passively watching as an observer outside the room, trying to go unnoticed—I was able to hear the stories the educator told and the audience response, detect whatever smells may be present, and feel the snake with my own hands. Each sensory experience adds dimensions to the encounters and helps explore the characteristics influencing a particular interaction (Pink, 2015). For example, does meeting the snake inside the enclosed classroom setting differ from meeting a snake in the hallway of the museum (with the snake behind a glass enclosure)? How does the lighting differ? How are the sounds in the hall different from those in the room? How do these different sensorial experiences matter as aspects of human-animal interaction? Second, by participating in the experience with other audience members, I obtained a greater level of informed reciprocity (Lindlof & Taylor, 2019). By participating in the encounter, both the animal educators and other audience members seemed to perceive my interests as authentic (i.e., I must genuinely be interested in their experience if I am purposefully engaging in the experience myself) and accountable (i.e., perhaps reducing the anxiety of feeling “judged” associated with being observed by making myself available to be observed, as well, as a participant) (Lindlof & Taylor, 2019). Being perceived as authentic and accountable helps establish rapport (Lindlof & Taylor, 2019) and thus facilitated capturing useful, more natural data. Further, collecting data as a participant-as-observer means engaging in reflexive practice. As I participated, I was able to check my own conceptual
assumptions and reflect on the research relationship(s), so that the research method itself is also an area of inquiry.

The dates of observation were staggered to create an iterative process (Charmaz, 2003; Lindlof & Taylor, 2019) of collecting data, doing analysis, and returning to the field to test working theories and concepts (Charmaz, 2003). Themes that emerged early in the process were pursued in follow-up observations (Charmaz, 2003). Headnotes—focusing attention during the encounter—were taken during the encounters, and scratchnotes—brief notations taken on a notepad—were taken immediately following the encounter. Within 24 hours of each encounter, fieldnotes were developed to reduce the likelihood of diluted and distorted memories (Lindlof & Taylor, 2019).

**Semi-Structured Interviews**

Sixteen educators were interviewed, totaling over 18 hours of interview. Participants came from four states (North Carolina, Georgia, Florida, and Mississippi) and from nine different sites (science museum, botanical garden, two nature centers, zoological sanctuary, online identification group, rescue and rehabilitation center, animal control, and a travelling animal education program) (see Appendix B for interview guide). Educational backgrounds ranged from high school diplomas to Masters of Science degrees. Participants consisted of 12 women and 4 men, and ranged in age from early 20s to early 60s.

Criterion sampling was used to conduct interviews with animal educators. Any educator who presented a snake encounter within the past year was eligible for inclusion. Although I originally conceived the word “encounter” to mean an in-person snake interaction, early interviews indicated that “virtual encounters”—in which people are exposed to talk about and photographs of snakes—were taking place online via social media, and so the criteria for
inclusion broadened. With these criteria in mind, network sampling was also used to recruit additional interviewees (Lindlof & Taylor, 2019) and to facilitate a connective ethnography.

Interviews were semi-structured, informant interviews (Lindlof & Taylor, 2019) consisting of broad questions exploring the person’s experiences and perceptions of snakes, how prior experiences with snakes and experiences in the classroom influenced the person’s feelings about snakes, what goals and objectives the individual had for encounters/educational programs, and what strategies the person used to try to meet those goals. Interviews also included ongoing theory-testing questions, in which theoretical insights from prior interviews were member checked by participants in later interviews. Alternative interview formats also occurred spontaneously. One educator gave me a tour of her phone and showed me one of her videos, while narrating what was happening in the video to me. Another educator did half the interview in a coffee shop and provided a guided tour of a garden for the second half of the interview.

Additionally, some ethnographic interviewing took place by asking audience members spontaneous questions (Lindlof & Taylor, 2019) based on the encounter in which they participated to capture some initial “first reaction” responses. For example, during one of my times observing an unstaffed snake exhibit (i.e., snakes are on display but there were no educators present to interpret snake behavior or interact with people), I remained silent and took notes as people came and looked at the snakes. On a subsequent visit to the same exhibit, I interacted with people as they observed the snakes, asking questions to help them verbally process the experience.

**Textual Analysis**

Texts analyzed in this study include official texts of the embodied and online sites, such as photographs, displays, placards, fliers, and websites. I examined these texts to study their
depiction of snakes. As discussed by Myrick and Evans (2014), visual depictions influence how a person responds to a story. The depiction of snakes in a museum or zoological park, for example, shapes the context of an educational event: if snakes are foregrounded in an educational event but backgrounded or erased in the site’s texts, then the materiality of the site may be undermining the discursive practices of the educators. Further, these texts (i.e., public documents and artifacts) provide insight into the rules, values, and policies shaping the encounter (Tracy, 2013). These data provide an insight into how those who constructed the exhibits and settings guide the sensemaking of museum visitors (Rogers & Schutten, 2004).

In addition to the websites and social media accounts of sites, I photographed signage, displays, and gift shop items to analyze. I picked up handouts and signed up for newsletters/magazines of sites where applicable. Additionally, I purchased copies of guides and books relating to snakes in the giftshops to get a feel for what sort of educational material is made available and symbolically endorsed by the institution by virtue of being offered in the giftshop.

**Grounded Theory Approach and Data Analysis**

Given that snake education and human-snake interaction is a novel area of study and requires attending to the embodied experiences of the educators, public, snakes, and myself, a constructivist grounded-theory approach (Charmaz, 2008) was the best selection of theoretical and methodological frameworks for two primary reasons. First, a constructivist grounded-theory approach allows for the researcher to construct theory inductively from an iterative, methodological process of gathering and analyzing data (Charmaz, 2008). The process allowed me to conduct member checks as I conducted my research (Lindlof & Taylor, 2019). After completing a few interviews, I would go into a new interview and say, “What I’m hearing from
some of the participants . . .” and reflect back my understanding and preliminary theoretical insights. The participants would respond and either affirm and supplement the insight or would contradict and explain a different understanding, which offered good information for a negative case analysis (Lindlof & Taylor, 2019). Second, constructivist grounded-theory engages in reflexive processes that allow the researcher—me—to examine how my own ontological assumptions and perceptions are influencing the research (Goulding, 2017).

Goulding (2017) warns of some hazards in using grounded-theory. First, grounded theory work requires rigorous methodological standards to be useful. Data must go through an iterative process of collection, analysis, and checking. Second, it is important to remember that grounded theory is theory construction, not only theory testing. Third, grounded theory should not be used as an excuse to avoid reviewing the literature.

To avoid these pitfalls, I conducted an extensive review of literature before going into the field. While in the field, I used in-process writing to explore what practices, experiences, and meanings of the educators were most evident (Lindlof & Taylor, 2019). As insights were gained, another round of interviews and observations would take place. Further, as new practices, experiences, and meanings emerged, I would cycle back and review relevant literature. For example, “identifying” snakes emerged as a major theme. Prior to data collection, I had read none of the literature on the broader import of wildlife identification and thus needed to conduct additional literature reviews. This iterative process continued until saturation—the gathering of new data no longer sparked new theoretical insight nor revealed new properties of the core categories—was met (Charmaz, 2014).

Once data were collected, I used open coding to create a proliferation of codes using verbs in their gerund form (e.g., “showing how to identify,” “demonstrating how to touch,” and
“explaining how venom benefits the snake”) to stay grounded in the data and to focus the analysis on situated experiences and practices. Data analysis in this stage consisted of line-by-line initial coding (Charmaz, 2003) to generate first-level, descriptive codes describing “what” is present in the data (Tracy, 2013). A constant comparative method (Charmaz, 2003)—comparing data associated with each code and modifying or creating codes to fit new data—was employed to create codes in an iterative, reflexive process. I continued proliferating codes until saturation was met. Next, open codes were categorized. During categorization, Stibbe’s (2015) ecological framework, with a focus on the interrelated agencies of human and non-human actors (cf. Milstein, 2011), emerged as a useful analytic tool to both categorize and analyze the data. The themes I had generated (e.g., “countering misconceptions” and “telling a new/positive story about snakes”) became sensitized by Stibbe’s concepts (e.g., those themes became “presuppositions” and “beneficial discourse,” respectively). Together, Stibbe’s framework and Milstein’s view of interrelated agencies offer a constructivist approach that avoids essentializing communication phenomena.

Focused coding followed categorization, with codes being reduced and refined and a codebook generated. Focused coding (Charmaz, 2003) produced second-level, analytic codes that explained and synthesized the data (Tracy, 2013). Finally, axial coding and dimensionalization concluded the coding process. Multiple techniques were employed during axial coding. Diagrams were created on white- and chalkboards to create conceptual visualizations. This process yielded my preliminary analysis, which was then sent to participants via email for a final member check. After hearing from several participants that my interpretation seemed fair, I fleshed the analysis out with case examples and was able to construct my discussion section, which yielded the article in Chapter Two.
CHAPTER 2

Slithering Stories-We-Live-By:
Animal Educators’ Construction and Enactment of Positive Narratives About Snakes

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Slithering Stories-We-Live-By:

Animal Educators’ Construction and Enactment of Positive Narratives About Snakes

Abstract

Representations of snakes abound in literature—from Greek mythology to the Bible to the Harry Potter series—in oral traditions, and the visual arts (e.g., 2006’s Snakes on a Plane). Often constructed as sneaky or sinister, the cultural evaluation of snakes can perhaps best be stated by the adage, “The only good snake is a dead snake.” Such messages become the “stories wwe live by,” and although this evaluation is widespread, it is not universal. Animal educators (e.g., naturalists, docents, rehabilitators) are agents of alternative stories that exists in struggle with the dominant one. To examine the messages and the process of messaging used by animal educators, I conducted an ethnographic study situated in the setting of animal education. Sites included a natural science museum, botanical garden, ecological park, rescue and rehabilitation locations, and small-scale education centers (e.g., traveling education programs). The setting, the audience, the storytellers, and the story being told all shape the experience of an animal-encounter. The setting may either resist or perpetuate a negative cultural evaluation of snakes. Presuppositions, convictions, and available examples of modelling all influence whether an audience member chooses to adopt a new story or retain the old one. Through their discourse, enactments, and material displays, animal educators offer a story with touch, body-mapping activities, an ecological narrative, deliberate word choices, and an emphasis on being able to identify snakes. With the audience and setting, educators try to (co)create a new story with the central message, “The only good snake is a live snake.”

Keywords: snake, animal education, ethnographic methods, ecolinguistics
“The only good snake is a dead snake.” People whose daily lives center on interacting with, caring for, and spreading positive messages about animals—from rehabilitators to naturalists—hear these words often, and that combination of words in that order puzzles and dismays them. Snakes are, after all, meso-level predators found on land and in water that play many roles in the functioning of healthy ecosystems. Snakes assist the flourishing of plants as they are a primary predator of rodents and snails, who eat both native vegetation and human-planted crops (Greene, 1997; O’Shea, 2018). The agile, limbless reptiles also possess skulls with highly mobile jaws (Lillywhite, 2014) that allow snakes to compete for food typically consumed by larger predators (e.g., lions), thus helping to keep those populations in check, as well (Greene, 1997). At the same time, snakes—including venomous ones—are consumed by a variety of species (e.g., mongooses, opossums, tiger sharks, raptors, and even other snakes) (O’Shea, 2018). Despite such important ecological roles, snakes are maligned and persecuted by many humans.

During my serpentining adventure in the world—our world—of snakes, a story about an individual snake garnered quite a lot of attention. Faith was a watersnake, who survived a few days after being attacked by a human wielding a shovel. However, she was also rescued by a human who found her mangled body, took pity, and brought her to a rehabilitation facility in Charlotte, North Carolina. Photos were posted (one was a close-up of Faith’s face and others revealed the damage done to her), and comments poured in. Some visitors to the social media page commented that although they did not like snakes, what was done to Faith’s body was wrong. Others expressed condolences “for Faith.” Although many stories tell us that killing snakes is permissible or even heroic, killing Faith was—according these respondents—neither.
The educators/storytellers I observed and interviewed spend their lives—often engaging in formal snake education at work and serving as an informal educator for family and friends or as social media educators at home—trying to (co)create with audiences the message that “the only good snake is a live snake.” In this ethnographic exploration, first, I look at our shared history with snakes on this planet. Next, I illuminate the important role story plays in the lives of the human and more-than-human world and discuss the manner in which I conducted the ethnography. Then, I offer key findings from my participant observations, interviews, and textual analyses: The interrelating agencies of the setting, audience, storyteller(s), and stories influence how and to what extent the new story is adopted. Finally, I discuss the major implications these findings have not only for snake conservation but for the process of creating alternative, resistive stories. To (co)create new stories, educators and sites balance engaging in activities to attract an audience (e.g., displaying highly stylized and soft toy snakes) with challenging some of the audience’s presuppositions (e.g., presenting an opportunity for a person to safely touch a snake and feel for themselves that the snake is not slimy). Educators also tend to emphasize the ecological narrative of snakes, focusing on the important role snakes play in their ecosystems, while backgrounding the snake as an individual.

**Snakes on a Planet: Historical and Contemporary Context**

It has been millions of years—hundreds of millions of years—since we shared a common ancestor with snakes (Lecointre & Le Guyader, 2006). Though both humans and snakes evolved from tetrapods, snakes not only shed their skin in a unique fashion, but they also came to shed their limbs (Lecointre & Le Guyader, 2006). Such a distant genealogy and different anatomy make it easy for people to forget snakes are our “ecological associates” (Greene, 1997) and instead see snakes as Others, that is, as creatures we cannot know, comprehend, or truly
experience. Concurrently, as human populations increasingly urbanize and spend less time among earthly surroundings, we blur animals from our consciousness (Diamond, 2008)—a condition (re)produced by what Richard Louv (2008) calls “nature-deficit disorder”—and snakes also become others, or unfamiliar (Buchanan, 2010) creatures.

Throughout human history, these mysterious beings have evoked strong reactions from people ranging from fear, disgust, and hatred to awe and respect (Greene, 1997). “Snakes are our primordial contemporaries, creatures with which we as a species have a long and intimate familiarity. And for that reason, stories about snakes are among the oldest in the literature of humankind” (McNamee, 2000, xi-xii). Although snakes have some fierce human advocates on their side, they also receive a great deal of bad press. From news stories of a “hero dog” saving a woman from a rattlesnake (Kim, 2018) to ancient lore of mystical and evil snakes aligned with gods or demons (e.g., Medusa, Original Sin) to fantastical and malevolent depictions in novels and movies (e.g., the Harry Potter novels, Snakes on a Plane), snakes are not only the subject of myths but also seem to embody a sense of mythology. Further, many people are brought up in households in which they hear stories about bad experiences with snakes or witness adults in their lives reacting adversely to the presence of snakes (Greene, 1997). It may come as no surprise that approximately 51% of Americans live with a fear of snakes (Brewer, 2001), and that for many the fear exists without ever experiencing a negative interaction with snakes (Prokop, Özel, & Uşak, & 2009). Indeed, there is even evidence to suggest that a fearful reaction to ophidians may have played a role in the natural selection of primates (Van Le et al., 2013).

Fear of and a feeling of disgust toward snakes, as well as a perceived material distance from these elongate reptiles, have resulted in the deaths of many individual snakes and some entire species. “They are perhaps the most maligned group of vertebrates—misunderstood by far
too many humans who carry out death sentences at every opportunity” (Lillywhite, 2014, p. xi). Humans and our ancestors have been killing snakes for millions of years (Greene, 1997) and vice versa. Worldwide, approximately 20,000 people each year die from being envenomated via snake bite (Kasturiratne et al., 2008). However, it is not until the last two hundred years that we have been responsible for extinctions of snake species, creating an imbalance in the human-snake relationship. Through habitat destruction and fragmentation, rattlesnake roundups, and snake leather trade (Greene, 1997), over 200 species of snake are classified as threatened or endangered (International Union for Conservation of Nature, 2017).

Conservation efforts are hard. “Snakes are among the most difficult animals to conserve because the general public and decision-makers frequently dislike and even fear them” (Daltry et al., 2001, p. 119). Still, there have been some successes in reviving threatened species (Greene, 1997). For example, on Great Bird Island, the Antiguan racer—a critically endangered species that faces threats of being killed by invasive predators, tourists, hurricanes, and inbreeding population depression—has been saved from local extinction since 1995 by the Antiguan Racer Conservation Project. In addition to eradicating an invasive species causing fatal injuries to the racers (Daltry et al., 2017), habitat restoration and conservation breeding, the group has provided educational programming to both locals and tourists about the ecological importance of the snakes and their natural habitat (Daltry et al., 2001). The project’s success has even lead to the snake’s reintroduction to other native habitats in Antigua (Daltry et al., 2017).

Conservation of snakes can happen, and a crucial component of getting people to conserve is getting people to care (Ballouard, Provost, Barré, & Bonnet, 2012; Ballouard et al., 2013; Prokop et al., 2009; Gramza & Temple, 2010). One way to inspire care for snakes is to provide circumstances in which people may have direct, physical encounters with the animals
(Ballouard et al., 2013; Randler, Hummel, & Prokop, 2012; Morgan & Gramann, 1989) under the guidance of an educator or interpreter (Ballouard et al., 2012; Gramza & Temple, 2010; Morgan & Gramann, 1989). Morgan and Gramann (1989) looked at the effects of mere exposure (e.g., seeing a snake in an enclosure), modelling (i.e., “‘vicarious learning’ . . . relies on associating objects with persons who are respected or liked. Subjects are expected to modify their attitudes toward the object by observing . . . the consequences of another person’s interaction with it” [p. 502]), direct contact (e.g., touch, holding), and information (e.g., hearing a persuasive message about the subject) on students’ attitudes toward and knowledge of snakes. The authors found that neither direct contact, factual information, nor mere exposure alone significantly changed attitudes. The most important element for attitude change, which worked well by itself or paired with the other techniques, was modelling by the educator.

Thus, it seems that conserving snakes means caring about snakes, and caring about snakes begins with a disruptive embodied experience (e.g., holding a snake calmly) modeled by a respected teacher. The alternative attitude embodied in the model’s demonstration begins to create a new story about snakes. “We are all teachers in one sense or another, whether in classrooms or over the backyard fence” (Greene, 1997, p. 301). Telling news stories about snakes is not an easy task. A storyteller has to capture and hold the attention of an audience to attend to this new story. Once an audience is present, educators present information that oftentimes confront the thoughts, feelings, and beliefs with which audience members enter. Understanding how the variety of snake educators—from docents in museums to administrators of social media groups—model a positive attitude toward snakes (e.g., what words they use, how they (inter)act with the snake, how they engage the audience) can help us not only create better
conservation campaigns for snakes but also better understand the role of story and story construction in our lives.

**Slithering Stories-We-Live-By**

Given the intersection of snake mythology and human extermination of snakes discussed in the previous section, the fate of snakes on Earth seems at least partially decided by the stories we choose to tell about them. The idea of human stories impacting the material reality of snake’s existence is not a particularly outstanding claim. Humans are profoundly storytelling creatures (Fisher, 1984; Niles, 1999), and our stories help us make sense of the world (Cunliffe & Coupland, 2012; Koenig Kellas & Manusov, 2003). We are also powerful creatures, capable of influencing the Earth’s climate (Rosenzweig et al., 2008) and bringing about mass extinction (Ceballos et al., 2015). When cast, our stories, and how we choose to live and embody them, become discursive stones with the force to create material ripples in the sea of life.

“Our societies, relationships, and senses of self are constructed through story” (Rosenfeld, 2019, p. 2), and it matters how animals are depicted in these stories. Hawhee (2017) says that our depictions of animals decide whether human audiences approach or recoil, conserve or abandon. Over time, our stories and how the more-than-human (Abram, 2017 [1996]) world is depicted in them become the narratives (Fisher, 1984) and frames (Lakoff, 2010) through which members of a culture assign value or worth to entities (Okri, 1996). In short, they become the stories-we-live-by (Stibbe, 2015).

Every story we create, persuasive or aesthetic, competes with other stories (Fisher, 1984) to become the “cognitive structures in the minds of individuals which influence how they perceive the world” (Stibbe, 2015, p. 6), and how we perceive the world influences how we act.
in it (Stibbe, 2015). Change the stories an individual or culture lives by, and you change the person or culture (Okri, 1996).

One way to help a story go from a one-time telling to a story-we-live-by is through transportation narratives (Chen & Lin, 2014). Transportation narratives are stories in which people lose themselves in the storytelling and begin to identify with the attitudes and values in the stories (Chen & Lin, 2014) by being immersed in a visual, cognitive, and emotional story (Green, Brock, & Kaufman, 2004). Transportation narratives about nature have been associated with more responsiveness to and conservation behaviors toward the more-than-human world (Chen & Lin, 2014). Research on modelling and transportation narratives suggests that animal educators are in a unique position to engage audiences and offer transportive, immersive stories that can help create new stories-we-live-by.

**Interview with a Snake (Educator)**

The data for this analysis emerged from participant observations (Gold, 1997; Lindlof & Taylor, 2019) of snake education programs, semi-structured interviews with informants (snake educators), and textual analysis of artifacts collected from the sites of educational programs. Data were collected over nine months in 2018, after obtaining Institutional Review Board approval. It is also worth noting that I was a snake educator during 2016-2017, prior to which I had neither worked with nor studied snakes; my knowledge and handling experience came as “on-the-job” training. I underwent similar training to many of the participants in this study and was trained by two of them.

**Participant Observation and Textual Analysis**

Participant observation took place in multiple sites. I sat in on presentations that provided animal encounters (seeing some animals up close, being able to touch others), walked trails at
gardens and nature centers, and visited a herpetology center that permitted holding of even the largest constrictors. I logged hours in front of a snake terrarium area and listened to people’s reactions to the snakes without an educator present and sometimes served as an informal educator in the same setting to understand the role of a human interpreter in such a setting. In addition to the observations at the sites, I collected artifacts from the locations, ranging from newsletters and magazines to books to photographs of signage.

**Educators and Sites**

I interviewed 16 individuals who educate people about snakes professionally, recreationally, or both. Snake educators, all of whom have been assigned pseudonyms in this manuscript, included a variety of people who present snakes to general audiences or educate people about snakes: museum docents or curators, rescue and rehabilitators, park or nature center naturalists/environmental educators, an animal control officer, trainers/caretakers, and a traveling educator. My analysis takes a connective ethnography approach (Hine, 2007): I discuss snake educators broadly, representing the multiple sites and even different cities and states as a linked field. Such representation is not intended to convey that educators and sites are indistinguishable. There are diversity of practices and stories between fields. However, the educators shared similar ecological goals and beliefs, and educators often moved in circles that overlapped with other educators in other sites. For example, one educator I met in Florida referred me to a social media group of snake educators, dedicated to rapid identification of snake pictures posted to the group. When I joined, I found that multiple educators I had already interviewed in North Carolina also belonged to the same group.

Snake educators also include the snakes themselves, whom multiple human educators referred to as “co-workers” or “partners.” Snakes I met (meaning the snakes were not in an
enclosure, although they were in the company of an educator) during my time in the field include ball pythons, corn snakes, an Indigo snake, a king snake, a Burmese python, a green anaconda, a prairie rattlesnake, and black ratsnakes. Many other species of snake were encountered with a layer of plexiglass between us. In considering the “voice” of the snakes, I stand on the shoulders of giants who opened the door to critical anthropomorphism (Burghardt, 1997; de Waal, 1999; Marchesini, 2015; Milstein, 2011). Critical anthropomorphism is a theoretical concept that uses human perceptions, intuitions, and feelings, combined with an informed understanding of normalities (e.g., behaviors, ecologies) for the animal being described, to generate novel hypotheses for other species. Like any interpretive work, critical anthropomorphism seeks to create a state of intersubjectivity that affords the conditions for humans to be able to generate empathy for the more-than-human world.

**Grounded-Theory Approach**

Dates of observations and interviews were staggered to create an iterative process (Charmaz, 2003; Lindlof & Taylor, 2019) of collecting data, doing analysis, and returning to the field to test working theories and concepts (Charmaz, 2003). Themes that emerged early in the process were pursued in follow-up observations and member-checked in subsequent interviews with different interviewees (Charmaz, 2003).

Given that snake education and human-snake interaction is a novel area of study and requires attending to the embodied experiences of the educators, public, snakes, and myself, a constructivist grounded-theory approach (Charmaz, 2008) provided the theoretical and methodological frameworks. Once data were collected, I used a constant comparative method (Charmaz, 2003) to create codes in an iterative, reflexive process. During categorization, Stibbe’s (2015) ecolinguistic framework, explained below, furthered by exploring the
interrelating agencies of the human and nonhuman actors (e.g., the setting, audiences, educators, and the story; Milstein, 2011) in creating the stories-we-live-by, emerged as an useful analytic tool to conceptualize, sensitize, and analyze the coded data while maintaining a constructivist approach that avoids essentializing communication phenomena.

Finally, after my preliminary analysis was constructed, I reported my findings to all of my informants and asked what I might have missed and for feedback on the fairness of my interpretation. After hearing back from, and using the information provided by, a number of informants, I completed my final analysis.

**Serpentining Tales of Ecology**

Educators and sites varied greatly. While most of the sites allow audience members to touch a snake, some allow audience members to hold the snakes. Husbandry practices of snakes varied from site to site. Educators’ levels of comfort with different audience and snake behaviors varied. The common thread that joined informants and sites was a desire to promote an ecological philosophy, or *ecosophy* (Stibbe, 2015), among audiences. The two most salient tenets of the ecosophy were: (a) snakes are an often-misunderstood animal, and they play an important role in the functioning of a healthy ecosystem (i.e., education about snakes is intimately linked to broader goals about ecological education); and (b) snakes, and other nonhuman animals, are threatened by the myths and misconceptions surrounding them. Part of the role of education is to counter the popular discourse that helps shape and perpetuate negative attitudes toward snakes, to create new stories-to-live-by. Together, the setting, the audience, the educators, and the story being told—in both formal (e.g., a 30-minute curriculum on “misunderstood animals”) and informal (e.g., standing with a snake and engaging visitors in conversation) educational interaction—(co)create opportunities for adopting or resisting new stories about snakes.
Although the setting, the storytellers, and the story are intertwined and should not be understood to exist separately from one another, each is examined in more detail below.

**The Setting**

The setting encompasses a vast array of elements: the physical location of the site, the architecture of the building or landscaping of the garden or park, the décor of the location of the encounter, and the visual representations of snakes (and nature more generally) throughout the rest of site. Taken together, these elements form a visual display that serves to reveal or conceal (Prelli, 2006) a negative cultural evaluation of snakes and, more generally, to resist or reinforce the narrative of human control over nature (Rogers & Shutten, 2004; Stibbe, 2015).

For some visitors to a site, the location’s website or social media presence may be the first point of contact. The virtual arms of these educational sites run the gamut in their presentations, for example: erasing snakes by having them absent in their depictions, “masking” the snake by presenting highly stylized or abstract references to or images of snakes, and making snakes salient by foregrounding them in text and photography (Stibbe, 2015). How snakes are represented on the websites and social media pages is itself a case study in the tension sites face between attracting audiences and presenting an ecological view that might challenge them. One educator, Corrie, commented, “I don't think they [the online team of the site] tend to put snakes on Facebook because we've had, it's totally ridiculous, but we have had a couple people give us one star because we had snakes in the garden.”

Another point of contact, that often begins or concludes a visit to a site, is a trip to the gift shop. During my observations, gift shops received a lot of traffic. One location I visited had to create roped lines to gain entrance to the shop. Unlike the website, I did not observe any gift shop in which snakes were erased. However, the masking of snakes in gift shops by offering
highly stylized plush animals (e.g., a large pink snake covered in glitter), was a common practice and can be interpreted as another example of the *attract-challenge* tension. Field guides for identifying snakes, featuring naturalistic imagery and ecological information, were featured in all gift shops and donned phrases like, “STOP! Don’t Kill That Snake” (Heinrich & Walsh, 2018).

The housing of snakes throughout the site also has persuasive, material weight. Sites I observed ranged from parks and gardens “housing”—in which wild snakes were encountered in their natural environment—to enclosures with objects and imagery to emulate natural environment to rack systems (i.e., individual snakes kept in boxes or drawers in a shelving unit). Similarly, the configuration of the space in which the educational program takes place conveys meaning. Spaces can be naturalistic, such as a stop during a tour of a park’s grounds. Emily explains the value of such an encounter:

> Seeing it [a snake] out in the environment . . . I'm always scanning, looking, and if I can see it before the group, I'll stop them in advance and go, "Okay guys, we are about to see a snake." Then I let them get their jitters out. "Okay, but it's gonna sit here and we're just gonna look at it, and I want everybody—.” I'll give them a barrier, or just kind of a radius around so they can all just watch. And I'll say, "Oh, what is it doing? It's just looking at you." "Oh, look. It's slithering the other way," that kind of stuff. So I think it's very beneficial to see a snake in the wild and observe its behaviors to see that when 20 people walked by, it either sat there or it finally went the other way.

Spaces can also be “unnatural,” such as encounters that take place in a school classroom. While the setting may be conducive to priming an audience for learning, it is also an inherently anthropocentric setting. Gideon, who travels to present programs, describes how he tries to establish a more ecologically-minded display in such a setting:
When I go to places, I'll put [the show on] wherever they have it. It's not the ideal conditions. But what I try to do is, as part of my show, I don't just bring animals. I bring props as well. So, I'll bring artifacts. I'll bring plants. . . . I'll bring a paper wasp nest and show that off and talk about it. . . . Try and bring a little bit more nature to the classroom, 'cause it seems like it's such a sterile environment . . . . Even if your stage has natural plants and rocks and stuff like that, you're still bringing nature to the environment. I think people are more receptive and more in tune to what's going on. Because you're talking about animals, you're talking about nature. And they see it. And so people are learning by observation.

Through the depictions of snakes on virtual media, the representations of snakes in the gift shop, the enclosures in which snakes are housed, and the space in which the encounter takes place, the settings of educational encounters play a role in (de)validating the stories (co)created by the educators. Audience members also have agency in the telling of the stories. A classroom setting with an engaged audience may (co)create a more ecological story than a disengaged audience in the most naturalistic of settings.

The Audience

Audience members, understood here to be active co-creators in the storytelling process, do not enter the educational encounter as a blank slate. Nature programs, like the variety of widely-viewed documentaries produced by the BBC (e.g., Planet Earth, Life), allow people to see close-ups of snakes, putting the snake within “intimate” distance of the viewer (Kress & van Leeuwen, 2006), performing natural behaviors. At the same time, movies, television programs, Greek myths, novels, “old wives’ tales,” and the Judeo-Christian story of Original Sin often depict snakes as mysterious at best and sinister at worst. Audience members also come to the
encounter with their own family stories regarding snakes. One informant, Gideon, thinks historic metaphors generated the frames of snakes as dark and mysterious:

   Way back when, when this all got introduced thousands of years ago, if someone would have said, "Snakes are bright as sunshine," then you relate them to summer and beaches and stuff like that. The whole perception would have been that, come today.

   All of the stories and information audiences encounter before attending an educational event create presuppositions (Stibbe, 2015). These presuppositions influence audience members’ decisions about engagement with the snake and generate the rhetorical exigence for the story(tellers) to somehow draw audiences to the educators’ (perhaps) conflicting depiction of snakes. For example, during more than one encounter in which audience members had the opportunity to touch a snake, I heard people report not wanting to touch the snake because it would be slimy. However, the presence of a presupposition was not the sole factor in engagement decisions. In both participant observation and informant interviews, a consistent occurrence was audience members expressing surprise or even amazement at snakes not being slimy, which indicated that the audience members were attracted to an opportunity that allowed them to challenge their own presuppositions.

   Audience members’ willingness to challenge their presuppositions can be described as their level of conviction, how sure they are that the stories in their head are true or false, right or wrong (Stibbe, 2015). The level of audience members’ convictions plays a strong role in the storytelling process. One educator, Teresa, reported:

   There's some people who turn around and walk the other way... It's just like, "I've lost them. Can't do anything about it. You've chosen to not have this experience." There are adult negative reactions where you know it doesn't matter what you say; you're not going
to change their mind, like, "If I saw that thing in my yard, I'd chop its head off" or something similar.

In Teresa’s description, she mentions “adult negative reactions.” Although children were both observed and reported to also have negative reactions to the subject matter and presence of snakes, they tended to be more open to challenging their beliefs and willing to engage the new story and the snake. Lisa observed:

Kids are a little bit more curious. They at least like want to know what it feels like to touch the snake or they want to see what it looks like. Because many of them may not have even seen one in person. Whereas a lot of the time the ones who are, I know I'm being a little bit harsh but, throwing a fit are adults.

Another educator, Laura, illustrates how age, level of conviction, and affect interrelate:

Because generally with kids, you don't see that hate response. It's mostly with adults. Again, making generalizations. It's not all adults. . . . But usually with kids, it's mostly just fear . . . . They don't mind if I bring around the snake, but sometimes the kids will scoot back or say, "No, I don't wanna touch the snake." Yeah, I mostly just see fear reactions. . . . Actively wanting to kill the snake I would say would be hate as opposed to "Hey, I'm not comfortable being in the same room as the snake."

Sometimes, even seemingly strongly held convictions (as judged by exclamations of hating snakes, having killed or willingness to kill a snake) are not sufficient causes to prevent engagement. The rapport with the educator (discussed below) and the modelling of other audience members also appear to be influential factors. I frequently observed a domino effect of human-snake interaction. In one encounter I attended, I sat next to three young girls who were with a chaperone. The first three audience members, two adults and a child, passed on touching
the snake. The three girls seated next to me asked the chaperone if she was going to touch the snake. She said no, and then they asked each other if they planned to touch the snake. The one young girl who was interested in touching the snake vacillated between plans to touch and not. When the black ratsnake came to me, I gently touched him (we were told this snake was a “he”) and said, “Hi, you” to the eardrum-less reptile. He was mostly still, and when he flicked his tongue to sense his surroundings, there was no “ssssss” sound to be heard. All three girls then touched this particular Colubrid, and one of the girls—who had been hesitant to touch—smiled at me after she touched the ratsnake and said, “I like snakes!” After the instructors—snake and human—made their rounds, they went back to the first group to see if they changed their minds about touching, and they had.

Audience members enter encounters with many beliefs from an array of sources. For those with negative presuppositions about snakes, their level of conviction about these beliefs relate to their willingness to (dis)engage in the encounter. Beyond their own convictions, other audience members and the educator also influence audience (dis)engagement with the new story being offered. Next, we take a deeper look at the role of the educators in constructing new stories.

The Storyteller(s)

Through observation and interviews, the role of audience-centered human interpreters—the storytellers—emerged as a crucial element to (co)creating a new story of snakes that promotes ecosophy. Storytellers invite audiences into a new story by demonstrating respect for their audience, modelling positive interaction with a snake, and recognizing the agency of the snakes by positioning them as subjects and colleagues.
**Modelling respect.** Educators model respecting others by first respecting the audience. This includes meeting the audience where they are at—metaphorically—and being patient with the process of (co)creating a new story. In snake education groups on social media, this took the form of identifying pictures of snakes that have been killed by people, trying to provide the person education without provoking guilt or shame. One online educator, Asher, who belongs to a group that identifies snakes and immediately removes any scolding comments posted by other users on photos of dead snakes, empathized with people who are new to a positive, ecological view of snakes:

If I posted a picture of a dead snake, even if it wasn't a snake that I killed, and I had a whole bunch of people come in saying, “Oh, you shouldn't have killed it.” Or, you know, a whole bunch of, a bunch of angry and sad responses and stuff like that. I'm not going to come back. Why would I do that? I just got run off, run out of town from these people who think they're better than me, you know, because they happen to like snakes and I don't.

In person, educators modeled respect by offering audience members multiple options for engagement (e.g., "Can you touch the snake with one pinky? How about touching a snake shed") or disengagement (e.g., "If you need to leave the room for any reason, the door is over there" or "If you just put your hands behind you, I will know to skip you"). Sometimes, modelling respect was foregrounded while normalizing the snake was backgrounded. For example, in some encounters, educators would simply transition to the snake during the program as they had any other animal, which foregrounds normalizing the snake. In other encounters, educators would pause before bringing out the snake and talk with the audience about ophidiophobia, which foregrounds normalizing the fear some people may have.
Additionally, educators tended to use inclusive metaphors for the audience, such as “team,” “group,” and “friends.” Further, educators, both in-person and online, acknowledged the importance of progressing through the new story slowly and being satisfied with whatever progress was made. Rose described it this way:

Where you're just kind of accepting of whatever they give you, I feel like that breaks down any defense that they'll have where they might want to stop and be like, "Well, what does it feel like if I touch it?" And you're like, "It's gonna be smooth, it will be soft and smooth and a little cold to the touch." Then they're like, "hmm, okay." Instead of being like, "oh, don't you want to touch it? Come back and touch it." I think that's usually your best catch-more-flies-with-honey approach.

Both the virtual and in-person techniques seemed to enhance educators’ trustworthiness and help to create an environment where audiences felt comfortable engaging. On the boards of the social media groups, it was not uncommon to see users post a short story about their own transformation, from fearing snakes to appreciating them and sometimes to saving them. In these posts, users often expressed appreciation to the administrators and other people who identified snakes in the group.

**Modelling positive interaction with a snake.** Educators provided a model of a positive human-snake interaction. Even if someone chose not to touch a snake in encounters where that was an option, seeing an educator with a snake and watching as they co-existed peacefully could serve to disrupt many of the ideas with which some people enter the class. Irene, who has been designing and presenting educational programs for decades, stated:

I make sure everybody is prepared [for the snake coming out]. Because I think that's a big
help. And then when I take the snake out, I'm generally still talking. And I don't focus on the snake at all. I completely focus on the audience. And I've had lots of people tell me that the fact that I'm being so casual handling the snake pulling it out of the bag, and I'm not even looking at it; I don't look in the bag carefully as I reach in. It's just this very relaxed, confident, not-in-the-least-bit-concerned-that-this-is-anything-to-be-worried-about kind of experience. That gives them a higher comfort level. And so, I just try to let the snake just sort of slither around on me and wiggle and be itself, and let them see it while I'm talking about it before I approach them with it, and let them see that I'm perfectly comfortable with it; I'm not in any danger.

**Collaborating with snakes.** Carried by a human educator, snakes traverse a room filled with people, collecting information by flicking their tongues and carrying the chemical messages to their vomeronasal organs for processing. Whatever information they gathered, neither a strike nor bite occurred during any of the programs I observed.

Snakes serve as co-educators or partners in storytelling, providing a lived, embodied contradiction to their often-maligned depictions. Multiple educators referred to the snakes as their colleagues or partners, and many educators expressed preferring a calmer snake as storytelling partner.

So, I try to work with snakes that are more calm, just by nature. That way, I can focus more on what I'm trying to interpret to the public, and not have to look like a bumbling fool wrestling around with this animal. And it feels like people might get a misperception of what's going on, as far as, “Is the animal uncomfortable? Why are you handling it this way?” And all it's trying to do, that's just the nature of the beast. The more calm the animal is, the better I like to work with them. (Gideon)
Educators acknowledged that some species and individuals are naturally more active than others. A typically more active species of snake, like the milksnakes, tell the audience a story of the fascinating nature of how snakes navigate the world without limbs. However, that ability to traverse the world in a manner so foreign to human audiences, can also frighten and further Other the snake. As one educator joked, “That’s voodoo!” Less active snakes, and the way they are handled, may provide a sharper contrast to the image some people have of snakes. Rather than watching an educator doing a hand-over-hand to hang on to a snake (which may be more anxiety-provoking for people who fear snakes), seeing an educator and snake engage in a calm manner shows the audience a powerful counter example to something like the myths of snakes chasing after people. The preference for calm colleagues is another reflection of the attracting-challenging tension.

The Story

Although author, audience, and ambiance are all entangled, integral parts of the story, it is informative to focus on the specific techniques used to weave new tales about snakes. The alternative stories about snakes offered in snake education programs craft an ecological narrative, use body-mapping activities to create embodied linkages between people and snakes, are the result of deliberate word choices, emphasize the importance of being able to identify species of snakes, and offer the unique opportunity to touch the main character of the story.

Constructing an ecological narrative. Snakes are often discussed as part of a larger ecological narrative. Educators will talk about the role snakes perform in their natural habitat:

So what I hope is that folks realize that snakes play a very important part in any ecosystem in which they belong. Snakes contribute hugely to ecosystems. On the one hand, they control rodent populations because that's what many snakes eat. On the
other hand, they're providing food for other animals, so you know in any given ecosystem there is a balance of, you know, who eats who and who eats what. And so snakes play a vital role in that balance. (Kara)

Another educator, Emily, would tell visitors to the garden where she worked that some creatures ate the plants there, and without snakes to keep those populations in healthy numbers for the ecosystem, the plants may not be able to survive. She reported telling people who were surprised to see snakes at the garden and even asked to have the snakes removed, “Well, if we had 80 acres and no snakes, we'd need to be concerned about how healthy our 80 acres are.” Here, there is a reciprocal relationship indicated between appreciating snakes and ecosystems. The educator used an audience’s existing appreciation of a nature-scape to protest the construction of snakes as an unwelcome presence and to introduce snakes as ecological agents.

Providing body-mapping activities. Educators make use of "body-mapping" activities that relate the audience's bodies to the snakes’ bodies. Some of these activities serve to make the snake more relatable (e.g., describing that one reason we don't touch the snake's face—beyond human safety—is because most creatures don't like having fingers pointing in their face and asking audience if they like fingers in their face). Other activities serve to illustrate how remarkable snakes are in their own right (e.g., asking audience members to hold their nose, stick out their tongue, and then tell the group what they smelled with their tongue).

One program I attended provided a thought experiment to help audience members consider life from a venomous snake’s point-of-view. In this encounter, the instructor, Katharine, asked audience members to imagine there were no grocery stores, and they had to hunt their food. Their three options for getting food were to thrash another creature until it died, to constrict a creature and wait for it to die while risking being scratched or bitten, or to do a quick strike and
inject a toxin. The last option came with the addition that before dying some envenomated creatures would return to a nesting site where other creatures-for-food could be found. Although I frequently heard people label nonvenomous snakes like ratsnakes “good snakes” and venomous snakes “bad snakes” during my observations, this exercise had many audience members confessing they would prefer to be a venomous snake. Inviting the audience to “think like a snake” via body-mapping activities serves the function of encouraging audience members to challenge their own ideas about snakes by creating moments for empathic understanding.

Evaluating word choices. Educators are purposeful in the language they use when describing snakes and interactions. One educator, Ann, goes so far as to provide individual, animal-centric life stories about the nonhuman creatures she rescues and rehabilitates. Through her posts on social media, Ann tries to communicate, “This is an individual animal that's going through his day like we are. He's not out to hurt anybody.”

Even when life stories are not involved in the educational encounter, educators are mindful of their word choice. Referencing the snakes as “friends,” “co-workers,” or “partners,” provides a positive frame and affords the snake agency (Stibbe, 2015). Striking and biting behavior is labelled “defensive” rather than “aggressive.” Similarly, every educator, observed or interviewed, took ownership for any snake bite that occurred (even when musing about hypothetical bites), each echoing the same “That was my fault” phrasing. This emphasizes the role of educator responsibility and foregrounds the respect that needs to be afforded to their snake colleagues. As described by Olivia:

I should know and not push that boundary or truly I should be more observant and really be looking at them because they almost always give you cues. Like, “Hey, that's enough here” or “I'm not really feeling that today.” It's my responsibility to be able to see those
and notice my animals’ happiness.

However, *de facto* assignment of blame for a bite in an interaction could function to remove some agency from the snake by denying the snake’s role in the interaction. As one educator put it, “So I feel like saying it's not the snake’s fault, cause yeah it is, cause the snake bit you, but you have to take into consideration that it's an animal, and it's probably reacting instinctually.”

Accepting responsibility or denying agency, placing the blame on the educator is also a way to further the new story, the counter narrative, that educators are trying to tell. Explaining to an audience that the bite is the human educator's fault is a way of communicating that the bite was not evidence of some malicious act by the snake:

Kids often ask, "Can the snake bite?". . . I often joke, especially if it's a little kid, "But you could also bite me if you wanted to, right?" And they look at me, and I'm like, "Please don't, but you have a mouth, and you could bite." The snake has a mouth, it could bite. But I'm gonna make good choices. I'm gonna try not to smell like food for the snake. And I am handling it, and this one's been here a long time, so he's not scared. So, we should be good. We talk about snakes usually bite for food or if they're scared. So, if those basics are taken care of, we should be okay. (Marie)

Despite emphasizing human responsibility in the human-snake interaction, Teresa cautions that the goal of these educational conversations is not to paint a picture of snakes as benevolent or malevolent creatures. “Snakes aren't bad. Snakes aren't evil. Snakes aren't inherently anything. They're an animal that serves a role in its ecosystem,” reported Teresa.

**Emphasizing identification.** Identifying snakes is a major part of snake education, as well as in other areas of biological education and conservation (Milstein, 2011). A very large
social media group is dedicated solely to identification, while many in-person programs also feature identification objectives. Learning to identify snakes is a way to help assure audiences—reduce the fear of the unknown—and is also a way to invite audiences to think deeper about snakes. Rather than thinking "snakes are _____ [any universal claim],” identification begins to get audiences to realize that snakes are not a monolith. For example, visitors walking by a wall of enclosed snakes often pointed to the ratsnakes and kingsnakes and labelled them “good” snakes to others in their groups, as they recognized these snakes and the niches they fill.

Identification was frequently discussed as a tool for engaging the audience in a story about snakes, as identification has the direct human-benefit of giving people the knowledge to assess the danger level of a particular snake encounter. Asher and Corbin described a sense of agency and confidence people feel when they learn to differentiate snakes in their community. The ability to identify a snake in the wild was a way to reduce fear, even if that snake happened to be venomous, because knowing what species the snake is relieves the ambiguity.

Although identification may begin as a way to introduce people to snakes for the person’s benefits, educators hope identification leads to differentiation—getting people not to see “snakes” but to see species. Likening snakes to a typically beloved member of the nonhuman animal kingdom, Corbin stated that he hoped visitors to the board, and people more generally, would be able to identify snakes as well as they can identify dogs. He described identification as a gateway to caring about snakes and the beginning of ecological mindedness (or, in the terms of ecolinguistics, an ecosophy), “I think it [identification] does help them to care more about snakes, even if they don’t realize it.”

Touching moving characters. Many educators and educational settings offer an opportunity to touch (and in some places, hold) a snake as a way of using tactile sensation to
help bond to an animal and to offer a material, embodied, lived contradiction to ideational myths surrounding snakes. The snake is both the co-author and character of the story being told, and audiences are presented with a unique opportunity to engage—to literally feel—the star of the story. The embodied experience of touching a snake and having a safe experience while doing so affords audience members the opportunity to contradict, for and from themselves, assumptions or myths they may have had of snakes:

They didn't know that snakes weren't slimy. . . . So, something that they didn't know before that is something positive in light of their interaction. So, they learned that snakes aren't slimy, so now they think of them a little differently. (Irene)

Malcolm concurred:

A big misconception that people have with snakes is that they're slimy. I take advantage of having the animal there. I have them there. That's the touch interface, which, especially young children, they realize that it's, "Oh. It feels so different than I thought it would. It's dry. It's smooth. The smooth scales, it's a different sensation than I thought it would be.

In addition to countering misconceptions, educators express hope that the tactile experience takes the (co)created story a step further:

I think the touch really kind of seals that connection with this creature. And so, my goal, my hope, is that you know these children that are touching the snake or even adults depending on the program can then go out and have if in fact they do encounter a snake or maybe somebody they know encounters a snake that you know that the first response isn’t, “Oh I have to kill it or oh I have to be scared of it. Oh it's going to kill me and it's
going to chase me down. And it's so dangerous.” . . . It [the touch experience] . . . presents a little bit of pause and space to maybe think about the situation and what this animal is and what it does. (Kara)

The opportunity to touch thus presents a unique storytelling component in snake education: the ability to realize, sensorially, the message of the story.

**Discussion**

One goal of snake education is to create new stories about snakes that counter the popular discourse of snakes as mysterious or dangerous. The creation of new stories exists where the interdependent agents of educators, audience, story, and setting intersect. Through the information gathered from participant observation, interviews, and textual analysis, I illuminated some ways in which these agents assist or resist the creation of new stories. In this section, two of the major contributions of this analysis are discussed: first, an explication of the attract-challenge tension; and, second, the exploration of what is afforded when a nonhuman animal is discussed primarily as an ecological—as an opposed to an individual—agent. Finally, I discuss some limitations and suggest future directions for research in the area of snake communication and education.

**Attract-Challenge Tension**

Crafting a new story about snakes involves negotiating a difficult tension of attraction and challenge. The setting, audience members, and educators come together to co-create this new story; thus, a crucial step in telling a new story is attracting audience members. Without an audience, the educators and the setting cannot create a new telling of the snake story, the story that is not being told: the stories are *for* the audience members to engage with and, the educators hope, pass on to others.
Well-thought stories delivered by communicatively-skillful educators in inviting settings can provide an engaging story for audiences. Consistent with previous research (Morgan & Gramann, 1989; Roe & McConney, 2015), educators emerged as more than interpreters of snakes and the natural world; as storytellers, they served as a bridge between the existing stories about snakes and the new ones they co-created in encounters. Educators can communicatively open dialogue (i.e., attract audience members to new and challenging stories) to seemingly intractable problems, such as a fear or hatred for another living being.

Educators emerge as credible storytellers through their attractive—that is, inviting—and respectful method of storytelling demonstrated through multiple communication skills, such as offering affirmation (e.g., “I understand. My father is also afraid of snakes”), asking clarifying and furthering questions (e.g., patiently engaging in active listening), projecting an attitude of non-judgment (e.g., making eye contact while audience member relays a story about his brother killing a snake in the family’s yard), and calmly using “I” statements to introduce challenging statements (e.g., “I love seeing snakes because they are so important for our ecosystem”). These communicative practices invited audience members into the process of crafting a new story, rather than establishing the audiences as fixed agents of the old, destructive stories for snakes. Further, such practices helped the educators to gain credibility and rapport with their audience, which afforded educators the opportunity to challenge the existing stories and to make adaptations to the story based on the thoughts and beliefs expressed by the audience (e.g., offering to bring out the shed skin of a snake for someone with a phobia of snakes).

Educators refrained from overt criticisms and instead provided soft challenges to existing, negative stories. Educators offered a model of respect by countering but not confronting audience members. For example, if someone proclaimed that snakes are evil, educators did not
label the assertion as “bad” or “wrong.” They used “I” language to state their reasons for valuing snakes. Online, strict rules are established for message boards about how members post or virtually react to photographs of dead snakes, making sure not to condemn the individual who posted the image. Through this respectful dialogue, educators and audiences co-create a positive communication climate that is more attractive to return to for more information, more encounters, more exposure.

Snakes, themselves, provided more direct challenges to the hegemonic narratives about their essential characteristics, motives, and symbolicity. Through their controlled, and often calm, movements, snakes presented as creatures one would describe more as “curious” than “devious.” Together, the human and snake educator team told stories of snakes that challenged popular discourse by emphasizing their ecological role, provided “bodymapping” activities that afforded the opportunity to consider a snake’s embodied perspective, used purposeful word choices to increase the salience of snakes while decreasing their stigma, centralized the importance of accurate identification of snakes, and provided an opportunity for audience members to touch the main character of the snake stories.

Educators in this investigation worked to negotiate the attract-challenge tension through the needs and strategies they discerned to be the best for a particular audience. Audience members have the agency to adopt or reject the story they co-create with an educator, so it is incumbent on educators to be mindful of their audience’s responses to what they are doing and saying. Sometimes, attraction was emphasized and was practiced largely through respecting the positionality of audience members. If educators felt challenging an audience member meant alienating her or him, they opted for respectful, attractive strategies. This was echoed in educators’ statements of valuing “baby steps” with audiences through gradual desensitization.
Other times, educators would emphasize challenging the audience through discourse and practices that served to normalize snakes, snake behavior, and peaceful human-snake interaction.

Finally, the setting helps balance the attract-challenge tension when it assists the creation of new stories by offering naturalistic, non-threatening depictions of snakes. Educational settings tended not to sell or display images of snakes in a threaten(ed)/(ing) posture, which—had they been displayed—could serve to exacerbate the sense of risk from snakes. However, highly stylized snakes (including cartoonish, colorful, glittering plush toys) were for sale in multiple sites. Stibbe (2015) refers to such representations as “masks,” in which “something important” is erased and replaced with a distorted version of itself. The plush animals are eye-catching, and they do portray snakes in an alternate fashion to “dark and mysterious”—and these soft and shiny depictions play a part in attracting (new) audiences to snakes; however, at the same time, they distort the snake and offer a “cute and fluffy” depiction, which contrasts sharply with any lived exposure an individual will have with a breathing, scaly serpent. The plush snakes are one example of the on-going attract-challenge tension, in which educators and educational sites try to attract an audience to engage in a new story about snakes and provide information that challenges their pre-existing beliefs.

**Ecological-Individual Tension**

One method for attraction not commonly employed by many snake educators is the use of naming the snake and telling individualized stories. The choice of whether or not to name a snake is fraught with ethical implications. On the one hand, naming runs the risk of engaging human-centric anthropomorphism, as opposed to critical anthropomorphism, which could serve to mask the reality of the snake and reinforce the human domination over nature paradigm (by imposing *our* names on the snakes), not unlike the pink plushies. Indeed, from one perspective,
all names are inherently anthropomorphic, or at the least, anthropocentric. For example, the milksnake was so-named because it was believed that the snakes found in the barn were drinking milk—they were actually eating the mice and rats drawn to the barn. Even scientific names valued for “objective distance” are anthropocentric: A newly discovered species of snake found in the stomach of another snake was named *Cenaspis aenigma*, which translates to “mystery dinner snake” (Solly, 2018), and the snake’s identity is only a mystery to a human seeking to categorize the snake.

On the other hand, names help situate the snakes, as living agents, in the stories being (co)constructed about them. Burke (1957) told us that the act of naming helps us understand how we should feel about a situation; names help us decide what attitude is appropriate. Names help audience members make a connection to nonhuman animals (Milstein, 2011; Newberry, Fuhrman, & Morgan, 2017). This was evident to me when, during the course of my observations, one educator posted pictures of a snake that died from injuries sustained from a person hitting her with a shovel. Although photos of dead snakes abound on social media and go largely unnoticed, the educator gave this watersnake a name, Faith; in less than a week of the original post, Faith’s story had been commented on over 1200 times, shared hundreds of times, and received numerous emoticon reactions.

Naming has the power to individualize the snake, to help audiences make a connection with the animal, to increase the salience and agency of the creature (Stibbe, 2015). Milstein (2011) explored the power of naming and identifying orcas. She wrote that “whale insiders” (what I might call whale educators) and wildlife tourists (audiences) used identification and naming to mark the orcas as unique individuals, as complex, as subjects-of-a-life with intrinsic value, and to (re)create connections between the animals and humans. However, Milstein also
found that the individualizing work of identification often came at the expense of generating a larger, ecological story. She wrote that whale insiders could have greater influence if they integrated an ecological-individual dialectic in their work, “emphasizing both the collective and entity, both interdependence and uniqueness” (p. 19).

The snake educators in this investigation serve as the yin to Milstein’s yang by showing how the ecological lens can constrain the agency of the individual. Although educators typically reflected on the goal of getting people to see each snake as a living, breathing individual, snakes were mostly positioned in stories through their role in the ecosystem. Perhaps educators can better facilitate appreciation of the intrinsic worth of each snake colleague by attending to the other side of Milstein’s tension and engaging more of the individual in the ecological-individual dialectic in educational programs.

Future Directions

There were constraints in the process and limitations in the analysis of this exploration. I collected more data on the many facets of snake communication and education than could be adequately represented in a single article. Relatedly, in representing the scene of snake education, some of the nuance inevitably gets lost. Many of the insights from textual analysis and online observations got sidelined to create an initiate, fuller portrait of snake education. Even within the embodied observations and interviews, some distinction among educators and sites did not come through in this article. For example, a few educators with whom I spoke and observed do engage in naming and personal storytelling practices, but it was an uncommon practice, particularly among the larger sites that reach the most audience members. Further, except for one site in Utah and the diverse localities represented in the online snake groups, all sites were on the East Coast, neglecting the landlocked United States and West Coast. Milstein’s
(2011) finding of the individualizing nature of whale education took place on the western seaboard, and it could be productive to see what the scene of snake education lining the Pacific looks like and how it relates to Milstein’s findings.

Future studies should look at the interplay between the ecological-individualic (Milstein, 2011) and the attract-challenge tension. Finding case examples in which educators have balanced attraction and challenge and messages of ecology and individuality could provide an illuminating example of constructive ecolinguistic discourse and ways to foster positive ecosophy. Additionally, an ethnographic exploration focusing on the embodied, performative practice of snake education, and comparing and contrasting such acts to other snake displays (e.g., as part of a “side show” or as part of the religious practice of “snake handling”), could speak to the idea of communication as transcendence (Shepherd, 2006) and help us understand what practices are most conducive to helping audiences see snakes differently. Further, textual analyses of the stories told about snakes could shed light on the mechanisms that (re)create the dominant negative course. Textual analyses of negative case examples and how they circulate—such as the story of Faith—could also provide insight into how ecosophy can be afforded through a well-crafted story.

It is possible to transcend communicatively the fear and disgust felt toward snakes through the discursive and material, emotional and cognitive, deliberate and patient storytelling process of snake education. Roderick Hart (2002) wrote that “to reword the world is to remake the world” (p. 72). Each educational program is an opportunity for educators, audiences, stories, and settings to retell the story of “snake.” Maybe, as one educator mused, snakes will someday come to be associated with sunshine, something in which both snakes and humans love to bask.
REFERENCES


CHAPTER THREE: CONCLUSION

In Chapter Three I elaborate on the future directions offered in the journal article and conclude with a retrospective on the process of this study. Future directions explain both other analyses and articles that are possible from my data, and provide direction for other studies that could shed light on snake education, specifically, and, more broadly, communicating a positive message about a topic that is often met with fear and disgust. The retrospective portion of this chapter discusses some meaningful moments during the process that helped me grow as a qualitative and ethnographic researcher and provided insights into my ontological, epistemological, and methodological positions.

**Future Directions**

The richness of the data collected exceeded what could be analyzed and presented in a single journal article. Snake education emerged as an area ripe for exploring how fear, disgust, and hatred interrelate and influence our interactions. Educators made distinctions between how those emotions manifest in audience behaviors, although they differed on whether it was easier to work with fear or disgust, while agreeing that hatred was particularly challenging. Whereas fear and disgust are both considered basic emotions that have protective values (Randler, Hummel, & Prokop, 2012), hatred was found to be more complex and presented as more rigid. While some educators offered the popular thought that hatred was linked to fear and the unknown, other educators reflected on their experience of when they were afraid of snakes but never hated them. Further analysis of my own data, in conjunction with the collection of interviews from audience members, could yield valuable insights on how we “learn to hate.”

As a site of human-animal interaction, a video ethnography specifically looking at the bodily interactions between humans and snakes would be beneficial in shedding light on the
process of internatural communication. Snakes do not possess the skeletal muscles to make facial expressions; they do not (cannot) blink, and they cannot make gestures with their limbs. Snakes are interesting creatures to communicate with because they push us out of our comfort zones as communicators. However, educators who frequently handle snakes find them to be transparent and honest communicators. One educator, Lisa, said she can read snakes more easily than she can read a cat. Irene said that snakes are quite easy to read once you “know what you’re feeling for.” Lisa’s comment indicates that snake behavior (e.g., muscle tension, contraction, extension, head and body positioning, and tongue usage) are possible points of human-snake communication, a much more tactile, sensorially-engaged form of communication.

Another area of my research that warrants more investigation is the role of snake education via social media, as well as media culture more broadly (e.g., television and film). How do these mediated expressions of and reactions to snakes relate to offline encounters of live snakes? One Instagram account that a few educators mentioned to me features regular videos and photographs of a handler filming himself as he handles venomous snakes without tongs, allowing them to traverse his bare arms. While these videos may be effective rhetorical disruptions to the “venomous snakes are bad” narrative, they are potentially dangerous in an era of social media challenges (e.g., Tide Pod Challenge, Bird Box Challenge).

Finally, the insights from this thesis could help understand and explore other communicative phenomena. Any of the more maligned nonhuman animal species, as depicted in Western culture, could provide valuable examples of how we Other others and how these depictions become the stories-we-live-by. Such information holds promise to help not only misunderstood nonhuman species but to help us traverse the waters of intercultural communication, another site in which we tend to engage in Other-ing.
Personal Reflections and Lessons Learned

A professor with whom I studied while pursuing my MSW degree, said, “When might you do a qualitative study? When you do not have time to do a quantitative study.” Randomized, controlled trials are the gold standard (and you can reach platinum status if the study is also double-blind) of social work research. For years, I believed that qualitative research was the easier and faster way to do research, and that its primary purpose was to serve as a precursor to a well-designed quantitative study.

Then, qualitative methods entered my life.

Fieldwork was fun—exhausting fun, but also exhilarating. My fieldwork took me to amazing places. As I listened to my recordings, I was delighted to hear an educator interrupt her sentence to tell me there was a deer standing behind me. Shortly after our interview ended, she texted me saying she found a ratsnake near one of the buildings and I should come take a look. Fieldwork was a lived experience, a living experience.

In two of the sites I visited, I was environed—surrounded—by nonhuman animals. One site serves as a sanctuary (taking in predominately injured and abandoned animals from the exotic pet trade) that partially raises money through public visitation. Although that sounds like a typical zoological park, albeit with injured animals, this site puts a different spin on the experience. When I pulled into the parking lot, I was greeted by a large, friendly, and uncontrollably fluffy dog at my car. He walked with me to the entrance. As I went to meet the educator, two kangaroos stood just off the path where I was walking, munching on some brightly-colored flowers that clearly had been planted with care and were now being consumed with abandon. After the interview, as I walked back toward my car, the two kangaroos approached. One of the staff was there, and as one was clearly hopping right up to my leg, I
asked if I could pet. She said yes and illustrated for me what to do if started to box with me. “Spread out your arms above your head, and be the bigger ‘roo!’” Thankfully, I did not have to be the bigger ‘roo. However, the approach was quite unique: Teach the people how to act around the animals. There are certainly animals they keep in enclosures, for both the visitors’ and animals’ safety, but animals that can safely roam the grounds, like a club-footed emu or large tortoises or peacocks, do. Not every visitor enjoys such an encounter, and there are some public reviews on various websites chastising the site for their free-roaming nonhuman animals. Such reviews are interesting examples of the discourse of human domination and control of nature and would themselves be an interesting area of investigation, particularly comparing them to reviews of traditional zoos in which we gaze at enclosed creatures (Milstein, 2011) and never have to be confronted by a curious kangaroo.

The science and nature centers I went to often evoked an emotional response from me. Signs proclaiming, “The only good snake is a live snake,” “Remember, this is their home,” and “Do not harass or annoy the wildlife [next to a picture of a snake]” were striking in their bold narrative about who has the most villainous agency in the human-snake relationship.

I spoke with people who were genuinely excited to be interviewed. I was humbled by their eagerness and generosity. When I was nearing saturation, I stopped asking my participants about other educators with whom I could speak. Still, I had to turn down interviews, as some of my participants reached out to their colleagues anyway to tell them about our conversation. When their colleagues expressed interest, the participants provided my contact information, and the colleagues emailed me wanting to be interviewed. I joked to my spouse about not considering how I would protect my privacy in the IRB protocol. Of course, I was actually overwhelmed with gratitude to be receiving such a reaction. It told me that I had well-founded feelings of rapport.
with my participants and belief that the interview process was providing a rewarding experience for both parties. I fear this study has spoiled me and that I will be less equipped to deal with more difficult-to-recruit participants in the future.

During the fieldwork, I came to understand—in an embodied and lived experience sense—the role of reflexivity in ethnographic research. Reading about being reflexive in ethnographic research is one thing, and a logical thing at that. However, enacting that reflexivity is much more nuanced, and rewarding, than I predicted.

The best example of both the role and rewards of reflexivity came during an interview. One participant asked me to meet her at her site, and then we would ride in her car to a coffee shop. On the way to the coffee shop, I shared with her some of the insights coming from previous interviews and observations. I did this for at least three purposes: (a) to allow for theory testing through member checking, (b) to establish rapport with this educator with whom I had had no prior contact and hopefully generate some confidence in her that she could speak directly with me, and (c) to make conversation with a new acquaintance while we were alone together in a car. During the interview, there were moments when she was silent, and I found myself rambling at times to fill the air. I was concerned that I had asked an inappropriate question or stated something so painfully obvious to anyone who worked with snakes that I undermined my credibility and risked losing her candidness and inviting her to feel the experience was a waste of time. When we got back in her car, she apologized for the moments where she seemed distracted. She said that my telling her about the previous interviews got her a little intimidated, as she imagined I was speaking to people with doctorate degrees in herpetology and that she might not have enough expertise to contribute. I thanked her for her candidness, shared with her my
concerns that caused me to ramble, and we went back to the site and had a lovely continued interview while touring the grounds.

That experience was an invaluable learning opportunity. My thesis did not end where I thought it would when I began. At first, I thought I was doing a study on the benefits of in-person encounters with snakes. However, I quickly learned that that was my imposition on what constitutes “snake education.” Most humorful (in retrospect), in my perspectus I stated that taking a grounded theory approach did not mean going into the field without due diligence to information about which I should be aware, and, not wanting to be corrected by my own data later and so looking for the most “obvious” and “universal” example possible, I gave the example of going into snake education knowing that snakes did not have legs. During the first presentation I attended after submitting that prospectus, an educator showed the bone spurs on a ball python that are the remnants of their legs. She then stated, “So, if people tell you snakes don’t have legs, you can say, ‘Yes, they do. Just not like we think.’”

I so appreciated that the rapport developed during the interview allowed for meta-communication about the interview and gave us the opportunity to understand the positions from which we were approaching the conversation. The moment in the car with that participant was my first real feeling that although I was not engaging in a study with the traditional social science understandings of reliability (partially because the activities only occur once and partially because my position is that there exist multiple, dynamic, social realities), and validity (rather than seeking accurate measurable documentation of phenomena, I strive to achieve an insightful and useful interpretation; cf. Lindlof & Taylor, 2019), I was conducting a methodically rigorous study that was producing credible data. By engaging in semi-structured interviews and being reflexive about the process of interviewing, I obtained information that would likely have
gone unreported on a survey. My participant could have had the same concern filling out a Likert scale—"what if my responses stand apart from the others?”—but the interviewing process allowed the space for her to vocalize that influence on her answers.

I enjoyed the process of discovery, of reflexivity, in the field. Then, came data analysis. It was exciting to see themes emerge, and it was also an overwhelming time. Before coding, I let the data wash over me, much as one might approach reading an almost-incomprehensible James Joyce novel. The iterative process of broadening and bounding my scope, while knowing that things—important things—will always be left out, was, and still is, frustrating. I became acutely aware of how my writing would be revealing some things while concealing others (Prelli, 2006), and that so many of the insights gained from the process of interpretation would go unreported. I became very aware of how my work was an, not the, interpretation of the events I witnessed and discussions in which I partook. During my most overwhelmed moment, wondering how to parse through the expanse I had entered, I said to myself, “You also did member checks all along. You really don’t have to do another round of checks at the end.” It was not that I was growing lazy or tired; it was that I was scared I could not both present a fair summary of my findings and also produce a useful interpretation—and that the educators and other readers would see this.

Nevertheless, I persisted. With each round of coding, I felt more confident in my footing. Lindlof and Taylor (2019) describe the human body as the qualitative researcher’s instrument, and I was most acquainted with this idea when I got a jolt of excitement at the prospect of sharing my findings with my informants. I had come out the other side of the data analysis forest.

Returning to the question posed at the beginning of this section—when do you do a qualitative study? It is certainly not when you looking for answers quickly or easily. Beyond that, the answer to the question depends on your ontological and epistemological assumptions,
and certainly on what questions you are interested in asking. For me, I see the social world as constructed through vast networks of communication, and I am drawn to questions of “how.” How did we get here, and (if here is not where we want to be) how do we go somewhere else? The questions I am drawn to and the ways in which I seek to understand the world call for explorations into “natural,” taken-for-granted communication acts and their sites of resistance.

The questions I ask are difficult to articulate, hard to put into words to ask an informant or state eloquently for a reader. They are hard for my participants, inviting them to be introspective about everyday activities. They are hard for me, as I exhaust my energy engaging in reflexivity, exploring the schemas and heuristics developed to help me navigate the day more efficiently. And, they are worth the struggle. What could be more interesting, exciting, and important than coming to grips with lived experiences?
APPENDICES
Appendix A

*Close Encounters of the Animal Kind*

*Cynthia Rosenfeld*

*Dr. Elizabeth Craig*

**Observation Guide**

**Introduction to Animal Educator**

“Hi __________, I’m Cindy. You may remember me from the email concerning the study of human-snake interaction. If it’s OK, I would like to sit in on your presentation today and take notes on how you present the animals to the public, especially the snake. I will not be doing any recording and will not use your name on any of my notes.”

**Observation Guide**

What animals are presented, and how are the animals discussed?

Do members of the public have the opportunity to touch any of the animals? Which ones? What rules are there?

How does the animal educator interact with the animals?

How does the animal educator interact with attendees, including negotiating fear or other emotional responses to the animals?

How does the presentation of and interaction with the snake compare and contrast with the introduction of and interaction with other animals?
Appendix B

Close Encounters of the Slithering Kind

Cynthia Rosenfeld
Dr. Elizabeth Craig

Interview Format

Introduction
[Go over the Informed Consent Form with the interviewee]
The purpose of this interview is for us to understand how animal educators communicate with and about animals in animal encounters for the public to foster a connection between the audience members and snakes. snakes.
I will start providing you some information on this interview format and then by asking you some questions about your interaction with the public and the snakes at [NAME OF SITE] snakes you present.
I will be recording your answers on this digital audio recorder / mobile phone, but all of your responses to the interview questions and survey will be kept confidential, and you are free to stop the interview at any time if you have concerns or do not want to continue.
Do you have any questions about the Informed Consent form?
[Begin recording]
The audio recording is now on. Do I have your consent to record this interview? Thank you. [Turn to the next page to begin the interview.]
Part I: Your history as an animal educator

In this first part of the interview we will be discussing the types of animal encounters in which you are involved.

1. In your own words, how would you describe your work?

2. How did you learn to handle snakes? Are there specific guidelines you follow?

3. Have you always liked snakes?

Also: role of technology in programs; what makes a good ambassador animal/snake? Encourage touch?

Part II: Interacting with the snake

In this next section of the interview, I will ask some questions about your interaction with the animals.

4. How do you feel when you work with the snakes?

5. What do snake presentations mean to you?

6. What, if any, benefits do you see for the snakes being presented to the public? Any harm?

7. How do you and the snake(s) prepare for an encounter; what happens before the public encounter?

8. What behaviors or signals guide your perception of how the animal is feeling during an encounter? How do you make meaning of the animals’ actions?

9. How do you handle a snake that has become stressed during a presentation?

10. How does your interaction change depending on the snake with which you working?

11. Could you tell me about a time you had to handle an unanticipated animal behavior and what you did?

Part III: Interacting with the public

In this next section of the interview, I will ask some questions about your presentation to the public.

12. What do you hope people take away from their snake encounter?

13. How do you try to achieve that goal?
14. What do you believe is important for people to know about snakes?

15. What do you do when a person is frightened by a particular animal?

16. What are some of your favorite moments from education programs you’ve presented? What was a moving encounter you had? Was there an encounter that left you sad, and if so, why?

17. What, if any, benefits do you see for the people attending the program? Any harm?

18. How do you think animal encounters impacts attitudes towards conservation?

*That concludes the interview questions. Do you have any additional thoughts or comments on my project?*

*Thank you very much for participating.*
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